JOURNÉES 2017 du Centre Hépato-Biliaire

VENDREDI 9 & SAMEDI 10 JUIN

Chirurgie	Hépatologie	Radiologie
9-10 juin	*9 juin*	*10 juin*

HOPITAL PAUL BROUSSE
Centre Hépato-Biliaire

Chirurgie

9 – 10 juin

Organisateurs :
René ADAM, Denis CASTAING,
Daniel CHERQUI, Antonio SA CUNHA,
Eric VIBERT

LIVRE DES RÉSUMÉS

www.journees-CHB.fr

ORGANISATEUR SCIENTIFIQUE
Centre Hépato-Biliaire, Hôpital Paul Brousse
14, avenue Paul Vaillant Couturier
94804 Villejuif Cedex, France
www.centre-hepato-biliaire.org
chb.congres@pbr.aphp.fr
+ 33 (0)1 45 59 34 11

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Journées de CHIRURGIE DU CENTRE HEPATO-BILIAIRE

9-10 juin 2017

Centre Hépato-Biliaire

VENDREDI 9 JUIN

08h30 Accueil des participants

09h00 **Bienvenue**
René ADAM (Villejuif)

09h05 **Quoi de neuf dans les tumeurs primitives du foie ?**
Eric VIBERT (Villejuif)

09h30 **Vidéos de techniques chirurgicales**
Modérateur : Daniel CHERQUI (Villejuif)
Vidéos longues d'hépatectomies, de chirurgie biliaire et pancréatique
Discussion interactive des détails techniques avec les participants

10h30 Pause

11h00 **Conférence de l'invité d'honneur**
Michel RIVOIRE (Lyon)

11h30 **Vidéos de techniques chirurgicales**
Modérateur : Eric VIBERT (Villejuif)
Vidéos longues d'hépatectomies, de chirurgie biliaire et pancréatique
Discussion interactive des détails techniques avec les participants

12h15 **Flash de l'Industrie**

12h30 Pause déjeuner

14h00 - 16h00 Tumeurs des voies biliaires
Modérateur : Denis CASTAING (Villejuif)

▪ Cholangiocarcinomes hilaire et péri-hilaire

14h00 **Quand est-il résécable ? Quelle préparation pour l'intervention ?**
Oriana CIACIO (Villejuif)

14h20 Discussion

14h30 **Quels sont les traitements disponibles ? Quels résultats ? Comment faire le choix?**
Daniel CHERQUI (Villejuif)

14h50 Discussion

▪ Cancers de la vésicule de découverte fortuite

15h00 **Fréquence, comment les dépister avant l'histologie ?**
Boris TRECHOT (Villejuif)

15h20 Discussion

Journées de CHIRURGIE DU CENTRE HEPATO-BILIAIRE

9-10 juin 2017

Centre Hépato-Biliaire

15h30 **Quel traitement en fonction du stade histologique ?**
Andrea LAURENZI (Villejuif)

15h50 Discussion

16h00 Pause

16h30 **Métastases hépatiques de cancer du sein : y a-t-il une place pour la chirurgie ?**
René ADAM (Villejuif)

16h50 Discussion

17h00 **Quoi de neuf dans les cancers du pancréas ?**
Antonio SA CUNHA (Villejuif)

17h20 Discussion

17h30 **TIPMP : Quelles sont les indications chirurgicales ?**
Gabriella PITTAU (Villejuif)

17h50 Discussion

18h00 Fin de la 1re journée

SAMEDI 10 JUIN

08h00 Accueil des participants

08h30 **Quoi de neuf dans les métastases ?**
Nicolas GOLSE (Villejuif)

09h00 **Vidéos de techniques chirurgicales**
Modérateur : René ADAM (Villejuif)
Vidéos longues d'hépatectomies, de chirurgie biliaire et pancréatique
Discussion interactive des détails techniques avec les participants

10h30 Pause

11h00 **Quoi de neuf en chirurgie biliaire ?**
Oriana CIACIO (Villejuif)

11h30 **Vidéos de techniques chirurgicales**
Modérateur : Antonio SA CUNHA (Villejuif)
Vidéos longues d'hépatectomies, de chirurgie biliaire et pancréatique
Discussion interactive des détails techniques avec les participants

12h15 **Flash de l'Industrie**

12h30 Pause déjeuner

SOMMAIRE

Tumeurs des voies biliaires

- **Cholangiocarcinomes hilaire et péri-hilaire :**

- **Cancers de la vésicule de découverte fortuite :**

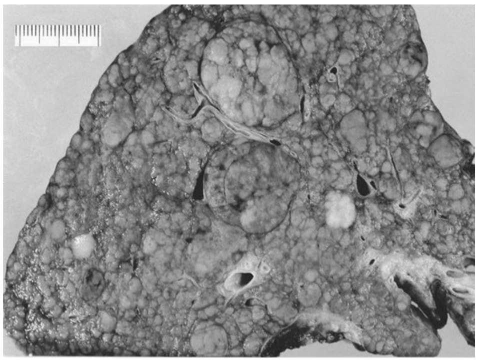
Quoi de neuf
dans les tumeurs primitives du foie ?

Professeur Eric VIBERT

Hôpital Paul Brousse, Centre Hépato-Biliaire, Villejuif

Quoi de Neuf dans les Tumeurs primitives du foie en 2017

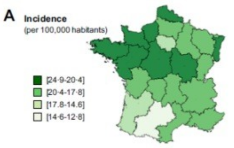
Eric Vibert



Geographical variations in incidence, management and survival of hepatocellular carcinoma in a Western country

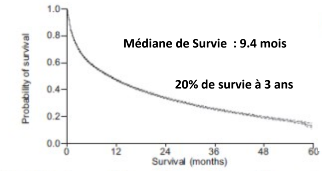
Nathalie Goutté[1], Philippe Sogni[2], Noelle Bendersky[3], Jean Claude Barbare[4], Bruno Falissard[5], Olivier Farges[1,*]

Analyse Base PMSI de 2009 à 2012
31927 patients avec un CHC
Soit 7982 nouveaux cas par an en France

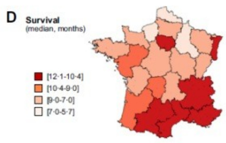


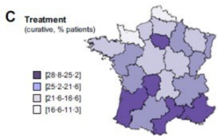
Demography	N = 31,927
Age (years, mean SD)	68.0 (± 11.7)
Male sex (N, %)	25,580 (80.1)
Underlying liver disease (N, %)	
Cirrhosis	23,431 (73.4)
Decompensated liver disease*	8730 (27.3)

Structure (for initial hospitalization) (N, %)	
Type of administrative structure	
District hospital	12,204 (38.2)
University hospital	13,115 (41.1)
Charitable hospital	2202 (6.9)
Private clinic	4406 (13.8)
Annual hospital caseload of new patients	
<25	15,671 (49.1)
25–75	6390 (20.0)
>75	9866 (30.9)



Time (mo)	0	12	24	36	48
Number of patients at risk	31,927	10,653	4895	2078	611





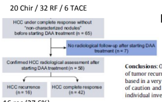
Most effective treatment (N, %)	
Curative treatment	7283 (22.8)
Liver transplantation	1220 (3.8)
Surgery	3574 (11.2)
Ablation	2489 (7.8)
Palliative treatment	3817 (12.0)
TACE	
Other	20,827 (65.2)
Chemotherapy	2601 (8.1)
BSC or biotherapy	18,226 (57.1)

Unexpected high rate of early tumor recurrence in patients with HCV-related HCC undergoing interferon-free therapy☆

EASL JOURNAL OF HEPATOLOGY

María Reig[1,†], Zoe Mariño[2,†], Christie Perelló[3], Mercedes Iñarrairaegui[4], Andrea Ribeiro[1], Sabela Lens[2], Alba Díaz[5], Ramón Vilana[6], Anna Darnell[6], María Varela[7], Bruno Sangro[4], José Luis Calleja[3], Xavier Forns[2,‡], Jordi Bruix[1,*,‡]

20 Chir / 32 RF / 6 TACE



16 rec (27.6%)

FU Médian 6 mois

Conclusions: Our data show an unexpected high rate and pattern of tumor recurrence coinciding with HCV clearance and, although based in a very small cohort of patients, should be taken as a note of caution and prime a large scale assessment that exceeds the individual investigators capacity.

Table 3. Baseline characteristics and outcome of the 16 patients with hepatocellular recurrence.

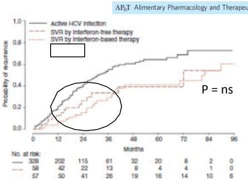
Patient	Treatment of HCC before DAA	Risk profile at pathology*	At time of starting DAA: BCLC	At time of starting DAA: AFP (ng/dl)	At the time of HCC recurrence: Pattern of progression	At the time of HCC recurrence: AFP (ng/dl)	HCC treatment	Status at the end of follow-up
1	Resection	Low risk	A	91	NIH (one nodule)	912	Resection	Alive
2	Resection	Low risk	A	18	NIH (multinodular)	42	BSC	Dead
3	Resection	Low risk	0	2.3	NIH (one nodule)	1271	Resection	Alive
4	Resection	Low risk	A	12	NIH (≤3 nodules ≤3 cm)	5	Ablation	Alive
5	Resection	Low risk	A	4.2	NIH (≤3 nodules ≤3 cm)	2.1	OLT	Alive
6	Resection	High risk	A	1	NIH (one nodule)	112	Ablation	Alive
7	Resection	High risk	A	8	NIH (one nodule)	6	OLT	Alive
8	Ablation	n.a.	A	38	NIH (infiltrative) + NEH**	21,184	Sorafenib	Alive
9	Ablation	n.a.	A	66.2	IHG	7.9	Ablation	Alive
10	Ablation	n.a.	A	3	NIH (infiltrative) ***	n.a.	BSC	Alive
11	Ablation	n.a.	A	21.2	IHG	10.2	Ablation	Alive
12	Ablation	n.a.	A	6.7	NIH (one nodule)	3.8	OLT	Alive
13	Ablation	n.a.	A	14	IHG	5	Ablation	Alive
14	Ablation	n.a.	0	369	NIH (infiltrative) + NEH	n.a.	BSC	Alive
15	Ablation	n.a.	A	5	NIH (≤3 nodules ≤3 cm)	8	OLT	Alive
16	Ablation	n.a.	0	26	NIH (≤3 nodules ≤3 cm) ****	26	Ablation	Alive

AP&T Alimentary Pharmacology and Therapeutics

Hepatocellular carcinoma recurrence in patients with curative resection or ablation: impact of HCV eradication does not depend on the use of interferon

S. Petta*, G. Cabibbo*, M. Barbara*, S. Attardo*, L. Bucci†, F. Farinati‡, E. G. Giannini§, F. Tovoli†, F. Ciccarese¶, G. L. Rapaccini**, M. Di Marco††, E. Caturelli‡‡, M. Zoli†, F. Borzio§§, R. Sacco¶¶, R. Virdone*, F. Marra***, M. Felder†††, F. Morisco‡‡‡, L. Benvegnù‡, A. Gasbarrini**, G. Svegliati-Baroni§§§, F. G. Foschi¶¶¶, A. Olivani****, A. Masotto††††, G. Nardone‡‡‡, A. Colecchia†, M. Persico‡‡‡‡, V. Boccaccio§§§§, A. Craxì*, S. Bruno§§§§, F. Trevisani†, C. Cammà* & for the Italian Liver Cancer (ITA.LI.CA) Group†

	Groups: Active HCV infection (N = 328)	SVR by IFN-free therapies (N = 58)	SVR by IFN-based therapies* (N = 57)
Age, median [range] (years)	72.1 [40–85]	66.3 [45–83]	62.0 [43–80]
Male sex, n (%)	217 (66)	40 (69)	41 (72)
Resection, n (%)	88 (27)	20 (34)	25 (44)
BCLC, n (%)			
0	99 (30)	16 (28)	
A	229 (70)	42 (72)	57 (100)†
Child-Pugh, n (%)			
A	307 (94)	50 (91)	46 (90)
B	21 (6)	3 (5)	5 (10)
C	0	2 (4)	0



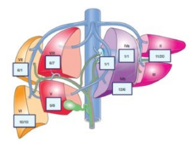
No. at risk:									
—	328	202	115	61	32	20	8	2	0
– –	58	42	22	13	8	4	4	1	0
···	57	50	41	26	19	16	14	10	6

Propensity score analysis of outcomes following laparoscopic or open liver resection for hepatocellular carcinoma

C. Sposito[1], C. Battiston[1], A. Facciorusso[1], M. Mazzola[1], C. Muscarà[1], M. Scotti[1], R. Romito[1], L. Mariani[2] and V. Mazzaferro[1]

2006 – 2013 : Résection HCC sur Cirrhose : 266 Open vs 43 Coelio
Score de Propension : 43 Laparo vs 43 Coelio

Localisation des Nodules Similaires
Uniquement des Hepat. Mineures



Conversion : 2/43 (5%)

	Open surgery	Laparoscopic surgery	P	d**
Before propensity score matching	n = 226	n = 43		
Intraoperative blood loss (ml)			0·091†	0·20
< 100	173 (76·5)	29 (67)		
100–500	33 (14·6)	12 (28)		
501–1000	9 (4·0)	2 (5)		
> 1000	11 (4·9)	0 (0)		
Duration of hospital stay (days)*	7 (4–373)	5 (1–31)	< 0·001§	0·84
Complications†			0·008‡	0·32
None	128 (56·6)	35 (81)		
I–II	85 (37·6)	7 (16)		
III–IV	13 (5·8)	1 (2)		
30-day mortality	1 (0·4)	0 (0)	1·000‡	0·01
Radical R0 resection	221 (97·8)	42 (98)	1·000‡	0·02
Margins (mm)*	10 (1–40)	6 (1–20)	0·142§	0·24
Microvascular invasion	92 (40·7)	24 (56)	0·091†	0·33
Tumour grade			0·763‡	0·08
G1	42 (18·6)	9 (21)		
G2	113 (50·0)	25 (58)		
G3	29 (12·8)	5 (12)		
Satellites present	45 (19·9)	7 (16)	0·730‡	0·12
After propensity score matching	n = 43	n = 43		
Intraoperative blood loss (ml)			0·502¶	0·14
< 100	31 (72)	29 (67)		
100–500	8 (19)	12 (28)		
501–1000	2 (5)	2 (5)		
> 1000	2 (5)	0 (0)		
Duration of hospital stay (days)*	8 (5–42)	5 (1–31)	< 0·001#	0·91
Complications†			0·004¶	0·65
None	22 (51)	35 (81)		
I–II	20 (47)	7 (16)		
III–IV	1 (2)	1 (2)		
30-day mortality	0 (0)	0 (0)	1·000¶	0·01
Radical R0 resection	42 (98)	42 (98)	0·612¶	0·11
Margins (mm)*	5 (1–30)	6 (1–20)	0·960#	0·01
Microvascular invasion	16 (37)	24 (56)	0·121¶	0·41
Tumour grade			0·542¶	0·08
G1	12 (28)	9 (21)		
G2	20 (47)	25 (58)		
G3	5 (12)	5 (12)		
Satellites present	9 (21)	7 (16)	0·781¶	0·09

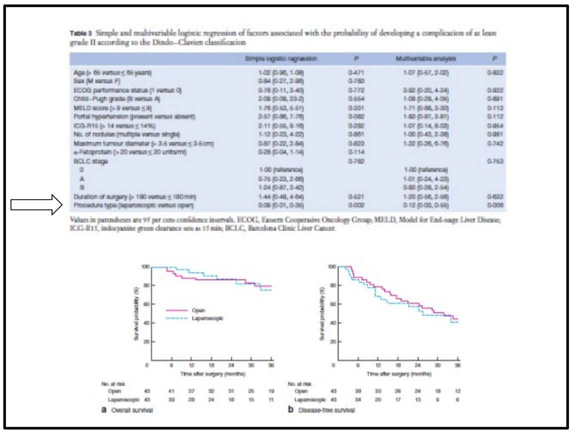
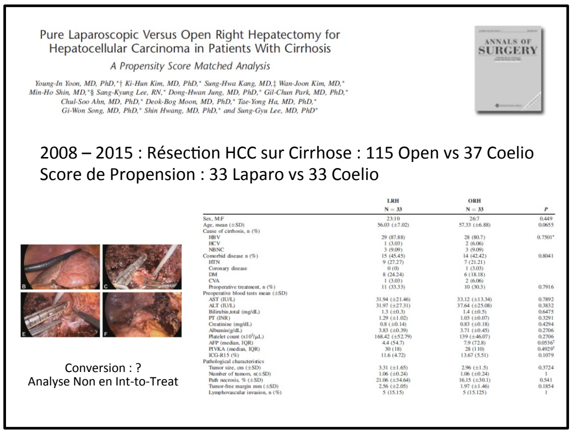


Table 3 Simple and multivariable logistic regression of factors associated with the probability of developing a complication of at least grade II according to the Dindo–Clavien classification
a Overall survival
b Disease-free survival


Pure Laparoscopic Versus Open Right Hepatectomy for Hepatocellular Carcinoma in Patients With Cirrhosis
A Propensity Score Matched Analysis
ANNALS OF SURGERY
2008 – 2015 : Résection HCC sur Cirrhose : 115 Open vs 37 Coelio
Score de Propension : 33 Laparo vs 33 Coelio
Conversion : ?
Analyse Non en Int-to-Treat

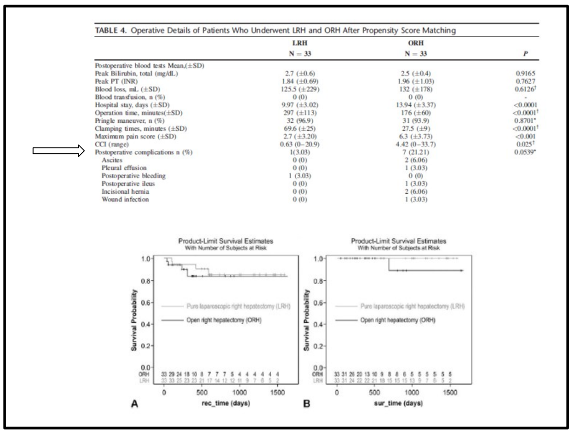
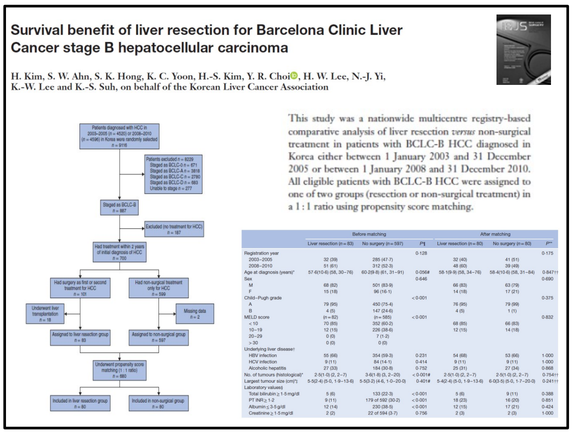


TABLE 4. Operative Details of Patients Who Underwent LRH and ORH After Propensity Score Matching
Product-Limit Survival Estimates With Number of Subjects at Risk


Survival benefit of liver resection for Barcelona Clinic Liver Cancer stage B hepatocellular carcinoma
H. Kim, S. W. Ahn, S. K. Hong, K. C. Yoon, H.-S. Kim, Y. R. Choi, H. W. Lee, N.-J. Yi, K.-W. Lee and K.-S. Suh, on behalf of the Korean Liver Cancer Association
This study was a nationwide multicentre registry-based comparative analysis of liver resection versus non-surgical treatment in patients with BCLC-B HCC diagnosed in Korea either between 1 January 2003 and 31 December 2005 or between 1 January 2008 and 31 December 2010. All eligible patients with BCLC-B HCC were assigned to one of two groups (resection or non-surgical treatment) in a 1 : 1 ratio using propensity score matching.

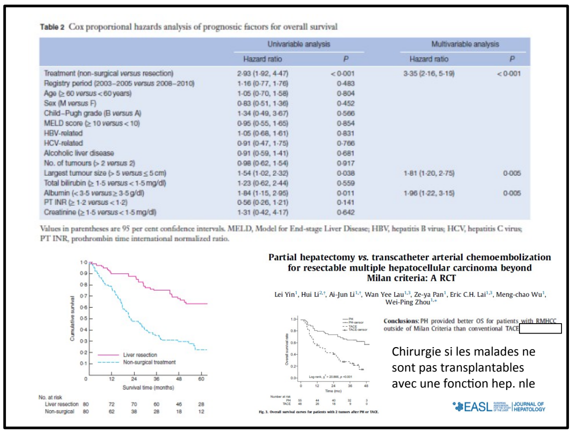


Table 2 Cox proportional hazards analysis of prognostic factors for overall survival
Partial hepatectomy vs. transcatheter arterial chemoembolization for resectable multiple hepatocellular carcinoma beyond Milan criteria: A RCT
Chirurgie si les malades ne sont pas transplantables avec une fonction hep. nle
EASL JOURNAL OF HEPATOLOGY

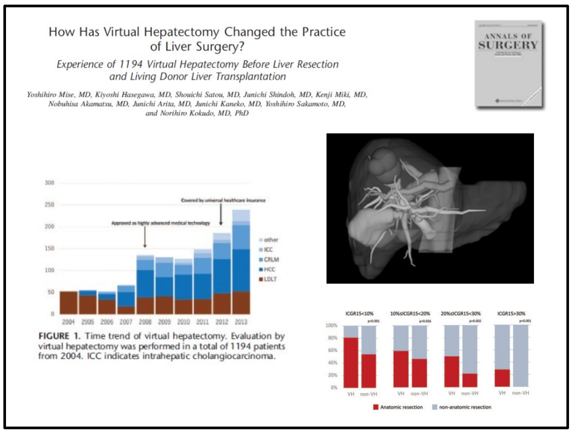
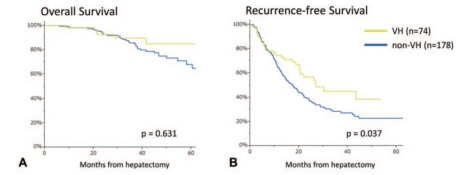

How Has Virtual Hepatectomy Changed the Practice of Liver Surgery?
Experience of 1194 Virtual Hepatectomy Before Liver Resection and Living Donor Liver Transplantation
ANNALS OF SURGERY
FIGURE 1. Time trend of virtual hepatectomy. Evaluation by virtual hepatectomy was performed in a total of 1194 patients from 2004. ICC indicates intrahepatic cholangiocarcinoma.

TABLE 2. Baseline Characteristics and Surgical Outcomes of the VH and Non-VH Groups of Patients Undergoing Hepatectomy for HCC

	VH (n = 297)	Non-VH (n = 505)	P
Age, yrs	48 (22–85)	48 (19–88)	0.91
Sex, male, n (%)	191 (64)	380 (78)	0.06
ICGR15, %	13.2 (1.6–77)	13.9 (1.2–75.4)	**<0.01**
Tumor number	1 (1–30)	1 (1–30)	0.25
Tumor size, cm	**3.5 (0.8–33.0)**	**2.6 (0.8–23.0)**	**<0.01**
Bilateral distribution, n (%)	17 (16)	65 (18)	0.66
Anatomic resection, n (%)	**158 (68)**	**206 (42)**	**<0.01**
Segmentectomy, n (%)	**85 (37)**	**108 (22)**	**<0.01**
Sectionectomy, n (%)	**30 (13)**	**34 (7)**	**<0.01**
Hemihepatectomy, n (%)	**43 (19)**	**59 (12)**	**0.02**
Extended, hemihepatectomy, n (%)	5 (2)	7 (1)	0.47
Repeat resection, n (%)	**47 (20)**	**220 (45)**	**<0.01**
Operation time, min	383 (124–973)	360 (40–1025)	0.18
Blood loss, mL	605 (10–7420)	660 (0–8420)	0.67
Blood transfusion, n (%)	23 (10)	31 (6)	0.07
Complication (ii), n (%)	56 (24)	131 (27)	0.45
90-d mortality, n (%)	0 (0)	1 (0.2)	0.49
Length of hospital stay, d	16 (7–42)	15 (4–615)	0.20

Continuous data are expressed as median (range).
Bold data indicate the statistical significance ($P < 0.05$).



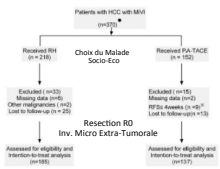
Postoperative Adjuvant Transcatheter Arterial Chemoembolization After R0 Hepatectomy Improves Outcomes of Patients Who have Hepatocellular Carcinoma with Microvascular Invasion

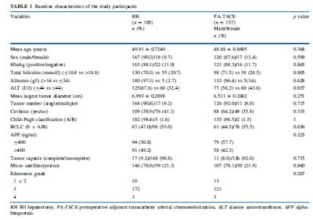
Annals of SURGICAL ONCOLOGY

2016

Jing Jian Sun, MD[1], Kang Wang, MD[1], Cun Zhen Zhang, MD[1], Wei Xing Guo, MD[1], Jie Shi, MD[1], Wen Ming Cong, MD[2], Meng Chao Wu, MD[1], Wan Yee Lau, MD, FRACS(Hon)[1,3], and Shu Qun Cheng, MD, PhD[1]

2004-2013





TACE Foie Totale en moyenne 1 mois après la chirurgie (n=137) : Pas de Morbidité Majeure

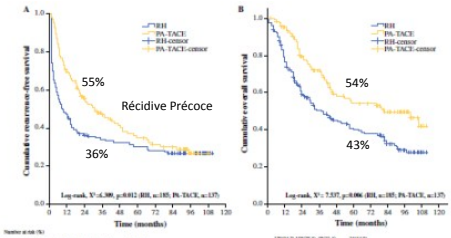
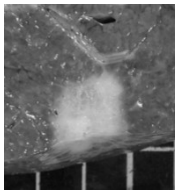


TABLE 3 Uni- and multivariate analyses of recurrence-free survival (RFS) and overall survival (OS)

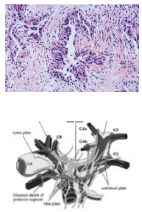
Variables	Univariate analysis: χ^2 value (log-rank)	*p* value	Multivariate analysis: HR (95 % CI)	*p* value
RFS				
Treatment (RH vs PA-TACE)	6.309	0.012	0.641 (0.476–0.861)	0.003
Maximum tumor diameter (cm) (>5 vs ≤5)	10.693	0.001	1.669 (1.241–2.244)	0.001
Cirrhosis (yes/no)	5.055	0.025	0.771 (0.576–1.031)	0.080
OS				
Treatment (RH vs PA-TACE)	7.537	0.006	0.602 (0.440–0.822)	0.001
Maximum tumor diameter (cm) (>5 vs ≤5)	15.140	<0.001	1.941 (1.422–2.650)	<0.001

HR, hazard ratio; CI, confidence interval; RH, R0 hepatectomy; PA-TACE, postoperative adjuvant transcatheter arterial chemoembolization

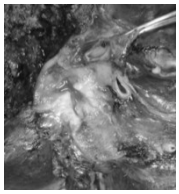
Cholangiocarciome



Cholangiocarcinome Intra-Hépatique



Lymphophiles….



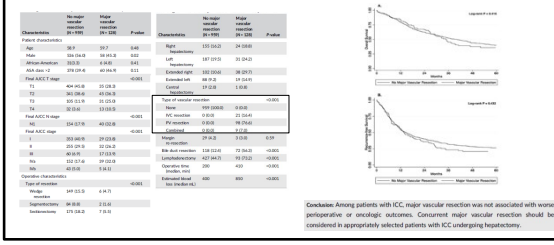
Cholangiocarcinome Péri-Hilaire

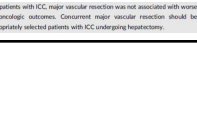
Impact of major vascular resection on outcomes and survival in patients with intrahepatic cholangiocarcinoma: A multi-institutional analysis

Bradley N. Reames MD, MS[1] | Aslam Ejaz MD, MPH[1] | Bas Groot Koerkamp MD[2] | Sorin Alexandrescu MD[3] | Hugo P. Marques MD[4] | Luca Aldrighetti MD[5] | Shishir K. Maithel MD[6] | Carlo Pulitano MD[7] | Todd W. Bauer MD[8] | Feng Shen MD[9] | George A. Poultsides MD[10] | Guillaume Martel MD[11] | James Wallis Marsh MD[12] | Timothy M. Pawlik MD, MPH, PhD[13]

Methods A total of 1087 ICC patients who underwent curative-intent hepatectomy between 1990 and 2016 were identified from 13 institutions. Multivariable logistic and cox regressions were used to determine the impact of major vascular resection on perioperative and survival outcomes.

Journal of SURGICAL ONCOLOGY





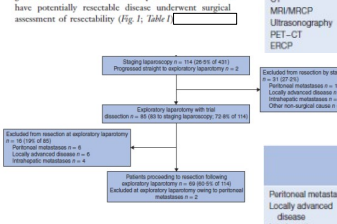
Conclusion: Among patients with ICC, major vascular resection was not associated with worse perioperative or oncologic outcomes. Concurrent major vascular resection should be considered in appropriately selected patients with ICC undergoing hepatectomy.

Role of staging laparoscopy in the stratification of patients with perihilar cholangiocarcinoma

N. Bird[1], M. Elmasry[1], R. Jones[1], M. Elniel[1], M. Kelly[1], D. Palmer[2], S. Fenwick[1], G. Poston[1] and H. Malik[1]

A total of 431 patients with perihilar cholangiocarcinoma were referred for assessment for resection at a supra-regional referral centre. Some 116 patients considered to have potentially resectable disease underwent surgical assessment of resectability (*Fig. 1; Table I*).

	No. of patients (n = 116)
Age (years)*	59-7 (56-6, 62-8) (32–83)
Sex ratio (M:F)	58:58
CT	108 (93-1)
MRI/MRCP	67 (57-8)
Ultrasonography	43 (37-1)
PET–CT	3 (2-6)
ERCP	74 (63-8)



	Laparoscopy only	Open/ close laparotomy	Total	Sensitivity of laparoscopy (%)
Peritoneal metastases	15	6	21	71
Locally advanced disease	8	6	14	57
Intrahepatic metastases	4	4	7	43

Coelio : Exclusion de 27% des malades….

Surgical resection for Bismuth type IV perihilar cholangiocarcinoma

T. Ebata, T. Mizuno, Y. Yokoyama, T. Igami, G. Sugawara and M. Nagino

2006 – 2015 : 332 pts dont 216 pts réséqués
112 (52%) Hep Gauche + Sect. Antérieur

Multivariable analysis identified PTBD, blood transfusion, nodal status and distant metastasis as independent prognostic factors.

Verification of the oncologic inferiority of percutaneous biliary drainage to endoscopic drainage: A propensity score matching analysis of resectable perihilar cholangiocarcinoma

Surgery Volume 161, Number 2

Keniehi Komoya, MD, Tomoki Ebata, MD, Yukihiro Yokoyama, MD, Tsuyoshi Igami, MD, Gen Sugawara, MD, Takashi Mizuno, MD, Junpei Yamaguchi, MD, *and* Masato Nagino, MD, *Nagoya, Japan*

Study population. Between January 2008 and December 2012, a total of 431 consecutive patients who underwent resection for perihilar cholangiocarcinoma in the First Department of Surgery at Nagoya University Hospital were retrospectively reviewed from a prospectively maintained database. This study was approved by the Human Research Review Committee of Nagoya University Hospital.

N=168

N=152

Anatomic features of independent right posterior portal vein variants: Implications for left hepatic trisectionectomy

SURGERY

463 Patients

Nobuyuki Watanabe, MD, Tomoki Ebata, MD, Yukihiro Yokoyama, MD, Tsuyoshi Igami, MD, Gen Sugawara, MD, Takashi Mizuno, MD, Junpei Yamaguchi, MD, *and* Masato Nagino, MD, *Nagoya, Japan*

400 (86%) 22 (4.8%) 41 (8.9%)

Volume du secteur postérieur droit significativement plus important
Artère du secteur post droit toujours en position infra-portale
Canal du Segment 6 et 7 en position hypoportale dans 50% des cas

Conclusion. *Independent right posterior portal vein variants exhibit anatomic features that are advantageous for performing left hepatic trisectionectomy. (Surgery 2017;161:347-54.)*

Liver Transplantation for "Very Early" Intrahepatic Cholangiocarcinoma: International Retrospective Study Supporting a Prospective Assessment

Hepatology 2016

2000 – 2013 : 81 patients avec au moins un cholangiocarcinome intra-hépatique sur l'explant

ETUDE MULTICENTRIQUE PROSPECTIVE RANDOMISÉE ; RADIO-CHIMIOTHÉRAPIE ET TRANSPLANTATION HÉPATIQUE VERSUS RÉSECTION COMME TRAITEMENT DU CHOLANGIOCARCINOME HILAIRE RÉSÉCABLE

TRANSPHIL

Investigateur coordonnateur Pr. Eric **VIBERT**
Responsable scientifique Pr. Emmanuel **BOLESLAWSKI**

Référents projet DRCD Isabelle **BRINDEL**
Référent projet URC Laina **N'DIAYE**

Attachée de recherche clinique Cynthia **DESPOIS**

29 pts inclus sur 60 …
Encore un peu de travail…

Au total.. Pour 2017…

- Grosse différence de prise en charge et de survie en France de plus de 7000 pts avec CHC par année
- La coelioscopie poursuit sa conquête dans les hépatectomies mineures et majeures pour CHC
- La planification 3D des hépatectomies pour CHC augmente le nombre de résection anatomique et peut-être la survie sans récidive
- La résection vasculaire dans le cholangiocarcinome intrahépatique et péri-hilaire est justifiée au USA comme au Japon
- Le drainage biliaire per-cutanée augmente la récidive locale des tumeurs du hile
- La transplantation des cholangiocarcinomes de moins de 2 cm sur cirrhose est raisonnable

NOTES

NOTES

Conférence de l'invité d'honneur

Professeur Michel RIVOIRE

Centre de Lutte Contre le Cancer Léon BERARD , Lyon

NOTES

NOTES

TUMEURS DES VOIES BILIAIRES

Cholangiocarcinomes hilaire et péri-hilaire

Quand est-il résécable ? Quelle préparation pour l'intervention ?

Dr Oriana CIACIO

Hôpital Paul Brousse, Centre Hépato-Biliaire, Villejuif

JOURNÉES 2017 du Centre Hépato-Biliaire

VENDREDI 9 & SAMEDI 10 JUIN

Centre Hépato-Biliaire

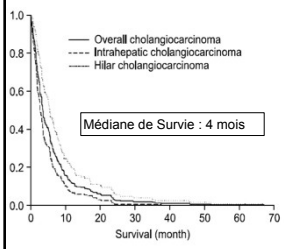
CHOLANGIOCARCINOME HILAIRE

Quand est-il résécable ?
Quelle préparation pour l'intervention?

Oriana Ciacio
Vendredi 09/06/2017

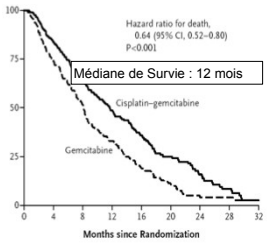
Maladie très grave, peu chimiosensible

Sans Traitement



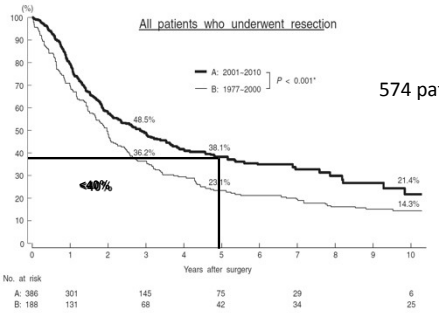
Park J., Gut and Liver 2009

Sous Chimiothérapie



Valle et al. NEJM April 2010

La résection hépatique et biliaire est le seul traitement curatif des cholangiocarcinomes



574 patients

Nagino et al. Ann Surg 2013

710 malades (1988-2008)	Résection curative (595)		
	1 an	3 ans	5 ans
Survie	77%	56%	45%
Patients exposés	313	181	120
	Patients non réséqués (115)		
Survie	51%	20%	16%
Patients exposés	29	8	4

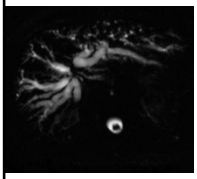
J-M Regimbeau, F-R Pruvot, O Frages AFC 2009

Quand est-il résécable ?

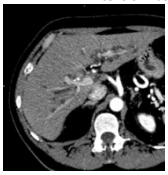
- **Exclure les métastases à distance (M1)**
- **Exclure les métastases ganglionnaires cœliaques, inter-aortico-cave ou para-aortique (N2)**

- **Evaluer l'extension locale**

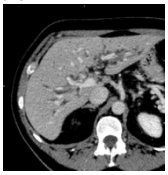
Extension Biliaire



Extension vasculaire



Artérielle



Portale

Quand est-il résécable ?

- **Exclure les métastases à distance (M1)**
  - Hépatiques
  - Pulmonaire
  - Carcinose péritonéale

⇨ Scanner TAP
IRM hépatique
+/- PET SCAN

Quand est-il résécable ?

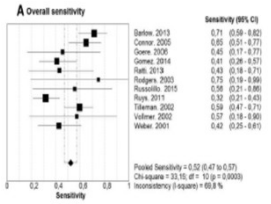
- **Exclure les métastases à distance (M1)**
  - Hépatiques
  - Pulmonaire
  - Carcinose péritonéale

⇨ Scanner TAP
IRM hépatique
+/- PET SCAN

Diagnostic accuracy of staging laparoscopy for detecting metastasized or locally advanced perihilar cholangiocarcinoma: a systematic review and meta-analysis

Robert J. S. Coelen[1] · Anthony T. Roys[2] · Marc G. H. Besselink[3] · Olivier R. C. Busch[3] · Thomas M. van Gulik[3]

Surg End 2016



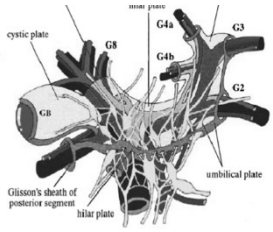
Moins d'un patient sur 4 béneficie d'une laparoscopie exploratrice systématique

Peu d'intérêt de la laparoscopie exploratrice

Quand est-il résécable ?

- **Exclure les métastases ganglionnaires cœliaques, inter-aortico-cave (N2)**

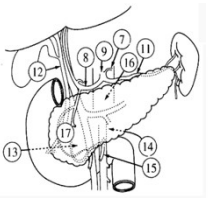
Tumeur Infiltrante et Lymphophile

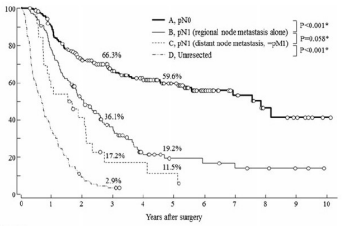


Classification de Bismuth	Incidence de l'invasion ganglionnaire
Type 1 (n=19)	21%
Type 2 (n=22)	27%
Type 3 (n=135)	41%
Type 4 (n=144)	55%

Aoba et al. Ann Surg 2014

Impact majeur de l'envahissement ganglionnaire sur la survie



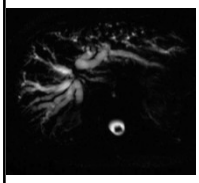


Aoba et al. Ann Surg 2014

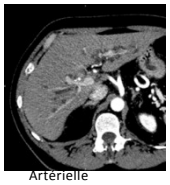
Quand est-il résécable ?

