

XVII SEMANA BRASILEIRA DO APARELHO DIGESTIVO



XXXVI SEMANA PANAMERICANA
DE LAS ENFERMEDADES DIGESTIVAS



17 a 20 novembro | 2018 | Transamérica Expo Center | São Paulo | SP

HEPATECTOMIA MAIOR: DRENAR OU NÃO DRENAR?

Orlando Jorge M. Torres

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Universidade Federal Maranhão - Brasil



Sangue



Bile



Ascite

Drainage Is Unnecessary After Elective Liver Resection

Yuman Fong, MD, Murray F. Brennan, MD, Karen Brown, MD, Nancy Heffernan, RN,
Leslie H. Blumgart, MD, New York, New York

TABLE II

Complications Associated With Hepatic Resections

	Less Than Lobectomy		Lobectomy or More		Total
	No Drain	Drain	No Drain	Drain	
Ascitic leak	1	0	1	0	2
Hepatic failure	0	0	1	1	2
Abdominal collection	1	0	10	5	16
Biliary fistula	0	0	3	3	6
Cellulitis/wound infection	0	0	2	4	6
Small-bowel obstruction	0	0	0	2	2
Portal vein thrombosis	0	0	0	1	1
Pneumonia	1	0	2	1	4
Pleural effusion	0	1	2	2	5
Pneumothorax	0	0	0	1	1
Atrial fibrillation/ supraventricular tachycardia	0	0	3	2	5
Drain-site abscess	0	1	0	0	1
Deep venous thrombosis	0	0	1	1	2
Urinary retention	0	1	0	1	2
Urinary tract infection	0	1	1	2	4
Central venous catheter infection	0	1	1	0	2
<i>Clostridium difficile</i> colitis	0	0	1	0	1
Brachial plexus palsy	0	0	0	1	1
Carotid puncture	0	0	1	0	1
Prolonged ileus	0	0	0	2	2

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TABLE III

Predictors of Complications

Characteristic	No Complication	Complication	P Value
Drainage			
No	34	26	0.7
Yes	31	29	
Extent of resection			
<Lobe	26	7	0.002
≥Lobe	40	47	
Intraoperative transfusion			
No	51	24	0.001
Yes	16	29	
Blood loss			
<2,000 mL	64	41	0.007
≥2,000 mL	3	12	
Hepatocellular carcinoma			
No	58	45	0.9
Yes	9	8	
Abnormal liver			
No	74	14	0.001
Yes	13	19	
Operative time			
<240 min	61	34	0.0007
≥240 min	6	19	

Value of prophylactic abdominal drainage in 1269 consecutive cases of elective liver resection

Yusuke Kyoden · Hiroshi Imamura ·
Keiji Sano · Yoshifumi Beck · Yasuhiko Sugawara ·
Norihiko Kokudo · Masatoshi Makuuchi

14 anos depois...

Table 2 Fate results of postoperative drain management

	N (%)
No abdominal complications	1045 (82.3)
Postoperative bleeding	7 (0.6)
Excessive ascitic discharge	17 (1.3)
Bile leakage from the drain	78 (6.1)
Infection	30 (^a 38)
Drain salvage technique	^b 20 (1.6)
Infection	17 (^a 85)
Bile leakage	8 (^a 40)
Percutaneous puncture	^b 25 (2.0)
Infection	8 (^a 32)
Bile leakage	11 (^a 44)
Re-operation	^b 20 (1.6)
Infection	5 (^a 25)
Bile leakage	14 (^a 70)
Asymptomatic drain infection	57 (4.5)
Total	1269

Value of prophylactic abdominal drainage in 1269 consecutive cases of elective liver resection

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Keiji Sano · Yoshifumi Beck · Yasuhiko Sugawara ·
Norihiro Kokudo · Masatoshi Makuuchi

Conclusions Placement of drains was effective in a considerable proportion of patients undergoing hepatectomy, with regard to reducing the frequency of development of subphrenic fluid collections and biliary fistula/biloma formation.

Drainage Is Unnecessary After Elective Liver Resection

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Value of prophylactic abdominal drainage in 1269 consecutive cases of elective liver resection

Yusuke Kyoden · Hiroshi Imamura ·
Keiji Sano · Yoshifumi Beck · Yasuhiko Sugawara ·
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Data from the current

study clearly indicate that prophylactic drains are unnecessary after minor or major liver surgery.

Conclusions Placement of drains was effective in a considerable proportion of patients undergoing hepatectomy, with regard to reducing the frequency of development of subphrenic fluid collections and biliary fistula/biloma formation.

Blumgart ou Makuuchi?

Vantagens

- Previne coleções abdominais**
- Deriva ascite da ferida**
- Drena vazamento biliar**
- Permite detecção de sangramento**



Complicações

- Infecção ascendente
- Dor na ferida
- Lesão intestinal
- Lesão vascular
- Perda excessiva de ascite
- Compromete a função pulmonar
- Recidiva no trajeto do dreno



INFECÇÃO



DRENAGEM ABDOMINAL PROFILÁTICA

Associado

- Mais dor abdominal
- Estímulo à formação de fluidos
- Mais desconforto
- Dificuldade de mobilização
- Mais cuidados de enfermagem
- Maior tempo de internação
- Maior custo



Abdominal Drainage After Hepatic Resection Is Contraindicated in Patients With Chronic Liver Diseases

Chi-Leung Liu, MS, FRCS (Edin), FACS, Sheung-Tat Fan, MS, MD, PhD, FRCS (Glasg & Edin), FACS,**

Chung-Mau Lo, MS, FRACS, FRCS (Edin), FACS, Yik Wong, MB, ChB, FRCR (UK),†*

*Irene Oi-Lin Ng, MD, FRCPath,‡ Chi-Ming Lam, MS, FRCS(Edin),**

Ronnie Tung-Ping Poon, MS, FRCS (Edin), and John Wong, PhD, FRACS, FRCS (Edin), FACS**

TABLE 4. Percutaneous Ultrasonographic Findings of Drainage and Nondrainage Groups of Patients on Postoperative Day 7

Collection of Ascites	Drainage Group (n = 52)	Nondrainage Group (n = 52)
No collection	36 (69.2%)	30 (57.7%)
Mild collection (<2 cm)	10 (19.2%)	16 (30.8%)
Moderate collection (≥ 2 cm and < 5 cm)	3 (5.8%)	2 (3.8%)
Large collection (≥ 5 cm)	3 (5.8%)	4 (7.7%)

P value >0.05.

Abdominal Drainage After Hepatic Resection Is Contraindicated in Patients With Chronic Liver Diseases

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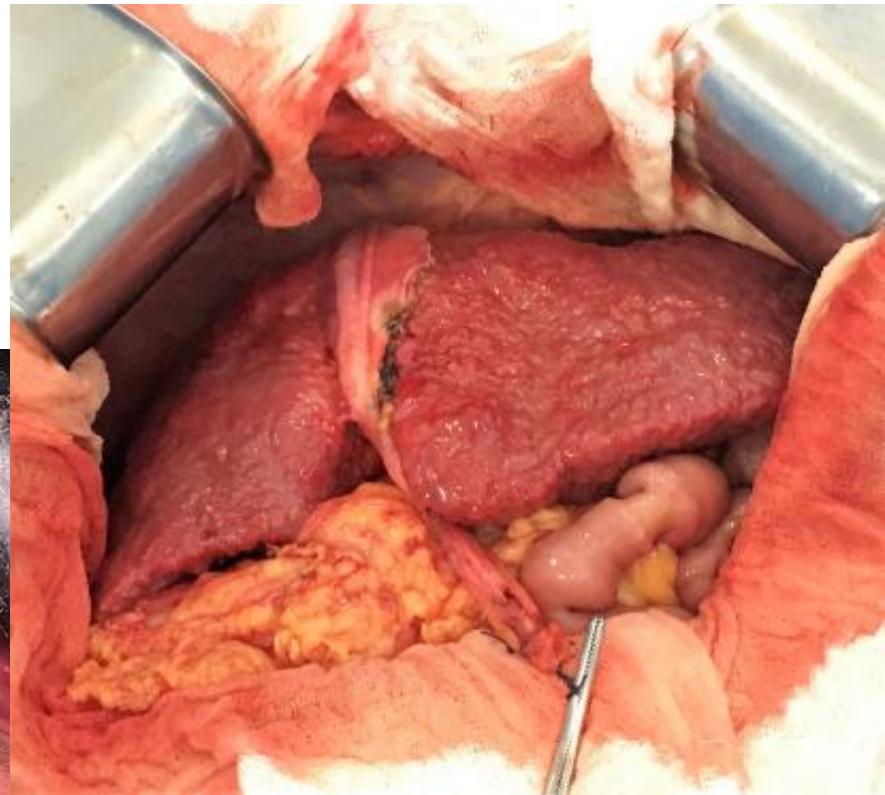
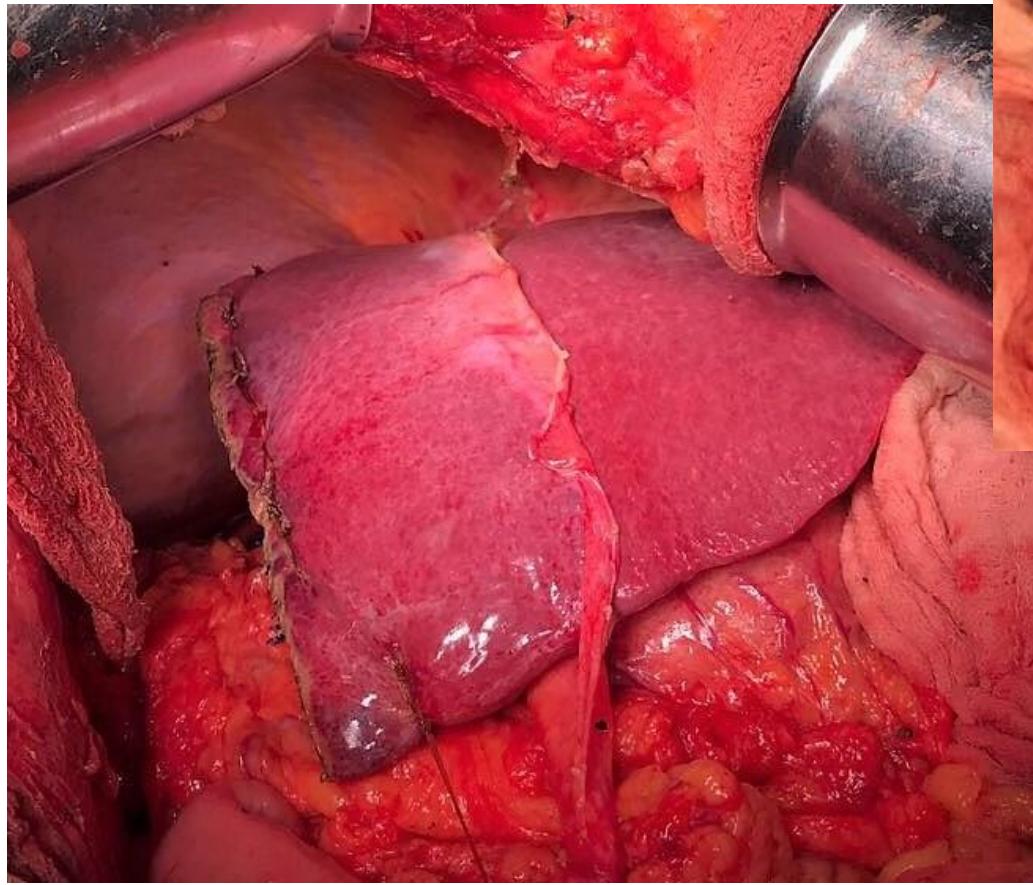
*Irene Oi-Lin Ng, MD, FRCPPath,‡ Chi-Ming Lam, MS, FRCS(Edin),**

Ronnie Tung-Ping Poon, MS, FRCS (Edin), and John Wong, PhD, FRACS, FRCS (Edin), FACS**

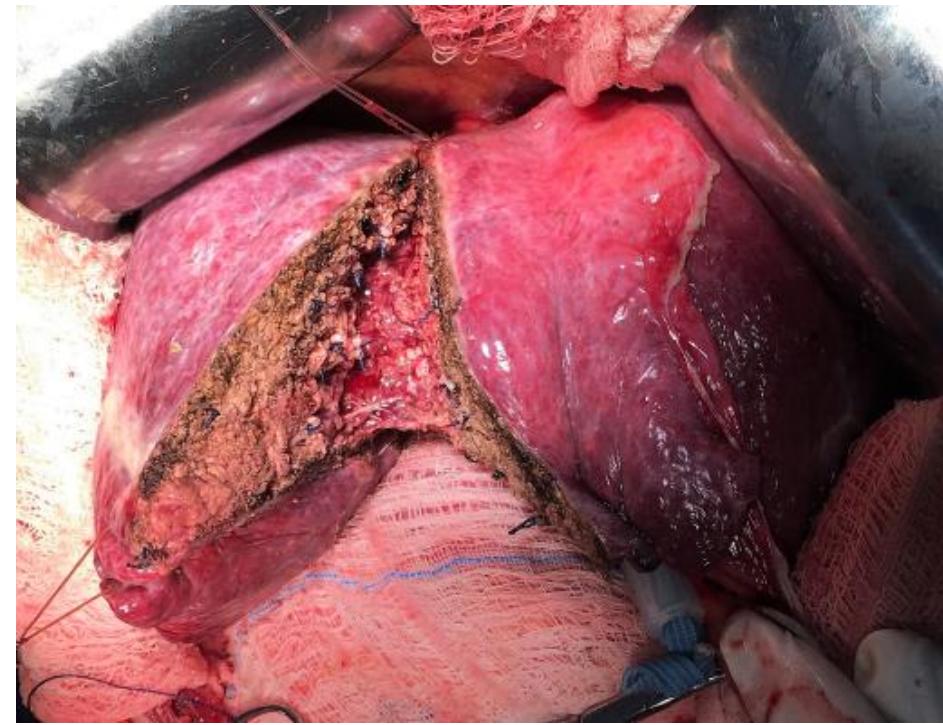
TABLE 9. Multivariate Analysis on Factors Associated With Postoperative Morbidity in 104 Patients With Chronic Liver Diseases Who Underwent Hepatic Resection

Independent Factor	P	Relative Risk	95% CI
Abdominal drainage	0.002	4.449	1.700–11.640
Major hepatic resection	0.004	4.453	1.625–12.209
Intraoperative blood loss >1.5L	0.005	7.484	1.854–30.217
Underlying liver cirrhosis	0.021	3.495	1.209–10.102

Hepatopatia crônica



Hepatopatia crônica



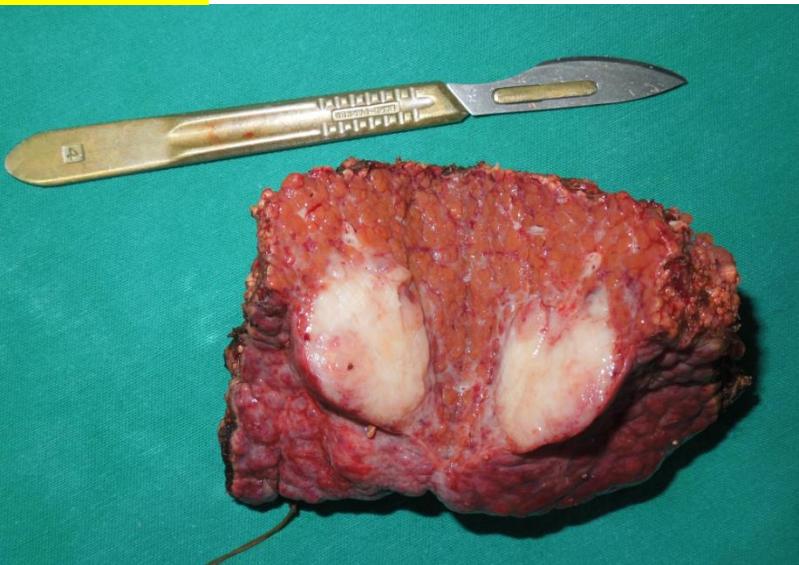
ASCITE



Hepatopatia crônica



Não drenar



ORIGINAL ARTICLE

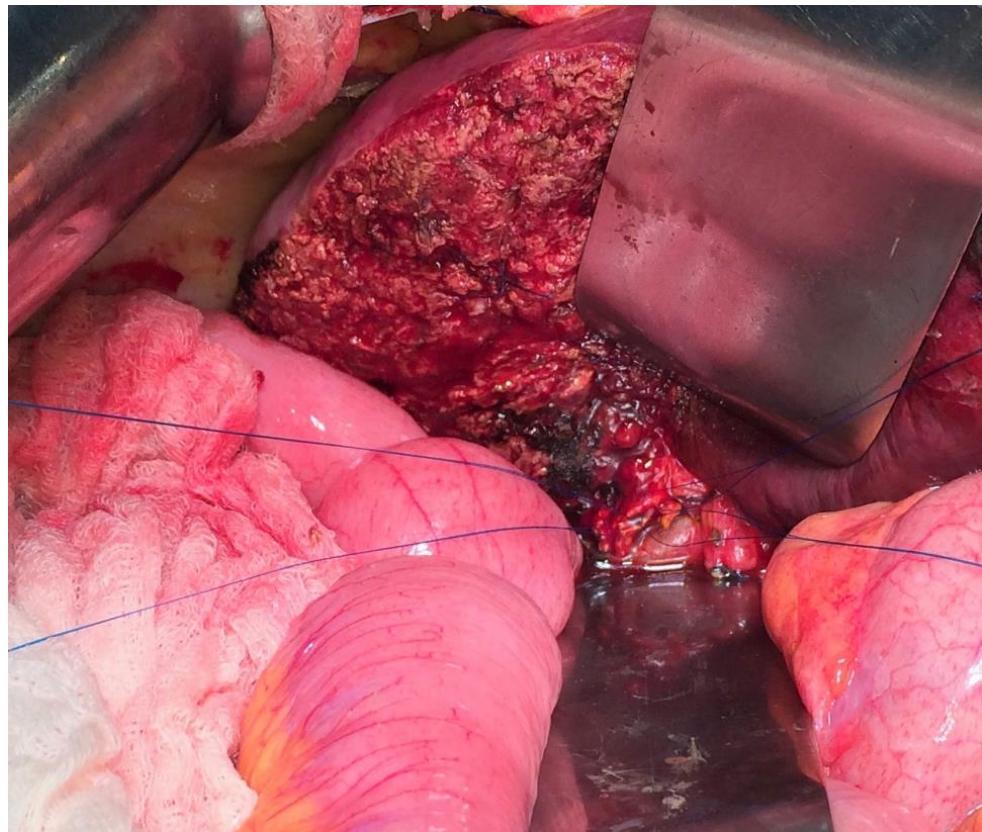
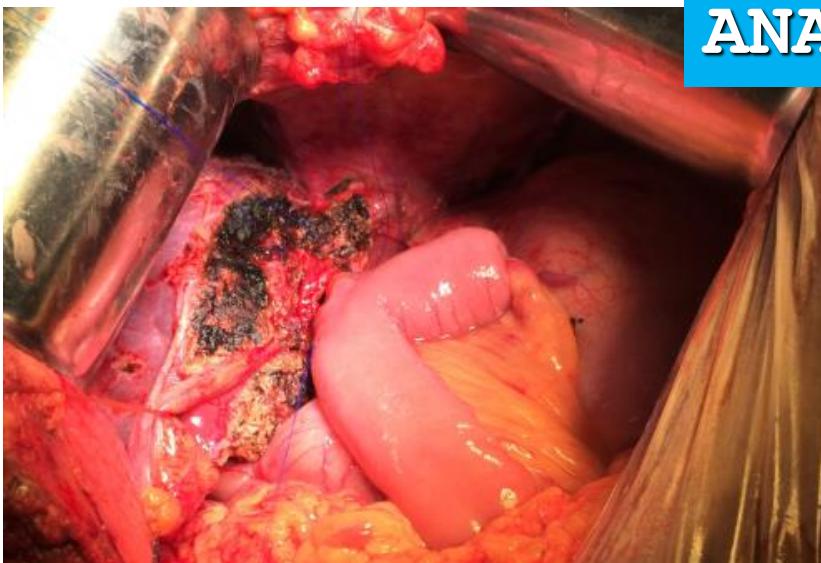
Anastomose biliodigestiva

Is routine abdominal drainage necessary after liver resection?