- **Evaluer l'extension locale**

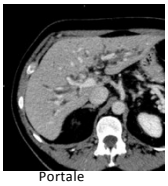
Extension Biliaire



Extension vasculaire

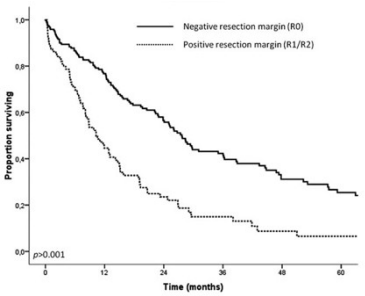


Artérielle



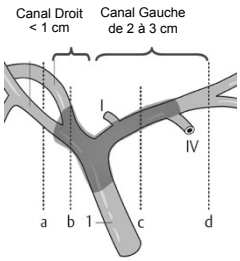
Portale

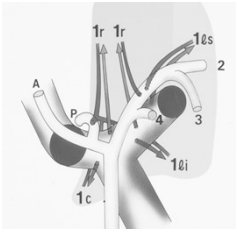
Une résection avec des marges : R0



de Jong M, Cancer 2012; 118: 4737-47

Résection R0: la marge biliaire

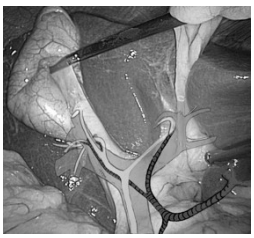


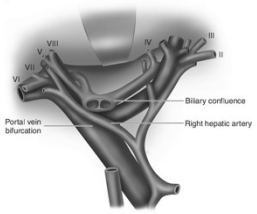


Canaux biliaires du Seg 1 s'abouchent dans le convergence biliaire et donc dans le cancer

Résection R0: la marge péri-biliaire

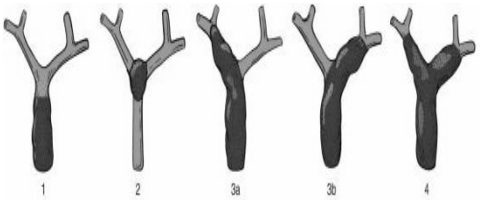
L'anatomie du hile justifie la stratégie





Contact possible avec la branche droite de l'artère hépatique et avec la bifurcation portale. La branche gauche de l'artère est à la périphérie du hile

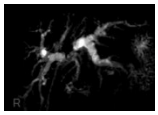
L'extension biliaire
La classification de Bismuth et Corlette



Bismuth, Corlette et al. Surg Gyn Obs 1975

L'extension biliaire
Le bilan pre-opératoire

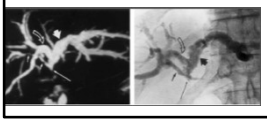
Cholangio IRM avec reconstruction 3D
Avant tout drainage biliaire

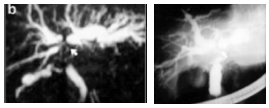


Corrélation bili IRM / Cholangiographie:

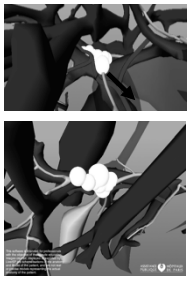
Lopera JE Radiology. 2001
Corrélation = 96 %

Vogl TJ Eur Radiol. 2006
Corrélation = 95 %

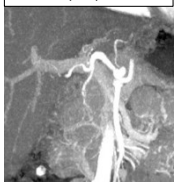




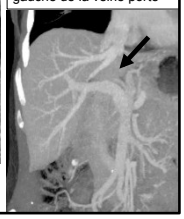
Intérêts et limites de la classification des cholangiocarcinomes hilaires



Envahissement de la branche gauche de l'artère hépatique



Envahissement et non visibilité de la branche gauche de la veine porte

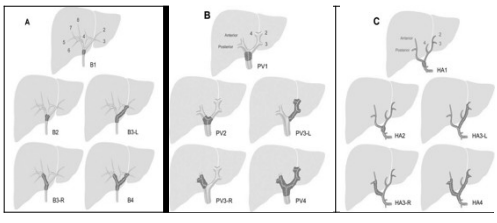


L'extension vasculaire

New Staging System and a Registry for Perihilar Cholangiocarcinoma

Hepatology 2011

Michelle L. DeOliveira,[1] Richard D. Schulick,[2] Yuji Nimura,[3] Charles Rosen,[4] Gregory Gores,[5] Peter Neuhaus,[6] and Pierre-Alain Clavien[1]



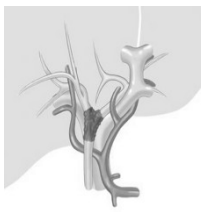
Extension Biliaire | Envahissement Portal | Env. Artériel

L'extension vasculaire

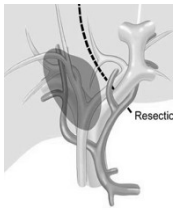
New Staging System and a Registry for Perihilar Cholangiocarcinoma

Hepatology 2011

Michelle L. DeOliveira,[1] Richard D. Schulick,[2] Yuji Nimura,[3] Charles Rosen,[4] Gregory Gores,[5] Peter Neuhaus,[6] and Pierre-Alain Clavien[1]



B2, PV0, HA0



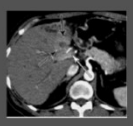
B3-R, PV3-R, HA3-R

Evaluation de l'extension Vasculaire

Scanner coupes fines sans puis IV +: arteriel / portal

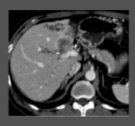
Envahissement artériel : corrélation chirurgicale

Se	86 %
Spe	97 %
VPP	91 %
VPN	93 %



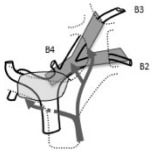
Envahissement portal : corrélation chirurgicale

Se	77 %
Spe	93 %
VPP	90 %
VPN	82 %



Lee HY Radiology. 2006.

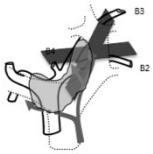
Regarder la confluence B2 – B3



Right sided
Bismuth II, IIIb et IV

AHG jamais infiltrée

Hépatectomie D élargie au S1 + S4b
Reconstructions vasculaires fréquentes

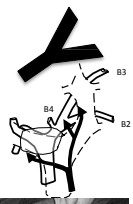


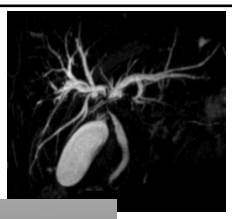
Left sided
Bismuth IIIa, IV

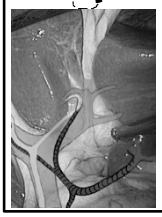
AHD infiltrée

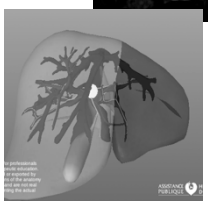
Hépatectomie G élargie au SAD
Reconstructions vasculaires fréquentes

Boudjema et al. J Gastrointest Surg 2013

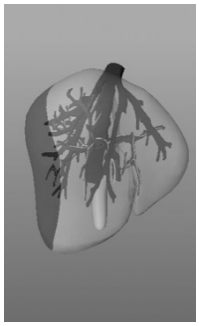


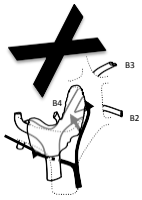


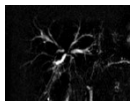


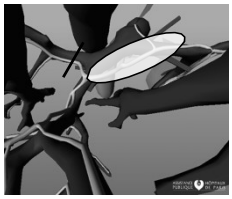


Hépatectomie droite élargie aux segments 4 et 1



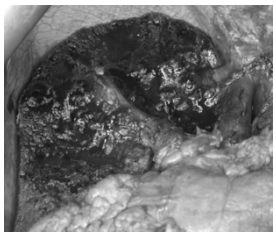


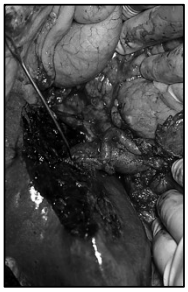




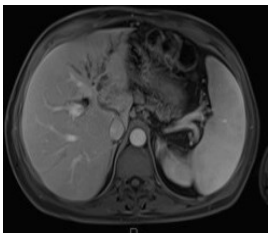
Hépatectomie gauche élargie aux segments 1, 5 et 8

Garder le secteur postérieur du foie





Atrophie et envahissement vasculaire



Atrophie du foie gauche

- Atrophy of one hepatic lobe with contralateral vascular invasion
- Atrophy of one hepatic lobe with contralateral tumor extension to second biliary confluence
- Invasion of second biliary confluence on one lobe and contralateral vascular invasion

Previous and Revised Criteria for Unresectability of Hilar Cholangiocarcinoma

Previous Criteria	Our Revised Criteria	Evaluation Tool
Bismuth type IV	Type IV and tumor extends farther than 2 cm from the hilum	Cholangiography
Invasion of main portal vein or proper hepatic artery	Same, plus involved segment is longer than 2 cm	CT
Atrophy of one hepatic lobe with contralateral vascular invasion	Same	CT
Atrophy of one hepatic lobe with contralateral tumor extension to second biliary confluence	Same	CT and cholangiography
Invasion of second biliary confluence on one lobe and contralateral vascular invasion	Same	CT and cholangiography
Metastasis to N2 lymph nodes or paraaortic lymph nodes*	Metastasis to celiac, portacaval, or paraaortic lymph nodes	CT
Distant metastasis	Same	CT

* N2 lymph nodes = peripancreatic, periduodenal, celiac, superior mesenteric, and posterior pancreaticoduodenal lymph nodes.

Conclusions 1

Quand est-il réséc**a**ble ?

- Exclure la présence de métastases à distance
- Exclure la présence d'adénopathie métastatiques N2
- Regarder la convergence des canaux biliaires des segments 2-3
- Dépister un envahissement artériel ou portale
- Evaluer la présence d'une atrophie droite ou gauche

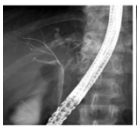
⇩

Pas de résection possible si

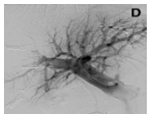
- atrophie d'un lobe et envahissement vasculaire controlatérale
- Atrophie d'un lobe et envahissement de la convergence secondaire controlatérale
- Envahissement vasculaire d'un lobe et envahissement de la convergence secondaire controlatérale

Quelle préparation pour l'intervention?

- Prise en charge de l'ictère:
  - Drainage biliaire pre-opératoire



- Evaluation volumétrique du FFR :
  - Embolisation portale
- Nutrition



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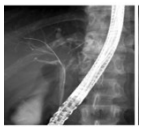
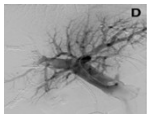


- Evaluation volumétrique du FFR :
  - Embolisation portale
- Nutrition



DRAINAGE BILIAIRE PRE-OPERATOIRE

Hépatectomie majeure sur foie cholestatique

- Augmentation significative du taux de morbidité (81%) et mortalité (10%) post-opératoire[1]
- Complications les plus fréquentes: complications infectieuses et insuffisance hépatique

⇩

DRAINAGE BILIAIRE PREOPERATOIRE

1 Nagino M et al. World Journal of Surgery 2001

DRAINAGE BILIAIRE PRE-OPERATOIRE

Bénéfices :

- Améliorer la fonction hépatique
- Réduire la morbi-mortalité post-opératoire
- Améliorer le staging de l'extension canalaire
- Prélèvements cytologiques

Risques:

- Angiocholite
- Taux accru de culture de bile infectée
- Augmentation complications infectieuses
- Essaimage tumoral le long du trajet des drains

A Meta-analysis on the Efficacy of Preoperative Biliary Drainage for Tumors Causing Obstructive Jaundice

ANNALS OF SURGERY Vol. 246, No. 1, 17–27

Miguel E. Sewnath, MD,* Thomas M. Karsten, MD,* Martin H. Prins, MD,† Erik J. A. Rauws, MD,‡ Huug Obertop, MD,* and Dirk J. Gouma, MD*

Meta-analysis of randomized clinical trials on safety and efficacy of biliary drainage before surgery for obstructive jaundice

British Journal of Surgery 2013; **100**: 1589–1596

Y. Fang[1], K. S. Gurusamy[4], Q. Wang[2], B. R. Davidson[4], H. Liu[3], X. Xie[1] and C. Wang[1]

Augmentation de la morbidité (Complications infectieuses) post-hépatectomie

Pas de drainage biliaire preopératoire systématique

Hatfield *et al.*[33] (1982)

Lai *et al.*[34,35] (1994)
McPherson *et al.*[36–38] (1984)

Pitt *et al.*[39] (1985)
van der Gaag *et al.*[40–42,44–46] (2010)

Wig *et al.*[43] (1999)

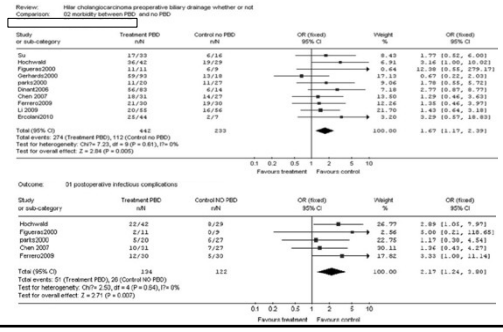
MAIS….

- 90% DPC
- 10% Klatskin
  - 80% Klatskin drainés
- Procédures palliatives

Preoperative Biliary Drainage Before Resection for Hilar Cholangiocarcinoma: Whether or Not? A Systematic Review

Fei Liu · Ya Li · Yonggang Wei · Bo Li

Dig Dis Sci (2011) 56:663–672



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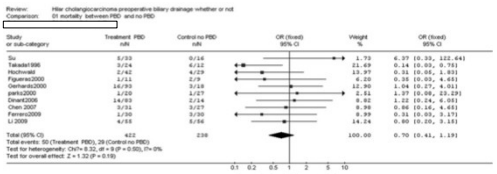

This systematic review could not provide evidence for a clinical benefit of using PBD in jaundiced patients with HCCA planned for surgery.
Preoperative drainage should not routinely be performed in patients with proximal bile duct cancer scheduled for surgical resection

PAS DE DRAINAGE SYSTEMATIQUE

Multicentre European study of preoperative biliary drainage for hilar cholangiocarcinoma

British Journal of Surgery 2013; **100**: 274–283

O. Farges[1], J. M. Regimbeau[7], D. Fuks[7], Y. P. Le Treut[2], D. Cherqui[3], P. Bachellier[4], J. Y. Mabrut[5], M. Adham[5], F. R. Pruvot[6] and J. F. Gigot[6]*

Table 2 Variables associated with main outcome of postoperative mortality in univariable and multivariable analysis

	Univariable analysis		Multivariable analysis	
	Odds ratio	*P*	Adjusted odds ratio	*P*
Hypertension	2·21 (1·04, 4·63)	0·033	2·00 (0·96, 4·21)	0·071
Diabetes	1·62 (0·51, 4·31)	0·282	1·08 (0·39, 3·03)	0·874
Serum bilirubin > 50 μmol/l				
At referral	2·57 (1·07, 7·13)	0·031	0·87 (0·26, 2·94)	0·823
Before surgery	3·55 (1·56, 8·78)	0·001	4·83 (1·58, 14·71)	0·002
Hypertension	2·88 (1·14, 7·29)	0·018	2·79 (1·11, 7·05)	0·029
PBD	0·35 (0·13, 0·89)	0·026	0·29 (0·11, 0·77)	0·013
Serum bilirubin > 50 μmol/l				
At referral	2·86 (0·96, 10·10)	0·051	0·88 (0·19, 4·08)	0·874
Before surgery	6·24 (2·27, 20·10)	< 0·001	7·02 (1·73, 28·52)	0·002
No. of biliary anastomoses	1·76 (0·57, 4·90)	0·283	3·26 (1·02, 10·35)	0·048
Serum bilirubin > 50 μmol/l				
At referral	2·45 (0·49, 23·70)	0·345	0·33 (0·01, 19·10)	0·582
Before surgery	1·99 (0·47, 11·80)	0·372	7·15 (0·12, 399·20)	0·266

360 pt 180 PBD mortality 10,7% Hep dt vs gche= 14.7 vs 6.6%

Multicentre European study of preoperative biliary drainage for hilar cholangiocarcinoma

British Journal of Surgery 2013; **100**: 274–283

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Table 3 Postoperative mortality in patients undergoing left- and right-sided hepatectomy with or without preoperative biliary drainage

	Mortality					
	Left hepatectomy			Right hepatectomy		
	No PBD (*n* = 103)	PBD (*n* = 79)	*P**	No PBD (*n* = 83)	PBD (*n* = 101)	*P**
Liver failure	1 (1·0)	1 (1)	1·000	13 (16)	4 (4·0)	0·009
Sepsis	0 (0)	5 (6)	0·014	1 (1)	1 (1·0)	1·000
Haemorrhage	2 (1·9)	1 (1)	1·000	2 (2)	2 (2·0)	1·000
Other	1 (1·0)	1 (1)	1·000	2 (2)	2 (2·0)	1·000
Overall	4 (3·9)	8 (10)	0·060	18 (22)	9 (8·9)	0·026

PBD does not affect overall mortality in jaundiced patients with hilar cholangiocarcinoma, but there may be a difference between patients undergoing right-sided versus leU-sided hepatectomy

HEPATECTOMIE DROITE ELARGIE

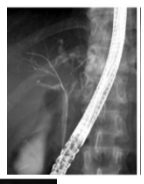
Preoperative biliary drainage in hilar cholangiocarcinoma: When and how?

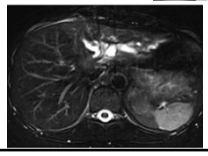
World J Gastrointest Endosc **2014 March 16; 6(3): 68-73**

Woo Hyun Paik, Nerenthran Loganathan, Jin-Hyeok Hwang

Table 2 Recommended indication for preoperative biliary drainage and total biliary drainage in hilar cholangiocarcinoma

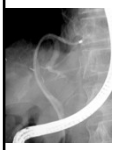
Preoperative biliary drainage	Right lobectomy for Bismuth type IIIA or IV hilar cholangiocarcinoma
	Preoperative portal vein embolization and chemoradiation therapy
	Biliary infection of undrained bile duct
	Severe pruritus





DRAINAGE BILIAIRE PRE-OPERATOIRE

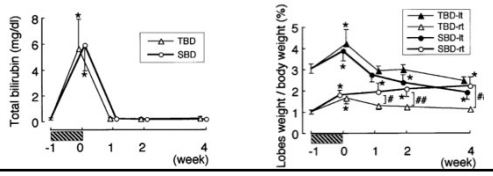
- Drainage sélectif ou total ?



Selective versus total drainage for biliary obstruction in the hepatic hilus: An experimental study (*Surgery 2001;130:74-81.*)

Tasuki Nole, MD, Yasuhiko Sugawara, MD, PhD, Hiroshi Imamura, MD, PhD, Tadatoshi Takayama, MD, PhD, and Masatoshi Makuuchi, MD, PhD, *Tokyo, Japan*

- Efficace comparable en termes de résolution de la cholestase et fonction hépatique post-op
- Induction d'une hypertrophie du foie drainé et atrophie du foie non drainé

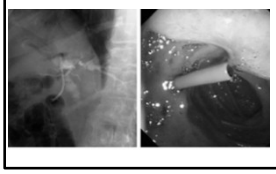


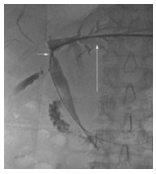
DRAINAGE BILIAIRE PRE-OPERATOIRE

- Quel drainage ?

PERCUTANE ↔ **ENDOSCOPIQUE**

No Randomized Controlled Trial





DRAINAGE BILIAIRE PRE-OPERATOIRE

- Quel drainage ?

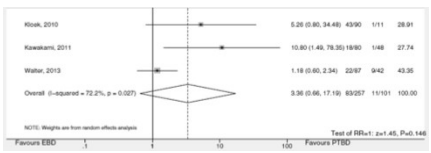
PERCUTANE ↔ **ENDOSCOPIQUE**

PERCUTANE		ENDOSCOPIQUE	
- Invasif	✗	- Bonne tolérance	✓
- Parfois exclusivement externe	✗	- Toujours interne	✓
- Techniquement plus facile , plus sélectif	✓	- Difficile, risque d'opacification d'autres secteurs	✗
- Risque bas d'angiocholite sur secteur non drainé	✓	- Risque élevé d'angiocholite sur secteur non drainé	✗
- Morbidité réduite	✓	- Morbidité plus élevée	✓
- Risque de seeding et de contreindication à une TH 6%	✗	- Pas de seeding, pas de contreindication à une TH	✓

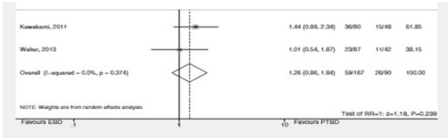
Percutaneous vs. endoscopic pre-operative biliary drainage in hilar cholangiocarcinoma – a systematic review and meta-analysis

Ahmer Hameed[1,2], Tony Pang[1,2], Judy Chiou[2], Henry Pleass[1,2], Vincent Lam[1,2], Michael Hollands[1,2], Emma Johnston[2], Arthur Richardson[1,2] & Lawrence Yuen[1,2]

HPB 2016



Pas de différence en terme d'angiocholite post-procédure



Ni en termes de complications post-procédure

Percutaneous vs. endoscopic pre-operative biliary drainage in hilar cholangiocarcinoma – a systematic review and meta-analysis

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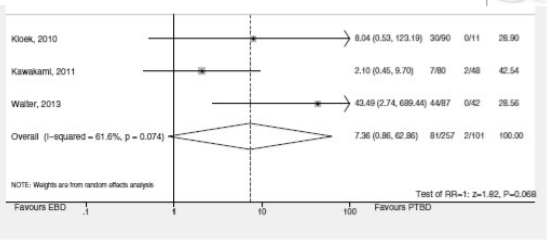
HPB 2016



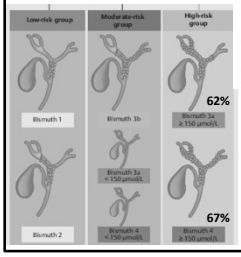
Un trend vers plus d'echec dans le drainage endoscopique

Preoperative biliary drainage in perihilar cholangiocarcinoma: identifying patients who require percutaneous drainage after failed endoscopic drainage

Jimme K. Wiggers[1], Bas Groot Koerkamp[1,2], Robert J. Coelen[1], Erik A. Rauws[1], Mark A. Schattner[3], C. Yung Nio[1], Karen T. Brown[3], Mithat Gonen[3], Susan van Dieren[4], Krijn P. van Lienden[5], Peter J. Allen[3], Marc G. H. Besselink[1], Olivier R. C. Busch[1], Michael I. D'Angelica[3], Robert P. DeMatteo[3], Dirk J. Gouma[1], T. Peter Kingham[3], William R. Jarnagin[3], Thomas M. van Gulik[1]

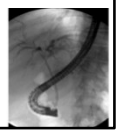
Endoscopy 2015

Facteurs de risque d'échec du drainage endoscopique :
Bilirubine >150 et type Bismuth 3 et 4



Risk group*	Predicted risk, % (95 %CI)	Observed events, n/total (%)
Low risk	7 % (0 – 42)	6/42 (14 %)
Moderate risk	40 % (23 – 57)	13/49 (27 %)
High risk	62 % (45 – 79)	24/39 (62 %)

Risque de 62-67% d'echec en cas de sténoses de type 3-4 et de bilirubine pre-opératoire >150



Percutaneous vs. endoscopic pre-operative biliary drainage in hilar cholangiocarcinoma – a systematic review and meta-analysis

Ahmer Hameed[1,2], Tony Pang[1,2], Judy Chiou[1], Henry Pleass[1,2], Vincent Lam[1,2], Michael Hollands[1,2], Emma Johnston[1], Arthur Richardson[1,2] & Lawrence Yuen[1,2]

HPB 2016

Table 3 Post-procedure complications and post-operative results by type of PBD[a]

	EBD, total (%)	PTBD, total (%)
Post-procedure complications		
Cholangitis	153/557 (27)	51/380 (13)
Pancreatitis	51/562 (9)	3/42 (7)
Catheter dislocation/dislodgment	21/90 (23)	7/156 (4)
Haemobilia/Bleeding	1/87 (1)	14/277 (5)
Portal vein injury and/or thrombosis	–	15/248 (6)
Retroperitoneal or duodenal perforation	4/257 (2)	–
Cancer seeding (tract)	–	10/248 (4)[b]
Failure to proceed to surgery	27/164 (16)	9/72 (13)
Others		
Biliary perforation/intra-peritoneal bile leak or peritonitis	2	1
External bile leak	–	6
AV shunt formation	–	2
Post-operative results		
Mortality[c]	6/281 (2)	23/416 (6)
Morbidity[c]		
Hepatic failure	22/194 (11)	56/432 (13)
Sepsis/abscess/cholangitis	17/120 (14)	44/262 (17)
Bile leak	NR	21/166 (13)
Anastomotic leak	NR	25/205 (12)
Survival, %[c]		
1-year, median (range)	91 (89–92)	73 (67–90)
5-year, median (range)	46 (41–51)	30 (11–60)

Pas de différence en termes de
- complications post-hépatectomie
- survie à long terme

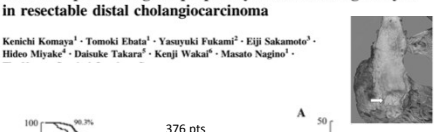
10 cas de seeding dans le drainage percutané

Le drainage endoscopique a un risque d'echec un peu plus élevé mais de résultats à court et à long termes comparables au drainage percutané

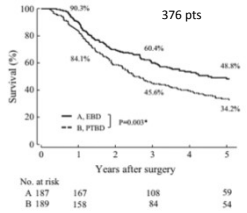
Percutaneous biliary drainage is oncologically inferior to endoscopic drainage: a propensity score matching analysis in resectable distal cholangiocarcinoma

Kenichi Komaya[1] · Tomoki Ebata[1] · Yasuyuki Fukami[2] · Eiji Sakamoto[3] · Hideo Miyake[4] · Daisuke Takara[4] · Kenji Wakai[5] · Masato Nagino[1] ·

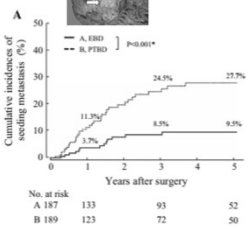
Journal of Gastroenterology 2016



376 pts



Survie significativement inférieure



Incidence de métastases seeding significativement plus élevée

DRAINAGE BILIAIRE PRE-OPERATOIRE

- Quel drainage ?

Catheter Tract Recurrence After Percutaneous Biliary Drainage for Hilar Cholangiocarcinoma

World J Surg (2013) 37:437–442

In Woong Han · Sun-Whe Kim

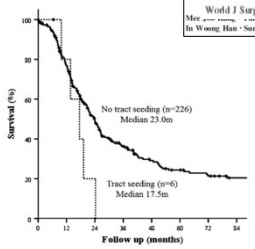
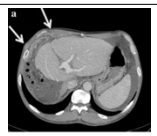
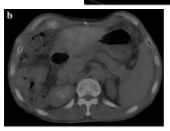


Fig. 2 Comparison of overall survival in patients with catheter tract seeding and those without





DRAINAGE BILIAIRE PRE-OPERATOIRE

- Quel drainage ?

PERCUTANE

Liver Transplantation with Neoadjuvant Chemoradiation is More Effective than Resection for Hilar Cholangiocarcinoma

(Ann Surg 2005;242: 451–461)

David J. Rea, MD,* Julie K. Heimbach, MD,† Charles B. Rosen, MD,† Michael G. Haddock, MD,‡ Steven R. Alberts, MD,§ Walter K. Kremers, PhD,† Gregory J. Gores, MD,¶ and David M. Nagorney, MD*

Le drainage percutané est une contreindication à une éventuelle TH à cause du risque de seeding

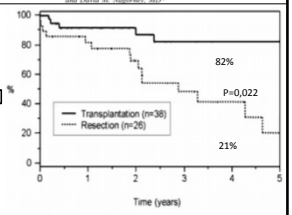
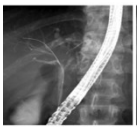


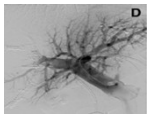
FIGURE 2. Patient survival from operation.

TRANSPHIL - PHRC Cancer Résection vs TH pour les cholangiocarcinome hilaire résécables
Dr E. Vibert

Quelle préparation pour l'intervention?

- Prise en charge de l'ictère:
  - Drainage biliaire pre-opératoire
- Evaluation volumétrique du FFR :
  - Embolisation portale
- Nutrition





Embolisation portale pre-opératoire

Surgery. 1990 May;107(5):521-7.

Preoperative portal embolization to increase safety of major hepatectomy for hilar bile duct carcinoma: a preliminary report.

Makuuchi M[1], Thai BL, Takayasu K, Takayama T, Kosuge T, Gunvén P, Yamazaki S, Hasegawa H, Ozaki H

- Hépatectomies majeures pour cholangiocarcinomes hilaires
- Morbi-mortalité élevée
- Taux élevé d'insuffisance hépatique post-opératoire

EMBOLISATION PORTALE

Postoperative Mortality after Liver Resection for Perihilar Cholangiocarcinoma: Development of a Risk Score and Importance of Biliary Drainage of the Future Liver Remnant

Jimme K. Wiggers, MD, PhD, Bas Groot Koerkamp, MD, PhD, Kasia P. Cieslak, MD, Alexandre Doussot, MD, David van Klaveren, PhD, Peter J. Allen, MD, FACS, Marc G. Besselink, MD, PhD, Olivier R. Busch, MD, PhD, Michael I. D'Angelica, MD, FACS, Ronald P. DeMatteo, MD, FACS, Dirk J. Gouma, MD, PhD, T Peter Kingham, MD, FACS, Thomas M. van Gulik, MD, PhD, William R. Jarnagin, MD, FACS

JACS 2016

Table 2. Multivariable Analysis of Postoperative Mortality

Risk factor	Full model			Selected model		
	OR	95% CI	p Value	OR	95% CI	p Value
Age (per 10 years)	2.1	1.4-3.3	0.001	2.1	1.4-3.3	0.001
Male sex	1.6	0.6-4.1	0.34	-	-	-
Jaundice	3.1	0.4-26.8	0.30	-	-	-
Preoperative cholangitis	3.5	1.5-8.5	0.005	4.1	1.8-9.4	0.001
Incomplete drainage	0.7	0.1-3.6	0.64	-	-	-
Incomplete drainage - FLR below 50%	3.8	0.7-23.2	0.15	2.8	1.1-7.5	0.04
FLR below 30%	2.5	1.1-6.1	0.04	2.9	1.2-6.9	0.02
Portal vein reconstruction	2.1	0.8-5.6	0.13	2.3	0.9-5.8	0.09
Treating hospital (MSKCC vs AMC)	1.4	0.6-3.2	0.46	-	-	-

Facteurs de risque de mortalité post-opératoire

Aucun décès chez les patients ayant un foie restant >50% meme en cas de drainage biliaire incomplet (patients icteriques)

Embolisation portale pre-opératoire: Complications

No randomized controlled clinical study (Pas evidence de niveau A)

Effets secondaires

- Fièvre
- Nausées et vomissement
- Douleur abdominale
- Perturbation du bilan hépatique

Complications:

- 12-15%
- Thrombose porte complète
- Migration de matériel embolique contro-latéral
- Hémopéritoine
- Hématome peri-hépatique
- Pneumothorax
- Hémobilie

-Di Stefano DR, De Baere T et al. Preoperative percutaneous portal vein embolization: evaluation of adverse events in 188 patients. Radiology 2005; 234:625–30.
-Kodama Y et al. Complications of percutaneous transhepatic portal vein embolization. J Vasc Interv Radiol 2002;13:1233–7.

Tecnique embolisation portale

Embolisation portale pre-opératoire: Résultats

Two Hundred Forty Consecutive Portal Vein Embolizations Before Extended Hepatectomy for Biliary Cancer
Surgical Outcome and Long-term Follow-Up
(Ann Surg 2006;243: 364–372)
Masato Nagino, MD, Junichi Kamiya, MD, Hideki Nishio, MD, Tomoki Ebata, MD, Toshiyuki Arai, MD, and Yuji Nimura, MD

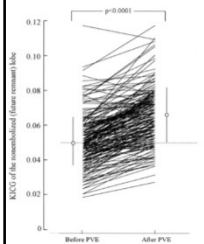


FIGURE 1. Changes in plasma disappearance rate of indocyanine green (ICG) of the nonembolized (future remnant) lobe before and after portal vein embolization (PVE).

240 patients
- Amelioration de la fonction hépatique
- Pas de complications majeures de l'embolisation
- Insuffisance hépatique: 33.3% -> 23.8%
- Mortalité : 21,9 -> 9,5% (ensemble série)

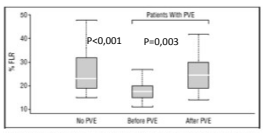
TABLE 4. Mortality After Extended Hepatectomy Following Portal Vein Embolization

	1991–1995	1996–2000	2001–	Total
Disease				
Gallbladder carcinoma	33.3% (4/12)	14.3% (4/28)	14.3% (3/21)	18.0% (11/61)
Procedure				
Hepatectomy without PD	15.0% (3/20)	9.4% (6/64)	3.0% (2/67)	7.3% (11/151)
Hepatectomy with PD	25.0% (2/8)	11.8% (2/17)	11.8% (2/17)	14.3% (6/42)
Total	17.9% (5/28)	9.9% (8/81)	4.8% (4/84)	8.8% (17/193)

*$P < 0.005$ between the two groups.
PD indicates pancreaticoduodenectomy.

Embolisation portale pre-opératoire: Résultats

Extended Hepatectomy in Patients With Hepatobiliary Malignancies With and Without Preoperative Portal Vein Embolization Arch Surg 2002;137:675-681
Eddie K. Abdalla, MD; Carlton C. Barnett, MD; Dorota Doherty, PhD; Steven A. Curley, MD; Jean-Nicolas Vauthey, MD



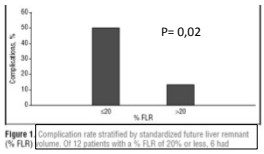


Figure 2. Standardized future liver remnant (% FLR) volume in patients who did and did not undergo portal vein embolization (PVE). There was a

Figure 1. (% FLR) Complication rate stratified by standardized future liver remnant volume. Of 12 patients with a % FLR of 20% or less, 6 had

Patients who demonstrated lobar hypertrophy had a significantly lower operative mortality than those patients without hypertrophy

'Because the benefi t of PVE is clear, and the risk for patients with a small future liver remnant is devastating, it is unethical to conduct a randomized control study'

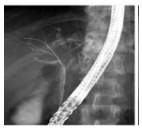
Embolisation portale pre-opératoire: Indications

Futur foie restant :

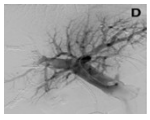
- **< 25%** du foie total
  (Ladurner R et al. Dig Liver Dis 2003. Hemming AW et al. Ann Surg 2003)
- **< 30%** du foie total
  (Elias D. Surgery 2002, Kubota K. Hepatology 1997)
- **< 40%** du foie total si hépatopathie associée.
  (Elias D. Surgery 2002, Belghiti J. J Hepatobiliary Pancreat Surg 2004)
- **≤ 0.5%** du poids corporel
  (Truant S. J Am Col Surg 2007)

Quelle préparation pour l'intervention?

- Prise en charge de l'ictère:
  – Drainage biliaire pre-opératoire



- Evaluation volumétrique du FFR :
  – Embolisation portale pre-opératoire



- Nutrition

DENUTRITION : Prévalence et conséquences

Surgery for Hilar Cholangiocarcinoma: A Multi-institutional Update on Practice and Outcome by the AFC-HC Study Group

J Gastrointest Surg (2011) 15:480–488

Jean Marc Regimbeau · David Fuks · Yves-Patrice Le Treut · Philippe Bachellier · Jacques Belghiti · Karim Boudjema · Jacques Baulieux · François-René Pruvot · Daniel Cherqui · Olivier Farges

Table 1 Characteristics of the study population	*n* (%)
Number of patients	56
Gender (M/F)	40/16
Age (mean±SD)	63±11
Body mass index (mean±SD, kg/m^2)	24±3
Initial symptoms	
Symptoms present	48 (91%)
Jaundice	47 (84%)
Weight loss	30 (54%)
Pruritus	18 (32%)
Asthenia	13 (23%)
Right upper quadrant abdominal pain	12 (21%)
Cholangitis	4 (7%)
Non-specific abdominal pain	4 (7%)
Time between first symptoms and surgery (median)	4 months [0-62]

!

DENUTRITION : Prévalence et conséquences

Prévalence de la dénutrition au milieu hospitalier: 15 à 60 %

27 % chirurgie générale

31,2 % cancer colorectal

49,5 % cancer du tractus digestif supérieur

Déficit immunitaire	Prédispose à l'infection, en particulier nosocomiale
Diminution de la force des muscles respiratoires	Prédispose à l'infection pulmonaire et retarde la guérison
Diminution de la sensibilité des centres respiratoires à l'oxygène	Prédispose à la ventilation artificielle en cas de maladie respiratoire et en retarde le sevrage
Inactivité et clinophilie	Prédispose aux escarres et à la maladie thromboembolique
Anomalies de la thermorégulation	Prédispose à l'hypothermie
Mauvaise cicatrisation des plaies	Augmente la durée de convalescence, de séjour hospitalier et d'arrêt de travail
Apathie, dépression et hypochondrie	Affecte le bien-être
Négligence personnelle	Prédispose à d'autres effets négatifs physiques et psychologiques

1 McWhirter JP, et al. Incidence and recognition of malnutrition in hospital. Bmj 1994;308:945-8.
2 Pressoir M, et al. Prevalence, risk factors and clinicalimplications of malnutrition in French Comprehensive Cancer Centres. Br J Cancer 2010;102:966-71.

DENUTRITION : Prévalence et conséquences

Sarcopenia negatively impacts short-term outcomes in patients undergoing hepatic resection for colorectal liver metastasis

HPB (Oxford). Jul 2011; 13(7): 439–446.

Peter D Peng,[1,*] Mark G van Vledder,[1,*] Susan Tsai,[1] Mechteld C de Jong,[1] Martin Makary,[1] Julia Ng,[1] Barish H Edil,[1] Christopher L Wolfgang,[1] Richard D Schulick,[1] Michael A Choti,[1] Ihab Kamel,[2] and Timothy M Pawlik[1]

	Univariate			Multivariate		
	OR	95% CI	*P*-value	OR	95%CI	*P*-value
Age (per 1 year increase)	1.00	0.97–1.04	0.85	1.00	0.97–1.04	0.79
Gender (male)	0.53	0.24–1.22	0.14	0.78	0.31–1.97	0.60
BMI (≥30)	1.04	0.42–2.59	0.94	1.34	0.52–3.46	0.78
Resection (major)	1.37	0.61–3.10	0.44	1.40	0.60–3.23	0.43
Sarcopenia (present)	3.33	1.36–8.09	0.008	3.12	1.14–8.80	0.02

durée de séjour significativement plus longue

Body composition and outcome in patients undergoing resection of colorectal liver metastases[1]

M. G. van Vledder, S. Levolger, N. Ayez, C. Verhoef, T. C. K. Tran and J. N. M. IJzermans*

Issue
BJS
British Journal of Surgery
Volume 99, Issue 4, pages

Survie globale à 5 ans : 20% vs 49,9% p<0,001

Survie sans récidive: 15% contre 28,5% p = 0,002

NUTRITION préopératoire: Indications

Recommandations de bonnes pratiques cliniques sur la nutrition périopératoire

SFNEP Société Francophone Nutrition Clinique et Métabolisme — Nourrir l'Homme malade

Support nutritionnel préopératoire :

- Soutien des fonctions immunitaires, de cicatrisation, musculaires et cognitives compromises par le stress chirurgical
- Pas recommandé en routine.
- Réservé à des groupes de patients à haut risque de morbi-mortalité.
  - Dénutrition
  - Acte chirurgical majeur
  - Age avancé, Cancer

> **KLATSKIN**

NUTRITION préopératoire: Indications

- Tout patient à risque doit recevoir une assistance nutritionnelle préopératoire d'au moins 7 à 10 jours.
- La nutrition entérale est à privilégier chez tout patient dont le tube digestif est fonctionnel ; dans ce cas, la nutrition parentérale **n'est pas recommandée**

SFNEP Société Francophone Nutrition Clinique et Métabolisme — Nourrir l'Homme malade

GN 1	- Patient non dénutri - Et chirurgie non à risque élevé de morbidité - Et pas de facteur de risque de dénutrition	Surveillance poids et alimentation
GN 2	- Patient non dénutri - Et présence d' au moins un facteur de risque de dénutrition - Ou chirurgie avec un risque élevé de morbidité	Conseil diététiques + CNO
GN 3	- Patient dénutri - Et chirurgie non à risque élevé de morbidité	Conseils diététiques + CNO +/- Nutrition artificielle entérale
GN 4	- Patient dénutri - Et chirurgie avec un risque élevé de morbidité	Conseil diététiques + CNO + Nutrition artificielle entérale

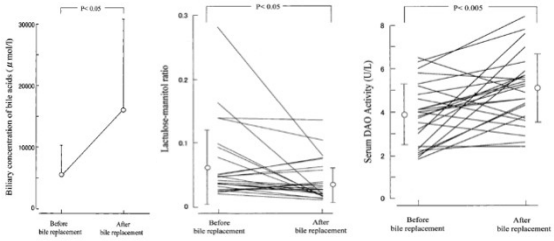
The Value of Bile Replacement During External Biliary Drainage

An Analysis of Intestinal Permeability, Integrity, and Microflora

(Ann Surg 2004;239: 510–517)

Satoshi Kamiyu, MD,* Masato Nagino, MD,* Hidetoshi Kanazawa, MD,* Shunichiro Komatsu, MD, Toshihiko Mayumi, MD,† Takashi Asahara, PhD,‡ Koji Nomoto, PhD,‡ Ryuichiro Tanaka, PhD,‡ and Yuji Nimura, MD*

IMPORTANCE DU DRAINAGE INTERNE !!!