Seidai Wada¹ · Etsuro Hatano¹ · Tomoaki Yoh¹ · Satoru Seo¹ · Kojiro Taura¹ ·
Kentaro Yasuchika¹ · Hideaki Okajima¹ · Toshimi Kaido¹ · Shinji Uemoto¹

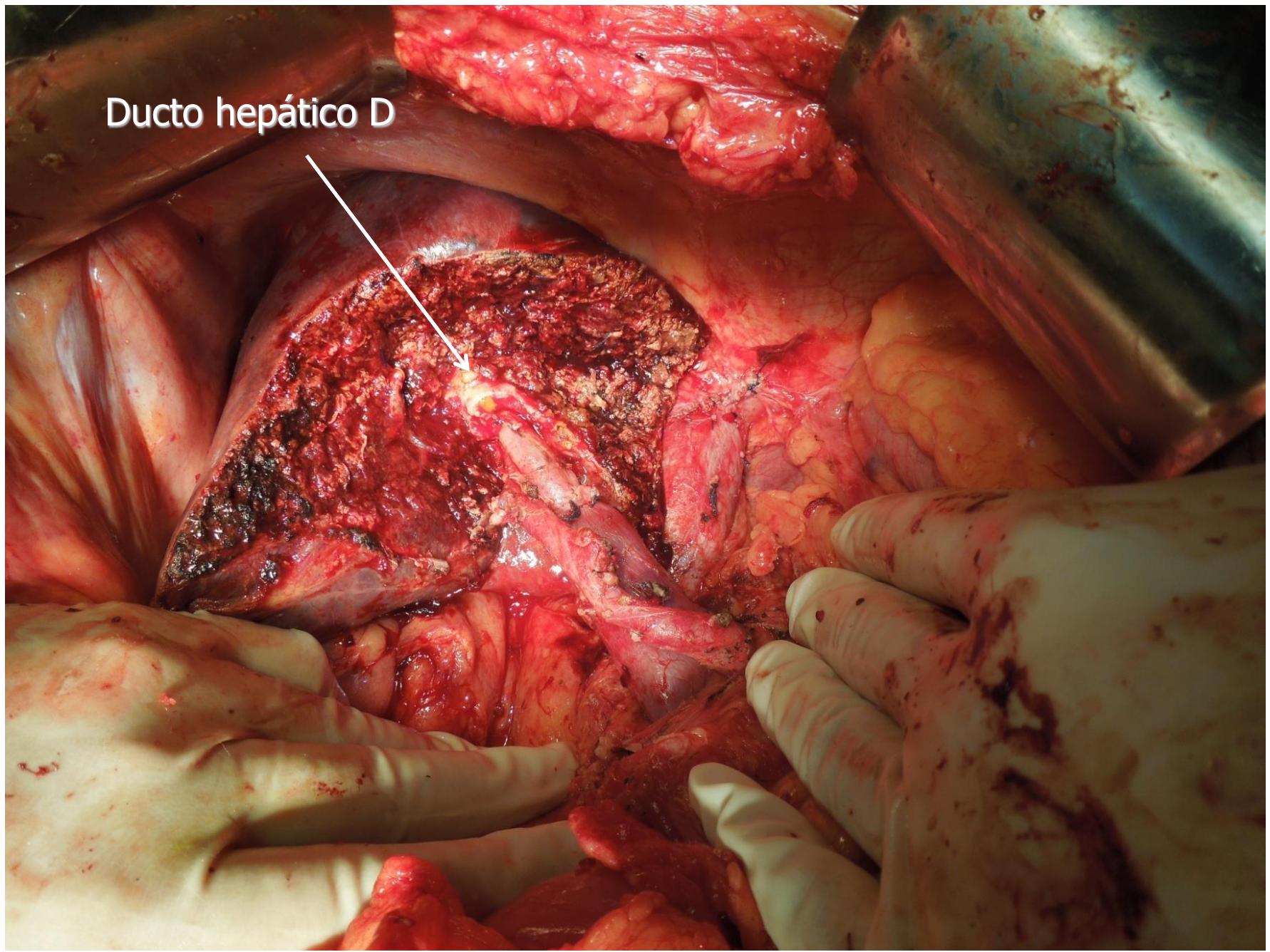
In conclusion, routine abdominal drainage is unnecessary after liver resection without bilio-enteric anastomosis; however, abdominal drainage may be appropriate for patients with a high risk of postoperative bile leakage such as those undergoing central bisegmentectomy or right anterior segmentectomy and those with a positive bile leak test.

ANASTOMOSE BILIODIGESTIVA



Drenar

Ducto hepático D



REVIEW ARTICLE

Re-appraisal of prophylactic drainage in uncomplicated liver resections: a systematic review and meta-analysis

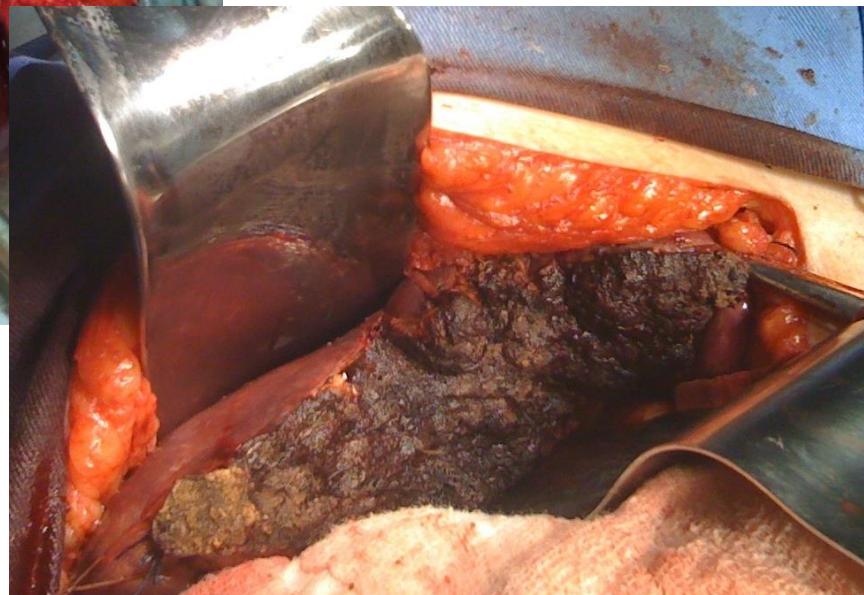
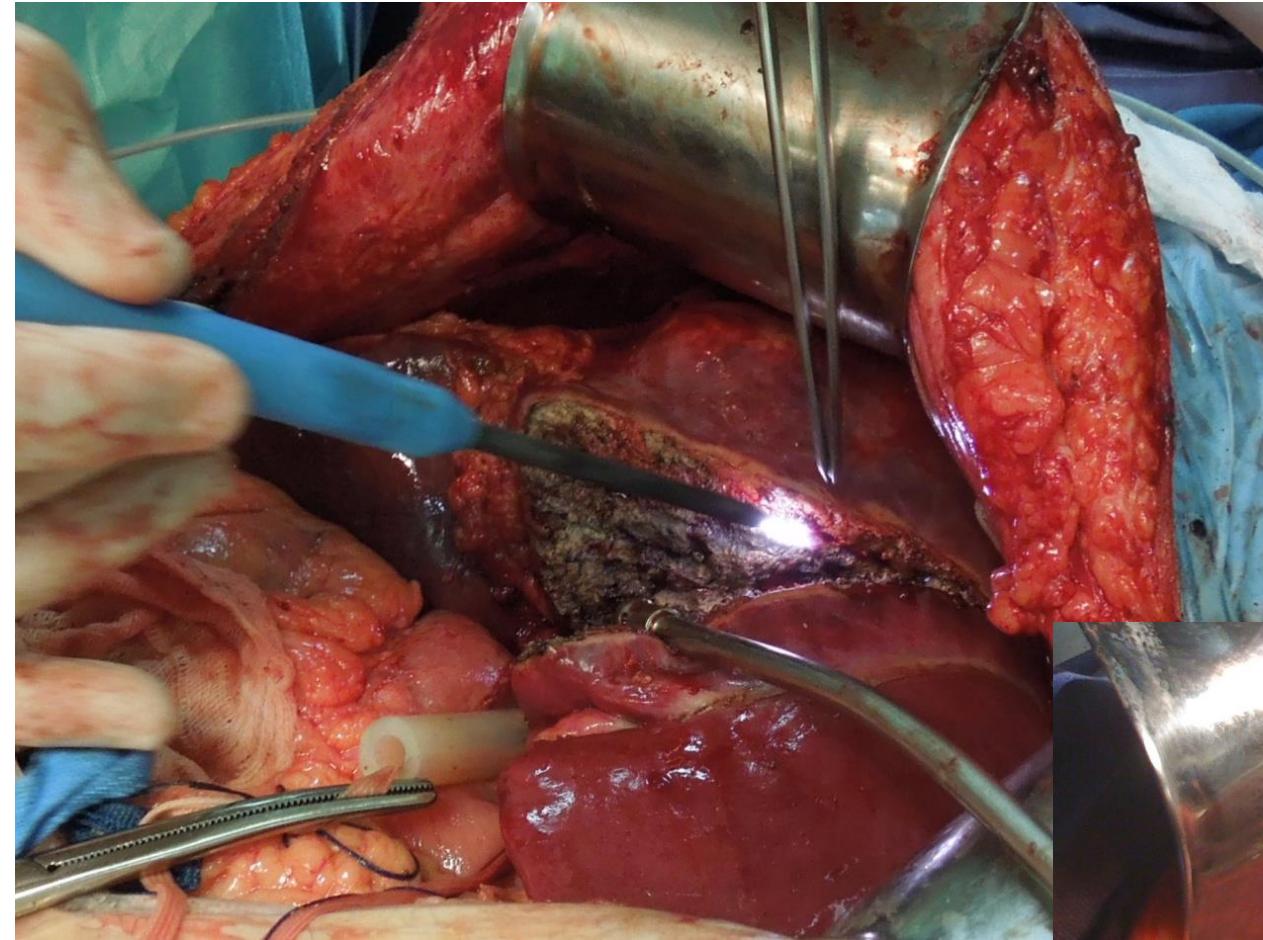
Paschalis Gavriilidis^{1,2}, Ernest Hidalgo¹, Nicola de'Angelis², Peter Lodge¹ & Daniel Azoulay^{2,3}

¹Department of HPB and Transplant Surgery, St James's University Hospital, Beckett Str, Leeds LS9 7TF, UK, ²Department of HPB Surgery and Liver Transplantation, Henri Mondor Hospital, and ³INSERM U 955, Créteil, France

Conclusion

The current evidence does not show a benefit for routine drainage following uncomplicated hepatic resection. If further RCTs to be performed clinically relevant questions need to be asked by including standardised patients measuring standardised clinically important outcomes.



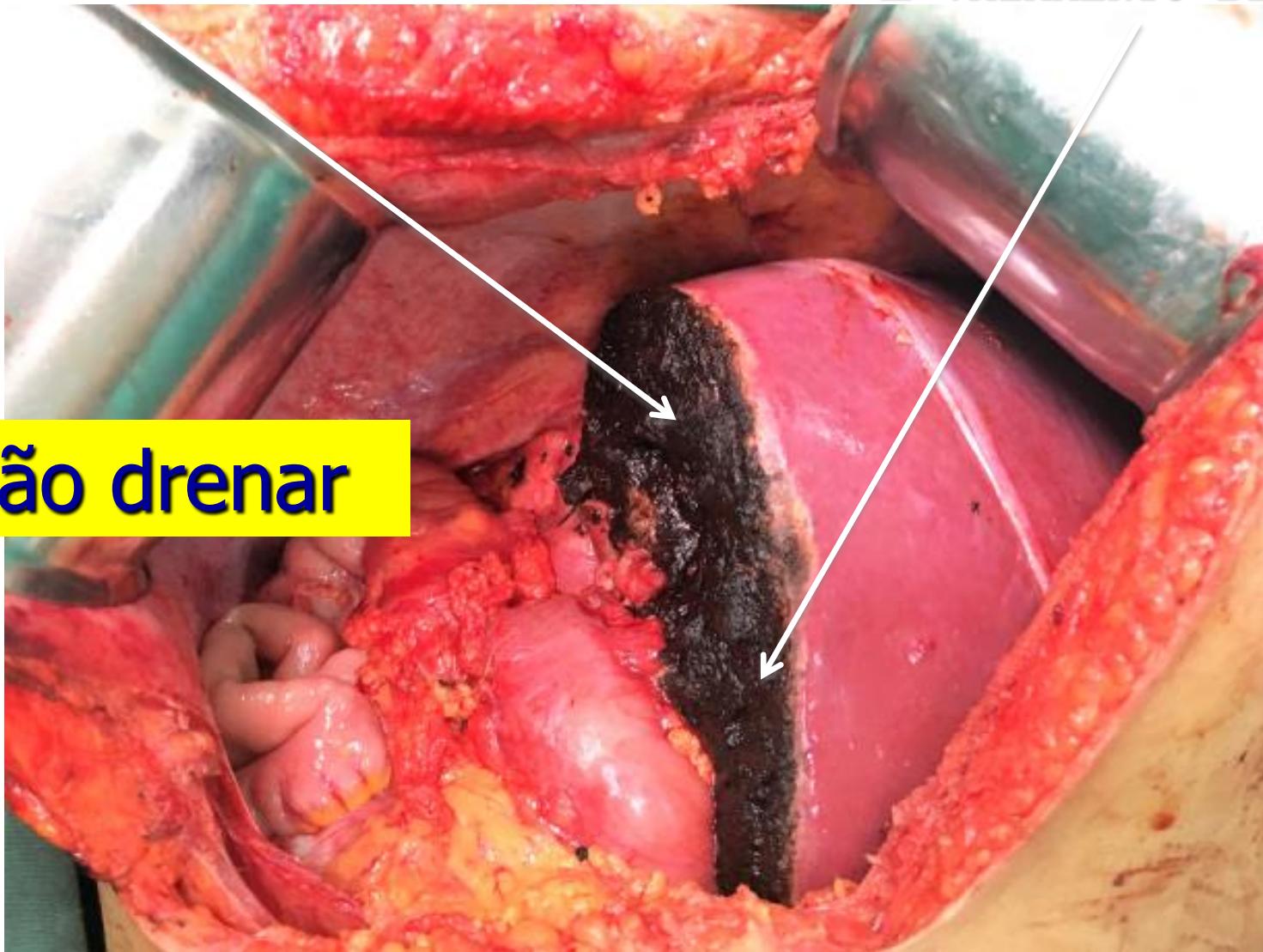


Não drenar

SUPERFÍCIE HEPÁTICA

VAZAMENTO BILIAR

Não drenar



Management of Abdominal Drainage after Hepatic Resection

Yoshihiro Inoue Yoshiro Imai Nao Kawaguchi Fumitoshi Hirokawa
Michihiro Hayashi Kazuhisa Uchiyama

Table 3. Postoperative clinical and laboratory data of drainage and non-drainage groups of patients (2005–2010)

(a) Clinical and laboratory data	Drainage group (n = 146)	Non-drainage group (n = 182)	p value
Removal of drain (POD)	2 (1–129)	NA	–
Re-insertion of drain	17 (11.7)	38 (20.9)	0.0366
Postoperative complication	59 (40.7)	65 (35.7)	0.3616
Surgical site infections	31 (21.4)	36 (19.8)	0.7831
Superficial incisional SSIs	16 (11.0)	11 (6.0)	0.1104
Deep incisional SSIs	2 (1.4)	0 (0)	0.1959
Organ/space SSIs	25 (17.1)	31 (17.0)	1.0000
Remote site infections	3 (2.1)	3 (1.7)	1.0000
Respiratory infections	1 (0.7)	1 (0.6)	1.0000
Urinary tract infections	1 (0.7)	0 (0)	0.4451
Catheter related infections	1 (0.7)	2 (1.1)	1.0000
Bile leakage	8 (5.5)	14 (7.7)	0.5087
Ileus	1 (0.7)	6 (3.3)	0.1368
Disturbance of liver function	5 (3.5)	6 (3.3)	1.0000
Ascites	15 (10.3)	16 (8.8)	0.7059
Pleural effusion	1 (0.7)	3 (1.7)	0.6318
Intra-abdominal bleeding	1 (0.7)	0 (0)	0.4451
Others	3 (2.2)	0 (0)	0.0872
Hospital mortality	10 (6.9)	11 (6.0)	0.8227
Postoperative hospital stay, days	16 (3–366)	13 (3–198)	0.0609

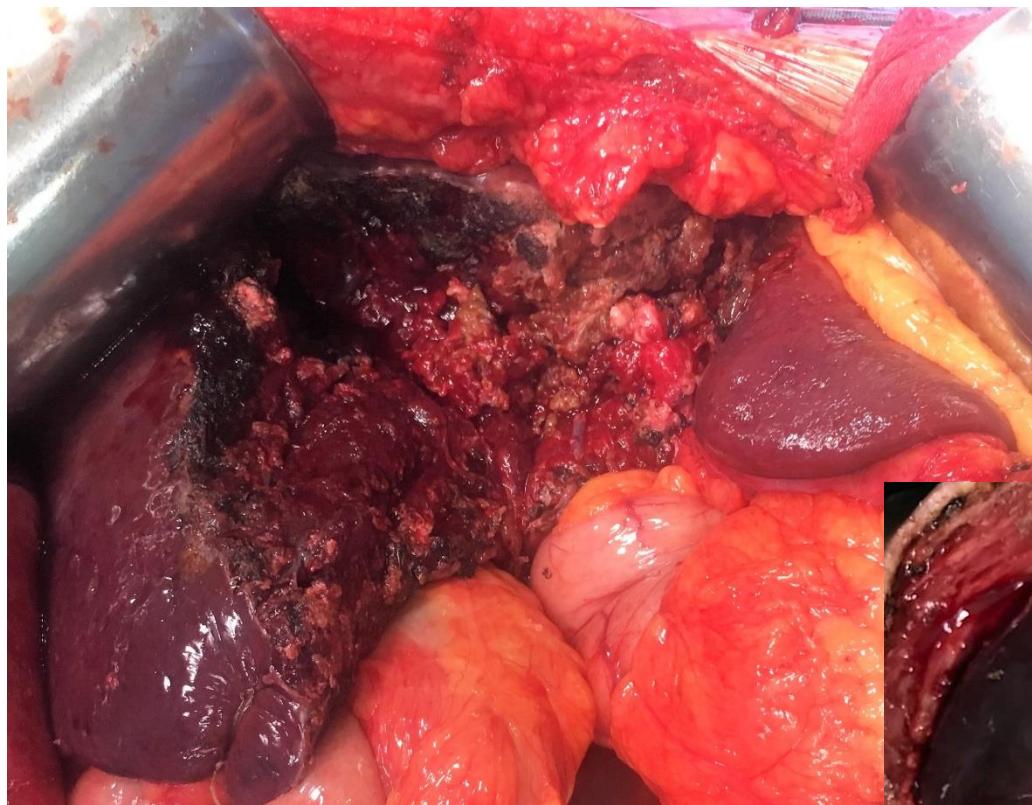
Table 4. Univariate and multivariate analysis of factors associated with percutaneous abdominal drainage after hepatic resection (2005–2010)

Variables	(a) Univariate analysis		
	categorization	p value before PSM	p value after PSM
Age, years	<65, ≥65	0.6490	1.0000
Gender	Male, female	1.0000	0.3863
BMI, kg/m ²	<25, ≥25	1.0000	0.8330
Chronic hepatitis	Present, absent	0.8817	0.7395
Diabetes mellitus	Present, absent	0.0027	0.0224
Albumin, g/dL	<3.5, ≥3.5	0.1734	0.2239
Total bilirubin, mg/dL	<2.0, ≥2.0	1.0000	1.0000
Prothrombin time, %	<80, ≥80	1.0000	1.0000
Platelet count, ×10 ⁴ /mm ³	<10, ≥10	1.0000	1.0000
ICGR-15, %	<10, ≥10	0.6159	0.6159
Child's grading	A, B, C	0.0946	0.0812
Pathology	HCC/ICC, metastasis/other	0.2265	0.4219
Tumor number	Solitary/multiple	0.5142	0.4824
Tumor size, cm	<5.0, ≥5.0	0.1254	0.1997
Repeat operation	Yes, no	0.0185	0.6107
Pringle maneuver	Yes, no	0.1275	0.0808
Type of hepatic resection	Anatomical, non-anatomical	0.0736	0.0462
Method of hepatic resection	Central segmentectomy, others	<0.0001	<0.0001
Operative time, min	<300, ≥300	<0.0001	0.0002
Blood loss, mL	>1000, ≤5000	0.00188	0.1300
Blood transfusion	Present, absent	0.0007	0.0049
Resected liver volume, g	<200, ≥200	0.0836	0.0664
Intraoperative bile leakage	Yes, no	<0.0001	0.0028

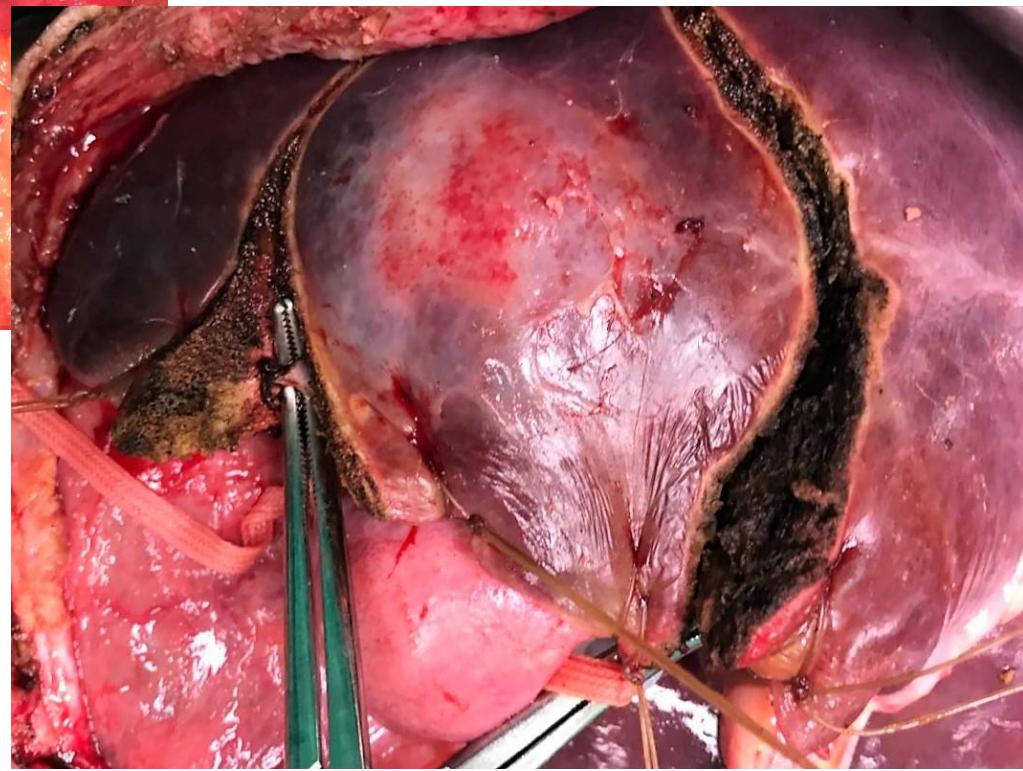
(c) Multivariate analysis after PSM ($n = 110$ vs. 110)