- Augmentation significative des marqueurs d'intégrité de la muqueuse intestinale grâce à la reinstillation de la bile (rapport lactulose mannitole , DAO etc)

Perioperative Synbiotic Treatment to Prevent Postoperative Infectious Complications in Biliary Cancer Surgery

A Randomized Controlled Trial

(Ann Surg 2006;244: 706–714)

Gen Sugawara, MD, Masato Nagino, MD,* Hideki Nishio, MD,* Tomoki Ebata, MD,* Kenji Takagi, MD,† Takashi Asahara, PhD,‡ Koji Nomoto, PhD,‡ and Yuji Nimura, MD**

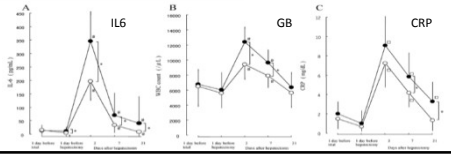
TABLE 4. Postoperative Infectious Complications, Hospital Stay, and Mortality

	Group A (n = 40)	Group B (n = 41)	*P*
Patients with any infectious complications (%)	12 (30.0%)	5 (12.1%)	0.0491
Bacteremia	5 (12.5%)	1 (2.4%)	
Intra-abdominal abscess	7 (17.5%)	4 (9.7%)	
Wound infection	6 (15.0%)	2 (4.8%)	
Pneumonia	3 (7.5%)	1 (2.4%)	
Postoperative hospital stay (days)	44.0 ± 13.8 (median, 38)	34.9 ± 14.9 (median, 30)	0.0447
Cumulative length of antibiotic therapy (days)	14.1 ± 9.6 (median, 12)	10.3 ± 6.9 (median, 8)	0.0357
Mortality	0	0	

SYMBIOTIQUES

POSTOP VS PRE+POSTOP

Preoperative and postoperative synbiotic treatment can reduce infectious complications more effectively than postoperative synbiotic treatment alone.



Pre-operative work-up: Optimisation

Embolisation portale + Drainage biliaire + Nutrition

DURÉE
- Risque de progression locale ou d'apparition de métastases ?

SURMORBIDITE
- Complications des procédures réalisées?

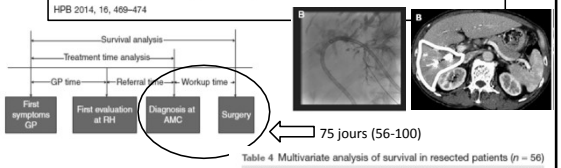
RESULTATS
- Morbi-mortalité post-opératoire
- Survie globale et sans récidive

PRE-OPERATIVE WORK-UP

Delay in surgical treatment of patients with hilar cholangiocarcinoma: does time impact outcomes?

Anthony T. Ruys*, Simon G. Heuts*, Eric A. Rauws, Olivier R. C. Busch, Dirk J. Gouma & Thomas M. van Gulik

HPB 2014, 16, 469–474



75 jours (56-100)

Table 3 Correlation of treatment time in weeks and outcomes (*n* = 209)

Outcome	Ratio (95% CI)	*P*-value
Resectability	OR: 1.010 (0.985–1.036)	0.42
Tumour stage (BC types I–III versus IV)	OR: 1.006 (0.981–1.031)	0.67
Survival in resected patients	HR: 0.996 (0.975–1.018)	0.72

Table 4 Multivariate analysis of survival in resected patients (*n* = 56)

Factor	Ratio (95% CI)	*P*-value
Age	OR: 0.978 (0.945–1.013)	0.22
Initial jaundice symptoms	OR: 1.460 (0.546–3.904)	0.45
Treatment time (GP to surgery)	OR: 1.004 (0.964–1.044)	0.86
Gender	OR: 0.950 (0.326–2.762)	0.92
Bismuth stage	OR: 0.956 (0.273–3.352)	0.94

95% CI, 95% confidence interval; OR, odds ratio; HR, hazard ratio; GP, general practitioner.

PRE-OPERATIVE WORK-UP

Long-Term Outcome of Extended Hemihepatectomy for Hilar Bile Duct Cancer With No Mortality and High Survival Rate

(Ann Surg 2003;238: 73–83)

Yasuji Seyama, MD, Keiichi Kubota, MD, PhD,* Kenji Sano, MD,* Tomoki Noie, MD,* Yudatoshi Takayama, MD, PhD,* Tomoe Kawaguchi, MD, PhD,† and Masatoshi Makuuchi, MD, PhD‡*

TABLE 2. Duration of Preoperative Treatment

Preoperative Treatment	n	BD-PE (Days)	PE-MHx (Days)	BD-MHx (Days)
No treatment	11	—	—	—
Only BD	16	26 (10–55)	—	—
Only PE	8		18 (9–36)	
BD + PE	23	21.5 (3–53)	21 (11–70)	46 (14–86)

46 jours

TABLE 3. Univariate Analysis of Clinicopathological Parameters

Parameters	n	Event	Mean	Median	P value
Total	58	32	38	47	
Preoperative treatment					0.336
No treatment	11	7	24	22	
Only BD	16	8	34	47	
Only PE	8	2	46	NA	
BD + PE	23	15	46	48	

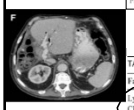


TABLE 4. Multivariate Analysis of Factors Influencing Patient Survival

Factors	β	*P* Value	Risk Ratio	95% CI
Lymph node status	1.0531	0.0004	2.866	(1.598, 5.140)
CEA	0.8572	0.1097	2.357	(0.824, 6.737)
Residual tumor	0.2838	0.4858	1.328	(0.598, 2.950)

PRE-OPERATIVE WORK-UP

Role of Preoperative Optimization of the Liver for Resection in Patients with Hilar Cholangiocarcinoma Type III

Ann Surg Oncol (2010) 17:3155–3161

Stéphane Grandadam, MD[1], Philippe Compagnon, MD, PhD[1], Alexis Arnaud, MD[1], Damien Olivié, MD[2], Yannick Malledant, MD[3], Bernard Meunier, MD[1], Bernard Launois, MD, FACS[1], and Karim Boudjema, MD

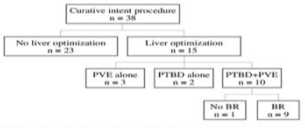


FIG. 1 Use of preoperative optimization in the study population. *PTBD* preoperative transhepatic biliary drainage, *BR* bile replacement, *PVE* portal vein embolization

TABLE 1 Complications following extended hepatectomy with or without preoperative optimization

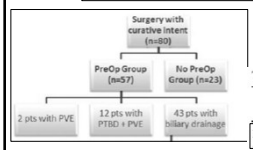
	Preoperative optimization (*n* = 15)	Control (*n* = 23)	*P* value
Anastomotic leakage	1	6	0.07
Intra-abdominal abscesses	0	11	0.01
Liver failure (fatal cases)	1 (0)	6 (4)	0.13
Intra-abdominal bleeding	0	2	0.21

PRE-OPERATIVE WORK-UP

Hilar Cholangiocarcinoma: Preoperative Liver Optimization with Multidisciplinary Approach. Toward a Better Outcome

Francesca Ratti · Federica Cipriani · Fabio Ferla · Marco Catena · Michele Paganelli · Luca A. M. Aldrighetti

World J Surg (2013) 37:1388–1396



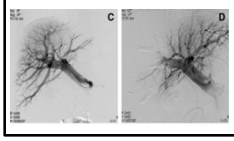


Table 3 Morbidity according to preoperative optimization

	Optimization *n* = 57 (71.2 %)	No optimization *n* = 23 (28.8 %)	*P*
Morbidity	26 (45.6 %)	15 (65.2 %)	0.043
Biliary fistula	3 (5.3 %)	4 (17.4 %)	NS
Intrahepatic abscesses	0	3 (13 %)	0.028
Liver failure	6 (10.5 %)	4 (17.4 %)	NS
Fever/sepsis	4 (7 %)	6 (26 %)	0.003
Hemorrhage	3 (5.3 %)	2 (8.7 %)	NS

Conclusions 2

Le Drainage biliaire pre-opératoire :

- Pas systématique : à envisager si
  - angiocholite
  - embolisation portale pre-opératoire
  - hépatectomie droite élargie
- Drainage endoscopique de première intention
- Sélectif du futur foie restant

L'embolisation portale :

- Permet une hypertrophie du futur foie restant et donc augmente le nombre de patients opérables
- Doit être discutée avant toute résection hépatique majeure
- Réduit significativement la mortalité post-hépatectomie

Conclusions 2

Nutrition pre-opératoire

- Tous les patients sont à risque de dénutrition et 50% sont dénutris
- Nutrition pre-opératoire pour tous les patients (orale ou entérale)
- Importance de la réintroduction de bile dans le tube digestif
- L'utilisation des symbiotique en pre et post-opératoire permet de réduire de façon significative la morbidité.

L'optimisation pre- hépatectomie majeure:

- Durée moyenne : 35-75 j
- N'est pas une perte de chance pour le patient en termes de résécabilité ou de progression oncologique
- Permet de réduire significativement la morbidité post-opératoire

MERCI DE VOTRE ATTENTION

NOTES

NOTES

TUMEURS DES VOIES BILIAIRES

Cholangiocarcinomes hilaire et péri-hilaire

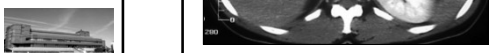
Quand sont les traitements disponibles ?
Quels résultats ?
Comment faire le choix ?

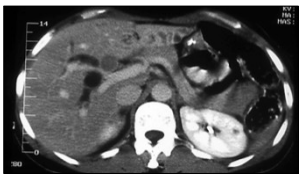
Professeur Daniel CHERQUI

Hôpital Paul Brousse, Centre Hépato-Biliaire, Villejuif

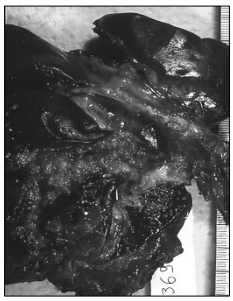
Surgical Treatment of Hilar Cholangiocarcinoma

Daniel Cherqui M.D.
Professor of Surgery
The Hepato-Biliary Center
Paul Brousse Hopital – Université Paris Sud
Villejuif, France

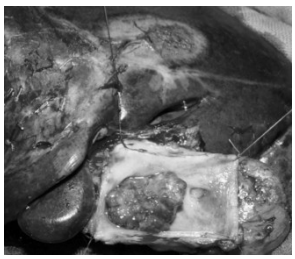




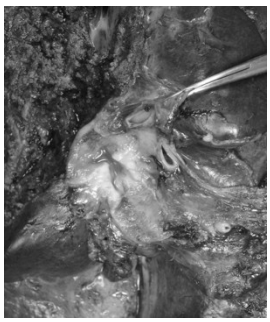
Papillary Type 5%

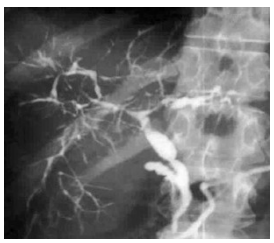


Nodular Type 5%

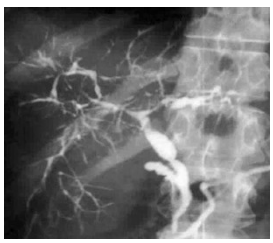


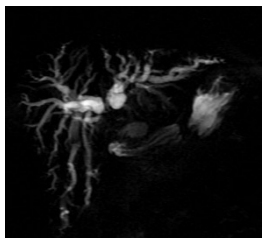
Infiltrative (sclerosing) Type 90%
Klatskin Tumor





PSC 10%

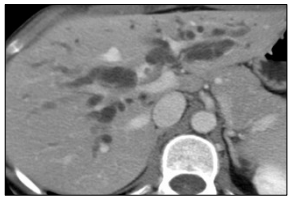




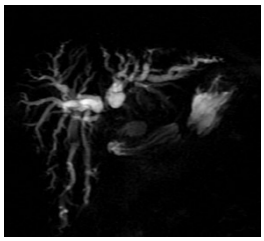
PSC 10%

De Novo 90%

Diagnosis and Staging

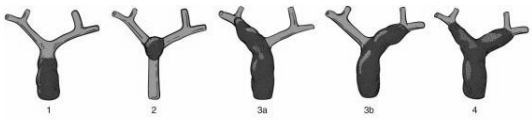


MDCT - Vascular reconstructions



MRI - MRCP

BISMUTH CLASSIFICATION

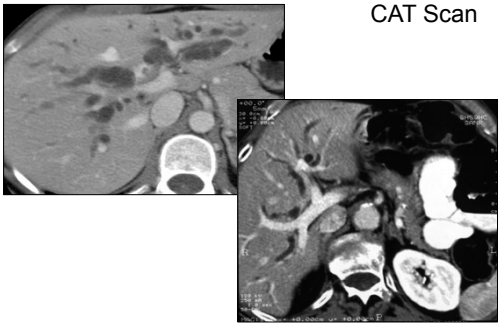


RESECTION

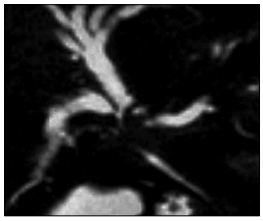
TRANSPLANTATION

Bismuth and Corlette, SGO 1975

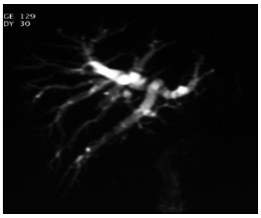
CAT Scan



MRCP

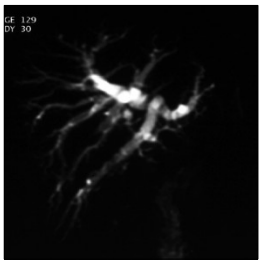


Type 3a

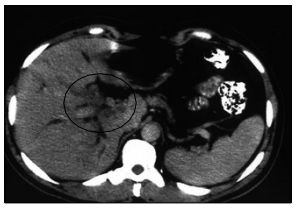


Type 1

Type I tumor with locoregional extension

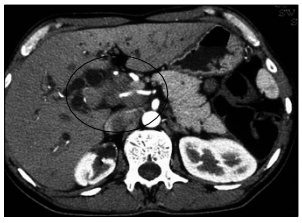


MRCP

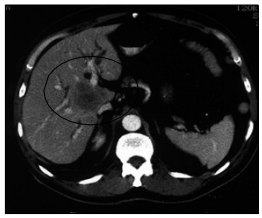


CT SCAN

Locoregional extension

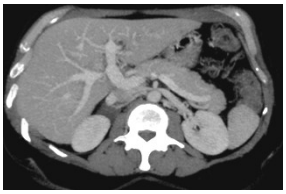


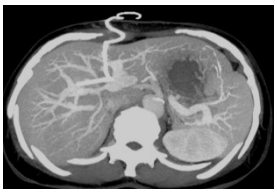
Lymph nodes



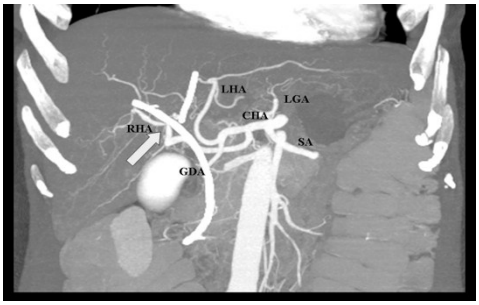
Portal and hepatic involvment

Portal Vein Extension

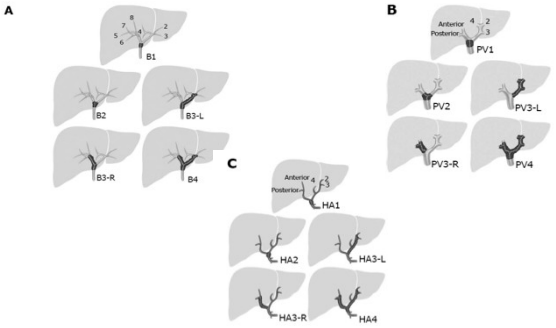




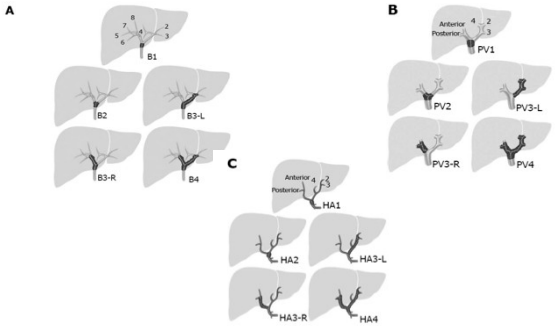
Hepatic Artery Extension

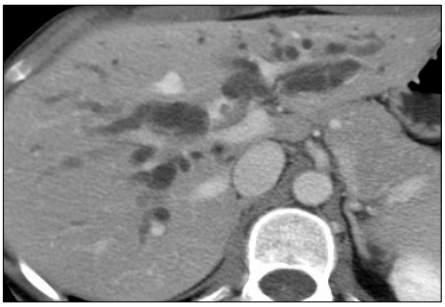


Deoliveira ML, Schulick RD, Nimura Y, Rosen C, Gores G, Neuhaus P, Clavien PA. New staging system and a registry for perihilar cholangiocarcinoma. *Hepatology* 2011; **53**:

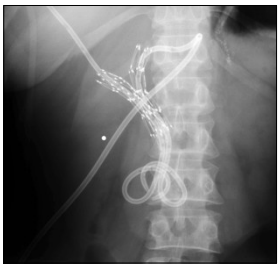


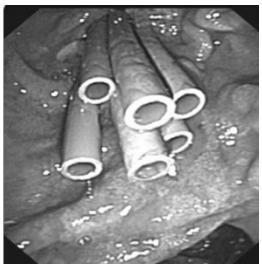
Deoliveira ML, Schulick RD, Nimura Y, Rosen C, Gores G, Neuhaus P, Clavien PA. New staging system and a registry for perihilar cholangiocarcinoma. *Hepatology* 2011; **53**:





Biliary Drainage





Intraoperative Bile Cultures

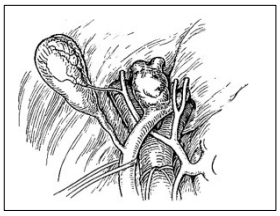
TABLE IV
Effect of Preoperative Percutaneous Transhepatic Biliary Drainage on Intraoperative and Postoperative Results

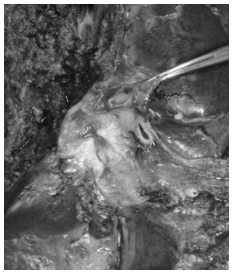
	Preoperative Percutaneous Transhepatic Biliary Drainage (n = 14)	No Preoperative Biliary Drainage (n = 25)	*P*
Positive intraoperative bile cultures	64%	8%	0.001
Operative blood loss >500 mL	79%	14%	0.007
Postoperative intervention for bile leak	29%	0%	0.0001
Postoperative complications (total)	50%	39%	NS

NS = not significant.

Jarnagin et al. Am J Surg 1998

Hilar Cholangiocarcinoma or Klatskin Tumor





ORIGINAL ARTICLE

Major Liver Resection for Carcinoma in Jaundiced Patients Without Preoperative Biliary Drainage

Daniel Cherqui, MD; Stéphane Benoist, MD; Benoît Malassagne, MD; Roberto Humeres, MD; Virginia Rodriguez, MD; Pierre-Louis Fagniez, MD

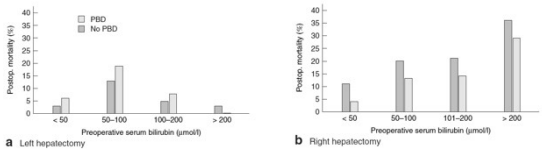
Arch Surg. 2000;135:302-308

Politically Incorrect Paper

Multicentre European study of preoperative biliary drainage for hilar cholangiocarcinoma

O. Farges[1], J. M. Regimbeau[7], D. Fuks[7], Y. P. Le Treut[2], D. Cherqui[3], P. Bachellier[4], J. Y. Mabrut[5], M. Adham[2], F. R. Pruvot[6] and J. F. Gigot[8]*

British Journal of Surgery 2013; **100**: 274–283



Percutaneous transhepatic biliary drainage catheter tract recurrence in cholangiocarcinoma

British Journal of Surgery 2010; **97**: 1860–1866

Y. Takahashi[1], M. Nagino[1], H. Nishio[1], T. Ebata[1], T. Igami[1] and Y. Nimura[2]

445 patients with extrahepatic cholangiocarcinoma and PTBD

Tract recurrence: 23 = 5.2%

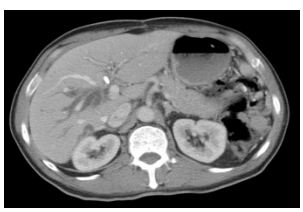
Median survival 22 vs 27 months

Conclusion: PTBD catheter tract recurrence is not unusual. The prognosis for these patients is generally poor, even after resection. To prevent this troublesome complication, endoscopic biliary drainage is first recommended when drainage is indicated.

The American Journal of Surgery 193 (2007) 149–154
Clinical surgery–International

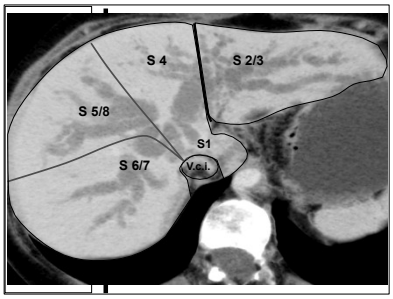
Selective versus total biliary drainage for obstructive jaundice caused by a hepatobiliary malignancy

Takeaki Ishizawa, M.D., Kiyoshi Hasegawa, M.D., Ph.D., Keiji Sano, M.D., Ph.D., Hiroshi Imamura, M.D., Ph.D., Norihiro Kokudo, M.D., Ph.D., Masatoshi Makuuchi, M.D., Ph.D.*



Right trisectionectomy

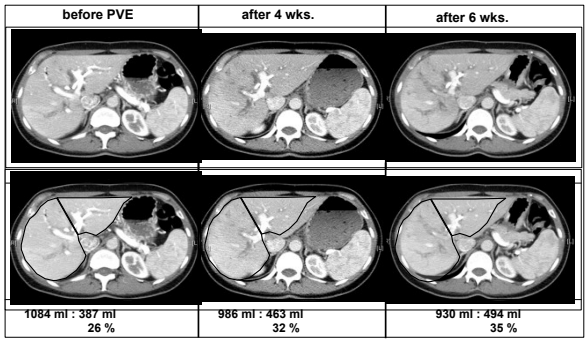
Small FLR of Seg. 2/3



~ 25 %

Right trisectionectomy

Preoperative portal vein embolisation



PRINCIPLES OF SURGICAL RESECTION

Goal : complete tumor resection with clear margins (R0)

Includes in all cases

- Resection of common bile duct and biliary confluence
- Lymphadenectomy
- Liver Resection
- Biliary-enteric anastomosis

According to individual extension

- Vascular resections and reconstructions
- Pancreaticoduodenectomy

RESECTABILITY

Literature : 10 - 80 %

Determinant factors :

- the rate of hepatectomy
- clearance required : R0 ou R1

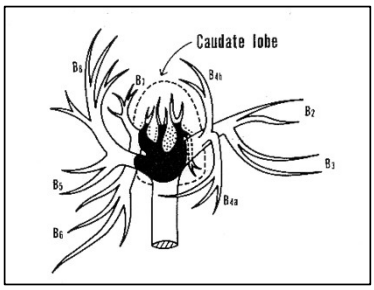
(nodes, biliary stump,vessels)

The Surgeon

Resection for hilar cholangiocarcinoma

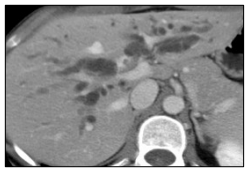
		Hilar Resection alone		Additional Liver Resection	
		n (R0%)	5 year-survival	n (R0%)	5 year-survival
Gazzaniga et al.	2000	20 (--)	0%	17 (--)	25%
Miyazaki et al.	1998	11 (45%)	0%	65 (75%)	27%
SG Lee et al.	2000	17 (24%)	0%	111 (77%)	24%
Y Nimura et al.	2000	14 (57%)	16%	128 (78%)	26%

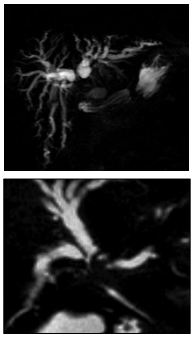
INVOLVMENT OF SEGMENT I IN HILAR CHOLANGIOCARCINOMA

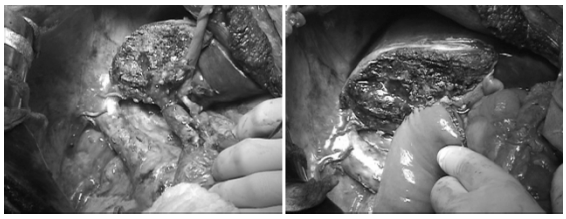


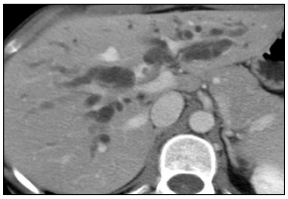
Nimura et al. World J Surg 1990;14:535-44

Right Sided Resection 50-60%

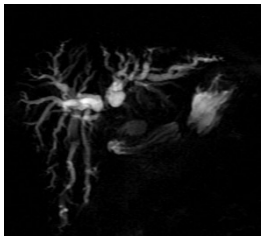




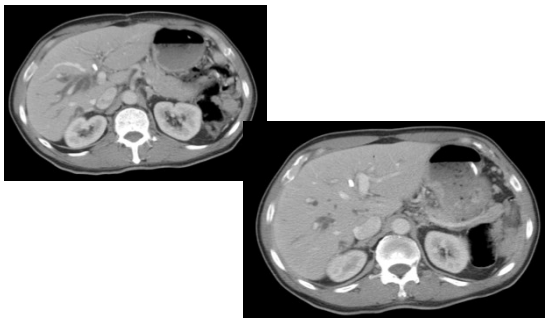


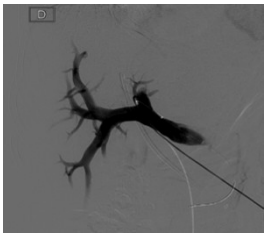


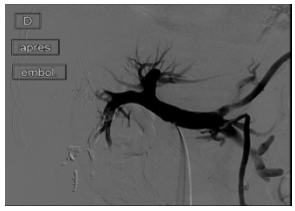
MDCT - Vascular involvment and anatomy

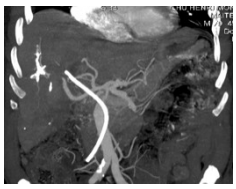


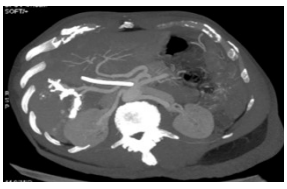
MRI - MRCP

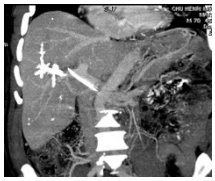


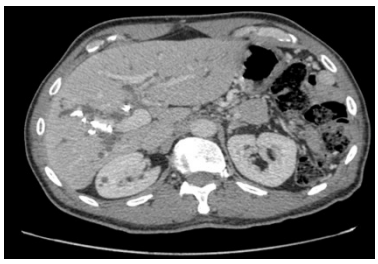




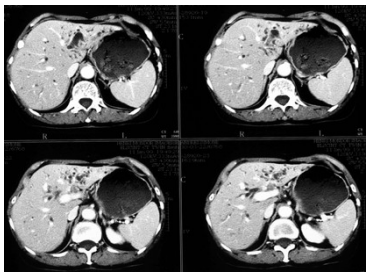


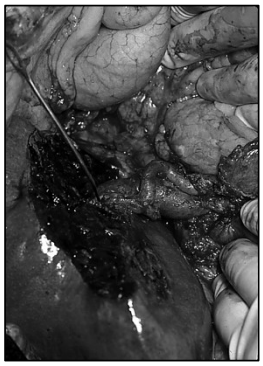


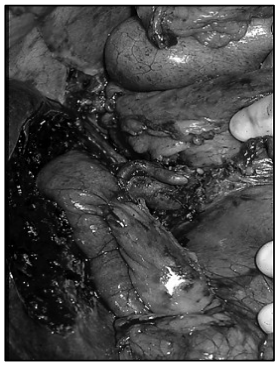




Left Sided Resection 40-50%





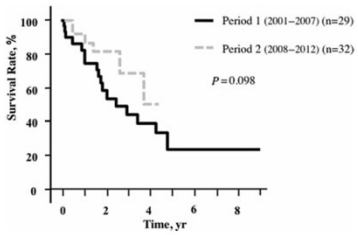


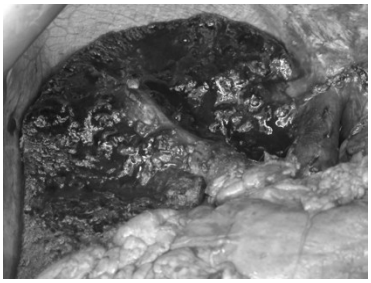
Surgical Strategy for Hilar Cholangiocarcinoma of the Left-Side Predominance

Current Role of Left Trisectionectomy

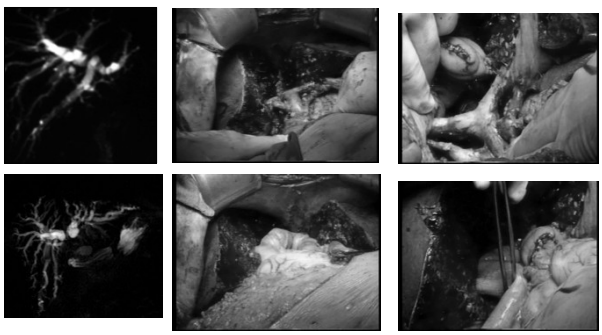
Ann Surg 2014;259:1178–1185

Isamu Hosokawa, MD, Hiroaki Shimizu, MD, Hiroyuki Yoshidome, MD, Masayuki Ohtsuka, MD, Atsushi Kato, MD, Hideyuki Yoshitomi, MD, and Masaru Miyazaki, MD





Central Resection (4+5+8+1) <10%

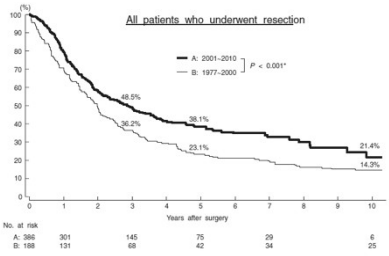


Evolution of Surgical Treatment for Perihilar Cholangiocarcinoma

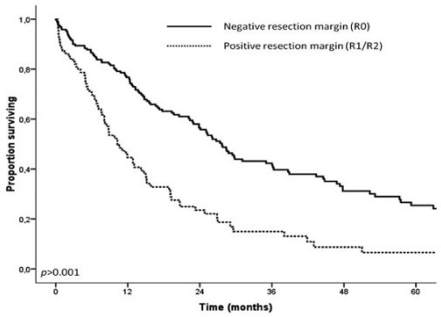
Ann Surg 2013;258: 129–140

A Single-Center 34-Year Review of 574 Consecutive Resections

Masato Nagino, MD, PhD, Tomoki Ebata, MD, PhD,* Yukihiro Yokoyama, MD, PhD,* Tsuyoshi Igami, MD, PhD,* Gen Sugawara, MD, PhD,* Yu Takahashi, MD, PhD,* and Yuji Nimura, MD, PhD†*

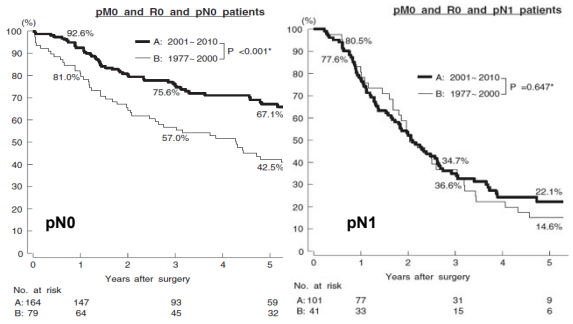


Impact of R1 resection on long term survival



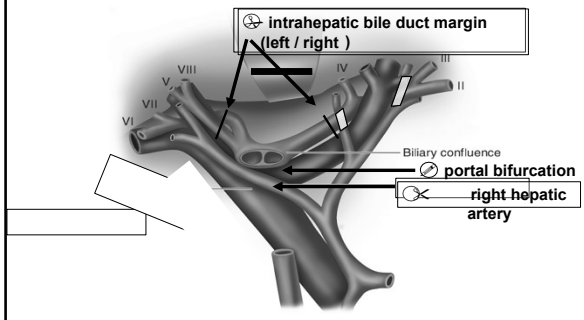
de Jong M, Cancer 2012; 118: 4737-47

Long term results: the Nagoya experience



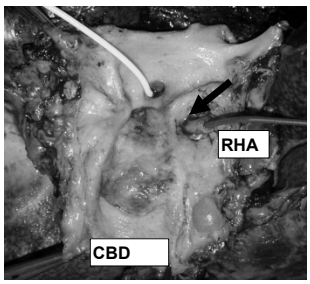
Nagino M et al., Ann Surg 2013

High risk of R1-resection

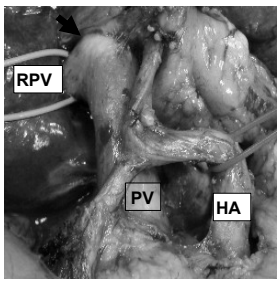


Courtesy of Peter Neuhaus

High risk of R1-resection



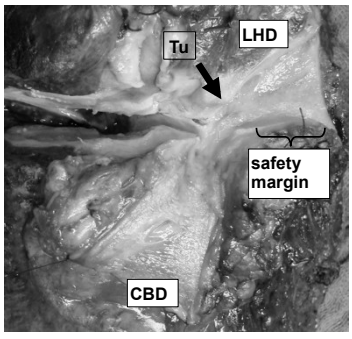
right hepatic artery

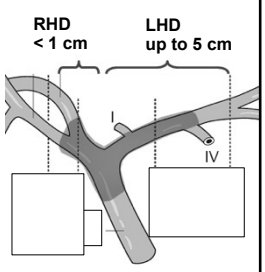


portal vein bifurcation

Courtesy of Peter Neuhaus

High risk of R1-resection

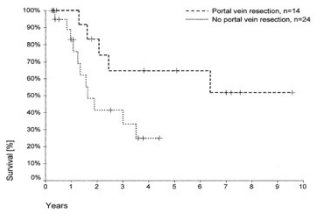




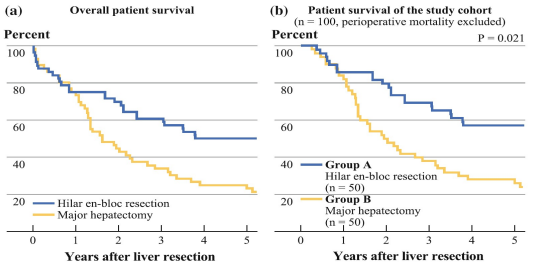
Extended Resections for Hilar Cholangiocarcinoma

Ann. Surg. • December 1999

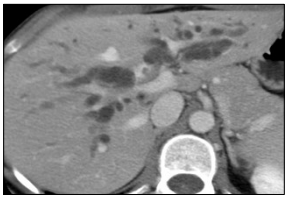
Peter Neuhaus, MD,* Sven Jonas, MD,* Wolf O. Bechstein, MD,* Rüdiger Lohmann, MD,* Cornelia Radke, MD,† Norbert Kling, MD,* Cora Wex, MD,* Hartmut Lobeck, MD,† and Rainer Hintze, MD‡



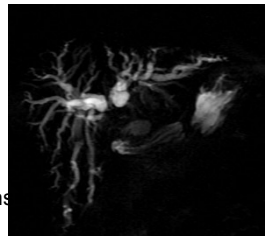
Oncological Superiority of Hilar En Bloc Resection for the Treatment of Hilar Cholangiocarcinoma



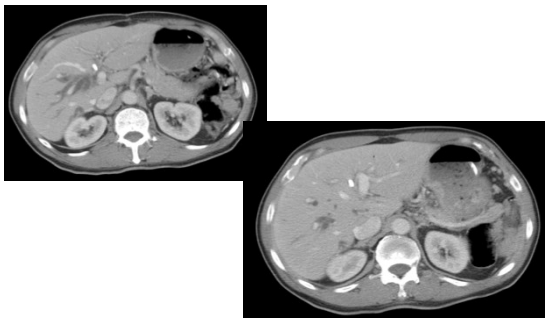
Neuhaus P et al., Ann Sur Oncol 2011

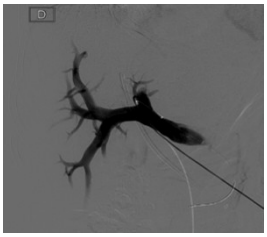


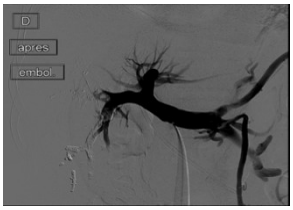
MDCT - Vascular reconstructions

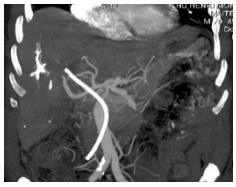


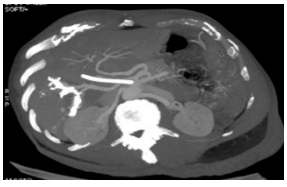
MRI - MRCP

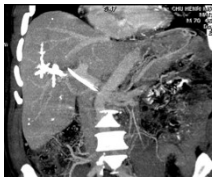


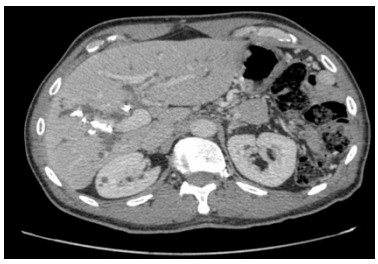












Conclusions

•Although few patients qualify, R0 surgery is the only prospect of long term survival and should always be considered

•Non invasive assessment of resectability using high quality imaging (MDCT + MRCP) prior to any biliary intervention is essential

•Surgery for Hilar CCA is always complex and requires highly specialized centers

Conclusions

•Liver resection in addition to bile duct resection is required to achieve curative treatment

• Extended right hepatectomy to S4 and S1 is the procedure of choice

•It requires preparation by preoperative biliary drainage and portal vein embolization

• Endoscopic biliary drainage is preferable to percutaneous stenting

• Biliary drainage can be omitted in selected cases of left hepatectomy

Conclusions

•En bloc-no touch portal vein resection increases the radicality of surgery and improves survival

•Margin status and lymph node invasion are the main predictors of survival

•In case of R0 – N0 – En bloc surgery, survival of 50% or more can be achieved

Liver Transplantation for Hilar CCA

- Liver Transplantation alone
  - Very poor results: 25-35% 5-y survival
- Liver Transplantation with Extended Resection
  - Cluster operations
  - OLT with Pancreatoduodenectomy
  - Very poor results: 25-35% 5-y survival
- Liver Transplantation with Neodajuvant Treatment
  - Radiotherapy with Chemosensitization
  - University of Nebraska and Mayo Clinic

Liver Transplantation for Hilar CCA

Liver Transplantation with Neoadjuvant Chemoradiation is More Effective than Resection for Hilar Cholangiocarcinoma

David J. Rea, MD, Julie K. Heimbach, MD,† Charles B. Rosen, MD,† Michael G. Haddock, MD,‡ Steven R. Alberts, MD,§ Walter K. Kremers, PhD,† Gregory J. Gores, MD,¶ and David M. Nagorney, MD**

Annals of Surgery • Volume 242, Number 3, September 2005

The Mayo Clinic Protocol

Table 1. Criteria for neoadjuvant therapy and liver transplantation.