	<i>p</i> value	OR
Diabetes mellitus	0.0524	2.208
Type of hepatic resection	0.6094	1.243
Method of hepatic resection	0.0017	4.575
Operative time, min	0.0110	3.433
Blood transfusion	0.1595	1.712
Intraoperative bile leakage	0.0312	3.086

MESOHEPATECTOMIA



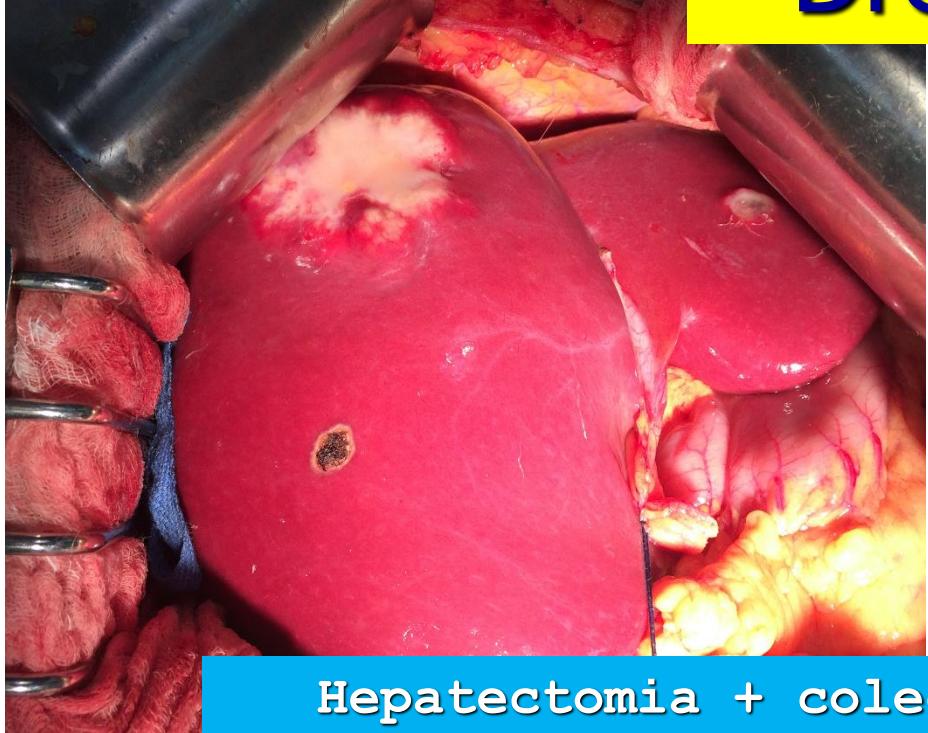
Drenar



RESSECÇÃO DE OUTROS ÓRGÃOS



Drenar



Hepatectomia + colectomia

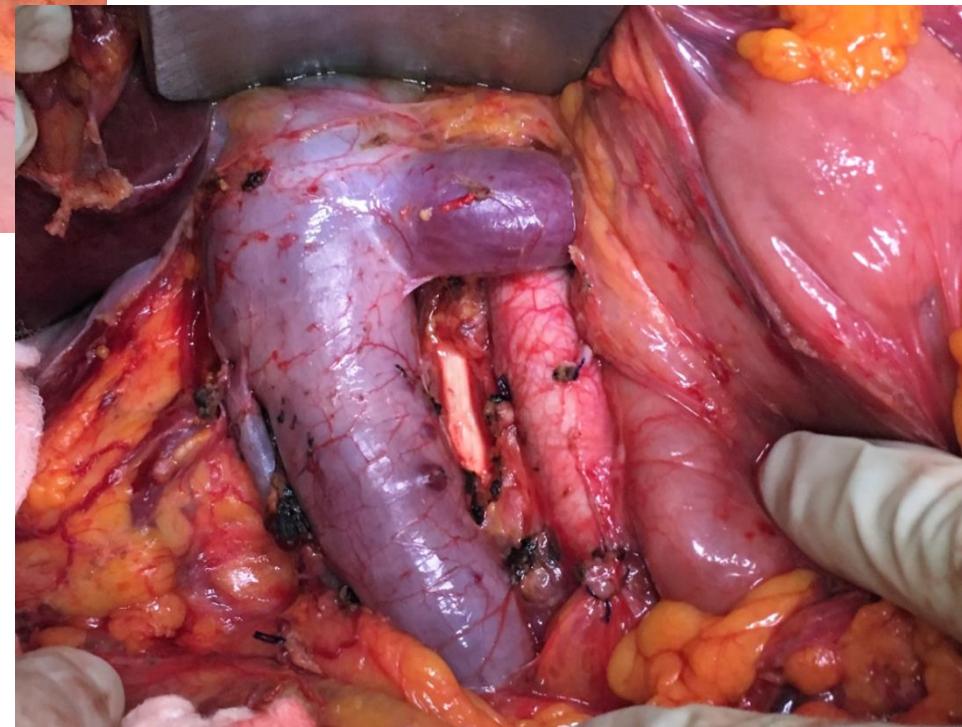
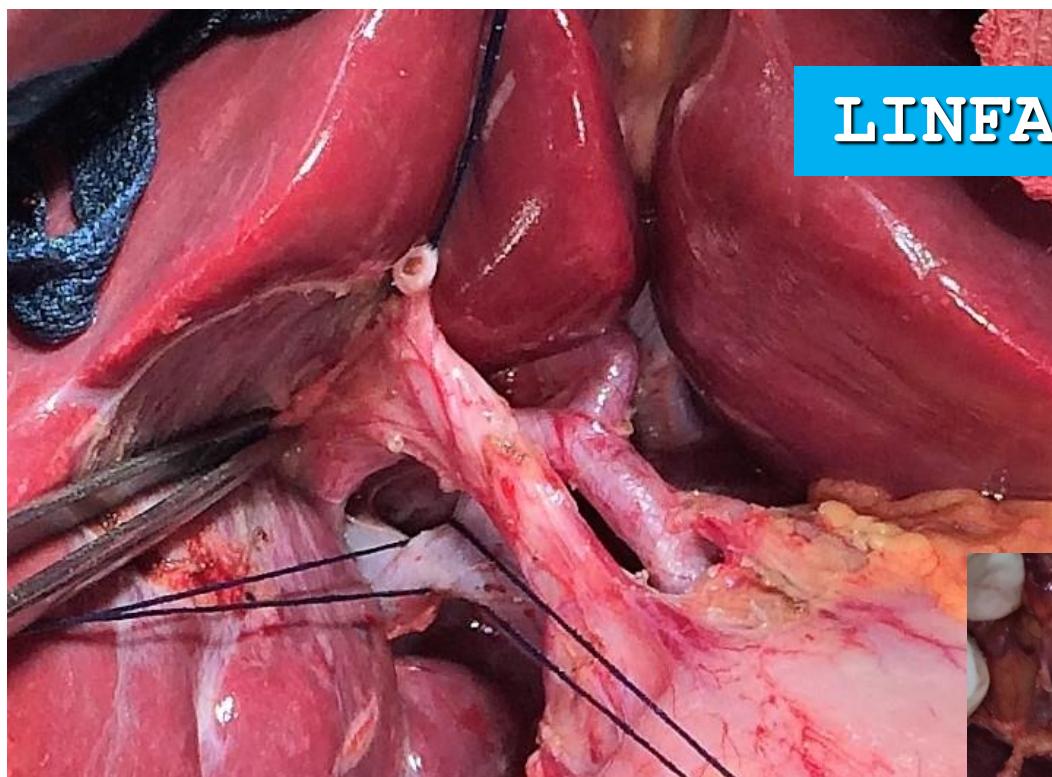