Diagnosis of cholangiocarcinoma
Transcatheter biopsy or brush cytology
CA-19.9 > 100 mg/ml and/or a mass on cross-sectional imaging with a malignant appearing stricture on cholangiography
Biliary ploidy by FISH with a malignant appearing stricture on cholangiography
Unresectable tumor above cystic duct
Pancreatoduodenectomy for microscopic involvement of CBD
Resectable CCA arising in PSC
Radial tumor diameter ≤3 cm
Absence of intra- and extrahepatic metastases
Candidate for liver transplantation

CBD, common bile duct; CCA, cholangiocarcinoma; PSC, primary sclerosing cholangitis.

The Mayo Clinic Protocol

Table 2. Exclusion criteria.

Intrahepatic cholangiocarcinoma
Uncontrolled infection
Prior radiation or chemotherapy
Prior biliary resection or attempted resection
Intrahepatic metastases
Evidence of extrahepatic disease
History of other malignancy within 5 years
Transperitoneal biopsy (including percutaneous and EUS guided FNA)

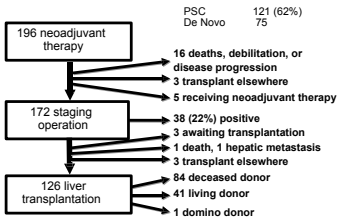
EUS, endoscopic ultrasound; FNA, fine needle aspiration.

The Mayo Clinic Protocol

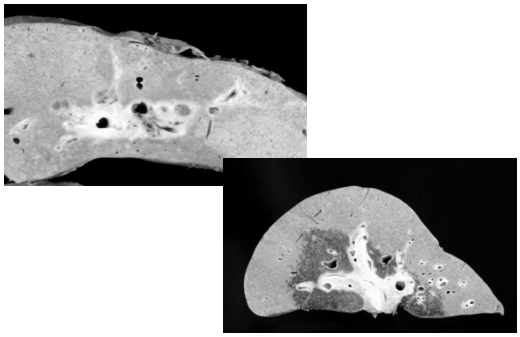
Mayo clinic protocol
External beam radiation therapy (45 Gy in 30 fractions, 1.5 Gy twice daily) and continuous infusion 5-FU – administered over 3 weeks
↓
Brachytherapy (20 Gy at 1 cm in approximately 20–25 hours) – administered 2 weeks following completion of external beam radiation therapy
↓
Capecitabine – administered until the time of transplantation, held during perioperative period for staging
↓
Abdominal exploration for staging – as time nears for deceased donor transplantation or day prior to living donor transplantation
↓
Liver transplantation

The Mayo Clinic Protocol

1993 - 2010

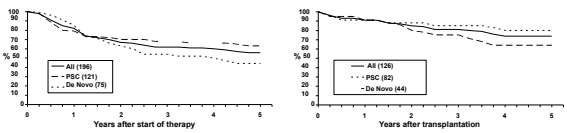


Rosen et al. In Blumgart



Rosen et al. In Blumgart

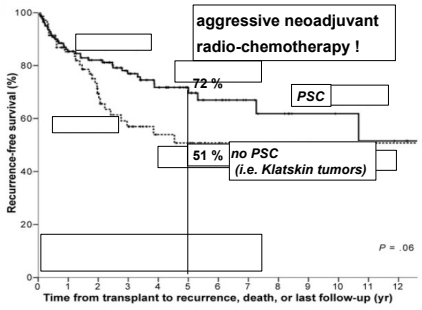
The Mayo Clinic Protocol



	Intent to Treat	Overall
All	56%	74%
PSC	63%	80%
De Novo	44%	64%

Rosen et al. In Blumgart

Liver transplantation for hilar cholangiocarcinoma: US multicenter analysis



Darwish Murad S, Gastroenterology 2012; 143:88

Predictors of Disease Recurrence Following Neoadjuvant Chemoradiotherapy and Liver Transplantation for Unresectable Perihilar Cholangiocarcinoma

Julie K. Heimbach,[1,5] Gregory J. Gores,[1] Michael G. Haddock,[2] Steven R. Alberts,[3] Rachel Pedersen,[4] Walter Kremers,[1,4] Scott L. Nyberg,[1] Michael B. Ishitani,[1] and Charles B. Rosen[1]

(*Transplantation* 2006;82: 1703–1707)

TABLE 2. Risk factors associated with disease recurrence

Risk factor	Hazard ratio (95% CI)	*P* value
Age at OLT	1.083 (1.02–1.15)	0.0089
Pre-Tx CA 19-9>100	4.503 (1.36–14.92)	0.0158
Prior cholecystectomy	4.736 (1.33–16.87)	0.0209
Residual tumor >2 cm	0.157 (0.02–1.23)	0.0257
Mass on imaging	5.425 (1.38–21.33)	0.0345
Perineural invasion	3.492 (1.05–11.60)	0.0436
Tumor grade 2/4 or 3/4	4.081 (1.048–26.81)	0.042
PSC	0.368 (0.11–1.26)	0.10
Male gender	0.937 (0.23–3.5)	0.92
CA 19-9 >100 at enrollment	1.211 (0.34–4.36)	0.77
Prior PTC	1.481 (0.43–5.07)	0.54

Factors investigated and found not to be associated with disease recurrence included PSC, gender, Ca 19-9 >100 at enrollment, and prior PTC.

Conclusions

- De Novo Hilar CCA (i.e. no PSC)
  - Resection is preferred whenever possible
  - Extensive liver resection with liberal use of vascular resection is the procedure of choice
  - Survival of 40% or more can be expected if R0 N0
- PSC or non resectable lesion in a young patient
  - Liver transplantation with Mayo Clinic protocol can be proposed in highly selected patients and with strict adherence to the guidelines

NOTES

TUMEURS DES VOIES BILIAIRES

Cancers de la vésicule de découverte fortuite

Fréquence,
Comment les dépister avant l'histologie?

Dr Boris TRECHOT

Hôpital Paul Brousse, Centre Hépato-Biliaire, Villejuif

NOTES

NOTES

TUMEURS DES VOIES BILIAIRES

Cancers de la vésicule de découverte fortuite

Quel traitement en fonction du stade histologique ?

Dr Andrea LAURENZI

Hôpital Paul Brousse, Centre Hépato-Biliaire, Villejuif

UNIVERSITÉ PARIS SUD

Centre Hépato-Biliaire

Cancer de la vésicule de découverte fortuite

Quel traitement en fonction du stade histologique

Andrea Laurenzi
Chef de Clinique Assistant
Centre Hépato-Biliaire - Hôpital Paul Brousse

Classification histologique

TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Tis	Carcinoma in situ
T1a	Tumor invades lamina propria
T1b	Tumor invades muscular layer
T2	Tumor invades perimuscular connective tissue
T3	Tumor perforates serosa or directly invades the liver and/or one other adjacent organ
T4	Tumor invades main portal vein or hepatic artery or invades multiple extrahepatic organs
NX	Regional nodes cannot be assessed
N0	No regional nodal metastasis
N1	Metastasis to nodes along the cystic duct, common bile duct, hepatic artery and/or portal vein
N2	Metastasis to periaortic, pericaval, superior mesenteric artery, and/or celiac artery lymph nodes*

Stage 0	Tis	N0	M0
Stage I	T1	N0	M0
Stage II	T2	N0	M0
Stage IIIA	T3	N0	M0
Stage IIIB	T1-3	N1	M0
Stage IVA	T4	N0-1	M0
Stage IVB	Any T	N2*	M0
	Any T	Any N	M1

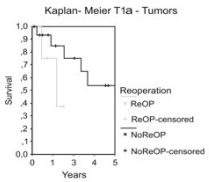
1% des tumeurs découvertes sur la pièce

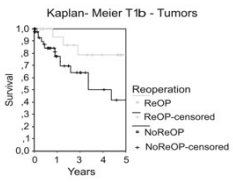
TNM 7th 2010

Bilan préopératoire

- Déroulement de la 1ere chirurgie
  - Cœlioscopie
  - Perforation de la vésicule (T1/T2 → T3)
  - Extraction de la pièce avec un sac
- Anatomopathologie de la pièce
  - Localisation de la tumeur (fond, collet)
  - T
  - Ganglion de Mascagni envahi
  - Canal cystique envahi
- Scanner TAP injecté
- ACE, CA 19-9
- Pet Scanner

Tumeurs T1





Pas de différence pour les T1a

Métastase ganglionnaire 0-3%

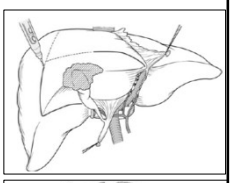
SG à 5 ans 42% vs 79% p=0,03
Taux de récidive 24% vs 8%

Métastase ganglionnaire 4-10%

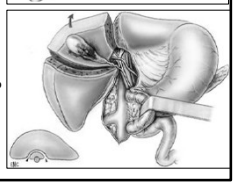
Goetze Surg End 2008
You Ann Surg 2008
Ann Surg Oncol 2014

Quel type de résection?

Cholécystectomie radicale:
- Cholécystectomie
- Résection parenchyme hépatique
- Curage ganglionnaire
- Picking inter-aortico-cave sus et sous-rénale



- Extension de la résection hépatique?
- Extension du curage pédiculaire ?
- Résection de la voie biliaire principale ?
- Résection des orifices des trocarts ?

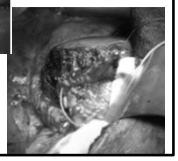


Quel type de résection?

Extension de la résection hépatique ?

- Résection du lit vésiculaire
  (2cm parenchyme hépatique périvésiculaire)

- Bisegmentectomie IVb – V



- Hépatectomie droite élargie au IVb
- Hépatectomie gauche élargie au V

Quel type de résection?

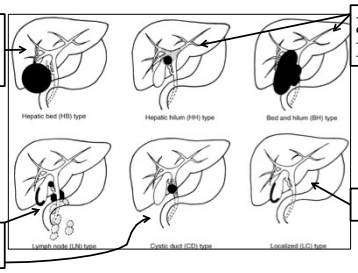
Extension de la résection hépatique ?

Langenbecks Arch Surg. 2002 Oct;387(5-6):222-8. Epub 2002 Oct 2.

Mode of tumor spread and surgical strategy in gallbladder carcinoma.

Kondo S, Nimura Y, Kamiya J, Nagino M, Kanai M, Uesaka K, Hayakawa N.

-Wedge resection
-Bisegmentectomie IVb+V
-Hepatectomie droite + IVb



-Hépatectomie droite + IV
-résection VBP
-résection portale

-Wedge résection
-Bisegm IVb-V
-DPC ?

-Wedge résection
-Bisegm IVb-V

Quel type de résection?

Extension de la résection hépatique ?

Incidence of Finding Residual Disease for Incidental Gallbladder Carcinoma: Implications for Re-resection

J Gastrointest Surg (2007) 11:1478–1487

Timothy M. Pawlik · Ana Luiza Gleisner · Luca Vigano · David A. Kooby · Todd W. Bauer · Andrea Frilling · Reid B. Adams · Charles A. Staley · Eduardo N. Trindade · Richard D. Schulick · Michael A. Choti · Lorenzo Capussotti

Table 2 Details of Patients with Incidental Gallbladder Carcinoma (n=115) who Underwent a Repeat Surgical Procedure

Variable	Number of Patients (%)
Second surgery (n=115)	
Exploratory Laparotomy only	18 (15.7)
Re-Resection	97 (84.3)
Hepatic resection (n=97)	
Wedge	28 (28.9)
Segmentectomy 4b + 5	63 (64.9)
Hemi-hepatectomy	6 (6.2)
Excision of Laparoscopic Trocar Sites	48 (41.7)
Lymphadenectomy	
Without common bile duct resection	49 (50.5)
With common bile duct resection	42 (43.3)
No lymphadenectomy reported	6 (6.2)

Prognostic Factor	Multivariate Analysis		
	Hazard Ratio	95% CI	P Value
AJCC Tumor Stage			
Stage I	–	–	–
Stage II	2.60	1.07–6.35	0.03
Stage IV	16.41	4.73–56.88	<0.001
Any residual/additional disease			
Residual carcinoma in liver bed	4.79	1.95–11.77	0.001
Metastatic Disease in lymph nodes			
R1/R2 surgical resection	2.43	0.58–10.04	0.22
Major hepatic resection	1.25	0.54–2.92	0.60
Resection of common bile duct	0.91	0.41–1.96	0.80

Quel type de résection?

Quel type de curage ganglionnaire ?

Du pédicule hépatique et cœliaque

Lymph Node Metastases in Patients Undergoing Surgery for a Gallbladder Cancer. Extension of the Lymph Node Dissection and Prognostic Value of the Lymph Node Ratio

Ann Surg Oncol 2014

David Jérémie Birnbaum, MD[1], Luca Viganò, MD[1,2], Nadia Russolillo, MD[1], Serena Langella, MD[1], Alessandro Ferrero, MD[1], and Lorenzo Capussotti, MD[1]

Curage D1 = pédicule hépatique
Curage D2 = pédicule hépatique + cœliaque et retro-pancréatique

Morbidité globale et durée d'hospitalisation comparables
Existence de skip metastases dans les ganglions retro-pancréatiques
Meilleur évaluation du paramètre N et donc meilleure évaluation pronostique

⇩

Du pédicule hépatique, cœliaque et retro-pancréatique ?

Quel type de résection?

Quel type de curage ganglionnaire ?

Am J Clin Oncol. 2015 Feb;38(1):5-10. doi: 10.1097/COC.0b013e318287bb48.

Surgical treatment of advanced gallbladder cancer.

Niu GC[1], Shen CM, Cui W, Li Q.

Cancers de la vésicule N2

60 patients

Curage classique vs curage étendu à l'AMS et inter-aortico-cave

Pas d'amélioration de la survie globale ou de la survie sans récidive

Quel type de résection?

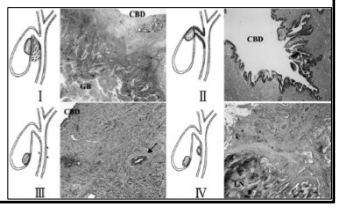
Résection de la voie biliaire principale ?

Surgery. 2004 Nov;136(5):1012-7; discussion 1018.

Should the extrahepatic bile duct be resected for locally advanced gallbladder cancer?

Shimizu Y, Ohtsuka M, Ito H, Kimura F, Shimizu H, Togawa A, Yoshidome H, Kato A, Miyazaki M.

- Ictère
- Anomalies jonction bilio-pancréatique
- Kystes du cholédoque
- Envahissement du ligament hépatoduodénale fréquent
- Facilite le curage



Quel type de résection?

Résection de la voie biliaire principale ?

Gallbladder Cancer: The Role of Laparoscopy and Radical Resection

(*Ann Surg* 2007;245: 893–901)

Samuel P. Shih, MD, Richard D. Schulick, MD,* John L. Cameron, MD,* Keith D. Lillemoe, MD,* Henry A. Pitt, MD,† Michael A. Choti, MD,* Kurtis A. Campbell, MD,* Charles J. Yeo, MD,‡ and Mark A. Talamini, MD§*

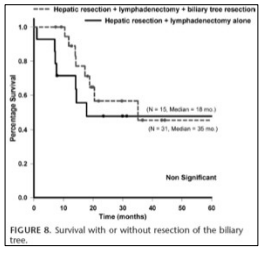
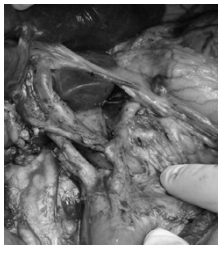


FIGURE 8. Survival with or without resection of the biliary tree.



Quel type de résection?

Résection de la voie biliaire principale ?

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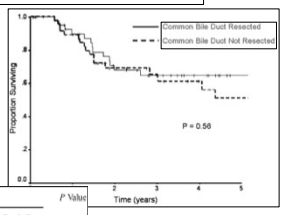
Pas de différence significative :

- Nombre de ganglions prélévés
- Survie

- Sténoses biliaires post-squelettisation



Site of Disease After 2nd Surgery			*P* Value
	Positive Cystic Duct (n = 19)	Negative Cystic Duct (n = 23)	
Common bile duct	8 (42.1)	1 (4.3)	0.01

Quel type de résection?

Résection des orifices des trocarts toujours actuelle ?

Is Port Site Resection Necessary in the Surgical Management of Gallbladder Cancer?

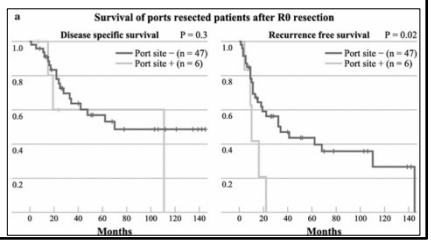
Ann Surg Oncol (2012) 19:409–417

Ajay V. Maker, MD[1,2], Jean M. Butte, MD[2], Jacqueline Oxenberg, DO[2], Deborah Kuk, MS[3], Mithat Gonen, Yuman Fong, MD[2], Ronald P. DeMatteo, MD[2], Michael I. D'Angelica, MD[2], Peter J. Allen, MD[2], and William R. Jarnagin, MD[2]

113 pts

Maladie au niveau des orifices de trocarts: 19%

Association avec la carcinose péritonéale



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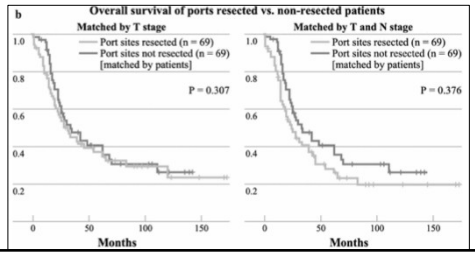
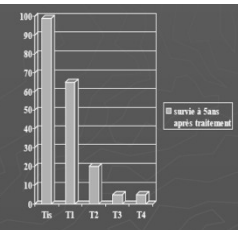


Découverte à l'anatomopathologie

- Facteurs pronostiques:

- Pronostic
- Survie à 5 ans:
  - Globale < 10%
  - Après chirurgie:
    - -100 % pour les Tis
    - -40 à 90 % pour les T1
    - -20% pour les T2
    - -< 5 % pour les T3 et T4

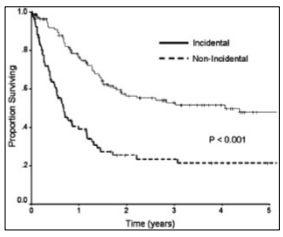


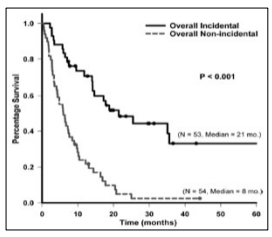
Eur J Surg 1999;165:215-22.

Découverte à l'anatomopathologie

- Facteurs pronostiques:

- Meilleur pronostic du CVB découvert sur pièce





Timothy M et Al. J Gastr Surg 2007

Shih SP et Al. Ann Surg 2007

Découverte à l'anatomopathologie

- Facteurs pronostiques:

Incidence of Finding Residual Disease for Incidental Gallbladder Carcinoma: Implications for Re-resection

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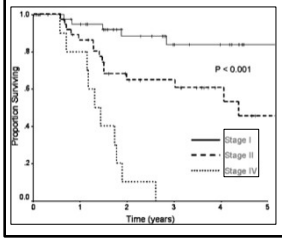

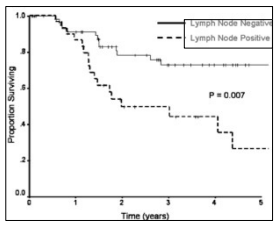

Découverte à l'anatomopathologie

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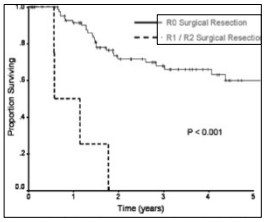


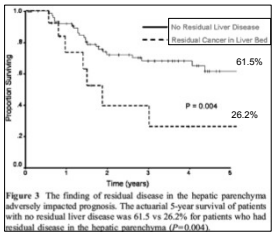


Figure 3 The finding of residual disease in the hepatic parenchyma adversely impacted prognosis. The actuarial 5-year survival of patients with no residual liver disease was 61.5 vs 26.2% for patients who had residual disease in the hepatic parenchyma (P=0.004).

Découverte à l'anatomopathologie

ENQUETE AFC 2009

Cancer vésicule découvert sur pièce		
Variables:	**Survie à 5 ans**	**p=**
Hépatect majeure	44%-27%	0.03
Resection VBP	58%-34%	0.01
Récidive	78%-13%	0.001
Delais récidive<6m	0%-14%	0.0001
pT1,2,3,4	100-65-24-0%	0.0001
pN0, N1	44%-0%	0.005
Tumeur résiduelle	69%-24%	0.0001

-Maladie résiduelle : 58%

-Augmentation significative survie: T2-T3

- T1b et T4 ?

Découverte à l'anatomopathologie

ENQUETE AFC 2009

- Résection VBP 34%

Cancer vésicule		
	Pas VBP	**Res VBP**
Serie globale	163	109
Mortalité	7.3%	10%
Morbidité	27.6%	57.7%
Survie 5 ans	30%	23%
CVB découvert d'emblée	88	48
Mortalité	7.9%	14.5%
Morbidité	26.1%	56%
Survie à 5ans	19%	7%

Cancer vésicule découvert sur pièce			
Variables:	**Pas VBP**	**Res VBP**	**p=**
	47	61	
Ictère	2/47	13/61	0.009
Drain biliaire	1/47	8/61	0.04
Hép majeure	2/47	18/61	0.001
Transfusions	7/47	23/61	0.005
Complic post	10/47	35/61	0.0001
Récidive	12/47	26/61	0.04
Survie à 5ans	58%	34%	0.01

CONCLUSIONS

1. Découverte fortuite d'un cancer de la vésicule biliaire dans 0.2-2.9% des cholécystectomies en per-op (25%) ou à l'anatomopathologie (75%).
2. Conversion en laparotomie si découverte per-op à cause du risque de métastases pariétales
3. Réintervention >= T1b et/ou marges envahies. Cholécystectomie radicale. Résection R0.
4. Résection de la voie biliaire en cas d'envahissement du canal cystique, d'ictère, de kyste du cholédoque et anomalie jonction bilio-pancréatique. Augmentation morbi-mortalité
5. Résection des orifices des trocarts ?
6. Facteurs pronostiques: T, N+, maladie résiduelle et résection R0

NOTES

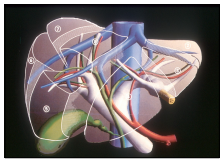
Métastases hépatiques de cancer du sein :

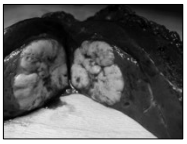
Y a-t-il une place pour la chirurgie ?

Pr René ADAM

Hôpital Paul Brousse, Centre Hépato-Biliaire, Villejuif

Role du Chirurgien dans la prise en charge des métastases vicérales de Cancer du Sein



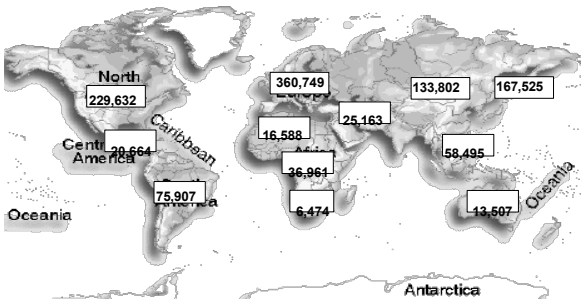


René Adam

Paul Brousse Hospital, Université Paris- Sud, France

Prevalence of Breast Cancer

Globocan 2008 – 1 380 000 cases / year



Cancer du Sein Métastatique

- Au moment du diagnostic 6 to 10 % des cancers du sein sont métastatiques
- Le Risque Métastatique dépend principalement de la taille tumorale et de l'envahissement ganglionnaire
- Frequence des localisations métastatiques

Os	36 %
Poumons	29 %
Foie	20 %
Ganglions	12 %
Peau	10 %

BREAST LIVER METASTASES : A FREQUENT SITE OF RECURRENCE…

- **Liver metastases : the 3rd most common site after bone and lung (1)**
  - **12-15% newly diagnosed patients with recurrence (2)**
  - **50% of patients stage IV during treatment (3)**
  - **only 5% of patients have isolated LM (4)**
- **Prognosis**
  - **Median survival : 4-6 months (3)**
  - **1-yr survival : 30%**
  - **5-yr survival : 3% ! (5)**

(1) Hoe et al, JR Soc med, 1991 *(4) Lee YT, Am J Clin Oncol, 1984*
(2)Insa et al, Breast C Res Treat, 1999
(3)Wyld et al, Br J Cancer, 2003 *(5) Sledge et al, Semin Oncol, 1999*

Métastases Hépatiques de Cancer du Sein Une entité fort peu chirurgicale …

- **Concept : Métas Hépatiques = Maladie systémique**
- **Plupart des patients : métastases extrahépatiques**
- **Maladie hépatique le plus souvent disséminée**

→ **Pas de Place pour la Chirurgie !…**

RESECTION OF LIVER METASTASES FROM BREAST CANCER

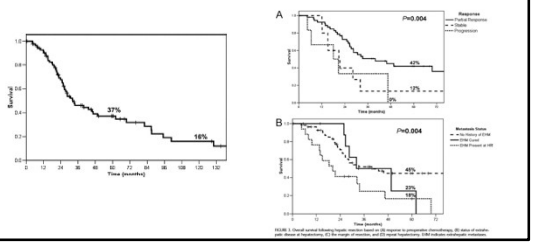
Authors	Date	No Pts	Op. Mort.	Survival	
				Median	5yrs
Elias	1995	21	0	26	9%
Raab	1998	34	3%	27	18%
Seifert	1999	15	0	57	18%
Selzner	2000	17	6%	25	22%
Yoshimoto	2000	25	-	34	-
Pocart	2001	65	0	44	38%
Vlastos	2004	31	0	63	61%
Sakamoto	2005	34	0	36	21%
Ercolani	2005	21	0	42	25%

ORIGINAL ARTICLES

Is Liver Resection Justified for Patients With Hepatic Metastases From Breast Cancer?

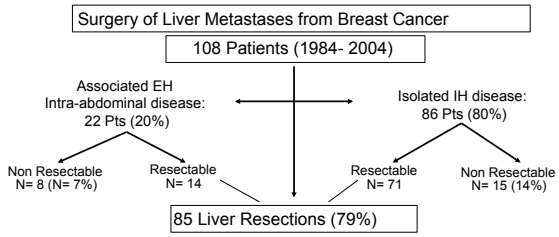
René Adam, MD, PhD,* Thomas Aloia, MD,* Jinane Krissat, MD,* Marie-Pierre Bralet, MD,* Bernard Paule, MD,* Sylvie Giacchetti, MD,† Valerie Delvart,* Daniel Azoulay, MD, PhD,* Henri Bismuth, MD,* and Denis Castaing, MD*

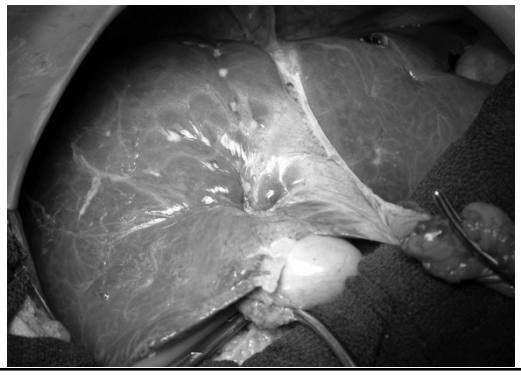
Annals of Surgery • Volume 244, Number 6, December 2006

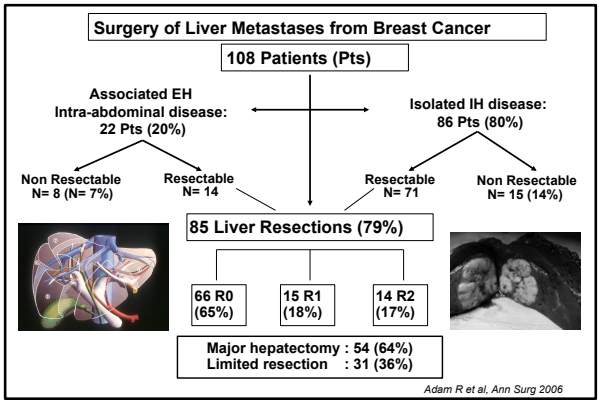


OUR POLICY

- **To offer liver surgery to all patients likely to be completely resected, irrespective of :**
  - **the characteristics of hepatic metastases**
  - **the presence of limited extrahepatic disease**
  - **the response to preoperative chemotherapy**
- **After a preoperative staging including:**
  - **CT scan (Brain, Chest, Abdomen)**
  - **Liver US, mammography**
  - **Bone scintigraphy**







Adam R et al, Ann Surg 2006

PREOPERATIVE CHEMOTHERAPY

- **71 Pts (84%) received a median of 8 cycles (2-22) (5-Fu, doxorubicin, cyclophosphamide, paclitaxel)**
- **Effect of Treatment:**
  - **78% : Objective Response**
  - **14% : Stable disease**
  - **8% : Progression**

RESULTS OF LIVER RESECTION FOR BREAST METASTASES

- **No operative mortality (≤ 2 Mo)**
- **Postoperative complications :**
  - **Local : 22%**
  - **General : 24%**
- **Median hospital stay : 9 days**

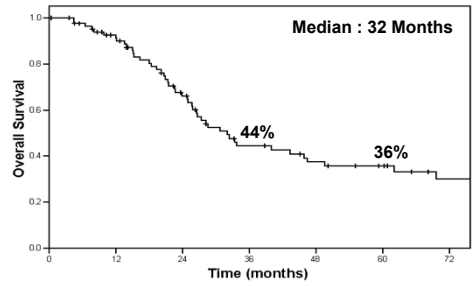
RECURRENCE AFTER LIVER RESECTION FOR BREAST METASTASES

Median Follow up : 36 months

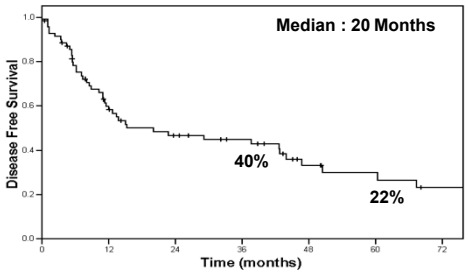
- ***Liver recurrence*** ***25 (29%)***
  Median time ***9 months***
  ⇨ **2nd Hepatectomy** **11**
  ⇨ **3rd Hepatectomy** **4**
- ***Extrahepatic Recurrence*** ***9 (11%)***
- ***Hepatic + EH Recurrence*** ***22 (26%)***

⇨ **33 patients alive at last follow-up (39%)**
(19 disease-free : 22%)

Overall Survival after Resection of Liver Metastases from Breast Cancer



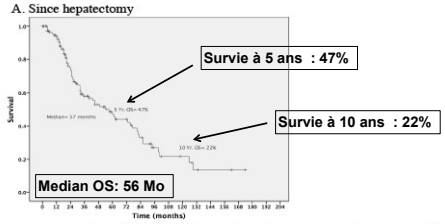
Disease-Free Survival after Resection of Liver Metastases from Breast Cancer 70 patients with No Residual Disease



Survival after Resection of BLM

Paul Brousse Hospital - 139 Pts (1985-2012)

A. Since hepatectomy

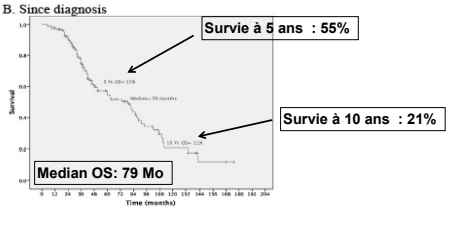


	Total	3 years	5 years	10 years	Median (months)
Number exposed to risk	139	46	30	5	56

Survival after Resection of BLM

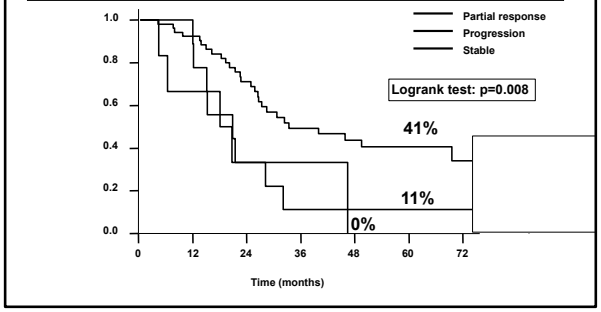
Paul Brousse Hospital - 139 Pts (1985-2012)

B. Since diagnosis

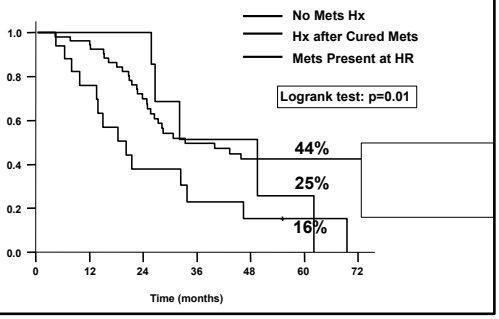


	Total	3 years	5 years	10 years	Median (months)
Number exposed to risk	137	76	43	7	79

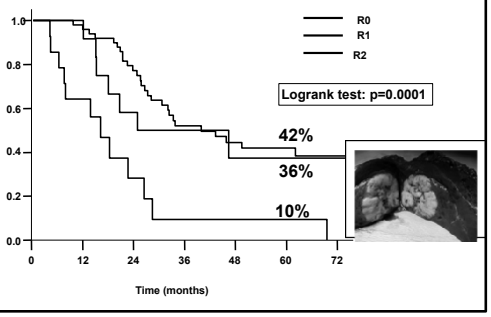
Overall Survival after Resection of Breast Liver Metastases based on the Response to Preoperative Chemotherapy



Survival after Resection of Breast Liver Metastases based on the Status of Extrahepatic Metastases



Survival after Resection of Breast Liver Metastases based on the Oncological Pattern of Resection



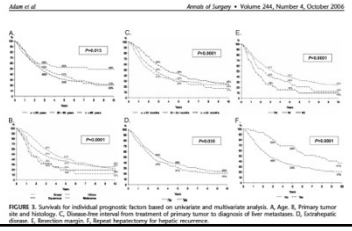
ORIGINAL ARTICLES

Annals of Surgery • Volume 244, Number 4, October 2006

Hepatic Resection for Noncolorectal Nonendocrine Liver Metastases

Analysis of 1452 Patients and Development of a Prognostic Model

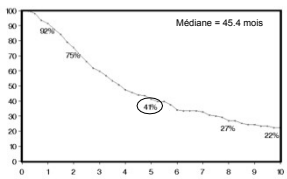
René Adam, MD, PhD, Laurence Chiche, MD, Thomas Aloia, MD, Dominique Elias, MD, PhD, Rémy Salmon, MD, Michel Rivoire, MD, Daniel Jaeck, MD, Jean Saric, MD, Yves Patrice Le Treut, MD, Jacques Belghiti, MD, Georges Mantion, MD, Gilles Mentha, MD, and the Association Française de Chirurgie



Chirurgie des Métastases Hépatiques de Cancers du Sein

afc

Survie globale **N=460 Pts**



Nombre de patients exposés

Total	1 an	2 ans	3 ans	4 ans	5 ans	8 ans	10 ans
454	349	253	171	114	86	34	20

Histoire Naturelle

- Médiane 3-4 mois après Dg MH
- Médiane 15 mois si réponse Chimio

Facteurs de risque : Univariée / Multivariée

- Délai Tt primitif - Dg méta ≤ 12 mois
- > 1 métastase
- Métastases extra-hépatiques
- Chimio pré-hépatectomie
- Progression sous chimio
- R2
- Nécrose incomplète
- Une seule hépatectomie

Chirurgie des Métastases Hépatiques de Cancers Non Colo-Rectaux Non Endocrines

afc

Population Globale (1452 Pts) – Analyse Multivariée (Cox)

Facteurs Risque	P	Risk Ratio
Age > 60 ans	<.0001	2.64
Age : 30 - 60 ans	0.0002	2.42
Primitif Non Sein	0.0222	1.29
Melanome Choroide	0.0013	1.7
Histologie Epidermoide	0.0253	1.57
Metastases Extrahep. Pre-hep.	0.0004	1.45
Délai Tt Primitif / Dg MH < 12 mois	<.0001	1.82
Délai Tt Primitif / Dg MH 12 - 24 Mo	0.0005	1.56
Hepatectomie Majeure (> 2 segments)	0.0039	1.3
Résection R2	<.0001	1.86

Liver Resection for Multimodal Treatment of Breast Cancer Metastases: Identification of Prognostic Factors

K. Hoffmann et al. Ann Surg Oncol (2010)

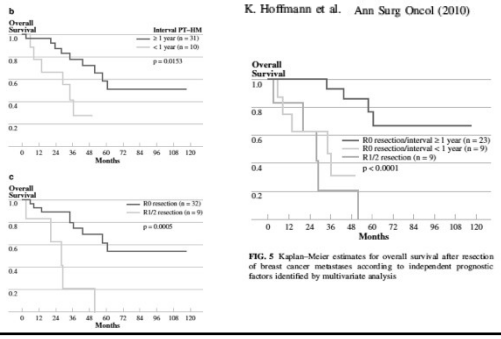


FIG. 5 Kaplan-Meier estimates for overall survival after resection of breast cancer metastases according to independent prognostic factors identified by multivariate analysis

Hepatic resection for metastatic breast cancer: A systematic review

Terence C. Chua

EJC © 2011 Elsevier

Table 4 – Safety and clinical efficacy of surgery for breast cancer liver metastases (NR refers to not reported).

First author	Postoperative mortality (%)	Postoperative complication (%)	Median overall surviva after hepatectomy (months)	5-Year survival after hepatectomy (%)	Median overall survival from primary (months)	10-Year survival from primary (%)
Rubino[6]	0	11	74	80	151	NR
Hoffmann[11]	0	44	58	48	211	76
O'Rouke[21]	1	21	38	40	NR	NR
Lubrano[15]	0	38	42	33	NR	NR
Carali[10]	0	25	36	33	NR	NR
Thelen[19]	0	13	38	42	NR	NR
Kollmar[17]	0	0	52	50	NR	NR
Reddy[22]	4	39	67	NR	NR	NR
Lendoire[24]	2	NR	NR	53	NR	NR
Martinez[12]	0	NR	32	33	NR	NR
Adam[9]	0	22	46	41	NR	NR
Cordera[20]	2	7	39	40	NR	NR
Weitz[23]	0	33	15	NR	NR	NR
Sakamoto[7]	0	NR	36	21	NR	NR
Ercolani[18]	0	21	40	25	NR	NR
Vlastos[13]	0	NR	62	61	NR	NR
Elias[14]	0	13	34	34	NR	NR
Selzner[8]	6	6	27	22	NR	NR
Pocard[16]	0	12	42	NR	NR	NR
Range	0-6	0–44	15–74	21–80	–	–
Median	0	21	40	40	–	–

Quel est le bénéfice apporté par la chirurgie ?

PATTERN OF BREAST LIVER METASTASES AND THE EFFECT ON SURVIVAL

Pattern (Liver only)	%	Median survival (range)
Single	**19**	**10.3 (1 - 51)**
Multiple non-confluent	**58**	**4.6 (0.2-30)**
Diffuse	**8**	**1.8 (0.2-31)**
Multiple confluent	**15**	**1.7 (0.2-20)**

Wyld et al, Br J Cancer, 2003

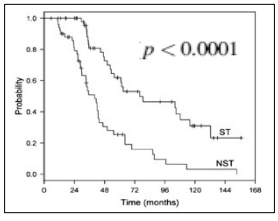
RESECTION OF LIVER METASTASES FROM BREAST CANCER

Authors	Date	No Pts	Op. Mort.	Survival Median	Survival 5yrs
Elias	**1995**	**21**	**0**	**26**	**9%**
Raab	**1998**	**34**	**3%**	**27**	**18%**
Seifert	**1999**	**15**	**0**	**57**	**18%**
Selzner	**2000**	**17**	**6%**	**25**	**22%**
Yoshimoto	**2000**	**25**	**-**	**34**	**-**
Pocart	**2001**	**65**	**0**	**44**	**38%**
Vlastos	**2004**	**31**	**0**	**63**	**61%**
Sakamoto	**2005**	**34**	**0**	**36**	**21%**
Ercolani	**2005**	**21**	**0**	**42**	**25%**
Adam	**2006**	**85**	**0**	**32**	**37%**
Hoffmann	**2010**	**41**	**0**	**58**	**48%**
Adam*	**2006**	**460**	**-**	**45**	**41%**
Chua*	**2011**	**553**	**0**	**40**	**40%**

** Etude multicentrique ou métaanalyse*

Liver metastases from breast cancer: Surgical resection or not? A case-matched control study in highly selected patients

P. Mariani et al. /EJSO 39 (2013) 1377–1383

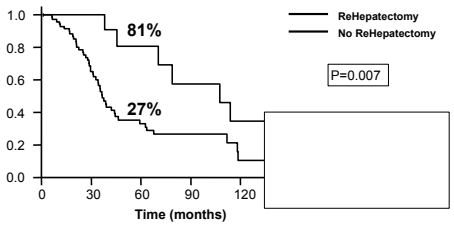


RR = 3.04-fold higher risk of death (CI: 1.87–4.92) ($p < 0.0001$) when surgery was not performed (Fig. 2), and RR = 2.324-fold higher risk of death (CI: 1.229–4.395) ($p = 0.009$) if the patients had bone metastases.

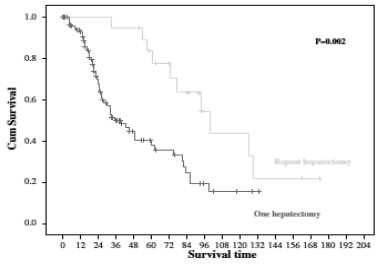
Figure 2. Comparison of survival according to liver surgery. A statistically significant difference was demonstrated using the log-rank test ($p < 0.0001$).

EJSO the Journal of Cancer Surgery

Survival after Resection of Breast Liver Metastases based on the performance of Repeat Hepatectomy



Repeat hepatectomy for BLM



Patient group	Total	3 years	5 years	10 years	Median (months)	P
One hepatectomy	120	31	16	1	35	0.002
Repeat hepatectomy	19	17	13	3	100	

Biopsy of liver metastasis for women with breast cancer: Impact on survival

Edoardo Botteri [a,b,*], Davide Disalvatore [a,c], Giuseppe Curigliano [d], Brollo Janaina [d], Vincenzo Bagnardi [a,c,e], Giuseppe Viale [f,g], Franco Orsi [h], Aron Goldhirsch [d], Nicole Rotmensz [a]

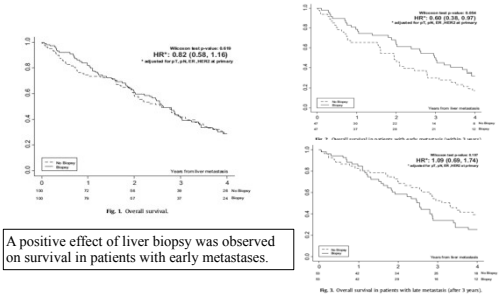
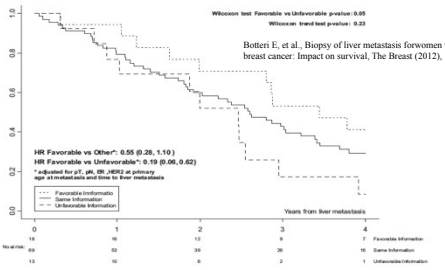


Fig. 1. Overall survival.

A positive effect of liver biopsy was observed on survival in patients with early metastases.

Botteri E, et al., Biopsy of liver metastasis forwomen with breast cancer: Impact on survival, The Breast (2012), doi:10.1016/ j.breast. 2011.12.014



Botteri E, et al., Biopsy of liver metastasis forwomen with breast cancer: Impact on survival, The Breast (2012),

Fig. 4. Survival according to changes in biology between the primary and the metastatic lesion. *Favorable information*: conversion of predictive factors which allowed adjusting for therapy, specifically new expression of ER and/or overexpression of Her2/Neu. *Same information*: no change in expression of ER and/or overexpression of Her2/Neu. *Unfavorable information*: disappearance of features (expression of ER and/or overexpression of Her2/Neu) which predicted responsiveness to a given treatment.

0.69–1.74)]. We observed that 18 out of 100 biopsied patients (18.0%) had a conversion of predictive factors which allowed adjusting for therapy, specifically new expression of ER ($n = 5$), overexpression of HER2 ($n = 12$) or both ($n = 1$). Fourteen out of 18 (77.8%) received anti-HER2 treatment for the first time

Quels patients bénéficient au mieux de la chirurgie?

Liver resection and local ablation of breast cancer liver metastases — A systematic review

M. Bergenfeldt et al. / EJSO 37 (2011) 549–557

Factors influencing survival after surgical resection.

Prognostic factor	Influence on prognosis		
	Positive	Negative	No influence
1. Features of primary BC			
Anatomic site			27
Surgical procedure			27,31,35
Stage (TN-stage)			20–22,24,27,31,35,36
Histology/gradedifferentiation			27,31,35,36
Presence of hormone receptors		36	27,31
2. Features of BCLM			
Interval between BC and BCLM	20,22,37		21,24,26,27,31,35,36
Number and size		36	20–22,24,26,27,31,35
Presence of hormone receptors	24	36	20,26,31,35
Invasion of liver vasculature			35
3. Extrahepatic factors			
Patient age (high vs. low)	36		24,26,27,31,35
Presence of extrahepatic disease		27,35	20,21,31
Presence of hilar gland metastases			20,27,31
Presence of abdominal gland metastases			21
4. Therapeutic factors			
RO-resection	18,31,35		24
Type of resection (minor vs. major)	36		20,22,26,27,31
Repeat hepatectomy	31		
Response to preoperative chemotherapy	31		22,26
Blood or plasma transfusion			36

Numbers correspond to reference list.

Conclusions

The present systematic review indicates that liver resection may be indicated in a selected subset of patients with BCLM, if an RO-resection is possible and the procedure can be done with acceptable morbidity and mortality. Also local ablation was associated with a good long-term outcome and may be a relevant alternative for small metastases. There is a need for RCT comparing the two modalities. We found a high risk of recurrent disease after liver resection, and data indicate that patients should be given further adjuvant chemo- and/or hormone therapy. Several studies analyzed different prognostic factors, such as hormone receptor status, disease interval and objective response to preoperative chemotherapy, but further work is needed to clarify their significance. Liver resection in the presence of EHD remains controversial. Bone metastases of BC are believed to have a more indolent course, and should possibly be managed differently than other EHD.

Prognostic Score of Survival after Resection of NCRNE Liver Metastases
Multivariate Analysis

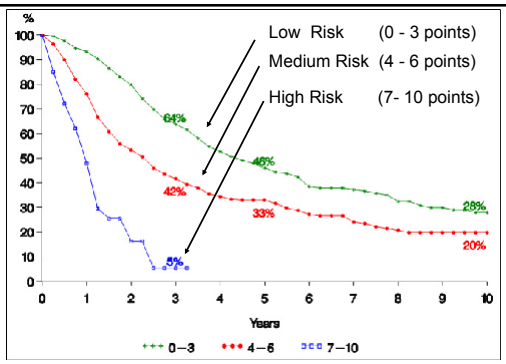
0

10

✂ 3 Factors with 2 modalities : (Yes 1 / No 0)
- **Extrahepatic Metastases before hepatectomy (1)**
- **Major Hepatectomy (1)**
- **R2 Resection (1)**

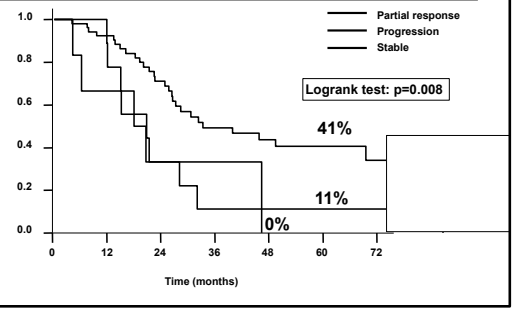
✂ 2 Factors with 3 modalities :
- **Age: < 30 yrs (0), 30-60 yrs (1), ≥ 60 yrs (2)**
- **DF Interval: ≥ 24 Mo (0), 12-24 (1), < 12 (2)**

✂ 1 Factor with 4 modalities : Site / Histology
- **Breast (0), Squamous (2), Melanoma (choroid) (3),**
- **Other primary (1)**



Adam R et al, Ann Surg 2006

Overall Survival after Resection of Breast Liver Metastases based on the Response to Preoperative Chemotherapy



Hepatic resection for metastatic breast cancer: A systematic review

Terence C. Chua

EJC © 2011 Elsevier

Table 5 – Prognostic clinicopathologic factors of patients undergoing hepatectomy for breast cancer associated with poorer overall survival by univariate analysis.

	Association with poorer overall survival	
	Significant (Positive association)	Non-significant (No association)
Younger age	Lubrano,[15] Martinez[12] 2 studies	Hoffmann,[11] Thelen,[19] Adam,[9] Vlastos,[13] Elias[14] 5 studies
Advanced primary tumour		Hoffmann,[11] Lubrano,[15] Thelen,[19] Adam,[9] Sakamoto,[7] Vlastos,[13] Elias,[14] Pocard,[16] 8 studies
Node positive primary	Pocard[16] 1 studies	Thelen,[19] Martinez,[12] Adam,[9] Sakamoto,[7] Elias,[14] Selzner,[8] 6 studies
Poorly differentiated		Lubrano,[15] Thelen,[19] Adam,[9] 3 studies
<1 year to liver metastases		
<1 year	Hoffmann,[11] Selzner,[8] 2 studies	Lubrano[15] (<24/>24 months), Caralt[10] (<24/>24 months), Adam,[9] Vlastos,[13] Elias,[14] Pocard[16] (<24/>24 months) 6 studies
Previous metastases	Thelen[19] 1 study	Hoffmann,[11] Selzner[8] 2 studies
Major hepatectomy		
Major	Lubrano[15] 1 study	Hoffmann,[11] Thelen,[19] Vlastos,[13] Selzner,[8] Pocard[16] 5 studies
Multiple liver metastases	Lubrano[15] 1 study	Thelen,[19] Martinez,[12] Adam,[9] Sakamoto,[7] Vlastos,[13] Elias,[14] Pocard[16] 7 studies
Larger tumour size	Hoffmann[11] 1 study	Thelen,[19] Adam,[9] Vlastos,[13] Elias,[14] Selzner[8] 5 studies
Positive resection margin	Hoffmann,[11] Thelen,[19] Adam[9] 3 studies	Elias[14] 1 study
Extrahepatic disease	Adam[9] 1 study	Hoffmann,[11] Sakamoto,[7] Selzner[8] 3 studies
Hormone sensitive disease	Lubrano[15] 1 study	
Hormone refractory disease	Hoffmann,[11] Martinez,[12] Elias[14] 3 studies	Thelen,[19] Adam,[9] Sakamoto,[7] Vlastos[13] 4 studies
HER2 positive disease	Martinez[12] 1 study	Thelen,[19] Adam[9] 2 studies

Prognostic Factors of Survival
Paul Brousse -139 Pts (1985-2012) - Multivariate

-
-
-
  and Her2/Neu receptors)
- **No microscopic vascular invasion**
- **Postoperative hormonal or targeted therapy**
- **Repeat hepatectomy in case of recurrence**

Liver surgery is beneficial for selected patients

1. Young(er) patients
2. Low operation risk
3. Long interval (more than 1 yr) between breast cancer surgery and liver metastases
4. Positive hormone receptor status of primary tumour no extrahepatic disease (except bone metastases)
5. Less than 4 metastases
6. Disease regression or stability with systemic therapy chemotherapy or hormonal treatment) before resection
7. Normal liver function tests
8. Resection with intent of a complete (R0) resection of liver metastases

Ruiterkamp J, Ernst MF. The role of surgery in metastatic breast cancer. Eur J Cancer. 2011 Sep;47 Suppl 3:S6-22. Review.

CONCLUSION

1- La Résection des MH de cancer du sein comporte un risque faible

2- Elle permet une survie à 5 ans de 40% avec une médiane de 40-45 mois supérieure à celle de la chimiothérapie seule, avec une amélioration des résultats plus récents (Médiane 56-79 Mois)

3- Elle parait justifiée chez les patients avec MH peu nombreuses bien controlées par le traitement systémique

4- Les meilleures indications concernent les patients jeunes, sans localisation extrahepatique, qui récidivent après un long intervalle libre (> 1 voire 2 ans), et réséqués par une résection R0 …

En Synthèse

•« Le dogme de la « maladie systémique » interdisant toute résection hépatique a donc vécu… comme pour les métastases de tumeurs colo-rectales ou de tumeurs endocrines »

Ph Rougier

• La Chirurgie par son effet local peut etre un excellent traitement complémentaire du traitement systémique, offrant aux patientes un bénéfice de survie et un espoir de rémission prolongée voire de guérison…

International Guidelines for Management of Metastatic Breast Cancer: Can Metastatic Breast Cancer Be Cured?

- Based on the available data, the ESO–MBC Task Force retains its original recommendation statement:
- "A small but very important subset of MBC patients, for example, those with a solitary metastatic lesion, can achieve complete remission and a long survival.
- A more aggressive and multidisciplinary approach should be considered for these selected patients.

Pagani O et al, J Natl Cancer Inst (JNCI) 2010

Treatment of Metastatic Breast Cancer with Liver Transplantation

J. M. Wilson, MD,* P. Carder, MD,† S. Downey, MD,§ M. H. Davies, MD,‡ J. I. Wyatt, MD,† and T. G. Brennan, MD§

**Academic Unit of Surgery, Departments of †Histopathology and ‡Hepatology, and §Breast Unit, St. James's University Teaching Hospital, Leeds, West Yorkshire, United Kingdom*

- **Single case report**
- **28 yo, bilateral BC stage IV and bilobar irresectable metasasis**
- **Disease free after 33 months**

The Breast Journal, Volume 9, Number 2, 2003 126–128

NOTES

Quoi de neuf dans les cancers du pancréas ?

Pr Antonio SA CUNHA

Hôpital Paul Brousse, Centre Hépato-Biliaire, Villejuif

NOTES

NOTES

TIPMP :

Quelles sont les indications chirurgicales ?

Dr Gabriella PITTAU

Hôpital Paul Brousse, Centre Hépato-Biliaire, Villejuif

JOURNÉES 2017 VENDREDI 9 & SAMEDI 10 JUIN
du Centre Hépato-Biliaire
Chirurgie 9-10 juin | Hépatologie 9 juin | Radiologie 10 juin
Centre Hépato-Biliaire

TIPMP : Quelles sont les indications chirurgicales ?

G. Pittau

9/10 juin 2017

TIPMP- définition

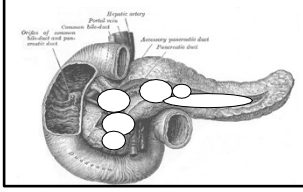
- Prolifération anormale de l'épithélium d'un canal pancréatique
- Architecture papillaire
- Hyper-sécrétion du mucus qui conduit à une dilatation canalaire en amont et an aval de la lésion
- Formation de kystes
- Lésion bénigne → lésion borderline →lésion maligne
- **TIPMP → lésion précancéreuse**

Ohashi et al Prog Dig Endoscopy 1982 Klöppel et al Berlin Springer 1996 Tanaka et al Pancreatology 2006

TIPMP- épidémiologie

- Incidence inconnue
- Incidence augmente avec la meilleur détection à l'imagerie
- En Japon : 30 cas décrits avant le 1991, 260 en 1996, >1350 in 2004
- Age moyen 60-65 ans
- Sex ratio: USA 1.1 Europe 1.5 M>F
- 20-40% multifocal

2/3 tête uncus +++



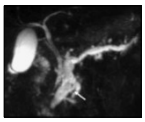
Canal principal 40-50%
Canaux secondaires 30-40%
Mixte 15-20%

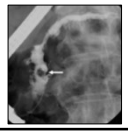
Susuki Y Pancreas. 2004 Apr;28(3):241-6 Tanaka et l Pancreatolog 2006.

TIPMP- définitions

Review article
International consensus guidelines 2012 for the management of IPMN and MCN of the pancreas
Masao Tanaka[1,*], Carlos Fernández-del Castillo[2], Volkan Adsay[3], Suresh Chari[4], Massimo Falconi[5], Jin-Young Jang[6], Wataru Kimura[7], Philippe Levy[8], Martha Bishop Pitman[1], C. Max Schmidt[1], Michio Shimizu[9], Christopher L. Wolfgang[1], Koji Yamaguchi[10], Kenji Yamao[11]

- TIPMP du canal principal → dilatation segmental ou diffuse du canal principal> 5 mm en absence d'autres cause d'obstruction
- « worrisome features » diamètre du canal principal > 5<9 mm
- « high risk stigmata » diametre >10 mm
- TIPMP des canaux secondaires kyste pancreatique> 5 mm qui communique avec le canal principal





TIPMP- histologie

4 types différentes

Forme gastrique
similaire à la muqueuse gastrique
Fréquente dans le BD
Dégénérescence rare
ADK: tubulaire MUC2 -

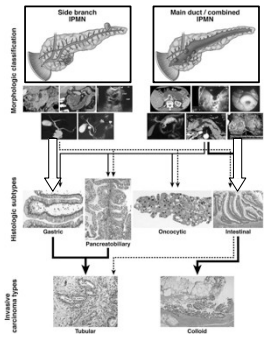
Forme intestinale
Similaire adénome colique
MUC2+, CDX2+
Fréquente dans les MD
Dégénérescence fréquente
ADK: colloide
Moins agressive

Forme pancréatobilaire
CIS fréquent
MUC1+
MUC2-, CDX2-
ADK tubulaire agressive

Forme oncocitaire
Mitochondries +++
Papille fines
Proliferation+++
Carcinome in situ
Invasive rare

Furukawa T, Klöppel G et al. Virchows Arch 2005;447:794– P Cruz del Castillo Gastroenterology 2010

TIPMP- histologie



E.Cruz del Castillo Gastroenterology 2010

TIPMP- objectifs de la chirurgie

1) Enlever les symptômes

2) Exérèse des lésions à forte risque de transformation (dysplasie modérée ou sévère)

⇩

! *Eviter la résection inutile*
! *Peu de séquelles*

TIPMP- symptômes

Auteurs	*Kimura 1996*	*Partensky AFC 1997*	*Sohn 2001*	*Sugiyama 2003*	*Pelletier 2010*
N° cas	222	54	60	62	185
Pancréatite aiguë	15%	24%	14%	14%	34.6%

✂Rythme très variable
✂CT- Baltazhar > 5→ 20%
✂Défaillance viscérale→ < 5%
✂Main duct +++
✂Peu prédictif de dégénérescence

Sugiyama Br J Surg 2003
Salvia Ann Surg 2004
Pelletier Pancreas 2010

Pancréatite aiguë et cancer

ORIGINAL ARTICLE

Acute Pancreatitis in Patients Operated on for Intraductal Papillary Mucinous Neoplasms of the Pancreas
Frequency, Severity, and Clinicopathologic Correlations

Balhazar 1 +++
20% > 2-5 épisodes
2% > -106 épisodes

Dysplasie sévère
- PA 45.3%
- Non PA 56.2%
p=NS

Pancréatite: pas indication

Pelletier et al Pancreas 2010

Pancréatite aiguë et cancer

✂TIPMP canal principal

✂TIPMP canaux secondaires

✂ TIPMP mixte→ canal principal

⇩

Facteurs de risque de malignité
Indication opératoire

TIPMP- risque de transformation

Canal principal

Canaux secondaires

First author	Year	Total number	Malignant n (%)	Invasive n (%)	Main duct type: Number n (%)	Main duct type: Malignant n (%)	Main duct type: Invasive n (%)	Branch duct type: Number n (%)	Branch duct type: Malignant n (%)	Branch duct type: Invasive n (%)
Sugiyama [11]	2003	62	34 (54.8%)	20 (32.3%)	30 (48.4%)	21 (70.0%)	17 (56.7%)	32 (51.6%)	13 (40.6%)	3 (9.4%)
Sohn[*][12]	2004	136	>52 (38.2%)	52 (38.2%)	36 (26.5%)	>18 (50.0%)	18 (50.0%)	60 (44.1%)	>18 (30.0%)	18 (30.0%)
Salvia [13]	2004	140	83 (59.3%)	58 (41.4%)	140 (100%)	83 (59.3%)	58 (41.4%)			
Suzuki[*][14]	2004	1024	>446 (43.6%)	446 (43.6%)	201 (19.6%)	>120 (59.7%)	120 (59.7%)	509 (49.7%)	>150 (29.5%)	150 (29.5%)
Lee [15]	2005	67	24 (35.8%)	9 (13.4%)	27 (40.3%)	12 (44.4%)	3 (11.1%)	35 (52.2%)	10 (28.6%)	4 (11.4%)
Serikawa [2]	2006	103	41 (39.8%)	28 (27.2%)	47 (45.6%)	30 (63.8%)	21 (44.7%)	36 (34.4%)	11 (19.6%)	7 (12.5%)
Schmidt [3]	2007	156	50 (32.1%)	29 (18.6%)	53 (34.0%)	30 (56.6%)	15 (28.3%)	103 (66.0%)	20 (19.4%)	14 (13.6%)
Rodriguez [20]	2007	145	32 (22.1%)	16 (11.0%)				145 (100%)	32 (22.1%)	16 (11.0%)
Schnelldorfer [16]	2008	208	82 (39.4%)	63 (30.3%)	76 (36.5%)	49 (64.5%)		84 (40.4%)	15 (17.9%)	
Kim [17]	2008	118	36 (30.5%)	28 (23.7%)	70 (59.3%)	25 (35.7%)	23 (32.9%)	48 (40.7%)	>3 (6.3%)	3 (6.3%)
Nagai [4]	2008	72	44 (61.1%)	30 (41.7%)	15 (20.8%)	15 (100%)	10 (66.7%)	49 (68.1%)	25 (51.0%)	18 (36.7%)
Jang [21]	2008	138	26 (18.8%)	17 (12.3%)				138 (100%)	26 (18.8%)	17 (12.3%)
Ohno [18]	2009	87	45 (51.7%)	19 (21.8%)	14 (16.1%)	11 (78.6%)	4 (28.6%)	48 (55.2%)	20 (41.7%)	9 (18.8%)
Nara [19]	2009	123	82 (66.7%)	61 (49.6%)	26 (21.1%)	26 (100%)	21 (80.8%)	59 (48.0%)	26 (44.1%)	14 (23.7%)
Boumet [7]	2009	99	24 (24.2%)	14 (14.1%)				47 (47.5%)	6 (12.8%)	4 (8.5%)
Hwang [5]	2010	187	58 (31.0%)	43 (23.0%)	28 (15.0%)	20 (71.4%)	17 (60.7%)	118 (63.1%)	19 (16.1%)	14 (11.9%)
Mimura [6]	2010	82	54 (65.9%)	29 (35.4%)	39 (47.6%)	34 (87.2%)	19 (48.7%)	43 (52.4%)	20 (46.5%)	10 (23.3%)
Sadakari [22]	2010	73	6 (8.2%)	1 (1.4%)				73 (100%)	6 (8.2%)	1 (1.4%)
Kaneo [23]	2010	159	40 (25.2%)	19 (11.9%)				159 (100%)	40 (25.2%)	19 (11.9%)
Crippa [10]	2010	389	181 (46.5%)	118 (30.3%)	81 (20.8%)	55 (68%)	39 (48%)	159 (40.9%)	34 (22%)	17 (11%)
Total		3568	>1440 (>40.4%)	1100 (30.8%)	883 (24.7%)	>549 (>62.2%)	385 (43.6%)	2027 (56.8%)	>494 (>24.4%)	337 (16.6%)

3568 | 62% | 43% | 24% | 17%

Tanaka et al Pancreatology 2012

TIPMP- Canal principal

Predictive factors for malignancy in intraductal papillary–mucinous tumours of the pancreas

M. Sugiyama, Y. Izumisato, N. Abe, T. Masaki, T. Mori and Y. Atomi

1984-2002 *62 TIPMP*

Table 2 Multivariate analysis of potential predictive factors for malignancy

	Odds ratio	*P*
Mural nodule	16·89 (4·23, 67·74)	< 0·001
MPD diameter ≥ 7 mm	4·66 (1·13, 18·59)	0·029
Symptoms		0·151
Pain		0·376
Extrapancreatic malignancy		0·270
Main duct or combined type		0·663
Tumour location (head)		0·104
Patulous papilla		0·847

Table 3 Multivariate analysis of potential predictive factors for invasive carcinoma

	Odds ratio	*P*
Mural nodule	44·88 (4·01, 502·40)	0·002
Main duct or combined type	5·81 (1·73, 19·51)	0·004
Jaundice	69·55 (1·92, 2520·05)	0·021
Symptoms		0·088
Tumour location (head)		0·760
MPD diameter ≥ 7 mm		0·057
Patulous papilla		0·290

Main duct → Nodules muraux OR 21.00 *p*=0.003

Sugiyama et al BJS 2003

TIPMP- Canal principal

ORIGINAL ARTICLE

Clinicopathologic analysis of surgically proven intraductal papillary mucinous neoplasms of the pancreas in SNUH: a 15-year experience at a single academic institution

187 patients tous TIPMP

	Sig	Exp (B)	95% confidence in
Malignancy predicting factors			
CA 19-9, elevated	0.033	3.206	1.099-9.355
Mural nodule	<0.001	7.764	3.041-19.819
Main duct type	0.013	1.383	1.516-6.935
Invasiveness predicting factors			
CA 19-9, elevated	0.035	4.480	1.111-18.065
Mural nodule	<0.001	16.480	3.950-68.766
Main duct type	0.022	23.493	1.575-350.523
Wall thickening	0.028	4.801	1.159-14.361

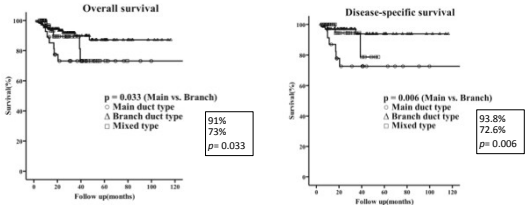
Main duct > 5 mm

Hwang et al Langenbeks Arch Surg 2012

TIPMP- Canal principal

ORIGINAL ARTICLE

Clinicopathologic analysis of surgically proven intraductal papillary mucinous neoplasms of the pancreas in SNUH: a 15-year experience at a single academic institution



91%
73%
p= 0.033

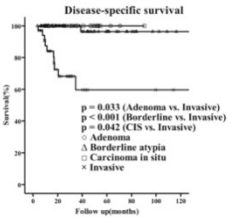
93.8%
72.6%
p= 0.006

Hwang et al Langenbeks Arch Surg 2012

TIPMP- Canal principal

ORIGINAL ARTICLE

Clinicopathologic analysis of surgically proven intraductal papillary mucinous neoplasms of the pancreas in SNUH: a 15-year experience at a single academic institution



Survie à 5 ans

⇩

Carcinome invasif → 59%

Hwang et al Langenbeks Arch Surg 2012

TIPMP- Canal principal

A Natural Course of Main Duct Intraductal Papillary Mucinous Neoplasm of the Pancreas With Lower Likelihood of Malignancy

20 patients
TIPMP du canal principal à faible malignité

→ Nodules muraux: absents or < 10 mm
→ Cytologie négative à la CPRE

Surveillance Echo/3 mois puis TDM/IRM/CPRE
Suivi moyen 70 mois
K invasif 10%

TABLE 3. Progression of Main Duct IPMNs With Lower Likelihood of Malignancy in their Size Groups

Size Groups of Main Duct IPMN	No Progression	Progression Within LLM	Progression Beyond LLM	Total
Main duct				
<10 mm	5 (71%)	2 (29%)	0 (0%)	7 (100%)
≥10 mm	7 (54%)	4 (31%)	2 (15%)	13 (100%)
Mural nodule				
Not detected	9 (69%)	3 (23%)	1 (8%)	13 (100%)
<10 mm	3 (43%)	3 (43%)	1 (14%)	7 (100%)
Total	12	6	2	20

LLM indicates lower likelihood of malignancy, which means a mural nodule of less than 10 mm or no visualized mural nodule, and negative pancreatic juice cytology.

Uehara et al Pancréas 2010

TIPMP- phénotype

ORIGINAL ARTICLE

Preoperative Histological Subtype Classification of Intraductal Papillary Mucinous Neoplasms (IPMN) by Pancreatic Juice Cytology With MUC Stain

2007-2011 ↷ 36 patients opérés
- CP 8
- Mixte 13
- Canaux secondaires 15

Analyse immunoistochimique
MUC 2

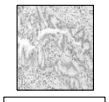
TABLE 2. Histological and Cytological Subtyping Based on Cytomorphology Without MUC Staining

	Cytological Subtyping Diagnosis			
Histological Diagnosis	**Nondiagnostic**	**Gastric**	**Intestinal**	**Pancreatobiliary/Oncocytic**
Gastric subtype	12	3	1	0
Intestinal subtype	2	3	7	2
Pancreatobiliary/Oncocytic subtype	0	1	0	5

Accuracy: 15/36 (41.6%).

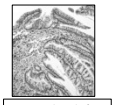
Hora et al Ann Surg 2013

TIPMP- phénotype



Forme gastrique
MUC2 -

Concordance
- Gastrique 100%
- Intestinale 86%
- Pancreato-oncocytaire 67%



Forme intestinale
MUC2+, CDX2+

TABLE 3. Histological and Cytological Subtyping Based on Immunocytochemistry of MUC Expression

	Cytological Subtyping Diagnosis			
Histological Diagnosis	**Nondiagnostic**	**Gastric**	**Intestinal**	**Pancreatobiliary/Oncocytic**
Gastric subtype	0	16	0	0
Intestinal subtype	1	1	12	0
Pancreatobiliary/Oncocytic subtype	0	2	0	4

Accuracy: 32/36 (89%).

p<0.01

Conclusions: Preoperative PJC with MUC stain proved to be highly reliable for identifying the histological subtype of IPMN and may provide useful information for deciding surgical indication.

Hara et al Ann Surg 2013

TIPMP- Conclusion

TIPMP du canal principal/mixte

- Lésion malines 62%
- Tumeur invasif 42%
- Survie 5 an 50%

→ Chirurgie
Sauf CI

TIPMP du canal principal/mixte

- « worrisome features »
- dilatation CP 5-9 mm

→ Surveillance

Tanaka et al Pancreatology 2012

TIPMP- canaux secondaires

Review article

International consensus guidelines 2012 for the management of IPMN and MCN of the pancreas

Masao Tanaka [a,*], Carlos Fernández-del Castillo [b], Volkan Adsay [c], Suresh Chari [d], Massimo Falconi [e], Jin-Young Jang [f], Wataru Kimura [g], Philippe Levy [h], Martha Bishop Pitman [i], C. Max Schmidt [j], Michio Shimizu [k], Christopher L. Wolfgang [l], Koji Yamaguchi [m], Kenji Yamao [n]

Table 2
Frequencies of malignancy in IPMNs according to the morphological types.

Canal principal | Canaux secondaires

Total IPMNs					Main duct type			Branch duct type		
First author	Year	Total number	Malignant n (%)	Invasive n (%)	Number n (%)	Malignant n (%)	Invasive n (%)	Number n (%)	Malignant n (%)	Invasive n (%)
Sugiyama [11]	2003	62	34 (54.8%)	20 (32.3%)	30 (48.4%)	21 (70.0%)	17 (56.7%)	32 (51.6%)	13 (40.6%)	3 (9.4%)
Sohn[9][12]	2004	136	≥52 (38.2%)	52 (38.2%)	36 (26.5%)	>18 (50.0%)	18 (50.0%)	60 (44.1%)	>18 (30.0%)	18 (30.0%)
Salvia [13]	2004	140	83 (59.3%)	58 (41.4%)	140 (100%)	83 (59.3%)	58 (41.4%)			
Suzuki*[14]	2004	1024	>446 (43.6%)	446 (43.6%)	201 (19.6%)	>120 (59.7%)	120 (59.7%)	509 (49.7%)	>150 (29.5%)	150 (29.5%)
Lee [15]	2005	67	24 (35.8%)	9 (13.4%)	27 (40.3%)	12 (44.4%)	3 (11.1%)	35 (52.2%)	10 (28.6%)	4 (11.4%)
Serikawa [2]	2006	103	41 (39.8%)	28 (27.2%)	47 (45.6%)	30 (63.8%)	21 (44.7%)	56 (54.4%)	11 (19.6%)	7 (12.5%)
Schmidt [3]	2007	156	50 (32.1%)	29 (18.6%)	53 (34.0%)	30 (56.6%)	15 (28.3%)	103 (66.0%)	20 (19.4%)	14 (13.6%)
Rodriguez [20]	2007	145	32 (22.1%)	16 (11.0%)				145 (100%)	32 (22.1%)	16 (11.0%)
Schnelldorfer [16]	2008	208	82 (39.4%)	63 (30.3%)	76 (36.5%)	49 (64.5%)		84 (40.4%)	15 (17.9%)	
Kim [17]	2008	118	36 (30.5%)	28 (23.7%)	70 (59.3%)	25 (35.7%)	23 (32.9%)	48 (40.7%)	>3 (6.3%)	3 (6.3%)
Nagai [4]	2008	72	44 (61.1%)	30 (41.7%)	15 (20.8%)	15 (100%)	10 (66.7%)	49 (68.1%)	25 (51.0%)	18 (36.7%)
Jang [21]	2008	138	26 (18.8%)	17 (12.3%)				138 (100%)	26 (18.8%)	17 (12.3%)
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Nara [19]	2009	123	82 (66.7%)	61 (49.6%)	26 (21.1%)	26 (100%)	21 (80.8%)	59 (48.0%)	26 (44.1%)	14 (23.7%)
Boumet [7]	2009	99	24 (24.2%)	14 (14.1%)				47 (47.5%)	6 (12.8%)	4 (8.5%)
Hwang [5]	2010	187	58 (31.0%)	43 (23.0%)	28 (15.0%)	20 (71.4%)	17 (60.7%)	118 (63.1%)	19 (16.1%)	14 (11.9%)
Mimura [6]	2010	82	54 (65.9%)	29 (35.4%)	39 (47.6%)	34 (87.2%)	19 (48.7%)	43 (52.4%)	20 (46.5%)	10 (23.3%)
Sadakari [22]	2010	73	6 (8.2%)	1 [1.4%]				73 (100%)	6 (8.2%)	1 (1.4%)
Kanno [23]	2010	159	40 (25.2%)	19 (11.9%)				159 (100%)	40 (25.2%)	19 (11.9%)
Crippa [10]	2010	389	181 (46.5%)	118 (30.3%)	81 (20.8%)	55 (68%)	39 (48%)	159 (40.9%)	34 (22%)	17 (11%)
Total		3568	>1440 (>40.4%)	1100 (30.8%)	883 (24.7%)	>440 (>62.2%)	>310 (>43.8%)	2027 (56.8%)	>494 (>24.4%)	337 (16.6%)

3568 | 62% | 43% | 24% | 17%

TIPMP- canaux secondaires

Predictive factors for malignancy in intraductal papillary–mucinous tumours of the pancreas

M. Sugiyama, Y. Izumisato, N. Abe, T. Masaki, T. Mori and Y. Atomi

Taille tumeurs
Nodules muraux

Analyse univariée

Tumour location	Head	19	11	0·024	3	0·132
	Body–tail	13	2		0	
Tumour diameter ≥ 30 mm	Yes	17	12	0·003	3	0·087
	No	15	1		0	
Mural nodule	Yes	10	8	0·008	2	0·165
	No	22	5		1	
MPD diameter ≥ 7 mm	Yes	8	6	0·033	2	0·080
	No	24	7		1	
Papulous papilla	Yes	11	7	0·055	2	0·216
	No	21	6		1	

Analyse Multivariée

- **Nodules muraux OR 12.35 p=0.045**
- **Diamètre de la tumeur > 30 mm OR 31.15 p=0.009**

Sugiyama et al BJS 2003

TIPMP- canaux secondaires

Langenbecks Arch Surg (2012) 397:93–102
DOI 10.1007/s00423-010-0674-6

ORIGINAL ARTICLE

Clinicopathologic analysis of surgically proven intraductal papillary mucinous neoplasms of the pancreas in SNUH: a 15-year experience at a single academic institution

Nodules muraux

Analyse univariée

- Ca 19-9↑
- Nodules muraux
- Taille du kyste> 30 mm

Table 8 Multivariate analysis of malignancy and invasiveness predicting factors in branch duct type IPMN (*n*=118)

	Sig	Exp (B)	95% confidence interval
Malignancy predicting factors			
Mural nodule	0.005	6.200	1.727-22.260
Invasiveness predicting factors			
Mural nodule	0.002	20.069	3.115-129.308

Hwang et al Long Arch Surg 2012

TIPMP- canaux secondaires

Natural History of Branch Duct Intraductal Papillary Mucinous Neoplasms of the Pancreas
A Multicenter Study in Japan

Taille du kyste

Suivi canaux secondaires
Progression:
- ↑ taille du kyste > 10 mm
- nodules muraux > 5 mm
- CP > 2 mm

TABLE 1. Clinical Characteristics of the 349 Patients With BD-IPMNs

	Total (n = 349)	Progression of BD-IPMNs		*P* Value (Progression vs. No Change)
		Progression* (n = 62)	No Change (n = 287)	
Male, n (%)	179 (51.3)	41 (66.1)	138 (48.1)	0.010
Median age (range), yrs	68 (37–83)	67 (37–83)	67 (38–83)	0.432
Unifocal, n (%)	238 (68.2)	40 (64.5)	198 (69.0)	0.493
Location (head), n (%)	193 (55.3)	41 (66.1)	152 (53.0)	0.062
Symptomatic, n (%)	6 (1.7)	4 (6.5)	2 (0.7)	0.011
Median cyst size (range), mm	19 (3–60)	19 (3–55)	19 (4–60)	0.908
Median MPD diameter (range), mm	3 (1–9)	3 (1–9)	3 (1–9)	0.068
Median follow-up period (range), yrs	3.7 1.0–16.3	4.4 1.0–16.3	3.5 1.0–14.4	0.053

*Progression based on imaging findings during the follow-up period was defined as follows: cyst size changes ≥10 mm, MPD changes ≥2 mm, or appearance of MNs.

Maguchi et al Pancréas 2011

TIPMP- canaux secondaires

Taille du kyste n'est pas suffisante!