RESSECÇÃO DE OUTROS ÓRGÃOS

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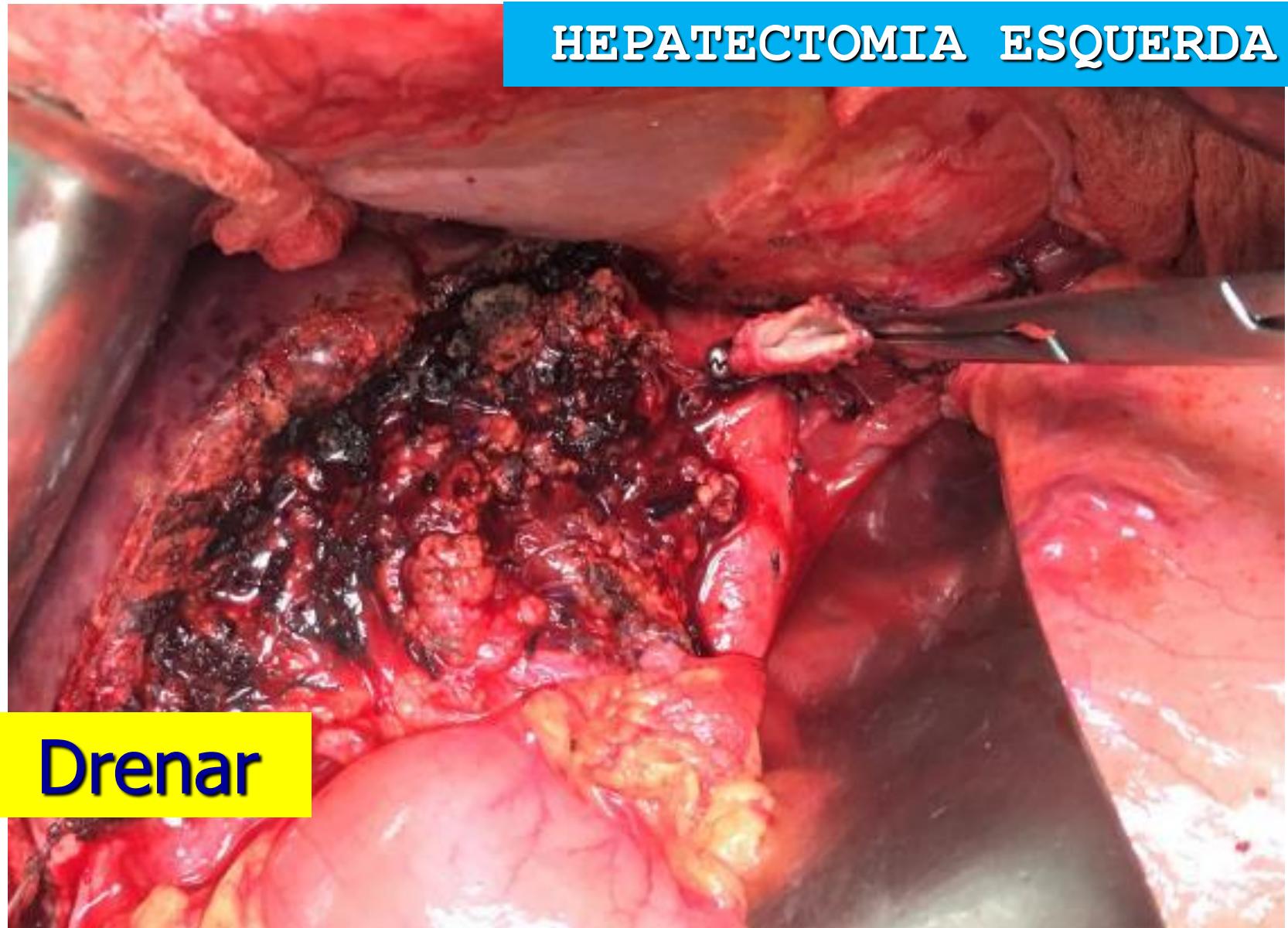
Hepatopancreatoduodenectomia + colectomia

LINFADENECTOMIA EXTENSA

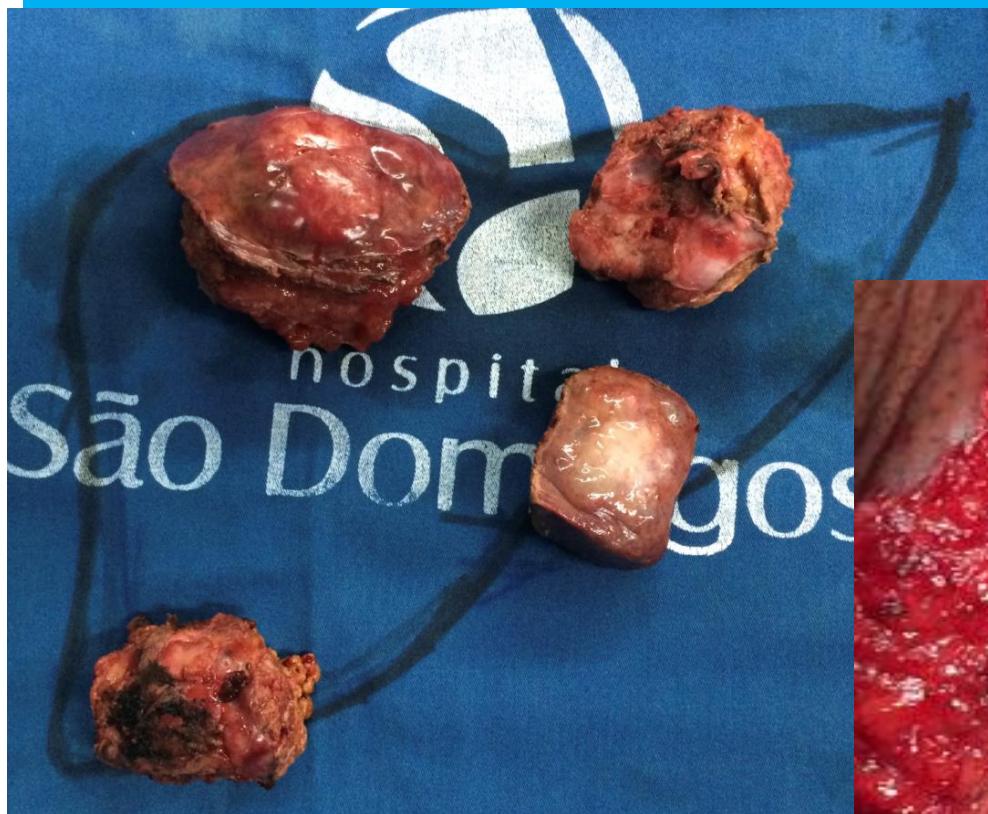


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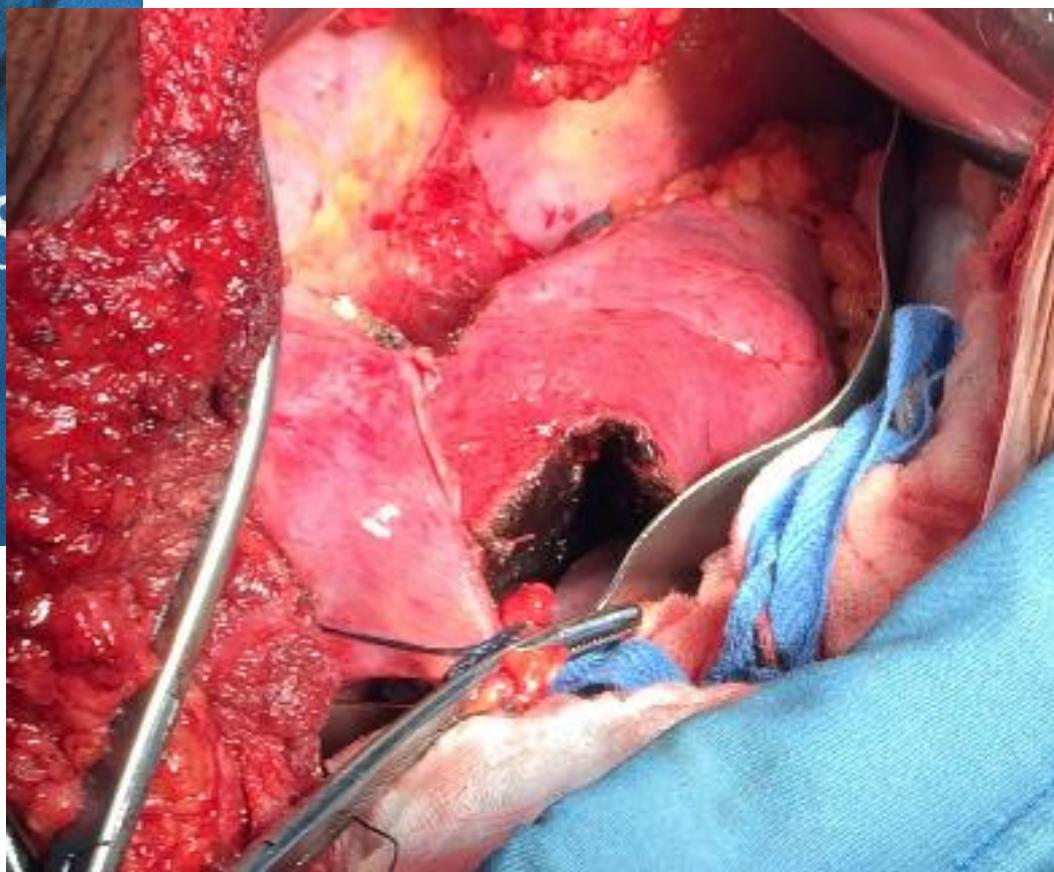
HEPATECTOMIA ESQUERDA



Múltiplas ressecções



Drenar



Risk factors for postoperative infectious complications after hepatectomy

Kazuhisa Uchiyama · Masaki Ueno · Satoru Ozawa ·
Shigehisa Kiriyma · Manabu Kawai · Seiko Hirono ·
Masaji Tani · Hiroki Yamaue

Table 4 Early-stage complications following hepatectomy

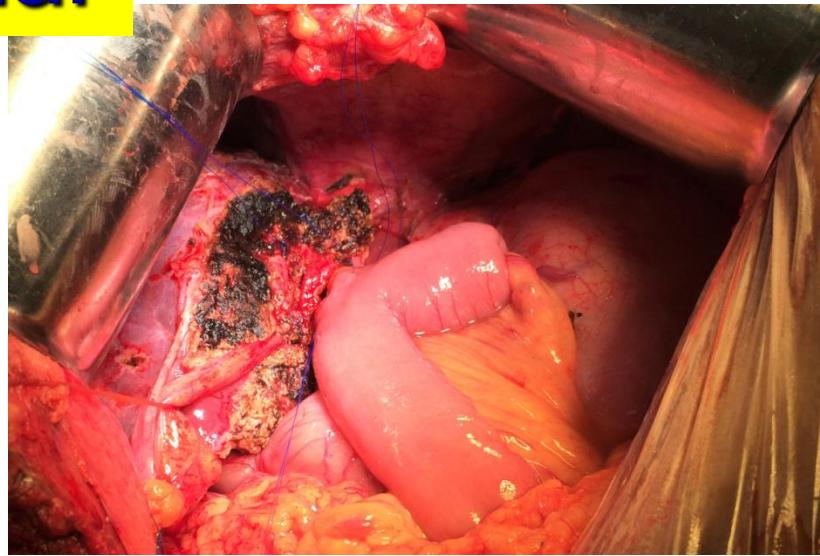
	Hepatolithiasis <i>n</i> = 42	HCC <i>n</i> = 193	Metastatic carcinoma <i>n</i> = 73
Death	0	4 (2.2%)	1 (1.4%)
Surgical site infections	10 (23.8%)*	22 (11.3)**	2 (2.7)
Remote site infections	2 (4.8)	8 (4.1)	3 (4.1)
Bile leakage	2 (4.8)	7 (3.6)	1 (1.4)
Ileus	1 (2.4)	5 (2.6)	2 (2.7)
Disturbance of liver function	4 (9.5)	8 (4.1)	4 (5.5)
Pancreatitis	3 (7.1)	5 (2.6)	2 (2.7)
Gastrointestinal bleeding	1 (2.4)	5 (2.6)	1 (1.4)
Intractable ascites	1 (2.4)	10 (5.2)	0
Intractable pleural effusion	1 (2.4)	11 (5.7)	1 (1.4)
Intraabdominal bleeding	1 (2.4)	1 (0.5)	0
Others	2 (4.8)	6 (3.1)	3 (4.1)