TABLE 4. Comparison of BD-IPMN in Patients With Progression Between Patients With and Without Surgical Resection

Imaging Findings at the Time of Resection	BD-IPMN With Progression (n = 64)		*P* Value (Resection vs. No Resection)
	Resection (n = 22)	Follow-Up Without Surgery (n = 40)	
Median cyst size (range), mm	32.5 (6–65)	28.5 (6.0–50.0)	0.190
Median MPD diameter (range), mm	5.5 (2–13.0)	3.0 (1.0–10.0)	0.003
MNs			
Absent	7	29	0.002
Present	15	11	
Median follow-up period (range), yrs	2.7 (1.0–15.3)	4.6 (1.1–16.3)	0.043

Main duct > 5 mm
Nodules muraux

TIPMP- canaux secondaires

Cyst Growth Rate Predicts Malignancy in Patients With Branch Duct Intraductal Papillary Mucinous Neoplasms

Progression en taille du kyste

Table 3. Overall Growths of Cystic Mass (Size, Mean ± SD)

	All patients (n = 201)	Malignant (n = 8)	Benign (n = 193)	*P* value
Initial size (mm)	14.7 ± 6.2	13.9 ± 8.6	14.7 ± 6.1	.789
<20 mm (n, %)	161 (80.1)	5 (62.5)	156 (80.8)	.197
20–30 mm (n, %)	40 (19.9)	3 (37.5)	37 (19.2)	
Final size (mm)	17.2 ± 6.9	24.4 ± 7.9	16.9 ± 6.8	.003
<20 mm (n, %)	142 (70.6)	3 (37.5)	139 (72.0)	.036
≥20 mm (n, %)	59 (29.4)	5 (62.5)	54 (28.0)	
Cyst growth (mm)	2.5 ± 4.6	10.4 ± 10.5	2.2 ± 3.9	<.001
Cyst growth rate (mm/y)	1.1 ± 3.9	4.1 ± 4.0	1.0 ± 3.9	.029
Percentage growth of cyst size (%)	21.4 ± 32.7	69.8 ± 58.8	19.4 ± 29.8	.046
Annual percentage of cyst growth rate (%/y)	9.6 ± 22.4	29.6 ± 30.0	8.8 ± 21.8	.010

Kang Clin Gastroenterol Hepatol 2011

TIPMP- canaux secondaires

Cyst Growth Rate Predicts Malignancy in Patients With Branch Duct Intraductal Papillary Mucinous Neoplasms

Progression en taille du kyste

Croissance annuelle > 2 mm
Risque cumulé de malignité
6.4% à 3 ans
45% à 5 ans

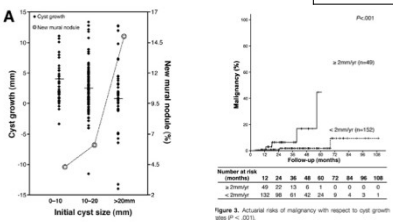


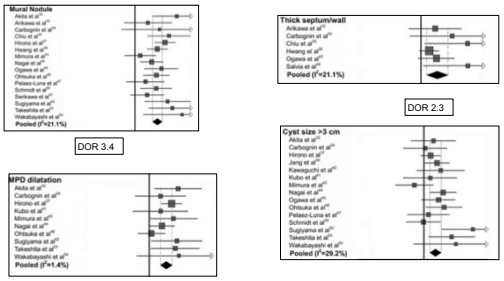
Figure 3. Actuarial risks of malignancy with respect to cyst growth size ($P < .001$).

Kang Clin Gastroenterol Hepatol 2011

TIPMP- canaux secondaires

Imaging Features to Distinguish Malignant and Benign Branch-Duct Type Intraductal Papillary Mucinous Neoplasms of the Pancreas
A Meta-analysis

DOR6.0 — 1373 patients — DOR 3.3



Kim et al An Surg 2013

TIPMP- canaux secondaires

Imaging Features to Distinguish Malignant and Benign Branch-Duct Type Intraductal Papillary Mucinous Neoplasms of the Pancreas
A Meta-analysis

TABLE 3. Summary of the Pooled Indices of Diagnostic Accuracy for the Imaging Findings

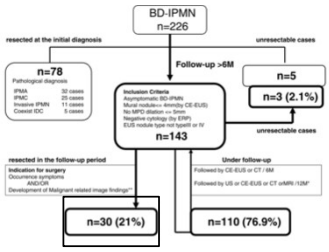
Imaging Findings	No. Studies	AUC	Pooled Sensitivity % (95% CI)	Pooled Specificity % (95% CI)	Positive LR (95% CI)	Negative LR (95% CI)
Cyst size > 3 cm	16	0.637	59 (53–64)	64 (60–67)	1.5 (1.3–1.8)	0.7 (0.6–0.9)
Mural nodule	16	0.787	59 (53–64)	83 (80–85)	2.9 (2.3–3.6)	0.6 (0.5–0.7)
MPD dilatation (overall)	10	0.683	56 (49–62)	67 (62–72)	1.9 (1.4–2.6)	0.7 (0.6–0.8)
Thick septum/wall	6	0.665	58 (48–68)	60 (55–66)	1.8 (1.2–3.0)	0.7 (0.6–0.9)

Conclusions: Presence of mural nodules should be regarded highly suspicious for malignancy warranting a surgical excision whereas cyst size greater than 3 cm, MPD dilatation (5–9 mm), or thick septum/wall may better be managed by careful observation and/or further evaluation.

Kim et al An Surg 2013

TIPMP- canaux secondaires

Malignant Transformation of Branch Duct–Type Intraductal Papillary Mucinous Neoplasms of the Pancreas Based on Contrast-Enhanced Endoscopic Ultrasonography Morphological Changes
Focus on Malignant Transformation of Intraductal Papillary Mucinous Neoplasm Itself



Ohno et al Ann Surg 2012

TIPMP- canaux secondaires

Malignant Transformation of Branch Duct–Type Intraductal Papillary Mucinous Neoplasms of the Pancreas Based on Contrast-Enhanced Endoscopic Ultrasonography Morphological Changes
Focus on Malignant Transformation of Intraductal Papillary Mucinous Neoplasm Itself

TABLE 3. Analysis of Predictive Factors of Malignant Transformation of BD-IPMNs

	Univariate Analysis			Multivariate Analysis		
Factors	**HR**	**95% CI**	***P***	**HR**	**95% CI**	***P***
Male	1.32	0.3–5.4	0.6740			
Age (>65 y)	1.08	0.3–3.9	0.9097			
High-risk group	6.61	1.7–31.5	0.0058	1.25	0.1–20.7	0.8689
Cyst size (>30 mm)	16.4	3.0–304	0.0004	23.8	0.5–15602	0.1137
Cyst enlargement	4.78	1.2–22.9	0.0227	7.00	0.2–1147	0.2834
MPD enlargement	7.62	2.0–36.6	0.0034	9.55	0.3–1383	0.1927
Mural nodule enlargement	11.2	2.6–76.7	0.0012	2.64	0.2–44.2	0.4775
Development of symptoms	8.96	2.1–38.3	0.0045	1.56	0.2–21.6	0.7241
MPD involvement	20.3	4.7–138	<0.0001	6.19	1.0–65.2	0.0399
Diabetes mellitus	1.08	0.2–20.3	0.9392			
Multiple cyst	7.71	1.8–52.5	0.0050	1.86	0.2–25.3	0.6017
Mural nodule (+) (at initial diagnosis)	6.10	1.5–30.5	0.0122	7.42	1.3–80.3	0.0261

Ohno et al Ann Surg 2012

TIPMP- canaux secondaires

ORIGINAL ARTICLE

Cytology Adds Value to Imaging Studies for Risk Assessment of Malignancy in Pancreatic Mucinous Cysts

TIPMP non dilatées sans nodules muraux
Dysplasie haute →50% des cancers

TIPMP< 30 mm ↷ Sensibilité 67%

TABLE 4. Significant Imaging and Cytology Risk Stigmata in 43 Small Branch-Duct Intraductal Papillary Mucinous Neoplasms

	High Risk Stigmata							
Dilated MPD	–				+			
Mural Nodule	–		+		–		–	
HGA	–	+	–	+	–	+	–	+
Benign								
LGD	14	2	1	0	0	0	0	0
MD	12	2	1	0	1	0	0	0
Malignant								
CIS	2	2	0	1	0	1	0	0
INV	1	1	0	0	0	0	0	1

TABLE 5. Performance Characteristics of Significant High Risk Stigmata in Predicting Malignancy (CIS or invasion) in Small Branch-duct Intraductal Papillary Mucinous Neoplasms

	Sensitivity	Specificity	PPV	NPV
HGA	67	88	60	91
MN	22	94	50	82
Dilated MPD	11	91	25	80

HGA indicates high-grade atypia [high-grade dysplasia and malignant]; PPV, positive predictive value; NPV, negative predictive value.

Genevay Ann Surg 2011

TIPMP- canaux secondaires

The Carcinoembryonic Antigen Level in Pancreatic Juice and Mural Nodule Size Are Predictors of Malignancy for Branch Duct Type Intraductal Papillary Mucinous Neoplasms of the Pancreas

Association taille et ACE intrakystique

134 TIPMP CS ↷ 41 malin

TABLE 2. The Diagnostic Cutoff Levels of the Tumor Size, Main Duct Size, Mural Nodule Size, and CEA Levels in the Pancreatic Juice for Differentiating Between Benign and Malignant IPMN Based on the Receiver Operating Characteristic Curves

	Area Under Curve	Cutoff Value
Tumor size	0.612	30 mm
Main pancreatic duct size	0.711	5 mm
Mural nodule size	0.819	5 mm
CEA levels in the pancreatic juice*	0.920	30 ng/mL

*The CEA in the pancreatic juice could be measured in 91 patients who received preoperative ERP.

TABLE 4. The Results of the Multivariate Analysis of the Malignant Predictive Factors for Branch Duct Type IPMN

	P	Odds Ratio	95% Confidence Interval
Jaundice	0.989		
Tumor occupied location, head	0.136		
Main pancreatic duct size, >5 mm	0.082		
Mural nodule size, >5 mm	0.003	12.9	2.38–70.3
Serum CA19-9, elevated	0.803		
Cytology in the pancreatic, class IV or V	0.983		
CEA levels in the pancreatic juice, >30 ng/mL	<0.001	299	17.7–5067

Hirono et al Ann Surg 2012

TIPMP- canaux secondaires

The Carcinoembryonic Antigen Level in Pancreatic Juice and Mural Nodule Size Are Predictors of Malignancy for Branch Duct Type Intraductal Papillary Mucinous Neoplasms of the Pancreas

Association taille et ACE intrakystique

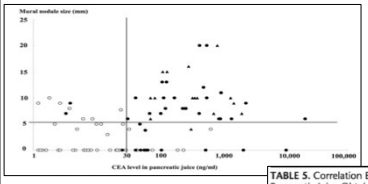


TABLE 5. Correlation Between Findings of EUS and CEA in the Pancreatic Juice Obtained by ERP for the Patients With Branch Duct Type IPMN

EUS Findings (Mural Nodule Size)	CEA Levels in the Pancreatic Juice Obtained by ERP		
	30 ng/mL (n = 36)	>30 ng/mL (n = 55)	P
≤5 mm (n = 45)	27	18	<0.001
>5 mm (n = 46)	9	37	

Hirono et al Ann Surg 2012

TIPMP- canaux secondaires

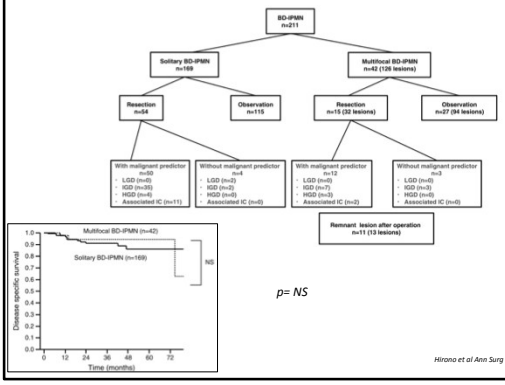
Management Strategy for Multifocal Branch Duct Intraductal Papillary Mucinous Neoplasms of the Pancreas

20-40% des TIPMP secondaires

Clinical Characteristics	All BD-IPMNs (n = 211)	Solitary BD-IPMN (n = 169)	Multifocal BD-IPMNs (n = 42, 126 lesions)	P
Age, mean (SD), y	68 (11)	67 (11)	70 (7)	NS
Sex (M/F)	100:111	83:86	18:24	NS
Tumor location (head/body-tail)	160:135	112:57	48:78	NS
Cyst size, mean (SD), mm	22 (15)	27 (14)	15 (13)	<0.0001
Presence of mural nodule, n (%)	26 (12)	22 (13)	4 (11)	NS
MPD diameter, mean (SD), mm	4.0 (2.4)	4.2 (2.5)	3.3 (1.9)	NS
Cytology positive, n (%)	12 (6)	10 (6)	3 (5)	NS
Presence of symptom, n (%)	137 (64)	126 (72)	11 (29)	<0.0001
Presence of distinct PDAC, n (%)	17 (9)	13 (8)	4 (10)	NS
Operation, n (%)	69 (33)	54 (32)	15 (36)	NS

Hirono et al Ann Surg 2012

TIPMP- canaux secondaires



p= NS

Hirono et al Ann Surg 2012

Conclusions

TIPMP des canaux secondaires

- Lésion malines 25%
- Tumeur invasif 17%
- Patients âgés

↓

surveillance

TIPMP des canaux secondaires

- Nodules muraux
- Cytologie positive
- Croissance rapide

↓

chirurgie

Tanaka et al Pancreatology 2012

NOTES

Quoi de neuf dans les métastases ?

Dr Nicolas GOLSE

Hôpital Paul Brousse, Centre Hépato-Biliaire, Villejuif

JOURNÉES 2017 VENDREDI 9 & SAMEDI 10 JUIN
NEW CAP du Centre Hépato-Biliaire
Centre Hépato-Biliaire

Quoi de neuf ?
Métastases Hépatiques

Dr Nicolas GOLSE

10 Juin 2017

UNIVERSITÉ PARIS SUD

JOURNÉES 2017 VENDREDI 9 & SAMEDI 10 JUIN
NEW CAP du Centre Hépato-Biliaire
Centre Hépato-Biliaire

Quoi de neuf ?
Métastases Hépatiques colorectales ou non

Dr Nicolas GOLSE

10 Juin 2017

UNIVERSITÉ PARIS SUD

TRAITEMENT CHIRURGICAL

ORIGINAL ARTICLE

Feasibility, safety and efficacy of two-stage hepatectomy for bilobar liver metastases of colorectal cancer: a LiverMetSurvey analysis

HPB

Jean Marc Regimbeau[1,2,3], Cyril Cosse[1,3], Gernot Kaiser[4], Catherine Hubert[5], Christophe Laurent[6], Real Lapointe[7], Helen Isoniemi[8] & Rene Adam[9,10]

- 2000-2014
- 359 centres
- 60 pays

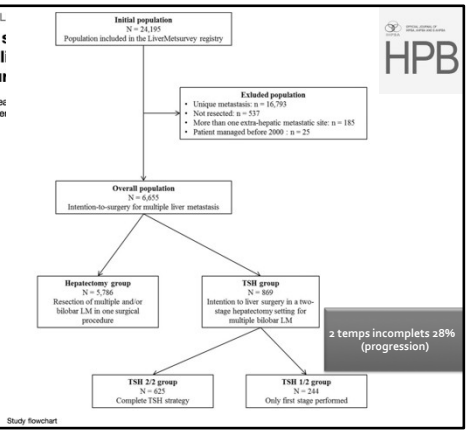
- + grande série de *two-stage* depuis 2000 !

ORIGINAL ARTICL

Feasibility, s
for bilobar li
LiverMetSur

Jean Marc Regimbe
Real Lapointe[7], Hele

HPB



Study flowchart

ORIGINAL ARTICLE

Feasibility, safety and efficacy of two-stage hepatectomy for bilobar liver metastases of colorectal cancer: a LiverMetSurvey analysis

HPB

Table 1 Characteristics of the study population

	TSH group n = 869	Hepatectomy group n = 5786	p Value
Age, median (range)	60 (23–96)	59 (29–94)	0.69
Male gender, n (%)	535 (62)	3529 (61)	0.84
T3–T4, n (%)	664 (76)	4513 (78)	0.31
N0, n (%)	218 (25)	1388 (24)	0.39
Synchronous LM, n (%)	709 (82)	4687 (81)	0.74
Tumor site, n (%):			0.12
Rectum	283 (33)	2083 (36)	
Left colon	418 (48)	2604 (45)	
Transverse	30 (4)	173 (3)	
Right colon	138 (16)	926 (16)	
Number of LM, median (range)	7 (2–41)	6 (2–37)	0.22
Size of LM, mean ± SD	45 ± 26	44 ± 27	0.41
Chemotherapy before hepatectomy, n (%)	554 (64)	3761 (65)	0.53
Number of chemotherapy cycles, median (range)	6 (1–66)	6 (1–42)	0.77
CEA level, median (range)	9 (0.4–10,271)	9 (0.3–2814)	0.84
Repeat hepatectomy, n (%)	499 (57)	1099 (19)	0.02
Laparoscopy, n (%)	45 (5)	174 (3)	0.04
Peroperative transfusion, n (%)	118 (14)	694 (12)	0.56
Anatomical resection, n (%)	340 (39)	2256 (39)	0.93
Pringle maneuver, n (%)	124 (14)	752 (13)	0.60
Pulmonary metastasis, n (%)	209 (24)	1157 (20)	0.04
Cancer-free margin, n (%)	505 (58)	3124 (54)	0.03
One or more positive lymph nodes, n (%)	35 (4)	231 (4)	0.74

ORIGINAL ARTICLE

Feasibility, safety and efficacy of two-stage hepatectomy for bilobar liver metastases of colorectal cancer: a LiverMetSurvey analysis

HPB

Table 2 Postoperative morbidity and short-term mortality[a]

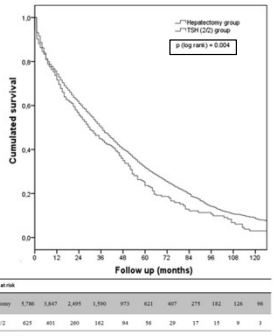
	TSH (2/2) n = 625	TSH (1/2) n = 244	p Value	TSH n = 869	Hepatectomy n = 5786	p Value
Postoperative adverse events, n (%)	157 (25.1)	71 (29.1)	0.10	228 (26.2)	1395 (24.1)	0.12
Biliary fistulae, n (%)	27 (4.3)	10 (4)	0.57	37 (4.3)	242 (4.2)	0.48
Hepatocellular insufficiency, n (%)	16 (2.6)	5 (2)	0.46	21 (2.4)	201 (3.5)	0.11
Pulmonary events, n (%)	31 (4.8)	6 (2.5)	0.02	37 (4.3)	272 (4.7)	0.36
Thromboembolic events, n (%)	6 (0.9)	0 (0)	0.09	6 (0.7)	48 (0.8)	0.61
Wound-related events, n (%)	23 (3.7)	8 (3.3)	0.78	31 (3.6)	118 (2.0)	0.39
Postoperative radiological drainage, n (%)	87 (13.9)	37 (15.2)	0.54	124 (14.3)	238 (4.1)	0.007
Repeat surgery, n (%)	45 (7.2)	14 (5.7)	0.53	59 (6.8)	513 (8.9)	0.40
30-day mortality, n (%)	24 (3.8)	23 (9.4)	<0.001	47 (5.4)	313 (5.4)	0.84
60-day mortality, n (%)	45 (7.2)	35 (14.3)	0.009	80 (9.2)	417 (7.2)	0.31
90-day mortality, n (%)	58 (9.3)	40 (16.4)	0.013	98 (11.3)	524 (9.1)	0.16
Length of stay, days, median (range)	13 (0–130)	13 (2–106)	0.31	13 (0–130)	11 (0–71)	0.03

[a] For all events, the data for the TSH (2/2) group were obtained after the second stage, and included events after both stages of hepatectomy.

ORIGINAL ARTICLE

Feasibility, safety and efficacy of two-stage hepatectomy for bilobar liver metastases of colorectal cancer: a LiverMetSurv

HPB



Overall survival after PS matching

Drop-out between the two liver resections of two-stage hepatectomy. Patient selection or loss of chance?

EJSO SURGICAL ONCOLOGY

L. Viganò [a], G. Torzilli [a,*], M. Cimino [a], K. Imai [b], E. Vibert [b], M. Donadon [a], D. Castaing [b], R. Adam [b]

[a] Department of Surgery, Division of Hepatobiliary & General Surgery, Humanitas Research Hospital, Humanitas University, Rozzano, Milano, Italy

[b] AP-HP Hôpital Paul Brousse, Centre Hépato-Biliaire, University of Paris, Villejuif, France

- Rétrospectif
- Bicentrique
-
-

Drop-out between the two liver resections of two-stage hepatectomy. Patient selection or loss of chance?

EJSO SURGICAL ONCOLOGY

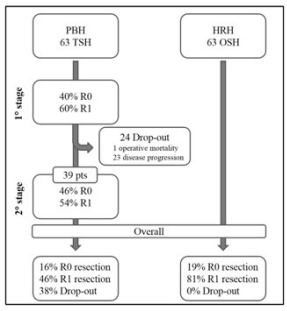
Patients' characteristics and chemotherapy details.

	One-stage hepatectomy (n = 63) n (%)	Two-stage hepatectomy (n = 63) n (%)	P
Patient characteristics			
Age >65 years	20 (31.7)	12 (19.0)	0.102
Male sex	34 (53.9)	36 (57.1)	0.720
Primary tumor			
Rectal cancer	12 (19.0)	18 (28.6)	0.210
T3–4[a]	43/51 (84.3)	43/50 (86.0)	0.812
N+	38 (60.3)	38 (60.3)	*1 matched*
Liver metastases			
Synchronous	53 (84.1)	53 (84.1)	*1 matched*
Bilobar metastases	63 (100)	63 (100)	*1 matched*
Number of nodules, median	7 (4–49)	7 (4–28)	0.286
<8	36 (57.1)	36 (57.1)	*1 matched*
8–10	8 (12.7)	8 (12.7)	
>10	19 (30.2)	19 (30.2)	
Major vascular contact	55 (87.3)	47 (74.6)	0.070
with hepatic veins	49 (77.8)	39 (61.9)	0.052
with 1st/2nd order portal pedicles	33 (52.4)	23 (36.5)	0.073
Bilateral major vascular contact	27 (42.9)	21 (33.3)	0.271
Largest diameter >50 mm	8 (12.7)	10 (15.9)	0.611
CEA>200 ng/mL[b]	4 (6.3)	2 (3.2)	0.403
Fong et al. score, median	3 (1–5)	3 (1–5)	0.177
≥3	41 (65.1)	42 (66.7)	0.851
Nordlinger et al. score[c], median	4 (3–6)	4 (3–6)	0.091
≥5[c]	23/51 (45.1)	18/50 (36.0)	0.352
Chemotherapy details			
Preoperative chemotherapy	54 (85.7)	59 (93.7)	0.143
Chemotherapy regimen			
5-FU	3 (5.5)	4 (6.7)	0.067
Oxaliplatin	32 (59.3)	24 (40.7)	
Irinotecan	19 (35.2)	26 (44.1)	
Oxaliplatin + Irinotecan	0 (0)	5 (8.5)	
Targeted therapies			
Bevacizumab	21 (38.9)	20 (33.9)	0.582
Cetuximab/Panitumumab	5 (9.3)	17 (28.8)	0.009
Number of patients with >1 lines	10 (18.5)	21 (35.6)	0.042
Number patients with >6 cycles	34 (63.0)	44 (74.6)	0.182
Radiological response			
CR	2 (3.7)	0 (0)	CR/PR vs. SD/PD
PR	31 (57.4)	42 (71.2)	
SD	14 (25.9)	14 (23.7)	0.258
PD	7 (13.0)	3 (5.1)	
Chemotherapy after the 1st stage	—	44 (69.8)	—
Adjuvant chemotherapy	25/63 (39.7)	25/39 (64.1)	0.017

CEA: Carcinoembryonic antigen; 5-FU: 5-fluorouracil; CR: complete response; PR: partial response; SD: stable disease; PD: disease progression.

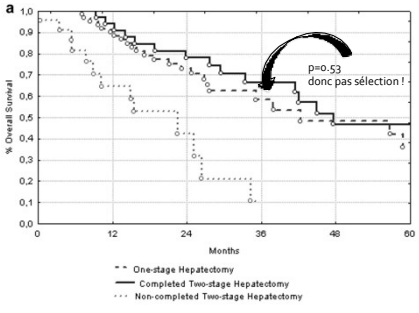
Drop-out between the two liver resections of two-stage hepatectomy. Patient selection or loss of chance?

EJSO SURGICAL ONCOLOGY



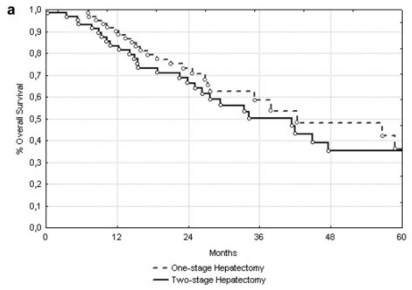
Drop-out between the two liver resections of two-stage hepatectomy. Patient selection or loss of chance?

EJSO SURGICAL ONCOLOGY



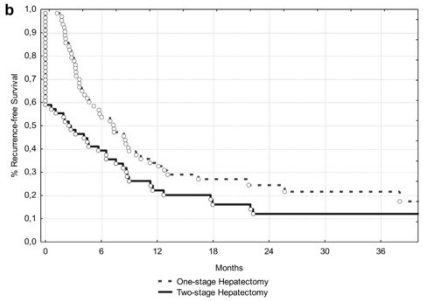
Drop-out between the two liver resections of two-stage hepatectomy. Patient selection or loss of chance?

Intention de traiter, p=0.35



Drop-out between the two liver resections of two-stage hepatectomy. Patient selection or loss of chance?

Intention de traiter, p=0.04



Drop-out between the two liver resections of two-stage hepatectomy. Patient selection or loss of chance?

Intention de traiter, p=0.04

Recurrence rate and sites.

	One-stage hep. (n = 63)	Two-stage hep. (n = 39)	P
	n (%)	n (%)	
Recurrence			
Overall recurrence rate	50 (79.4)	29 (74.4)	0.557
Hepatic only	22 (44.0)	12 (41.4)	0.821
Hepatic + extra-hepatic	21 (42.0)	10 (34.5)	0.510
Extra-hepatic only	7 (14.0)	7 (24.1)	0.255
Cut surface recurrence	7/50 (14.0)	3/29 (10.3)	0.738
Liver only recurrences resection	18/43 (41.9)	8/22 (36.4)	0.669

Drop-out between the two liver resections of two-stage hepatectomy. Patient selection or loss of chance?

- **R1 >> R0**
- **Groupes non 100% comparables (primitif, lignes/type de chimio, progression…)**
- **Un temps: Hx mineures uniquement !**
- **Technique en deux temps plus « reproductible »**

- **Seul objectif = résection complète !**
- **Si possible: en un temps**
- **Drop-out = perte de chance !**

Original article

BJS

Factors influencing recurrence following initial hepatectomy for colorectal liver metastases

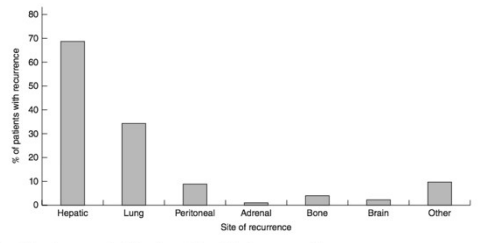
J. Hallet[1,2,11], A. Sa Cunha[2], R. Adam[2], D. Goéré[6], P. Bachellier[3], D. Azoulay[7], A. Ayav[8], E. Grégoire[9], F. Navarro[10] and P. Pessaux[1,2,4], on behalf of the French Colorectal Liver Metastases Working Group, Association Française de Chirurgie (AFC)*

- 2006-2013
- n=2320
- 39 établissements
- Suivi médian 27 mois
- Récidive chez 47% patients

Original article

BJS

Factors influencing recurrence following initial hepatectomy for colorectal liver metastases

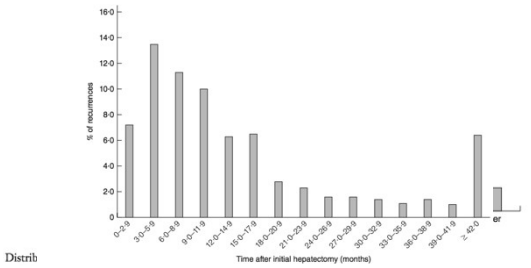


Distribution of site of recurrence in 998 patients with available data on exact site

Original article

Factors influencing recurrence following initial hepatectomy for colorectal liver metastases

BJS



Distrib

Distribution of time to recurrence after initial hepatectomy

Original article

Factors influencing recurrence following initial hepatectomy for colorectal liver metastases

BJS

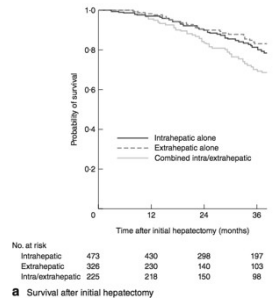
Table 2 Results of Cox regression to identify factors associated with colorectal cancer recurrence at any site following initial hepatectomy for liver metastases

	Hazard ratio
Disease-free interval < 12 months to inital liver metastases	1·18 (0·93, 1·49)
Extrahepatic disease	0·82 (0·62, 1·10)
Node-positive primary	1·27 (1·09, 1·49)
No. of lesions > 3	1·27 (1·06, 1·52)
Size of largest lesion > 4 cm	1·19 (1·01, 1·43)
Prehepatectomy CEA > 10 ng/ml	0·86 (0·73, 1·01)

Original article

Factors influencing recurrence following initial hepatectomy for colorectal liver metastases

BJS



No. at risk

Intrahepatic	473	430	298	197
Extrahepatic	326	230	140	103
Intra/extrahepatic	225	218	150	98

a Survival after initial hepatectomy

- Récidive = FdR mortalité
- Survie médiane non atteinte
- DFS médiane 22 mois
- OS 5 ans: 64% (74% vs 57% selon récidive)

Cohorte récente
Effectif +++
Chimio moderne

Récidive+++
Mais survie satisfaisante

How Has Virtual Hepatectomy Changed the Practice of Liver Surgery?

Experience of 1194 Virtual Hepatectomy Before Liver Resection and Living Donor Liver Transplantation

Yoshihiro Mise, MD, Kiyoshi Hasegawa, MD, Shouichi Satou, MD, Junichi Shindoh, MD, Kenji Miki, MD, Nobuhisa Akamatsu, MD, Junichi Arita, MD, Junichi Kaneko, MD, Yoshihiro Sakamoto, MD, and Norihiro Kokudo, MD, PhD

ANNALS OF SURGERY

- 2004-2013
- 433 LDLT
- 248 hépatectomies

How Has Virtual Hepatectomy Changed the Practice of Liver Surgery?

Experience of 1194 Virtual Hepatectomy Before Liver Resection and Living Donor Liver Transplantation

ANNALS OF SURGERY

TABLE 1. Baseline Characteristics and Surgical Outcomes of the VH and Non-VH Groups of Patients Who Underwent LDLT

	VH (n = 248)	Non-VH (n = 185)	*P*
Recipient			
Age, yrs	**54 (18–66)**	**50 (18–67)**	**<0.01**
Sex, male, n (%)	137 (55)	94 (51)	0.36
Diagnosis, n (%)			**<0.01**
Hepatocellular carcinoma	83 (33)	43 (23)	
HBV/HCV-related LC	56 (23)	34 (18)	
PBC	40 (16)	47 (25)	
Fulminant hepatitis	24 (10)	20 (11)	
Biliary atresia	7 (3)	13 (7)	
Other	38 (15)	28 (15)	
Operation time, min	**771 (461–2405)**	**925 (650–1990)**	**<0.01**
Blood loss, mL	4985 (580–81545)	4658 (830–53835)	0.71
Major complication (s), n (%)	**82 (33)**	**95 (51)**	**<0.01**
Length of hospital stay, d	45 (10–581)	42 (6–655)	0.30
Inhospital mortality, n (%)	14 (6)	9 (5)	0.74
Donor			
Age, yrs	36 (18–65)	35 (18–66)	0.53
Sex, male, n (%)	129 (52)	108 (58)	0.19
Operation time, min	**455 (315–780)**	**485 (225–780)**	**<0.01**
Blood loss, mL	**390 (50–1330)**	**490 (110–2000)**	**<0.01**
Complication (s), n (%)	29 (12)	28 (15)	0.29
Major complication (s), n (%)	8 (3)	11 (6)	0.17
Length of hospital stay, d	**14 (8–36)**	**15 (5–56)**	**<0.01**
Graft selection			
Right/left/posterior/lateral, n (%)	**156/83/8/1**	**86/82/16/1**	**<0.01**

How Has Virtual Hepatectomy Changed the Practice of Liver Surgery?

Experience of 1194 Virtual Hepatectomy Before Liver Resection and Living Donor Liver Transplantation

ANNALS OF SURGERY

Hx virtuelle
=
- Plus de greffons droits
- Plus de reconstructions vasculaires (82%)
- Moins de congestion veineuse
- Même morbi-mortalité (D+R)

How Has Virtual Hepatectomy Changed the Practice of Liver Surgery?

Experience of 1194 Virtual Hepatectomy Before Liver Resection and Living Donor Liver Transplantation

ANNALS OF SURGERY

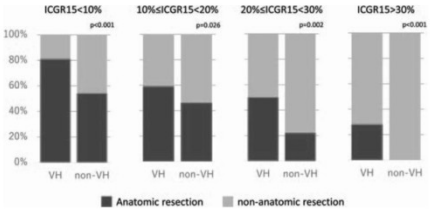
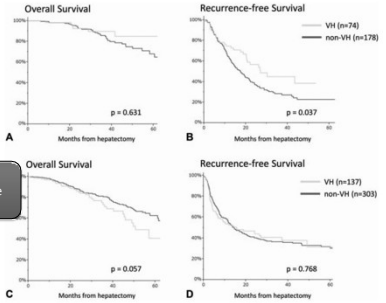


FIGURE 3. Anatomic resection rates in patients who underwent liver resection for hepatocellular carcinoma stratified by the indocyanine green retention rate at 15 minutes (ICGR15).

How Has Virtual Hepatectomy Changed the Practice of Liver Surgery?

Experience of 1194 Virtual Hepatectomy Before Liver Resection and Living Donor Liver Transplantation

ANNALS OF SURGERY



Plus de lésions (T, nombre, bilat…) et Hx élargies dans le groupe VH

FIGURE 4. Survival curves of patients with impaired liver function (ICGR15 >10%) who underwent liver resection for localized HCC (n ≤ 3, size ≤3 cm) (A, B), and patients who underwent liver resection for CRLM (C, D).

Original article

Nomogram for prediction of prognosis in patients with initially unresectable colorectal liver metastases

BJS

K. Imai[1,2,5], M.-A. Allard[1,2,4], C. Castro Benitez[1,2,4], E. Vibert[1,3,4], A. Sa Cunha[1,2,4], D. Cherqui[1,3,4], D. Castaing[1,3,4], H. Bismuth[1], H. Baba[5] and R. Adam[1,2,4]

- Monocentrique, rétrospective
- 1990-2012
- MH non résécables
- n=439

Original article

Nomogram for prediction of prognosis in patients with initially unresectable colorectal liver metastases

BJS

K. Imai[1,2,5], M.-A. Allard[1,2,4], C. Castro Benitez[1,2,4], E. Vibert[1,3,4], A. Sa Cunha[1,2,4], D. Cherqui[1,3,4], D. Castaing[1,3,4], H. Bismuth[1], H. Baba[5] and R. Adam[1,2,4]

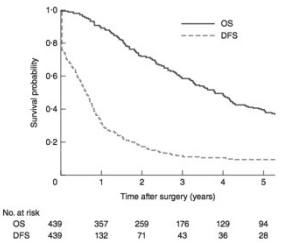
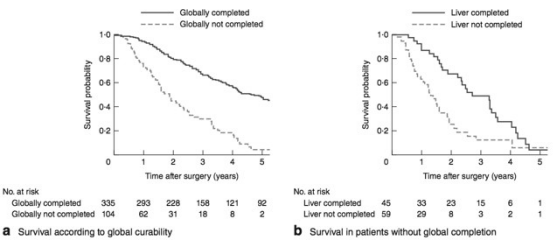


Fig. 1 Overall (OS) and disease-free (DFS) survival in patients who underwent hepatectomy for initially unresectable colorectal liver metastases

Original article

Nomogram for prediction of prognosis in patients with initially unresectable colorectal liver metastases

BJS



Original article

Nomogram for prediction of prognosis in patients with initially unresectable colorectal liver metastases

BJS

Table 4 Multivariable cox regression analysis of factors associated with overall survival after hepatectomy

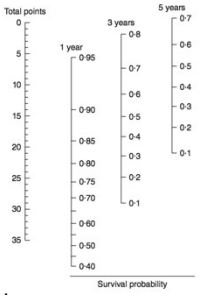
	Hazard ratio	*P*
Primary N category (N1–2)	1·51 (1·11, 2·10)	0·004
Response to first-line chemotherapy (progression)	2·11 (1·28, 3·27)	0·004
Tumour no. at hepatectomy (> 6)	1·76 (1·30, 2·36)	<0·001
CA19-9 at hepatectomy (> 37 units/ml)	2·36 (1·73, 3·18)	<0·001
Concomitant extrahepatic disease (present)	1·42 (1·06, 1·89)	0·019

Original article

Nomogram for prediction of prognosis in patients with initially unresectable colorectal liver metastases

BJS

Factor	Score
Primary tumour N category	
N0	0
N1–2	5
Tumour no. at hepatectomy	
≤ 6	0
> 6	7
CA19-9 level at hepatectomy (units/ml)	
≤ 37	0
> 37	10
Response to first-line chemotherapy	
Response/stabilization	0
Progression	9
Concomitant extrahepatic disease	
No	0
Yes	4



Original article

Outcome after associating liver partition and portal vein ligation for staged hepatectomy and conventional two-stage hepatectomy for colorectal liver metastases

BJS

R. Adam[1,2,4], K. Imai[1,2,5], C. Castro Benitez[1,2,4], M.-A. Allard[1,2,4], E. Vibert[1,3,4], A. Sa Cunha[1,2,4], D. Cherqui[1,3,4], H. Baba[5] and D. Castaing[1,3,4]

- Monocentrique
- Rétrospectif
- 2010-2014
  - ALPPS n=17
  - TSH n=41 (***dont 15 sans 2nd temps***)
- Groupes comparables (préop)

Original article

Outcome after associating liver partition and portal vein ligation for staged hepatectomy and conventional two-stage hepatectomy for colorectal liver metastases

BJS

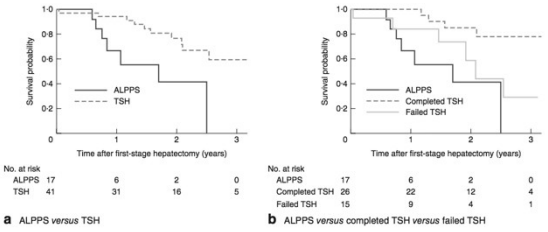
R. Adam[1,2,4], K. Imai[1,2,5], C. Castro Benitez[1,2,4], M.-A. Allard[1,2,4], E. Vibert[1,3,4], A. Sa Cunha[1,2,4], D. Cherqui[1,3,4], H. Baba[5] and D. Castaing[1,3,4]

- Complications mineures
  - ALPPS 59% vs TSH 15%
  - P=0.001
  - Complications majeures
    - ALPPS 41% vs TSH 39%
    - P=0.99

Original article

Outcome after associating liver partition and portal vein ligation for staged hepatectomy and conventional two-stage hepatectomy for colorectal liver metastases

BJS

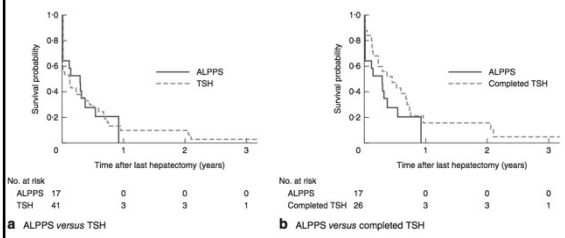


Overall survival

Original article

Outcome after associating liver partition and portal vein ligation for staged hepatectomy and conventional two-stage hepatectomy for colorectal liver metastases

BJS



DFS

ORIGINAL ARTICLE

Parenchymal-sparing hepatectomies (PSH) for bilobar colorectal liver metastases are associated with a lower morbidity and similar oncological results: a propensity score matching analysis

HPB

Riccardo Memeo[1,2,3], Vito de Blasi[1,2,3], René Adam[4], Diane Goéré[5], Daniel Azoulay[6], Ahmet Ayav[7], Emilie Gregoire[8], Reza Kianmanesh[9], Francis Navarro[10], Antonio Sa Cunha[4], Patrick Pessaux[1,2,3] & on behalf of the French Colorectal Liver Metastases Working Group, Association Française de Chirurgie (AFC)

- Préservation du parenchyme
  - ✎ risque d'insuffisance hépatique
  - ✎ marges
  - ✂ risque récidive ?