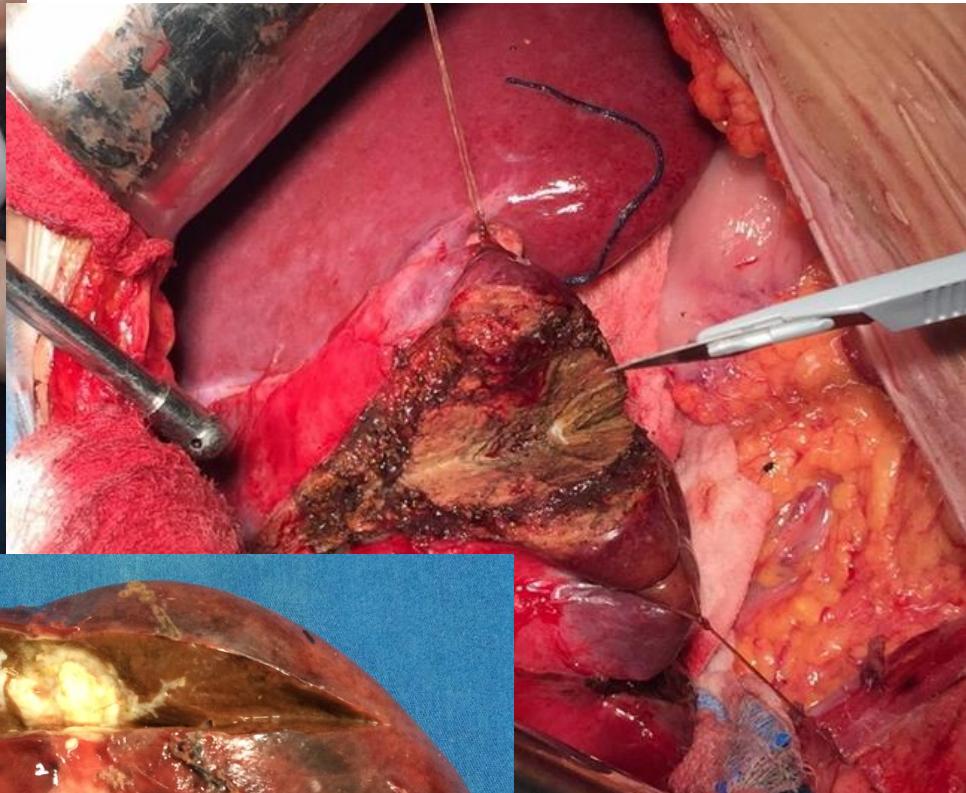
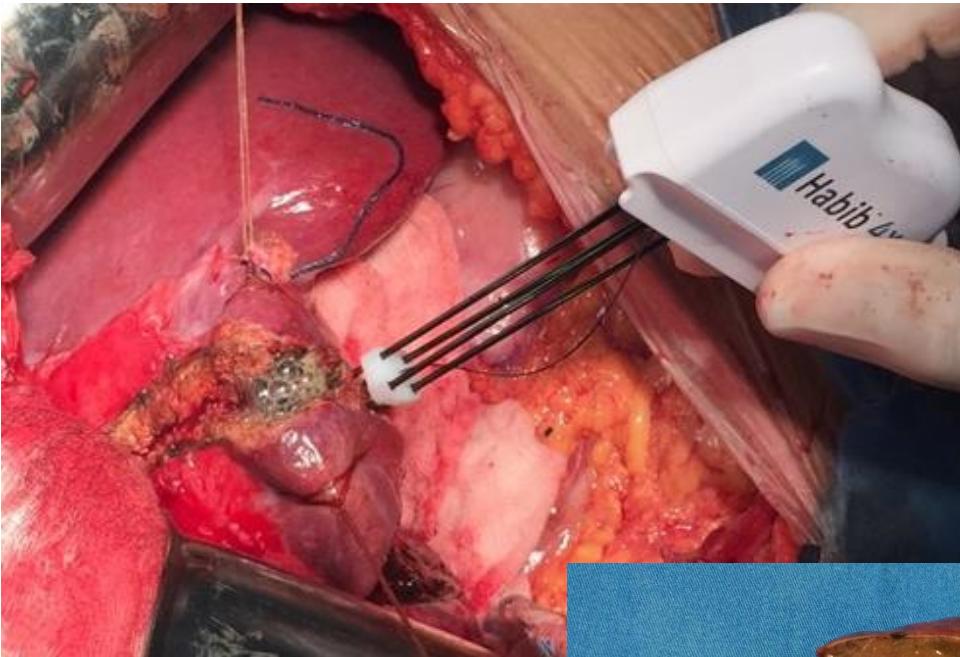
* $p = 0.034$ compared with HCC, $p < 0.001$ compared with metastatic carcinoma

** $p = 0.028$ compared with metastatic carcinoma



Não drenar





Não drenar



ASSOCIATING LIVER PARTITION AND PORTAL VEIN LIGATION FOR STAGED HEPATECTOMY (ALPPS): THE BRAZILIAN EXPERIENCE

Ligadura da veia porta associada à bipartição do fígado para hepatectomia em dois estágios (ALPPS): experiência Brasileira

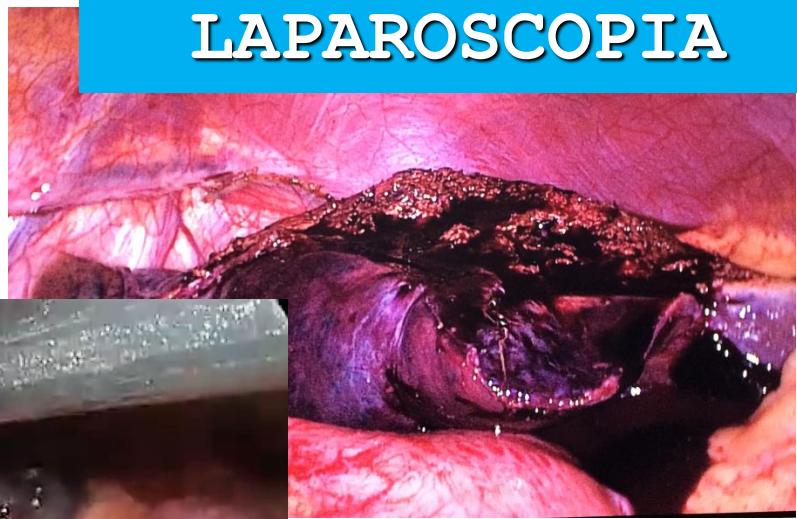
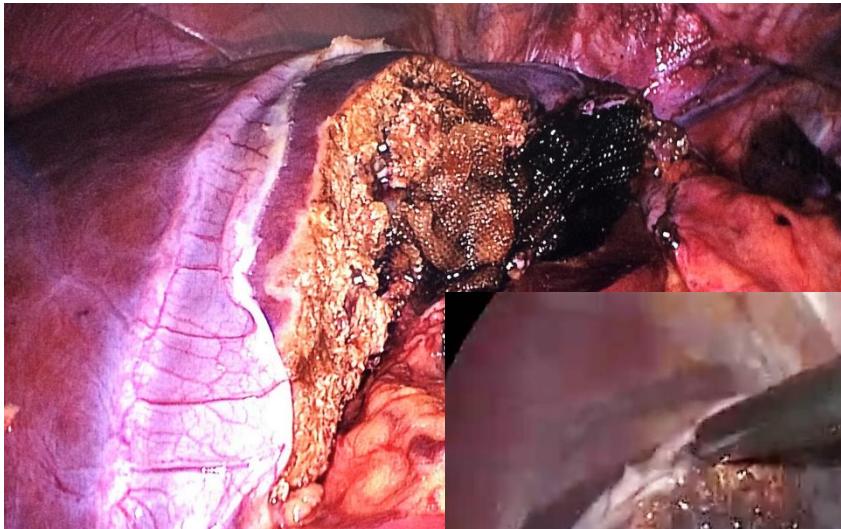
Orlando Jorge Martins **TORRES**¹, Eduardo de Souza Martins **FERNANDES**² Cassio Virgilio Cavalcante **OLIVEIRA**³,
Cristiano Xavier **LIMA**⁴, Fabio Luiz **WAECHTER**⁵, Jose Maria Assunção **MORAES-JUNIOR**¹,
Marcelo Moura **LINHARES**⁶, Rinaldo Danese **PINTO**⁷, Paulo **HERMAN**⁸, Marcel Autran Cesar **MACHADO**⁹

ALPPS



Drenar

LAPAROSCOPIA



MESMO PADRÃO

Hemostasis with Biologic Glue



Value of Primary Operative Drain Placement after Major Hepatectomy: A Multi-Institutional Analysis of 1,041 Patients

Malcolm H Squires III, MD, MS, Neha L Lad, MD, Sarah B Fisher, MD, MS, David A Kooby, MD, FACS, Sharon M Weber, MD, FACS, Adam Brinkman, MD, Juan M Sarmiento, MD, FACS, Charles R Scoggins, MD, MBA, FACS, Michael E Egger, MD, Kenneth Cardona, MD, FACS, Clifford S Cho, MD, FACS, Robert CG Martin, MD, PhD, FACS, Maria C Russell, MD, FACS, Emily Winslow, MD, FACS, Charles A Staley III, MD, FACS, Shishir K Maithel, MD, FACS

Table 2. Postoperative Outcomes after Major Hepatectomy, Stratified by Primary Drain Placement

Outcomes	No drain (n = 477)	Primary drain (n = 564)	p Value
Any complication, n (%)	212 (44.4)	316 (56.0)	<0.001*
Major complications (Clavien III-V), n (%)	91 (19.1)	124 (22.0)	0.28
Superficial wound infection, n (%)	31 (6.5)	35 (6.2)	0.95
Secondary drainage procedure, n (%)	28 (5.9)	45 (8.0)	0.23
Bile leak, n (%)	20 (4.2)	41 (7.3)	0.048*
Ascites, n (%)	22 (4.6)	22 (3.9)	0.68
Postoperative hepatic insufficiency, n (%)	35 (7.5)	55 (9.8)	0.23
Reoperation, n (%)	12 (2.5)	23 (4.1)	0.22
ICU readmission, n (%)	39 (8.2)	40 (7.1)	0.59
Respiratory failure, n (%)	25 (5.2)	24 (4.3)	0.55
Pneumonia, n (%)	23 (4.8)	25 (4.4)	0.88
Postoperative red blood cell transfusion, n (%)	79 (16.6)	149 (26.4)	<0.001*
Length of stay, d, mean \pm SD	7.4 \pm 6.3	8.2 \pm 6.8	0.037*
30-d mortality, n (%)	11 (2.3)	14 (2.5)	1.00
30-d readmission, n (%)	38 (8.0)	92 (16.4)	<0.001*

*Significant.

Table 4. Multivariate Regression Analysis of Risk Factors Associated with Postoperative Bile Leak

Variable	Odds ratio	95% CI	p Value
ASA class	1.60	0.91–2.79	0.10
Intraoperative transfusion	1.69	0.74–3.87	0.22
EBL	1.00	0.999–1.001	0.24
Operation type	0.30	0.10–2.61	0.60
Primary drain	2.04	1.02–4.09	0.044*

*Significant.

ASA, American Society of Anesthesiologists; EBL, estimated blood loss.

Abandoning Prophylactic Abdominal Drainage after Hepatic Surgery: 10 Years of No-Drain Policy in an Enhanced Recovery after Surgery Environment

Edgar M. Wong-Lun-Hing^a Victor van Woerden^a Toine M. Lodewick^{a, b}
Marc H.A. Bemelmans^{a, b} Steven W.M. Olde Damink^{a–c} Cornelis H.C. Dejong^{a–d}
Ronald M. van Dam^{a, b}

RESEARCH ARTICLE

Open Access



Clinical score to predict the risk of bile leakage after liver resection

Takahiro Kajiwara¹, Yutaka Midorikawa^{1*}, Shintaro Yamazaki¹, Tokio Higaki¹, Hisashi Nakayama¹,
Masamichi Moriguchi¹, Shingo Tsuji² and Tadatoshi Takayama¹

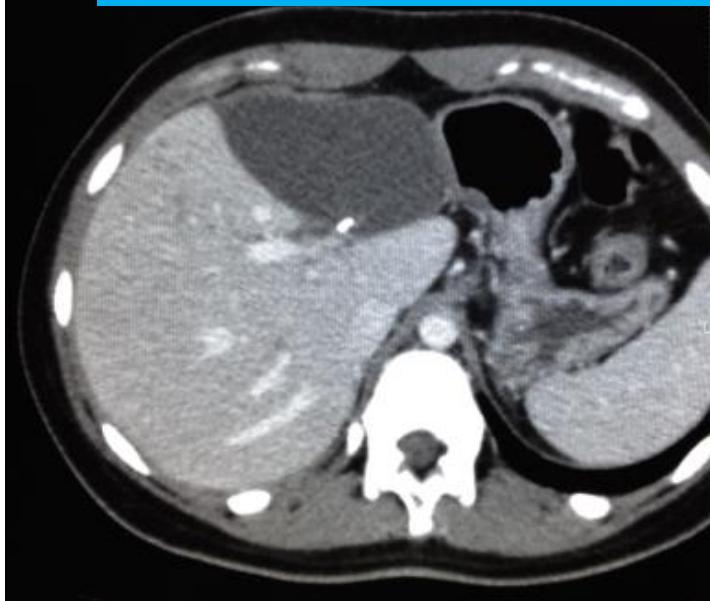
	Odds ratio (95 % CI)	Score	P value
Non-anatomical resection	3.16 (1.72–6.07)	2	0.0001
ICGR15 (<15 %)	2.43 (1.32–7.76)	1	0.004
Albumin (g/L) (3.5≥)	2.29 (1.23–4.22)	1	0.01
Weight of resected specimen	1.97 (1.11–3.51)	1	0.02

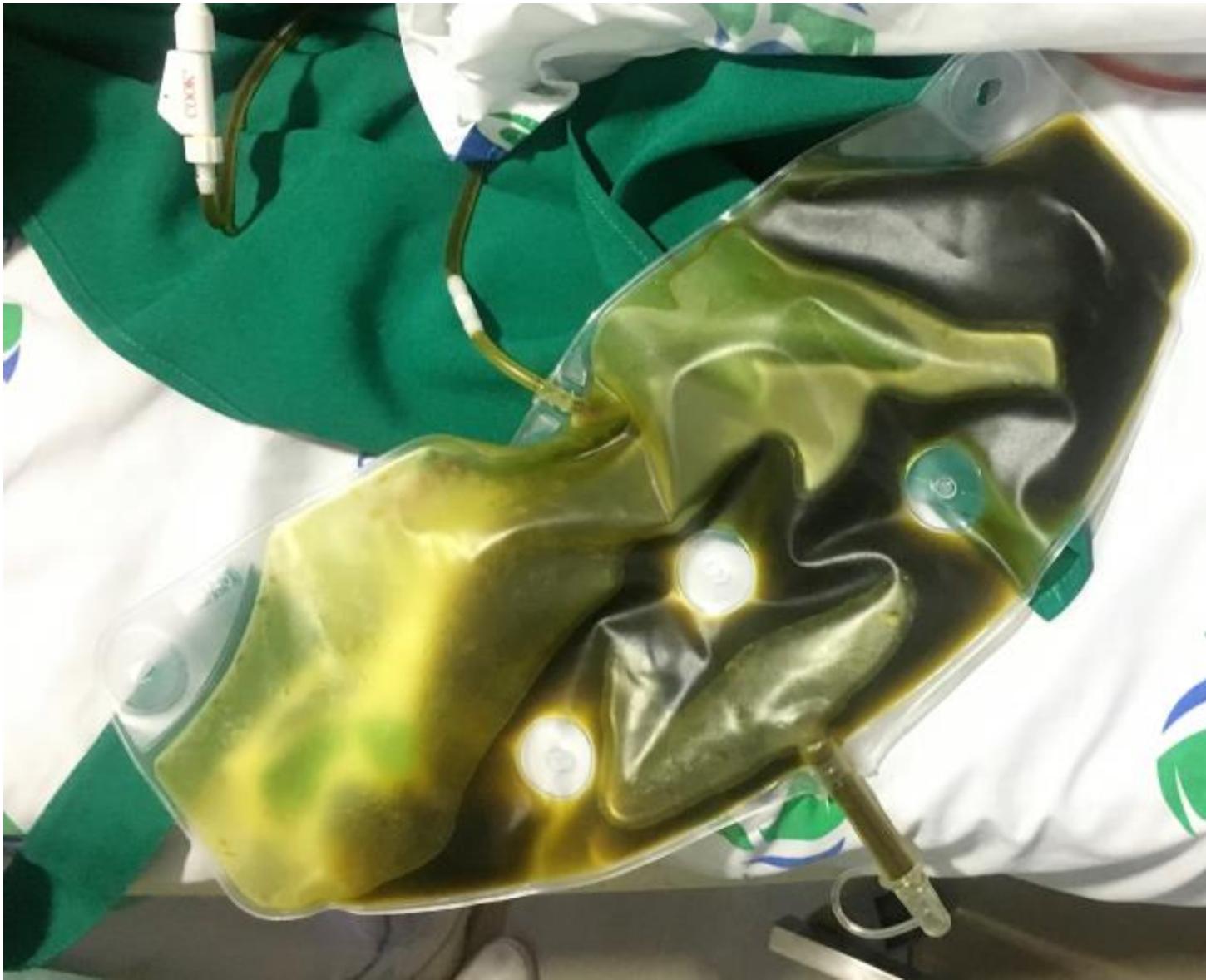
95 % CI, 95 % confidence interval

ICGR15 indocyanine green clearance rate at 15 min

- Baixo 0-1
- Moderado 2-3
- Alto 4-5

Radiologia intervencionista





Radiología intervencionista



The effectiveness and appropriate management of abdominal drains in patients undergoing elective liver resection: a retrospective analysis and prospective case series

Kuniya Tanaka · Takafumi Kumamoto ·
Kazunori Nojiri · Kazuhisa Takeda ·
Itaru Endo

Table 3 Intra-abdominal complications and their management

Management	Complications				
	Biliary fistula (n = 10)	Ascites (n = 11)	Symptomatic fluid collection (n = 2)	Duodenal perforation (n = 1)	Postoperative bleeding (n = 2)
Re-operation	0	0	0	0	2 (100 %)
Percutaneous puncture	2 (20 %)	1 (9 %)	1 (50 %)	0	0
Drain salvage technique	6 (60 %)	0	0	1 (100 %)	0
Conservative treatment	2 (20 %)	10 (91 %)	1 (50 %)	0	0

The effectiveness and appropriate management of abdominal drains in patients undergoing elective liver resection: a retrospective analysis and prospective case series

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Itaru Endo

- Não observou diferença em drenar
- Dreno pode ser removido no 2º DPO
- Remoção evita infecção ascendente
- Maioria das complicações pode ser tratada sem cirurgia

ORIGINAL ARTICLE

DRENADO

The safety of the early removal of prophylactic drainage after liver resection based solely on predetermined criteria: a propensity score analysis

Daisuke Hokuto, Takeo Nomi, Satoshi Yasuda, Chihiro Kawaguchi, Takahiro Yoshikawa, Kohei Ishioka, Shinsaku Obara, Takatsugu Yamada & Hiromichi Kanehiro

Department of Surgery, Nara Medical University, 840 Shijo-cho, Kashihara-shi, 634-8522 Nara, Japan

In conclusion, this study demonstrated that it is safe to remove prophylactic drains **on POD 3**, regardless of the surgeon's view, if the bile concentration of the drain discharge is less than three times the serum bilirubin concentration on POD 3, and the amount of drain discharge is <500 ml on POD 3.

HEPATECTOMIA MAIOR

Drenar

- Derivação biliodigestiva
- Ressecções centrais
- Ressecções de outros órgãos
- Linfadenectomia extensa
- Vazamento intraoperatório

Radiologia intervencionista



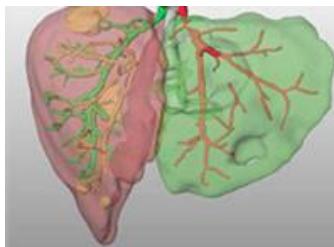


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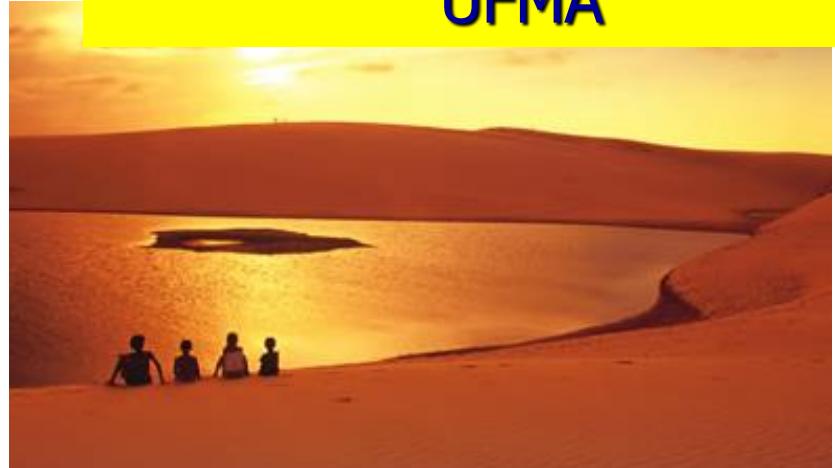
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