ORIGINAL ARTICLE

Parenchymal-sparing hepatectomies (PSH) for bilobar colorectal liver metastases are associated with a lower morbidity and similar oncological results: a propensity score matching analysis

HPB

- 2006-2013
- MH bilobaires, ≥3 lésions
- PSH: ≤ 1 segment
- Non-PSDH: ≥ 3 segments adjacents
- Score propension

ORIGINAL ARTICLE

Parenchymal-sparing colorectal liver metas morbidity and similar score matching analy

HPB

Table 1 Patients' preoperative and intraoperative data

	PSH (n = 331)	NON-PSH (n = 360)	P value
Age, yr [median, (range)]	61.7(40–81)	61(27–82)	0.35
Gender, male, n(%)	186(56)	199(55)	0.81
ASA score 3–4, n(%)	49(15)	59(16)	0.60
Co-morbidity, yes, n(%)	140(42)	160(44)	0.59
Body mass index (kg/m²) [median, (range)]	24.8(17.6–35)	25.3(17.7–40.8)	0.28
Primary resected, yes, n(%)	284(86)	311(86)	0.827
Primary rectum, yes, n(%)	80(24)	87(24)	1
Primary nodes status positive, yes, n(%)	97(29)	134(37)	**0.05**
Liver metastasis synchronous, yes, n(%)	149(45)	145(40)	0.58
Liver metastasis ACE (µg/L) [median, (range)]	28(1–3270)	61(1–8091)	0.29
Liver metastasis neoadjuvant chemotherapy >6, yes, n(%)	103(31)	134(37)	**0.04**
Liver metastasis No. of lesion, [median, (range)]	4(3–13)	5(3–14)	**0.001**
Liver metastasis size of lesion, mm, [median, (range)]	30(4–160)	35(6–295)	**0.007**
Number of resected segments, [median, (range)]	1(0–2)	4(3–6)	**0.0001**
Liver resection + radiofrequency	91(27)	80(22)	0.27
Laparoscopy, yes, n(%)	11(3)	35(10)	**0.001**
Operative time, (min), [median, (range)]	270(90–660)	240(115–507)	0.76
Pedicle clamping, yes, n(%)	214(65)	259(72)	**0.04**
Pedicle clamping duration, min, [median, (range)]	30(0–95)	39(0–240)	0.11
Transfusion, yes, n(%)	52(16)	75(21)	0.09
Transfusion, [median, (range)]	0(0–8)	0(0–9)	0.11

ORIGINAL ARTICLE

Parenchymal-sparing hepatectomies (PSH) for bilobar colorectal liver metastases are associated with a lower morbidity and similar oncological results: a propensity

HPB

Table 3 PSM patients' preoperative and intraoperative data

	PSH (n = 266)	NON-PSH (n = 266)	P Value
Age, yr [median, (range)]	62.4(40–80)	61(29–82)	0.98
Gender, male, n(%)	146(55)	145(55)	1
ASA score 3–4, n(%)	45(17)	46(17)	1
Co-morbidity, yes, n(%)	125(47)	131(49)	0.68
Body mass index (kg/m²) [median, (range)]	25(17–33)	25(17–36)	0.20
Primary resected, yes, n(%)	255(96)	256(99)	1
Primary rectum, yes, n(%)	72(27)	77(29)	0.70
Primary nodes status positive, yes, n(%)	120(45)	125(47)	0.77
Liver metastasis synchronous, yes, n(%)	134(50)	127(48)	0.62
Liver metastasis ACE (µg/L) [median, (range)]	29(1–3727)	61(1–8091)	0.39
Liver metastasis neoadjuvant chemotherapy >6, yes, n(%)	92(35)	84(32)	0.51
Liver metastasis number of lesion, [median, (range)]	4(3–9)	4(3–15)	0.53
Liver metastasis size of lesion, mm, [median, (range)]	35(6–110)	33(6–200)	0.15
Number of resected segments, [median, (range)]	1(0–2)	4(3–6)	0.0001
Liver resection + radiofrequency	71(27)	59(22)	0.27
Laparoscopy, yes, n(%)	11(4)	32(12)	0.001
Operative time, (min), [median, (range)]	250(120–660)	240(120–420)	0.96
Pedicle clamping, yes, n(%)	139(73)	210(79)	0.16
Pedicle clamping duration, min, [median, (range)]	30(2–95)	38(2–240)	0.39
Transfusion, yes, n(%)	48(18)	61(23)	0.20
Transfusion, [median, (range)]	0(0–8)	0(0–7)	0.37

ORIGINAL ARTICLE

Parenchymal-sparing hepatectomies (PSH) for bilobar

Table 4 PSM patients' intraoperative and postoperative data

	PSH (n = 266)	NON-PSH (n = 266)	P Value
Morbidity≥1	68(25)	91(34)	**0.04**
Morbidity >Dindo IIIA, n(%)	27(10)	45(16)	**0.03**
Non-surgical morbidity, n(%)	37(13)	42(15)	0.62
Pulmonary	26(10)	37(13)	0.17
Cardiac	4(2)	5(2)	1
Sepsis	9(3)	3(1)	0.11
Vascular	9(3)	4(2)	0.26
Acute renal failure	0	2(1)	0.49
Surgical morbidity, n(%)	49(18)	59(22)	0.33
Deep collection	47(17)	57(21)	0.33
Wound infection	7(3)	3(1)	0.34
Liver failure	5(2)	19(7)	**0.006**
Biliary fistula	10(4)	17(6)	0.23
Reoperation, n(%)	16(6)	13(5)	0.74
Mortality (90 days), n(%)	2(1)	3(1)	1
Intensive care unit stay, days, [median, (range)]	0(0–1)	0(0–8)	**0.004**
Total hospitalization, days, [median, (range)]	11(7–36)	11(7–47)	0.85
R1 liver metastasis resection, n(%)	85(32)	75(28)	0.57
Adjuvant chemotherapy	175(66)	33(50)	**0.001**
Recurrence, n(%)	166(62)	160(60)	0.68
Liver-only recurrence, n(%)	79(30)	59(22)	0.06
Liver recurrence treatment			
Re-hepatectomy, n(%)	25(22)	17(29)	0.86
Radiofrequency, n(%)	7(9)	3(5)	0.51
Other, n(%)	47(59)	39(66)	0.74

ORIGINAL ARTICLE

Parenchymal-sparing hepatectomies (PSH) for bilobar colorectal liver metastases are associated with a lower morbidity and similar oncological results: a propensity score matching analysis

HPB

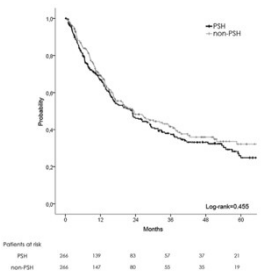


Figure 5 Disease-free survival plot (matched patient)

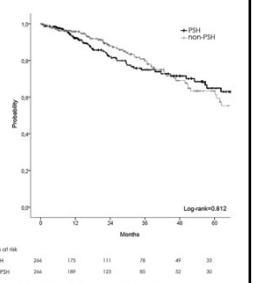
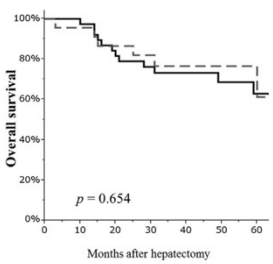


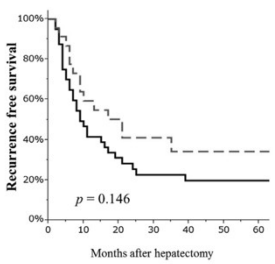
Figure 4 Overall survival plot (matched patient)

Parenchymal-sparing hepatectomy for deep-placed colorectal liver metastases

SURGERY

Ryota Matsuki, MD, Yoshihiro Mise, MD, PhD, Akio Saiura, MD, PhD, Yosuke Inoue, MD, PhD, Takeaki Ishizawa, MD, PhD, and Yu Takahashi, MD, PhD, Tokyo, Japan





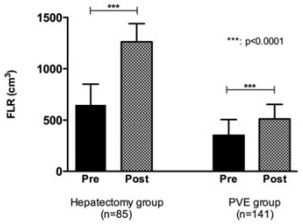
TRAITEMENT MEDICAL

Neoadjuvant Chemotherapy Does Not Impair Liver Regeneration Following Hepatectomy or Portal Vein Embolization for Colorectal Cancer Liver Metastases

EVE SIMONEAU, MD,[1] REEMA ALANAZI, MBBS,[2] JUMANAH ALSHENAIFI, MBBS,[2] NOURAN MOLLA, MD,[3] MURAD ALJIFFRY, MD, MSc,[4] AHMAD MEDKHALI, MD,[2] LOUIS-MARTIN BOUCHER, MD,[5] JAMIL ASSELAH, MD,[1] PETER METRAKOS, MD,[1] AND MAZEN HASSANAIN, MD, PhD[1,2]*
[1]Department of Surgery, McGill University, Montreal, Canada
[2]Department of Surgery, College of Medicine, King Saud University, Riyadh, Saudi Arabia
[3]Department of Radiology, McGill University, Montreal, Canada
[4]Department of Surgery, College of Medicine King Abdulaziz University, Jeddah, Saudi Arabia
[5]Department of Oncology, McGill University, Montreal, Canada

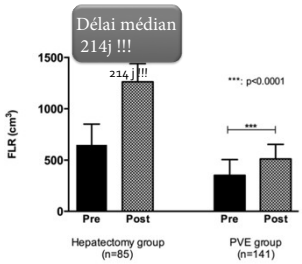
- 2003-2013
- n=226
  - 85 Hx majeure sans PVE
  - 141 PVE
- Nombre médian de cures: 6 [4-8]

Neoadjuvant Chemotherapy Does Not Impair Liver Regeneration Following Hepatectomy or Portal Vein Embolization for Colorectal Cancer Liver Metastases



Neoadjuvant Chemotherapy Does Not Impair Liver Regeneration Following Hepatectomy or Portal Vein Embolization for Colorectal Cancer Liver Metastases

Pas d'impact de la chimio sur régénération (nombre de cures type de molécules, délai…)



RESEARCH ARTICLE

WILEY Journal of SURGICAL ONCOLOGY

Influence of neoadjuvant chemotherapy on resection of primary colorectal liver metastases: A propensity score analysis

Moritz J. Strowitzki MD | Thomas Schmidt PhD, MD | Ulrich Keppler MD | Alina S. Ritter cand. med. | Sarah Mahmoud cand. med. | Johannes Klose MD | André L. Mihaljevic MD | Martin Schneider MD | Markus W. Büchler MD | Alexis B. Ulrich MD

Department of General, Visceral, and Transplant Surgery, University of Heidelberg, Heidelberg, Germany

RESEARCH ARTICLE

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Department of General, Visceral, and Transplant Surgery, University of Heidelberg, Heidelberg,

Perioperative FOLFOX4 chemotherapy and surgery versus surgery alone for resectable liver metastases from colorectal cancer (EORTC 40983): long-term results of a randomised, controlled, phase 3 trial

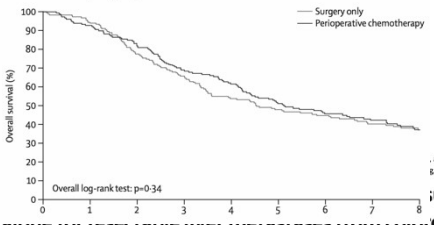
Bernard Nordlinger, Halfdan Sorbye, Bengt Glimelius, Graeme J Poston, Peter M Schlag, Philippe Rougier, Wolf O Bechstein, John N Primrose, Euan T Walpole, Meg Finch-Jones, Daniel Jaeck, Darius Mirza, Rowan W Parks, Murielle Mauer, Erik Tanis, Eric Van Cutsem, Werner Scheithauer, Thomas Gruenberger, for the EORTC Gastro-Intestinal Tract Cancer Group, Cancer Research UK, Arbeitsgruppe Lebermetastasen und-tumoren in der Chirurgischen Arbeitsgemeinschaft Onkologie (ALM-CAO), Australasian Gastro-Intestinal Trials Group (AGITG), and Fédération Francophone de Cancérologie Digestive (FFCD)

Lancet Oncol 2013; 14: 1208–15

RESEARCH ARTI

Influence
primary c
analysis

Moritz J. Stro
Alina S. Ritter
André L. Mihal
Alexis B. Ulricl



, and Transplant
g, Heidelberg,

Periope **ius surgery alone for resectable liver metastases from colorectal cancer (EORTC 40983): long-term results of a randomised, controlled, phase 3 trial**

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***Lancet Oncol* 2013; 14: 1208–15**

RESEARCH ARTICLE WILEY Journal of SURGICAL ONCOLOGY

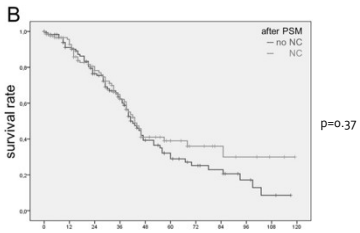
Influence of neoadjuvant chemotherapy on resection of primary colorectal liver metastases: A propensity score analysis

- MHCCR résecables d'emblée
- n=468
- Score de propension: 125 paires

p=0.37

RESEARCH ARTICLE WILEY Journal of SURGICAL ONCOLOGY

Influence of neoadjuvant chemotherapy on resection of primary colorectal liver metastases: A propensity score analysis



p=0.37

	months										
Pts at risk	0	12	24	36	48	60	72	84	96	108	120
no NC	116	94	71	52	27	19	12	9	5	1	0
NC	115	92	66	45	21	13	8	6	3	1	0

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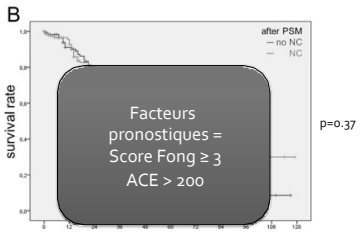

p=0.37

	months										
Pts at risk	0	12	24	36	48	60	72	84	96	108	120
no NC	116	94	71	52	27	19	12	9	5	1	0
NC	115	92	66	45	21	13	8	6	3	1	0

Activating KRAS Mutation Is Prognostic Only Among Patients Who Receive Preoperative Chemotherapy Before Resection of Colorectal Liver Metastases

GEORGIOS ANTONIOS MARGONIS, MD, PhD, YUHREE KIM, MD, MPH, KAZUNARI SASAKI, MD, MARIO SAMAHA, MD, STEFAN BUETTNER, Bsc, NEDA AMINI, MD, AND TIMOTHY M. PAWLIK, MD, MPH, PhD, FACS*
Department of Surgery, The Johns Hopkins Hospital, Baltimore, Maryland

Perioperative chemotherapy with FOLFOX4 and surgery versus surgery alone for resectable liver metastases from colorectal cancer (EORTC Intergroup trial 40983): a randomised controlled trial

Bernard Nordlinger, Halfdan Sorbye, Bengt Glimelius, Graeme J Poston, Peter M Schlag, Philippe Rougier, Wolf O Bechstein, John N Primrose, Evan T Walpole, Meg Finch-Jones, Daniel Jaeck, Darius Mirza, Rowan W Parks, Laurence Collette, Michel Praet, Ulfrich Bethe, Eric Van Cutsem, Werner Scheithauer, Thomas Gruenberger for the EORTC Gastro-Intestinal Tract Cancer Group, Cancer Research UK,* Arbeitsgruppe Lebermetastasen und-tumoren in der Chirurgischen Arbeitsgemeinschaft Onkologie (ALM-CAO),* Australasian Gastro-Intestinal Trials Group (AGITG),* and Fédération Francophone de Cancérologie Digestive (FFCD)**

***Lancet* 2008; 371: 1007–16**

Interpretation Perioperative chemotherapy with FOLFOX4 is compatible with major liver surgery and reduces the risk of events of progression-free survival in eligible and resected patients.

Activating KRAS Mutation Is Prognostic Only Among Patients Who Receive Preoperative Chemotherapy Before Resection of Colorectal Liver Metastases

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Department of Surgery, The Johns Hopkins Hospital, Baltimore, Maryland

Systemic chemotherapy with or without cetuximab in patients with resectable colorectal liver metastasis: the New EPOC randomised controlled trial

John Primrose, Stephen Falk, Meg Finch-Jones, Juan Valle, Derek O'Reilly, Ajith Siriwardena, Joanne Hornbuckle, Mark Peterson, Myrddin Rees, Tim Iveson, Tamas Hickish, Rachel Butler, Louise Stanton, Elizabeth Dixon, Louisa Little, Megan Bowers, Siân Pugh, O James Garden, David Cunningham, Tim Maughan, John Bridgewater

***Lancet Oncol* 2014; 15: 601–11**

Interpretation Addition of cetuximab to chemotherapy and surgery for operable colorectal liver metastases in *KRAS* exon 2 wild-type patients results in shorter progression-free survival. Translational investigations to explore the molecular basis for this unexpected interaction are needed but at present the use of cetuximab in this setting cannot be recommended.

Activating KRAS Mutation Is Prognostic Only Among Patients Who Receive Preoperative Chemotherapy Before Resection of Colorectal Liver Metastases

GEORGIOS ANTONIOS MARGONIS, MD, PhD, YUHREE KIM, MD, MPH, KAZUNARI SASAKI, MD, MARIO SAMAHA, MD, STEFAN BUETTNER, Bsc, NEDA AMINI, MD, AND TIMOTHY M. PAWLIK, MD, MPH, PhD, FACS*
Department of Surgery, The Johns Hopkins Hospital, Baltimore, Maryland

- Monocentrique
- Rétrospectif
- 2000-2015
- n=430, **non sélectionnés**
- 80% colon, 20% rectum
- MH synchrones 56%
- Chimio néo-adjuvante 60%, dont 60% bevacizumab
- Cetuximab = critère d'exclusion

Activating KRAS Mutation Is Prognostic Only Among Patients Who Receive Preoperative Chemotherapy Before Resection of Colorectal Liver Metastases

TABLE II. Univariate and Multivariate Analysis of Factors Associated With OS Among Entire Study Cohort

	Univariable analysis			Multivariable analysis		
Prognostic factor	HR	95%CI	*P*-value	HR	95%CI	*P*-value
KRAS						
Wild-type	Ref			Ref		
Mutants	1.31	0.95–1.80	0.094	1.41	1.01–1.95	0.042
Age						
≤60 years	Ref					
>60 years	0.96	0.71–1.30	0.782			
Sex						
Female	Ref					
Male	1.23	0.90–1.67	0.199			
T stage						
1–2	Ref					
3–4	1.01	0.67–1.55	0.948			
Location of tumor						
Colon tumor	Ref					
Rectal tumor	0.91	0.61–1.34	0.626			
Disease-free interval						
>12 months	Ref					
≤12 months	0.91	0.67–1.24	0.567			
Regional lymph node status						
Negative	Ref					
Positive	1.61	1.14–2.27	0.006	1.62	1.14–2.29	0.007
Tumor size						
≤5 cm						
>5 cm	0.93	0.57–1.49	0.753			
Number of lesions						
Single						
Multiple	0.92	0.68–1.27	0.613			
Preop chemotherapy	1.62	1.17–2.24	0.004	1.42	1.01–1.98	0.041
Ablation	1.59	1.11–2.28	0.011	1.53	1.05–2.21	0.025
Margin						
R0 Margin	Ref			Ref		
R1 Margin	1.88	1.32–2.67	<0.001	1.85	1.29–2.66	0.001

Activating KRAS Mutation Is Prognostic Only Among Patients Who Receive Preoperative Chemotherapy Before Resection of Colorectal Liver Metastases

TABLE III. Univariate and Multivariate Analysis of Factors Associated With OS Among Patients Receiving Upfront Surgery

	Univariable analysis			Multivariable analysis		
Prognostic factor	HR	95%CI	*P*-value	HR	95%CI	*P*-value
KRAS						
Wild-type	Ref					
Mutants	0.86	0.49–1.52	0.597			
Age						
≤60 years	Ref					
>60 years	1.39	0.81–2.40	0.233			
Sex						
Female	Ref					
Male	1.20	0.68–2.11	0.525			
T stage						
1–2	Ref					
3–4	0.85	0.43–1.69	0.650			
Location of tumor						
Colon tumor	Ref					
Rectal tumor	0.87	0.43–1.78	0.704			
Disease-free interval						
>12 months	Ref					
≤12 months	0.92	0.54–1.58	0.771			
Regional lymph node status						
Negative	Ref					
Positive	0.97	0.57–1.67	0.923			
Tumor size						
≤5 cm						
>5 cm	0.63	0.25–1.59	0.331			
Number of lesions						
Single						
Multiple	0.71	0.42–1.22	0.217			
Ablation	1.78	0.89–3.54	0.102			
Margin						
R0 Margin	Ref					
R1 Margin	1.94	1.00–3.79	0.052			

Activating KRAS Mutation Is Prognostic Only Among Patients Who Receive Preoperative Chemotherapy Before Resection of Colorectal Liver Metastases

TABLE IV. Univariate and Multivariate Analysis of Factors Associated With OS Among Patients Receiving Preoperative Chemotherapy

	Univariable analysis			Multivariable analysis		
Prognostic factor	HR	95%CI	*P*-value	HR	95%CI	*P*-value
KRAS						
Wild-type	Ref			Ref		
Mutants	1.72	1.18–2.54	0.005	1.67	1.12–2.48	0.012
Age						
≤60 years	Ref					
>60 years	0.83	0.57–1.21	0.322			
Sex						
Female	Ref					
Male	1.14	0.79–1.66	0.479			
T stage						
1–2	Ref					
3–4	1.08	0.63–1.85	0.786			
Location of tumor						
Colon tumor	Ref					
Rectal tumor	0.92	0.57–1.47	0.729			
Disease-free interval						
>12 months	Ref					
≤12 months	0.79	0.54–1.16	0.226			
Regional lymph node status						
Negative	Ref			Ref		
Positive	2.10	1.32–3.33	0.002	2.06	1.29–3.28	0.002
Tumor size						
≤5 cm	Ref					
>5 cm	1.14	0.65–2.01	0.639			
Number of lesions						
Single	Ref					
Multiple	0.98	0.67–1.44	0.921			
Ablation	1.43	0.94–2.19	0.097			
Margin						
R0 Margin	Ref			Ref		
R1 Margin	1.78	1.17–2.71	0.007	2.01	1.31–3.09	0.001

Activating KRAS Mutation Is Prognostic Only Among Patients Who Receive Preoperative Chemotherapy Before Resection of Colorectal Liver Metastases

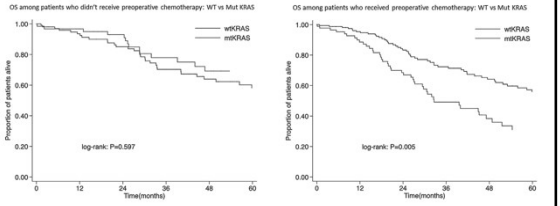
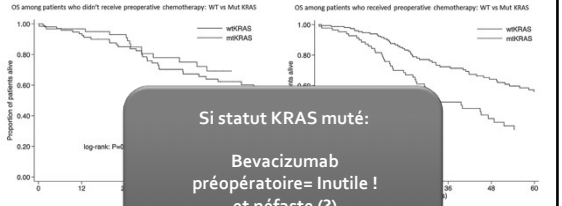


Fig. 2. Overall survival after hepatic surgery for colorectal liver metastasis among patients who received upfront surgery stratified by KRAS mutation status.

Fig. 3. Overall survival after hepatic surgery for colorectal liver metastasis among patients who received preoperative chemotherapy stratified by KRAS mutation status.

- **KRAS déterminé sur primitif ou MH. Discordance ?**
- **Mécanismes ???**
- **Chimio +/- beva**
- **Groupes très hétérogènes**

Activating KRAS Mutation Is Prognostic Only Among Patients Who Receive Preoperative Chemotherapy Before Resection of Colorectal Liver Metastases



Si statut KRAS muté:

Bevacizumab préopératoire= Inutile ! et néfaste (?)

Fig. 2. Overall survival after … metastasis among patients who … KRAS mutation status.

- **KRAS déterminé sur primitif ou MH. Discordance ?**
- **Mécanismes ???**
- **Chimio +/- beva**
- **Groupes très hétérogènes**

Dynamic Assessment of Carcinoembryonic Antigen in the First Month After Liver Resection for Colorectal Liver Metastases as a Rapid-Recurrence Predictor

TAKESHI TAKAMOTO, MD, PhD,* YASUHIKO SUGAWARA, MD, PhD, TAKUYA HASHIMOTO, MD, PhD, KEI SHIMADA, MD, KAZUTO INOUE, MD, YOSHIKAZU MARUYAMA, MD, AND MASATOSHI MAKUUCHI, MD, PhD
Divisions of Hepato-Biliary-Pancreatic and Liver Transplantation, Japanese Red Cross Medical Center, Tokyo, Japan

- 2007-2014
- N=240
- Dosage **ACE** J7 et J14-21 post Hx pour MHCCR
- 2 groupes
  - L: ½ vie > 10j ou élévation taux
  - S: ½ vie < 10j ou normalisation taux

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Divisions of Hepato-Biliary-Pancreatic and Liver Transplantation, Japanese Red Cross Medical Center, Tokyo, Japan

	Group S (n = 156)	Group L (n = 84)	*P*-value
Age (year)	63 (29–89)	63 (30–88)	0.752
Gender, male	91 (58%)	61 (73%)	0.028
ASA score, 3 or more	13 (8%)	9 (11%)	0.542
Primary site, rectum	51 (33%)	38 (45%)	0.055
Positive nodal status at primary	110 (71%)	64 (76%)	0.347
Synchronous liver metastases	110 (71%)	52 (62%)	0.174
ICGR15 (%)	10.4 (2.2–30.6)	10.5 (3.1–38.4)	0.411
Preoperative CEA (ng/dl)	18.1 (0.6–2,690)	27.5 (1.2–5,190)	0.764
Number of hepatic lesions	3 (1–77)	4.5 (1–56)	0.538
1	51 (33%)	32 (38%)	0.336
2	21 (13%)	9 (11%)	
3	22 (14%)	14 (17%)	
4 or more	62 (40%)	29 (35%)	
Maximum tumor diameter (cm)	3.5 (0.7–19)	3.4 (0.7–16)	0.398
Major hepatectomy	52 (33%)	21 (25%)	0.181
Repeat liver resection	53 (34%)	38 (45%)	0.074
Blood loss (ml)	782.5 (55–4,175)	872.5 (50–4,095)	0.973
Submillimeter margin	45 (29%)	33 (39%)	0.100
Resected extrahepatic lesion	31 (20%)	16 (19%)	0.878
Preoperative chemotherapy	71 (46%)	38 (45%)	0.967
Postoperative CEA_{7} (ng/dl)	4.4 (0.5–720)	7.2 (0.6–1,950)	0.703
Date of measuring CEA_{7} (POD)	7 (5–19)	7 (4–17)	0.974
Postoperative CEA_{14} (ng/dl)	2.8 (0.5–334)	5.8 (0.9–2,010)	<0.0001
Date of measuring CEA_{14} (POD)	14 (10–33)	14 (12–35)	0.676
Recurrence within 100 POD	53 (34%)	44 (52%)	0.004

Data are expressed as n (%) or median (range). ASA, American Society of Anesthesiologist; ICGR15, indocyanine green retention rate at 15 min; CEA, carcinoembryonic antigen; CEA_{7}, CEA measured around 7 postoperative date; POD, postoperative date; CEA_{14}, CEA measured around 14 POD.

Dynamic Assessment of Carcinoembryonic Antigen in the First Month After Liver Resection for Colorectal Liver Metastases as a Rapid-Recurrence Predictor

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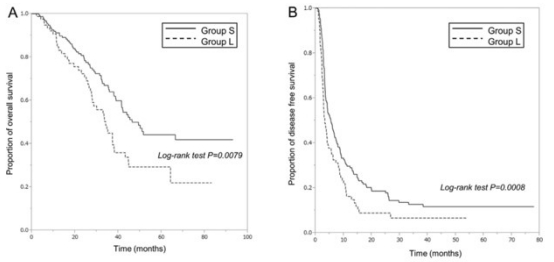
Divisions of Hepato-Biliary-Pancreatic and Liver Transplantation, Japanese Red Cross Medical Center, Tokyo, Japan



Intra-patient Inter-metastatic Genetic Heterogeneity in Colorectal Cancer as a Key Determinant of Survival after Curative Liver Resection

PLOS GENETICS

Anita Sveen[1,2,3†], Inger Marie Lees[4,5†], Sharmini Alagaratnam[1,2,3], Gro Nilsen[3,6], Maren Heland[1,2,3], Ole Christian Lingjærde[3,6], Halfdan Sorbye[8], Kaja Christine Grøue Berg[1,2,3], Arild Horn[7], Jon-Helge Angelsen[7,8], Stian Knappskog[4,5], Per Eystein Lønning[4,5†], Ragnhild A. Lothe[1,2,3†]*

1 Department of Molecular Oncology, Institute for Cancer Research, Oslo University Hospital, Oslo, Norway, **2** K.G. Jebsen Colorectal Cancer Research Centre, Oslo University Hospital, Oslo, Norway, **3** Centre for Cancer Biomedicine, Faculty of Medicine, University of Oslo, Oslo, Norway, **4** Department of Clinical Science, University of Bergen, Bergen, Norway, **5** Department of Oncology, Haukeland University Hospital, Bergen, Norway, **6** Department of Computer Science, University of Oslo, Oslo, Norway, **7** Department of Digestive Surgery, Haukeland University Hospital, Bergen, Norway, **8** Department of Clinical Medicine, University of Bergen, Bergen, Norway

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1 Department of Molecular Oncology, Institute for Cancer Research, Oslo University Hospital, Oslo, Norway, **2** K.G. Jebsen Colorectal Cancer Research Centre, Oslo University Hospital, Oslo, Norway, **3** Centre for

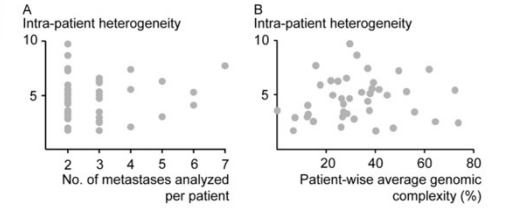
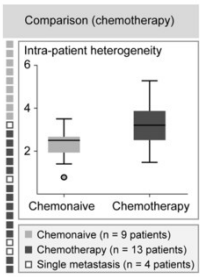


Fig 3. Intra-patient inter-metastatic genetic heterogeneity is independent of the number and genomic complexity of liver metastases. For the 41 patients with multiple metastases from the first liver resection

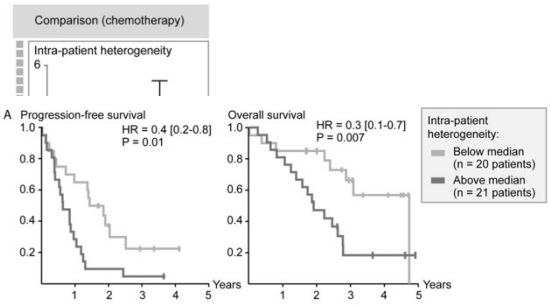
Intra-patient Inter-metastatic Genetic Heterogeneity in Colorectal Cancer as a Key Determinant of Survival after Curative Liver Resection

PLOS GENETICS



Intra-patient Inter-metastatic Genetic Heterogeneity in Colorectal Cancer as a Key Determinant of Survival after Curative Liver Resection

PLOS | GENETICS



Evidence of intermetastatic heterogeneity for pathological response and genetic mutations within colorectal liver metastases following preoperative chemotherapy

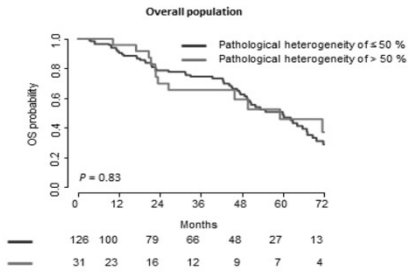
Mylène Sebagh[1,2,*] Marc-Antoine Allard[3,4,*], Nelly Bosselut[2,5], Myriam Dao[1], Eric Vibert[2,3], Maïté Lewin[6], Antoinette Lemoine[2,5], Daniel Cherqui[2,3], René Adam[3,4], Antonio Sa Cunha[3,4]

- n=157
- Hétérogénéïté histologique: > 50% difference nbre cellules tumorales restantes
- Hétérogénéïté mutationnelle: KRAS, NRAS, BRAF and PIK3CA
- 0 donnée sur primitif

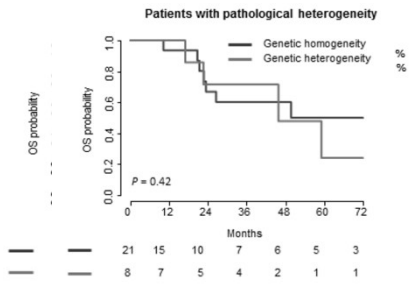
Evidence of intermetastatic heterogeneity for pathological response and genetic mutations within colorectal liver metastases following preoperative chemotherapy

- Hétérogénéïté histologique: 20% des patients, associée à
  - PVE
  - >3 métastases
- Hétérogénéïté mutationnelle: 28% des patients

Evidence of intermetastatic heterogeneity for pathological response and genetic mutations within colorectal liver metastases following preoperative chemotherapy



Evidence of intermetastatic heterogeneity for pathological response and genetic mutations within colorectal liver metastases following preoperative chemotherapy



RADIOLOGIE

ORIGINAL ARTICLE

Colorectal liver metastases: disappearing lesions in the era of Eovist hepatobiliary magnetic resonance imaging

Joseph W. Owen[1], Kathryn J. Fowler[2], Maria B. Doyle[3], Nael E. Saad[2], David C. Linehan[4] & William C. Chapman[3]

[1]University of Kentucky, [2]Washington University, Department of Radiology, [3]Washington University, and [4]University of Rochester, Department of Surgery, United States

HPB

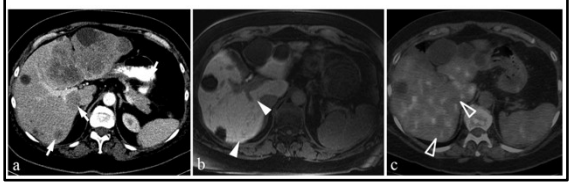
- Acide gadoxetique
- Meilleures sensibilité détection/charactérisation des tumeurs

ORIGINAL ARTICLE

Colorectal liver metastases: disappearing lesions in the era of Eovist hepatobiliary magnetic resonance imaging

HPB

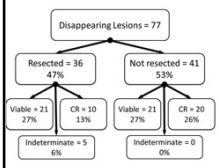
- 2008-2014
- Réponse complète si
  - réséquée et pas de cellule viable / anatomopathologie
  - non réséquée et pas de récidive locale à 1 an



ORIGINAL ARTICLE

Colorectal liver metastases: disappearing lesions in the era of Eovist hepatobiliary magnetic resonance imaging

HPB

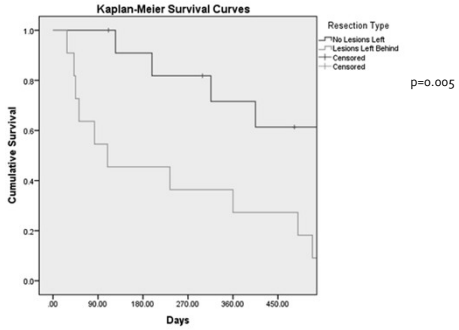


Lesion Variables (median; range)	N = 200
Number of disappearing lesions	77 (38.5%)
Baseline average size in mm	
All lesions	13 (3–151)
Disappearing lesions	8 (3–32)
Disappearing lesions	
With complete response	32 (39%)
With persistent disease	40 (55%)
Indeterminate	5 (6%)

ORIGINAL ARTICLE

Colorectal liver metastases: disappearing lesions in the era of Eovist hepatobiliary magnetic resonance imaging

HPB

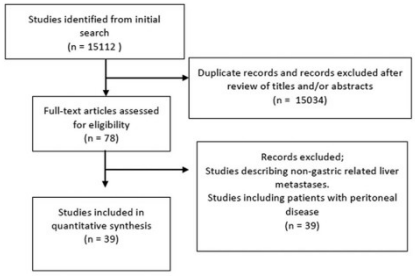


METASTASES NON COLORECTALES

Influence of Surgical Resection of Hepatic Metastases From Gastric Adenocarcinoma on Long-term Survival: Systematic Review and Pooled Analysis

ANNALS OF SURGERY

Sheraz R. Markar, MRCS, MSc, MA, Sameh Mikhail, FRCS,*† George Malietzis, MRCS,* Thanos Athanasiou, PhD, FRCS,* Christophe Mariette, PhD, MD,‡ Mitsuru Sasako, PhD, MD,§ and George B. Hanna, PhD, FRCS**



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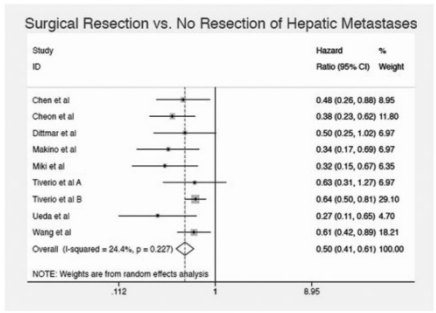

Influence of Surgical Resection of Hepatic Metastases From Gastric Adenocarcinoma on Long-term Survival: Systematic Review and Pooled Analysis

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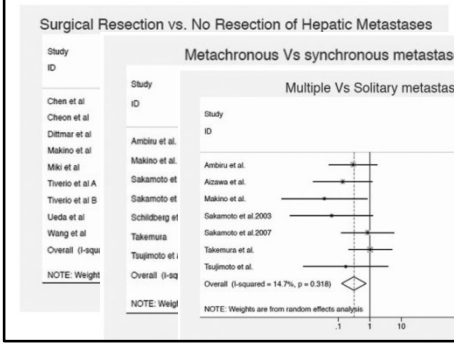

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EJSO 42 (2016) 1229–1235
www.ejso.com

Factors influencing survival after hepatectomy for metastases from gastric cancer

G.A.M. Tiberio [a,*], S. Ministrini [a], A. Gardini [b], D. Marrelli [c], A. Marchet [d], C. Cipollari [e], L. Graziosi [f], C. Pedrazzani [g], G.L. Baiocchi [a], G. La Barba [h], F. Roviello [c], A. Donini [i], G. de Manzoni [e], on behalf of the Italian Research Group for Gastric Cancer

- Multicentrique, rétrospectif
- n= 105

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EJSO 42 (2016) 1229–1235
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Factors influencing survival after hepatectomy for metastases from gastric cancer

- DFS 10 mois
- OS 14.6 mois
- Survie 1 – 3 - 5 ans: 58% – 20% - 13%

Hepatic Resection for Noncolorectal Nonendocrine Liver Metastases
Analysis of 1452 Patients and Development of a Prognostic Model

René Adam, MD, PhD, Laurence Chiche, MD, Thomas Aloia, MD, Dominique Elias, MD, PhD, Rémy Salmon, MD, Michel Rivoire, MD, Daniel Jaeck, MD, Jean Sarfi, MD, Yves Patrice Le Treut, MD, Jacques Belghiti, MD, Georges Mantion, MD, Gilles Meeüus, MD, and the Association Française de Chirurgie

(*Ann Surg* 2006;244: 524–535)

Study Population	No.	5-Year Survival (%)	Median Survival (mo)
All patients	1452	36	35
Group 1: 5-yr survival >30%			
Adrenal	28	66	63
Testicular	78	51	82
Ovarian	65	50	98
Small bowel	28	49	58
Ampullary	15	46	38
Breast	454	41	45
Unknown	28	38	30
Renal	85	38	36
Uterine	43	35	32
Group 2: 5-yr survival 15%–30%			
Gastric adenocarcinoma	64	27	15
Exocrine pancreatic	40	25	20
Cutaneous melanoma	44	22	27
Choroid melanoma	104	21	19
Duodenal	12	21	34

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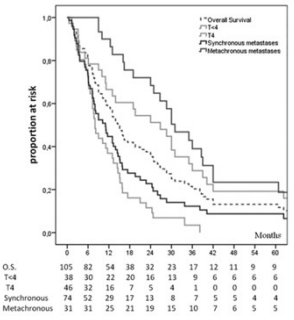
Factors influencing survival after hepatectomy for metastases from gastric cancer



O.S.	105	82	54	38	32	23	17	12	11	9	9
T<4	38	30	22	20	16	13	9	6	6	6	6
T4	46	32	16	7	5	4	1	0	0	0	0
Synchronous	74	52	29	17	13	8	7	5	5	4	4
Metachronous	31	31	25	21	19	15	10	7	6	5	5

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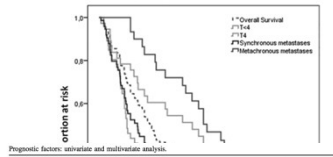
Factors influencing survival after hepatectomy for metastases from gastric cancer



Prognostic factors: univariate and multivariate analysis.

Prognostic variables		n	Median survival	95% CI	Univariate p-value	Multivariate p-value	Odds ratio (±95% C.I.)
Age	<68 years old	61	19.6	10.5–28.7	<0.001	n.s.	
	≥68 years old	44	10.2	5.9–14.5			
T	<4	38	26.8	8.7–44.9	<0.001	<0.001	6.8 (2.5–18.3)
	4	46	8.0	6.2–9.8			
N	0–1	36	13.9	6.6–21.2	0.021	n.s.	
	2	11	24.0	2.9–45.1			
	3	29	11.2	5.1–17.2			
H	1	70	15.9	10.6–21.2	0.042	n.s.	
	2	21	13.0	4.6–21.4			
	3	14	8.2	3.7–12.7			
P	0	100	15.2	12.1–18.3	<0.001	n.s.	
	1	5	3.1	2.0–4.2			
Timing	Synchronous	74	11.0	7.2–14.7	<0.001	<0.001	6.0 (2.3–15.1)
	Metachronous	31	31.0	23.0–39.0			
Curativity	R0	89	16.1	11.4–20.8	<0.001	0.001	2.9 (1.5–5.5)
	R+	16	6.1	5.1–7.1			
Chemotherapy	Yes	29	24.4	10.1–38.7	<0.001	<0.001	3.9 (2.2–7.0)
	No	50	8.2	3.9–12.5			

METASTASES ENDOCRINES

A Novel Nomogram to Predict the Prognosis of Patients Undergoing Liver Resection for Neuroendocrine Liver Metastasis: an Analysis of the Italian Neuroendocrine Liver Metastasis Database

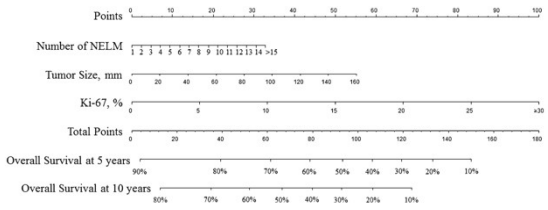
Andrea Ruzzenente[1] · Fabio Bagante[1] · Francesca Bertuzzo[1] · Luca Aldrighetti[2] · Giorgio Ercolani[3] · Felice Giuliante[4] · Alessandro Ferrero[5] · Guido Torzilli[6] · Gian Luca Grazi[7] · Francesca Ratti[2] · Alessandro Cucchetti[2] · Agostino M. De Rose[4] · Nadia Russolillo[3] · Matteo Cimino[3] · Pasquale Perri[5] · Ivana Cataldo[6,7] · Aldo Scarpa[6,7] · Alfredo Guglielmi[1] · Calogero Iacono[1,6]

Table 3 Multivariable analysis for overall survival

Variables	HR	95 % CI	*p*-value
Number of tumors	1.05	1.01–1.10	0.029
Tumor size	1.01	1.00–1.01	0.001
Ki-67	1.07	1.04–1.09	<0.001

A Novel Nomogram to Predict the Prognosis of Patients Undergoing Liver Resection for Neuroendocrine Liver Metastasis: an Analysis of the Italian Neuroendocrine Liver Metastasis Database

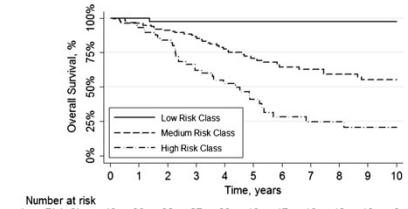
- Nomogram c-index > 0.70 %



A Novel Nomogram to Predict the Prognosis of Patients Undergoing Liver Resection for Neuroendocrine Liver Metastasis: an Analysis of the Italian Neuroendocrine Liver Metastasis Database

3 groupes en fonction de la prédiction du nomogramme

(survie 5 ans <40%, 40-80%, >80%)



Number at risk

Low Risk Class	46	38	32	27	23	18	17	16	12	10	9
Medium Risk Class	132	122	101	83	65	49	38	35	31	28	23
High Risk Class	60	53	44	30	20	14	9	7	6	5	3

A Novel Nomogram to Predict the Prognosis of Patients Undergoing Liver Resection for Neuroendocrine Liver Metastasis: an Analysis of the Italian Neuroendocrine Liver Metastasis Database

- Litérature très limitée, peu de grandes séries (3 séries n>100)
  - –
- Facteurs pronostiques simples, classiques
- Synchro/métachro, Hx mineure/majeure, tous primitifs, fonctionnelles ou non
- + sensible classification Frilling
  - Frilling A et al. BJS 2009, Cancer 2015

- 18% G3 ! (résultats identiques si G1-G2)
- Rétrospectif (mais multicentrique)
- Impact clinique ?
- Anapath relue ?

METASTASES CANCER SEIN

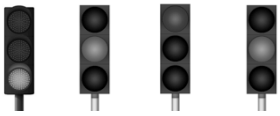
Ann Surg Oncol (2017) 24:533–545
DOI 10.1245/s10434-016-5522-7

Annals of SURGICAL ONCOLOGY
THE OFFICIAL JOURNAL OF THE SOCIETY OF SURGICAL ONCOLOGY

ORIGINAL ARTICLE – HEPATOBILIARY TUMORS

Predictive Profile-Nomogram for Liver Resection for Breast Cancer Metastases: An Aggressive Approach with Promising Results

Aldrick Ruiz, MD[1,2], Dennis A. Wicherts, MD, PhD[3], Mylène Sebagh, MD[1], Sylvie Giacchetti, MD[1,4], Carlos Castro-Benitez, MD[1,2], Richard van Hillegersberg, MD, PhD[3], Bernard Paule, MD[1,4], Denis Castaing, MD[1,2], Jean-François Morère, MD[5,6], and René Adam, MD, PhD[1,4]



NOTES

Quoi de neuf en chirurgie biliaire?

Dr Oriana CIACIO

Hôpital Paul Brousse, Centre Hépato-Biliaire, Villejuif

JOURNÉES 2017 du Centre Hépato-Biliaire
VENDREDI 9 & SAMEDI 10 JUIN
Centre Hépato-Biliaire
HOPITAL PAUL BROUSSE

Quoi de neuf en chirurgie biliaire

Dr Oriana Ciacio

Samedi 10/06/2017

Quoi de neuf en chirurgie biliaire

- Cholangiocarcinomes hilaires
- Cancer de la vésicule biliaire
- Pathologie biliaire non tumorale

Role of staging laparoscopy in the stratification of patients with perihilar cholangiocarcinoma

BJS 2017;

N. Bird[1], M. Elmasry[1], R. Jones[1], M. Elniel[1], M. Kelly[1], D. Palmer[2], S. Fenwick[1], G. Poston[1] and H. Malik[1]

Table 4 All-cause distribution of patients precluded from undergoing resection

	Laparoscopy only	Open/ close laparotomy	Total	Sensitivity of laparoscopy (%)
Peritoneal metastases	15	6	21	71
Locally advanced disease	8	6	14	57
Intrahepatic metastases	4	4	7	43
Other non-surgical	4	0	5	–
Intrahepatic cholangiocarcinoma	11	2	13	85
Hilar cholangio-carcinoma	20	14	34	59

Sensibilité de la coelioscopie exploratrice pour la carcinose péritonéale : 71%

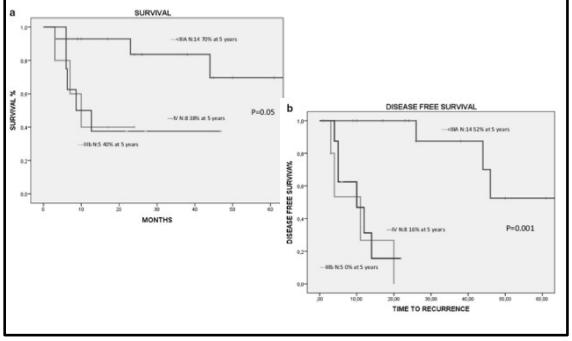
Accuracy pour toutes les causes de non résection 66%

In the present cohort, staging laparoscopy proved useful in determining the presence of radiologically occult metastatic disease in perihilar cholangiocarcinoma

Surgical treatment of perihilar cholangiocarcinoma: early results of en bloc portal vein resection

Langenbecks Arch Surg (2017)

Víctor Molina[1] · Jaime Sampson[1] · Joana Ferrer[1] · Alba Díaz[2] · Juan Ramon Ayuso[3] · Santiago Sánchez-Cabús[1] · Josep Fuster[1] · Juan Carlos García-Valdecasas[1]



Defining the Chance of Statistical Cure Among Patients with Extrahepatic Biliary Tract Cancer

World Journal of Surgery

Gaya Spolverato[1] · Fabio Bagante[1] · Cecilia G. Ethun[2] · George Poultsides[3] · Thuy Tran[3] · Kamran Idrees[4] · Chelsea A. Isom[4] · Ryan C. Fields[5] · Bradley Krasnick[5] · Emily Winslow[6] · Clifford Cho[6] · Robert C. G. Martin[7] · Charles R. Scoggins[7] · Perry Shen[8] · Harveshp D. Mogal[8] · Carl Schmidt[9] · Eliza Beal[9] · Ioannis Hatzaras[10] · Rivfka Shenoy[10] · Shishir K. Maithel[2] · Timothy M. Pawlik[1,9]

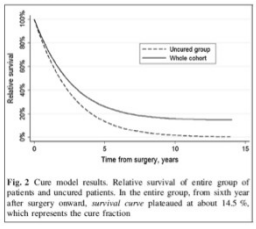


Fig. 2 Cure model results. Relative survival of entire group of patients and uncured patients. In the entire group, from sixth year after surgery onward, *survival curve* plateaued at about 14.5 %, which represents the cure fraction

Table 3 Multivariate cure model in relation to clinical and tumor features

Variable	Coefficient (95 % CI)	*p*
Constant	39.0 % (28.2–49.8)	
CA 19.9, >50	−23.1 % (−33.2–−13.2)	<0.001
Lymph node status, positive	−14.7 % (−24.7–−0.5)	0.003

CI confidence interval

The chance of statistical cure among patients with both versus neither adverse factor was 5.1 versus 30.1 %

Less than the 15 % of patients with PHCC can be considered cured aAer surgery. CA 19.9 level and lymph node metastasis independently predicted long-term outcome.

Preoperative biliary drainage in hilar cholangiocarcinoma: Systematic review and meta-analysis

EJSO

A. Celotti [a,*], L. Solaini [a], G. Montori [b], F. Coccolini [b], D. Tognali [a], G. Baiocchi [a]

Study	PBD Events	PBD Total	NO-PBD Events	NO-PBD Total	RR (95% CI)	p
Farges et al	123	180	128	186	0.993 (0.864-1.141)	
Hochwald et al	42	42	23	29	1.262 (1.042-1.527)	
Ferrero et al	21	30	19	30	1.105 (0.772-1.583)	
Xiong et al	17	32	27	46	0.905 (0.603-1.358)	
Figueras et al	11	11	6	9	1.474 (0.922-2.359)	
El-Hanafi et al	27	46	11	54	2.881 (1.613-5.148)	
Ercolani et al	25	44	2	7	1.989 (0.599-6.598)	
Su et al	17	33	6	16	1.374 (0.673-2.085)	
Dinant et al	56	83	6	14	1.574 (0.844-2.935)	
Total random effect	339	501	228	391	1.266 (1.039-1.543)	0.020

Heterogeneity: Q=17.741, I²=59.48%, df=8; p=0.011

Postoperative morbidity

Study	PBD Events	PBD Total	NO-PBD Events	NO-PBD Total	RR (95% CI)	p
Farges et al	17	180	22	186	0.798 (0.439-1.453)	
Hochwald et al	2	42	4	29	0.345 (0.068-1.762)	
Ferrero et al	1	30	3	30	0.333 (0.037-3.026)	
Xiong et al	3	32	2	46	2.156 (0.382-12.18)	
Figueras et al	1	11	2	9	0.409 (0.044-3.816)	
El-Hanafi et al	5	46	3	54	1.957 (0.494-7.748)	
Su et al	5	33	0	16	5.500 (0.323-93.76)	
Dinant et al	14	83	2	14	1.181 (0.300-4.643)	
Total fixed effect	48	457	38	384	0.935 (0.612-1.429)	0.756

Heterogeneity: Q=6.68, I²=0.00%, df=7; p=0.463

Postoperative mortality

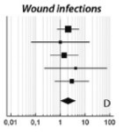
Preoperative biliary drainage in hilar cholangiocarcinoma: Systematic review and meta-analysis

EJSO

A. Celotti [a,*], L. Solaini [a], G. Montori [b], F. Coccolini [b], D. Tognali [a], G. Baiocchi [a]

Hochwald et al	12	42	4	29	0.789 (0.460-1.353)	
Ferrero et al	1	30	1	30	1.00 (0.655-15.261)	
Xiong et al	4	32	4	46	1.437 (0.388-5.330)	
Figueras et al	2	11	0	9	4.167 (0.225-77.11)	
El-Hanafi et al	5	46	2	54	2.935 (0.597-14.42)	
Total fixed effect	24	161	11	168	2.035 (1.041-3.977)	0.038

Heterogeneity: Q=0.967, I²=0.00%, df=4; p=0.915



Preoperative biliary drainage may be associated with higher overall morbidity, due to the risk of infective complications.

Quoi de neuf en chirurgie biliaire

- Cholangiocarcinomes hilaires
- Cancer de la vésicule biliaire
- Pathologie biliaire non tumorale

Management and follow-up of gallbladder polyps

Joint guidelines between the European Society of Gastrointestinal and Abdominal Radiology (ESGAR), European Association for Endoscopic Surgery and other Interventional Techniques (EAES), International Society of Digestive Surgery – European Federation (EFISDS) and European Society of Gastrointestinal Endoscopy (ESGE)

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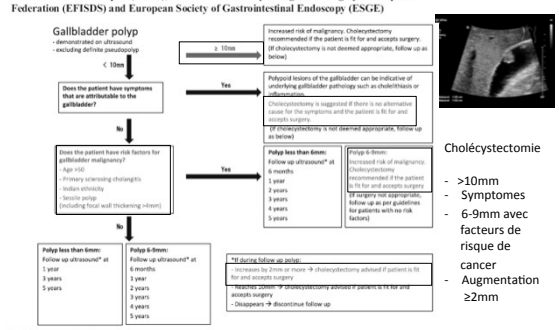


Fig. 1 Management algorithm

Cholécystectomie

- >10mm
- Symptomes
- 6-9mm avec facteurs de risque de cancer
- Augmentation ≥2mm

Management and follow-up of gallbladder polyps

Joint guidelines between the European Society of Gastrointestinal and Abdominal Radiology (ESGAR), European Association for Endoscopic Surgery and other Interventional Techniques (EAES), International Society of Digestive Surgery – European Federation (EFISDS) and European Society of Gastrointestinal Endoscopy (ESGE)

Eur Radiol

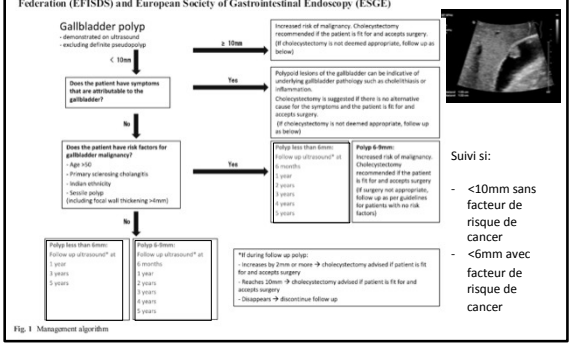


Fig. 1 Management algorithm

Suivi si:

- <10mm sans facteur de risque de cancer
- <6mm avec facteur de risque de cancer

Predictors of incidental gallbladder cancer in patients undergoing cholecystectomy for benign gallbladder disease: Results from a population-based gallstone surgery registry

(Surgery 2017;

Carolina Muszynska, MD,[a] Linda Lundgren, MD,[b] Gert Lindell, MD, PhD,[a] Roland Andersson, MD, PhD,[a] Johan Nilsson, MD, PhD,[c] Per Sandström, MD, PhD,[b] and Bodil Andersson, MD, PhD,[a] *Lund and Linköping, Sweden*

Nationwide Swedish Register for Gallstone Surgery 2007-2014
36,355 patients 215 cancers de la vésicule découverts à l'anapath (0.59%)

Table IV. Multivariable risk factors for IGBC, preoperative factors, and intraoperative evaluation of the gallbladder

Variable	*OR*	*CI*	*P value*
Preoperative risk variables			
Age	1.07	1.06–1.09	<.001
Female sex	3.50	2.46–4.96	<.001
No Jaundice and No AC	1.00	Reference	
No Jaundice and AC	1.56	0.99–2.48	.059
Jaundice* and No AC	2.08	1.18–3.67	.011
Jaundice* and AC	1.25	0.67–2.33	.477
Intraoperative risk variables			
Normal gallbladder with gallstones	1.00	Reference	
Acute cholecystitis with gallstones	2.14	1.06–4.30	.033
Cholecystitis without gallstones	4.67	1.83–11.90	.001
Gallbladder polyp (with or without gallstones)	7.00	2.48–19.72	<.001
Suspicion of malignancy (with or without gallstones)	141	74.39–269.05	<.001
Chronic cholecystitis (with gallstones)	3.00	1.68–5.35	<.001
Perforated gallbladder (spontaneously)	3.78	1.44–9.92	.007

Predictors of incidental gallbladder cancer in patients undergoing cholecystectomy for benign gallbladder disease: Results from a population-based gallstone surgery registry

(Surgery 2017;

Carolina Muszynska, MD,[a] Linda Lundgren, MD,[b] Gert Lindell, MD, PhD,[a] Roland Andersson, MD, PhD,[a] Johan Nilsson, MD, PhD,[c] Per Sandström, MD, PhD,[b] and Bodil Andersson, MD, PhD,[a] *Lund and Linköping, Sweden*

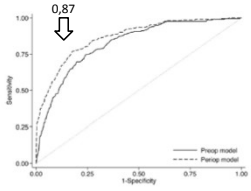


Fig 1. Based on the pre- and intraoperative predictive models, receiver operator characteristic (ROC) curves were conducted. Area under the ROC curve (AUROC) was 0.82 (preoperative model, *solid line*) and 0.87 (pre- and intraoperative model, *dashed line*), respectively; $P < .001$.

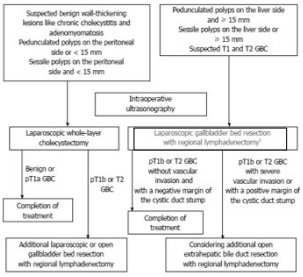
Attention aux cholécystites aigues ou à l'ictère chez la femme > 60 ans

Importance de l'analyse de la pièce opératoire par le chirurgien !

Laparoscopic approach to suspected T1 and T2 gallbladder carcinoma

World J Gastroenterol 2017 April 14; 23(14): 2556-2565

Yusuke Ome, Kazuki Hashida, Hitsuru Yokota, Yoshio Nagahisa, Hichio Okabe, Kazuyuki Kawamoto



15 cancers de la vésicule

- 6 T1a
- 8 T2
- 1 T3

Laparoscopic approach to suspected T1 and T2 gallbladder carcinoma

World J Gastroenterol 2017 April 14; 23(14): 2556-2565

Yusuke Ome, Kazuki Hashida, Hitsuru Yokota, Yoshio Nagahisa, Hichio Okabe, Kazuyuki Kawamoto

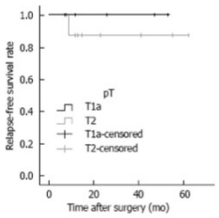


Figure 4 Relapse-free survival rate after laparoscopic surgery for pathologically diagnosed T1a and T2 gallbladder carcinoma.

D2 lymphadenectomy for suspected T2 GBC : removal of
the lymph nodes in hepatoduodenal ligament, around the common hepatic artery, and around the posterosuperior region of the pancreas head.

D1 lymphadenectomy for suspected T1 and others lesions:
removal of the lymph nodes around the cystic duct and the common bile duct.

?

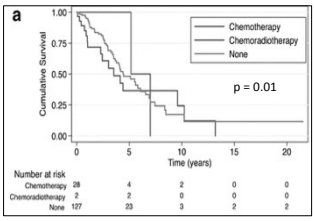
Chimiothérapie neo-adjuvante

Neither Neoadjuvant nor Adjuvant Therapy Increases Survival After Biliary Tract Cancer Resection with Wide Negative Margins

Evan S. Glazer[1,2], Ping Liu[3], Eddie K. Abdalla[1], Jean-Nicolas Vauthey[1] and Steven A. Curley[1,4]

J Gastrointest Surg. 2012 Sep;16(9):1666-71.

- 63 pts
- Neoadjuvant therapy delayed surgical resection of 6.8 months ($p < 0.0001$).

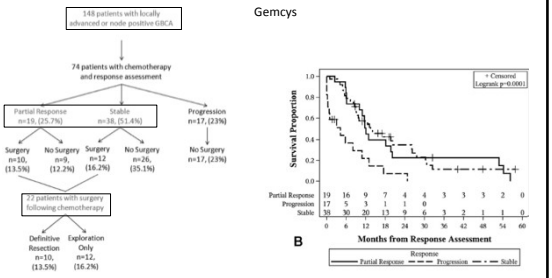


Systemic Chemotherapy Combined with Resection for Locally Advanced Gallbladder Carcinoma: Surgical and Survival Outcomes

(J Am Coll Surg 2017;

John M Creasy, MD, Debra A Goldman, MS, Vikas Dudeja, MD, Maeve A Lowery, MD, Andrea Cercek, MD, Vinod P Balachandran, MD, Peter J Allen, MD, FACS, Ronald P DeMatteo, MD, FACS, T Peter Kingham, MD, FACS, Michael I D'Angelica, MD, FACS, William R Jarnagin, MD, FACS

Gemcys



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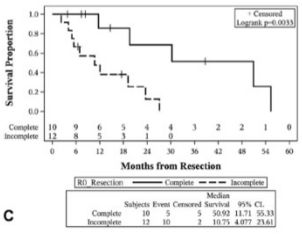


in a subset of well-selected patients with favorable response to chemotherapy, definitive resection is possible and is associated with long-term survival.

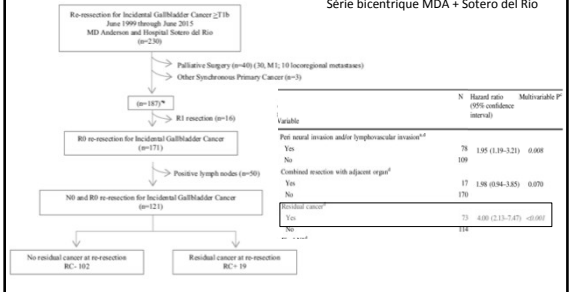
Neoadjuvant chemotherapy for locally advanced or lymph node-positive gallbladder cancer
should be evaluated in prospective trials.

Incidental Gallbladder Cancer: Residual Cancer Discovered at Oncologic Extended Resection Determines Outcome: A Report from High- and Low-Incidence Countries

Annals of SURGICAL ONCOLOGY

Eduardo Vinuela, MD[1,2], Eduardo A. Vega, MD[1,3], Suguru Yamashita, MD, PhD[3], Marcel Sanhueza, MD[1,2], Rosemarie Mege, MD[1,2], Gabriel Cavada, PhD[4], Thomas A. Aloia, MD[3], Yun Shin Chun, MD[3], Jeffrey E. Lee, MD[3], Jean-Nicolas Vauthey, MD[3], and Claudius Conrad, MD, PhD[3]

Série bicentrique MDA + Sotero del Rio



Incidental Gallbladder Cancer: Residual Cancer Discovered at Oncologic Extended Resection Determines Outcome: A Report from High- and Low-Incidence Countries

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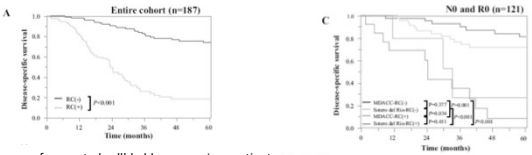


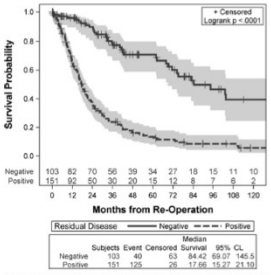
In case of suspected gallbladder cancer in a patient with cholecystectomy indicated for benign disease, the patient should be referred to an experienced hepatobiliary center

if gallbladder cancer is suspected at visual inspection during attempted laparoscopic cholecystectomy, either a definitive oncologic procedure should be performed or the operation should be terminated and the patient referred for definitive oncologic resection.

Predicting Residual Disease in Incidental Gallbladder Cancer: Risk Stratification for Modified Treatment Strategies

J Gastrointest Surg

John M. Creasy[1] · Debra A. Goldman[2] · Mithat Gonen[2] · Vikas Dudeja[1] · Gokee Askan[3] · Olca Basturk[3] · Vinod P. Balachandran[1] · Peter J. Allen[1] · Ronald P. DeMatteo[1] · Michael I. D'Angelica[1] · William R. Jarnagin[1] · T. Peter Kingham[1]



		Multivariate	
		OR (95% CI)	*p* value
T stage	T3	22.71 (5.46-94.41)	<0.001
	T2	3.41 (0.91-12.69)	0.07
	T1b	REF	
Grade	Poorly Diff	4.28 (1.38-13.29)	0.012
	Modenetely Diff	1.62 (0.54-4.81)	0.39
	Well Diff	REF	

Fig. 3 Kaplan-Meier plot of overall survival (OS) stratified by residual disease

Predicting Residual Disease in Incidental Gallbladder Cancer: Risk Stratification for Modified Treatment Strategies

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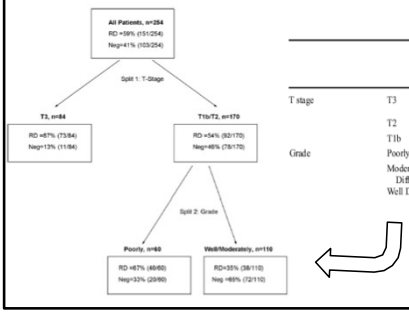

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A Novel Pathology-Based Preoperative Risk Score to Predict Locoregional Residual and Distant Disease and Survival for Incidental Gallbladder Cancer: A 10-Institution Study from the U.S. Extrahepatic Biliary Malignancy Consortium

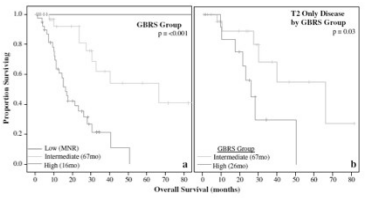
Annals of SURGICAL ONCOLOGY

Cecilia G. Ethun, MD[1], Lauren M. Postlewait, MD[1], Nina Le, BS[1], Timothy M. Pawlik, MD, MPH, PhD[2],

Gallbladder Cancer Predictive Risk Score

T-Stage	
Tis/T1a	0
T1b	1
T2	2
T3/T4	3
Grade	
G1 (Well-diff)	1
G2 (Mod-diff)	2
G3 (Poor-diff)	3
LVI	
Negative	1
Positive	2
PNI	
Negative	1
Positive	2

TOTAL RISK	Locoregional Residual	Distant Disease
Low (3-4)	0%	0%
Intermediate (5-7)	24%	3%
High (8-10)	61%	32%



This novel predictive risk-score may help to guide treatment strategy regarding patient selection for reoperation, staging laparoscopy, and neoadjuvant or adjuvant therapy

Predictors of curative resection and long term survival of gallbladder cancer – A retrospective analysis

The American Journal of Surgery

2017

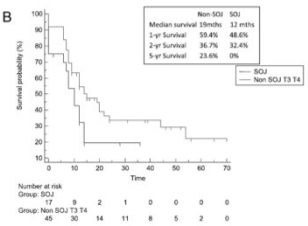
Pramod Kumar Mishra, Sundeep Singh Saluja*, Nabi Prithiviraj, Vaibhav Varshney, Neeraj Goel, Nilesh Patil

Table 4b
Comparison of morbidity based on Clavien Dindo classification.

Grading	non-SOJ Group n = 121 (%)	SOJ Group n = 23 (%)	P value
Grade I	16(13)	5(22)	0.14
Grade II	5(4)	2(8.6)	0.25
Grade III	21(.6)	4(17)	0.004
Grade IV	0(0)	2(8.6)	0.003
Grade V	5(4)	5(21.7)	0.002

Table 2
Comparison of resectable and unresectable patients in GBC with no SOJ (non-SOJ Group) with GBC with SOJ (SOJ Group).

	SOJ Group n = 151	Non-SOJ Group n = 234	P value
Curative resection	23 (15.2%)	121 (51.7%)	<0.001
Inoperable	19 (12.6%)	4 (1.7%)	<0.001
Locally advanced	37 (24.5%)	23 (9.8%)	<0.001
Metastatic	72 (47.7%)	86 (36.7%)	<0.001



L'ictère augmente la morbi-mortalité post-opératoire et est un facteur prédictif de maladie tumorale avancée et de non résécabilité

Predictors of curative resection and long term survival of gallbladder cancer – A retrospective analysis

The American Journal of Surgery

2017

Pramod Kumar Mishra, Sundeep Singh Saluja*, Nabi Prithiviraj, Vaibhav Varshney, Neeraj Goel, Nilesh Patil

Table 3
Predictors of curative resection in entire cohort and subgroups non-SOJ and SOJ.

Parameter	Entire Cohort			NON SOJ		
	Uni	Mutl	HR	Uni	Multi	HR
Pain	0.028		0.97 (0.93–1.0)	0.048	0.054	0.95 (0.91–1.0)
Anorexia	<0.001	0.825	0.92 (0.45–1.87)	0.008	0.103	0.44 (0.17–1.17)
						4.89 (1.86–12.8)
Gastric oulet obstruction	0.001	0.024	4.62 (1.21–17.5)	0.003	0.088	6.28 (0.76–51.9)
Jaundice	<0.001	0.199	0.48 (0.16–1.45)	0.138	0.966	0.96 (0.21–4.37)
Cholangitis	0.218		0.79 (0.28–2.2)			
						2.73 (1.4–5.32)
Hepatomegaly	<0.001	0.772	0.92 (0.52–1.6)	0.070	0.628	1.20 (0.57–2.54)
Bilirubin	<0.001	0.581	1.01 (0.95–1.1)	0.108	0.781	0.94 (0.63–1.42)
SOJ status	<0.001	0.003	6.53 (1.91–22.2)			

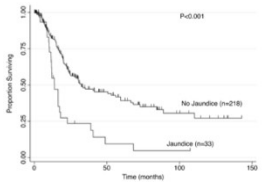
Les autres facteurs prédictifs : N+, stade TNM, Envahissement des organes adjacents

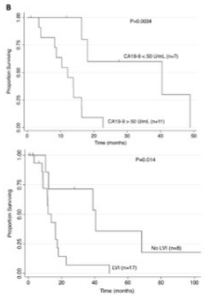
Chez les patients non ictériques, la perte de poids et la masse abdominale palpable sont des facteurs prédictifs de non résécabilité

Gallbladder Cancer Presenting with Jaundice: Uniformly Fatal or Still Potentially Curable?

Thuy B. Tran[1] · Jeffrey A. Norton[1] · Cecilia G. Ethun[2] · Timothy M. Pawlik[3,4] · Stefan Buettner[3] · Carl Schmidt[4] · Eliza W. Beal[4] · William G. Hawkins[5] · Ryan C. Fields[5] · Bradley A. Krasnick[5] · Sharon M. Weber[6] · Ahmed Salem[6] · Robert C. G. Martin[7] · Charles R. Scoggins[7] · Perry Shen[8] · Harveshp D. Mogal[8] · Kamran Idrees[9] · Chelsea A. Isom[9] · Ioannis Hatzaras[10] · Rivfka Shenoy[10] · Shishir K. Maithel[2] · George A. Poultsides[1]

J Gastrointest Surg





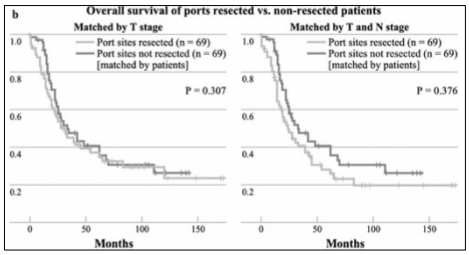
The presence of jaundice in GBC was strongly associated with inoperability and advanced disease.
A small subset of patients can still achieve long-term survival after surgery.
Serum CA19-9 levels and preoperative biopsy looking for lymphovascular invasion may be helpful in this direction.

Résection des orifices des trocarts?

Is Port Site Resection Necessary in the Surgical Management of Gallbladder Cancer?

Ann Surg Oncol (2012) 19:409–417

Ajay V. Maker, MD[1,2], Jean M. Butte, MD[2], Jacqueline Oxenberg, DO[2], Deborah Kuk, MS[3], Mithat Gonen, Yuman Fong, MD[2], Ronald P. DeMatteo, MD[2], Michael I. D'Angelica, MD[2], Peter J. Allen, MD[2], and William R. Jarnagin, MD[2]



Résection des orifices des trocarts?

J Surg Oncol. 2017 Feb 23. doi: 10.1002/jso.24591. [Epub ahead of print]

Routine port-site excision in incidentally discovered gallbladder cancer is not associated with improved survival: A multi-institution analysis from the US Extrahepatic Biliary Malignancy Consortium.

Ethun CG[1], Postlewait LM[1], Le N[1], Pawlik TM[2,3], Poultsides G[4], Tran T[4], Idrees K[5], Isom CA[5], Fields RC[6], Krasnick BA[6], Weber SM[7], Salem A[7], Martin RC[8], Scoggins CR[8], Shen P[9], Mogal HD[9], Schmidt C[3], Beal E[3], Hatzaras I[10], Shenoy R[10], Cardona K[1], Maithel SK[1].

266 cancer de la vésicule de découverte fortuite
193(73%) re-resequés
47 pts(24%) résection orifices trocarts
146(76%) pas de résection.

Pas de différence en termes de survie à 3 ans (65 vs. 43%; P = 0.07) ou de récidive à distance (80 vs. 81%; P = 1.0).

Port-site excision during re-resection for IGBC is not associated with improved overall survival and has the same distant disease recurrence compared to no port-site excision. Routine port-site excision is not recommended.

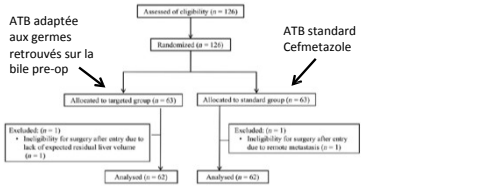
Quoi de neuf en chirurgie biliaire

- Cholangiocarcinomes hilaires
- Cancer de la vésicule biliaire
- Chirurgie biliaire

Randomized controlled trial of perioperative antimicrobial therapy based on the results of preoperative bile cultures in patients undergoing biliary reconstruction

J Hepatobiliary Pancreat Sci (2017) •

Kazuhiko Okamura · Kimitaka Tanaka · Takumi Miura · Yoshitsugu Nakanishi · Takahiro Noji · Toru Nakamura · Takahiro Tsuchikawa · Keisuke Okamura · Toshiaki Shichinohe · Satoshi Hirano



Diagnosis

Extrahepatic bile duct cancer	39 (62.9)
Pancreatic cancer	5 (8.1)
Intrahepatic cholangiocarcinoma	7 (11.3)
Gallbladder cancer	9 (14.5)
Carcinoma of the ampulla of Vater	2 (3.2)

Randomized controlled trial of perioperative antimicrobial therapy based on the results of preoperative bile cultures in patients undergoing biliary reconstruction

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Table 3 Infectious complications within 30 days after surgery

	Targeted (n = 62)	Standard (n = 62	*P*-value
SSI	27 (43.5)	44 (71.0)	0.003
Superficial and deep incisional SSI	16 (25.8)	25 (40.3)	0.088
Organ/space SSI	11 (17.7)	19 (30.6)	0.047
Pancreatic fistula	12 (19.4)	16 (25.8)	0.390
Biliary fistula	6 (9.7)	5 (8.1)	0.500
Intra-abdominal abscess	5 (8.1)	11 (17.7)	0.096
Hepatic abscess	1 (1.6)	1 (1.6)	0.752
Others	2 (3.2)	4 (6.5)	0.340

Table 4 Infectious complications by surgical procedure

	Targeted (n = 62)	Standard (n = 62)	*P*-value
SSI			
Hepatectomy with extrahepatic bile duct resection			
SSI	10/24 (41.7)	19/26 (73.1)	0.025
Incisional SSI	4/24 (16.7)	11/26 (42.3)	0.047
Organ/space SSI	7/24 (29.2)	12/26 (46.2)	0.216
Pancreaticoduodenectomy			
SSI	7/19 (36.8)	17/19 (89.5)	0.001
Incisional SSI	5/19 (26.3)	6/19 (31.6)	0.500
Organ/space SSI	6/19 (31.6)	14/19 (73.7)	0.011
Extrahepatic bile duct resection			
SSI	0/2 (0)	1/4 (25.0)	0.714
Incisional SSI	0/2 (0)	1/4 (25.0)	0.714
Organ/space SSI	0/2 (0)	1/4 (25.0)	0.714

L' adm inist r a tion d' une antibiothérapie adaptée aux germes retrouvés sur le prélèvement préopératoire de bile pe r m e t de r é duir e significativement l'incidence des abcès de paroi et des collections profondes en cas de DPC ou d'hépatectomie avec reconstruction biliaire

Importance du prélèvement bacteriologique pré-opératoire en ca s de p ro céd u re endoscopique ou percutanée

Portoenterostomy as a Salvage Procedure for Major Biliary Complications Following Hepaticojejunostomy

Amit Sharma[1] · John S. Hammond[1] · Emmanouil Psaltis[1] · W. Keith Dunn[2] · Dileep N. Lobo[1]

J Gastrointest Surg (2017) 21:1086–1092

Porto-entéroanastomose de sauvetage

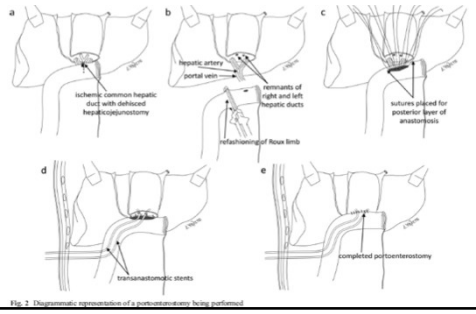

Fig. 2 Diagrammatic representation of a portoenterostomy being performed

NOTES

NOTES

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