



S. Tentishev Asian
Medical Institute
PRESENTS



MANAGEMENT OF GALLBLADDER CANCER



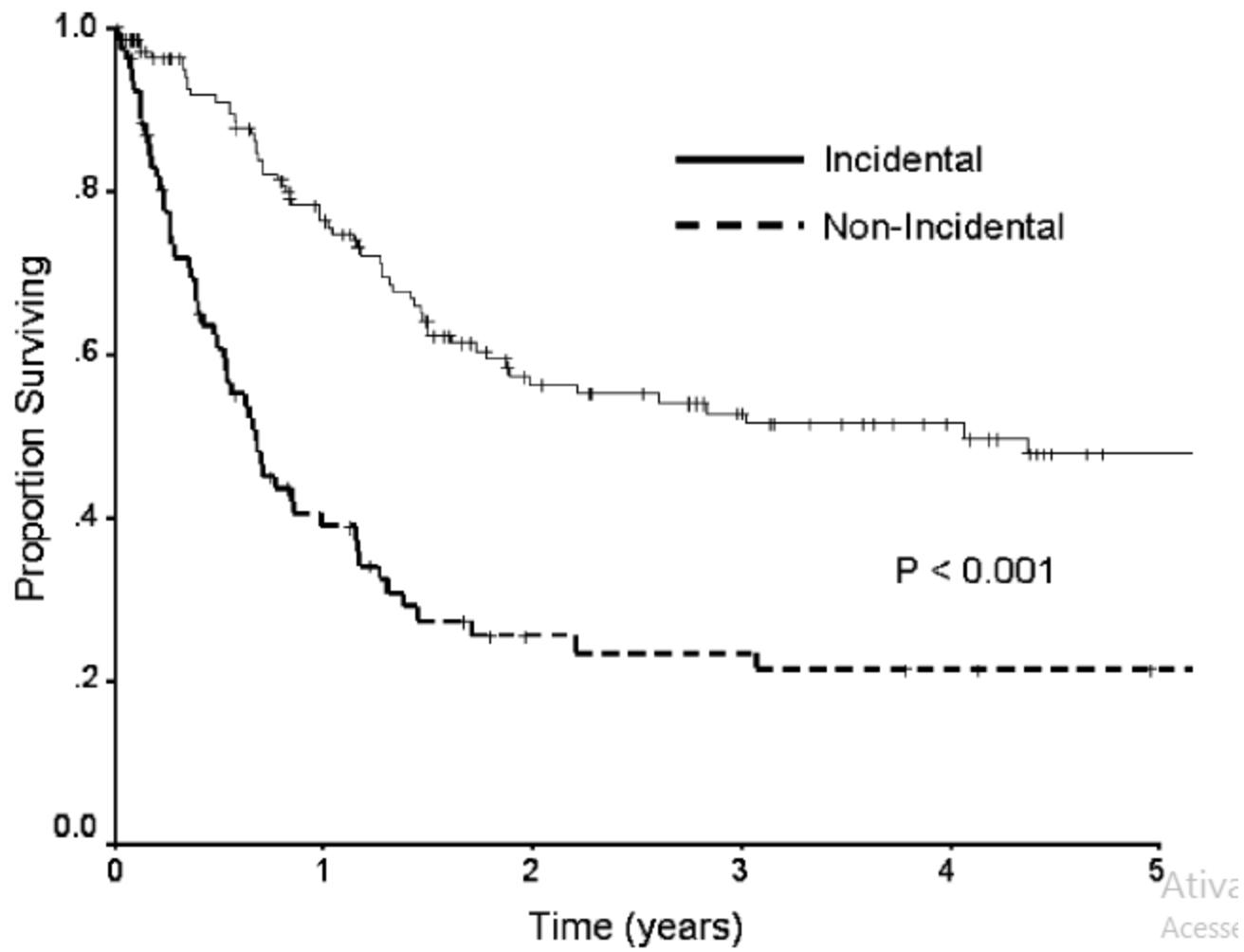
Orlando Jorge M. Torres

Full Professor and Chairman
Department of Gastrointestinal Surgery
Hepatopancreatobiliary Unit
Federal University of Maranhão - Brazil

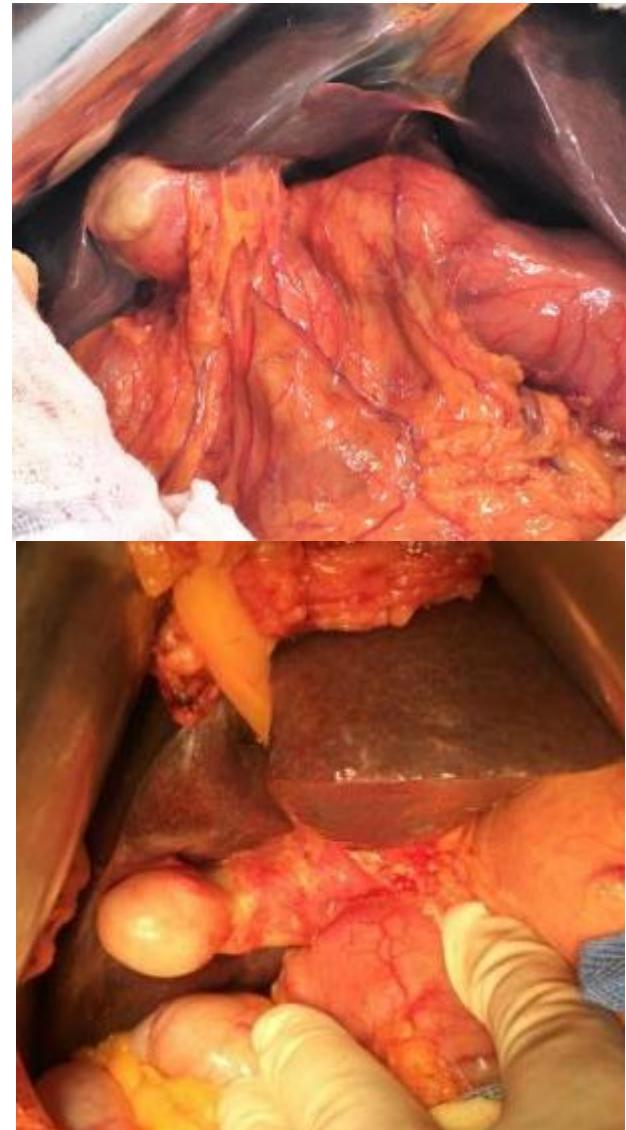
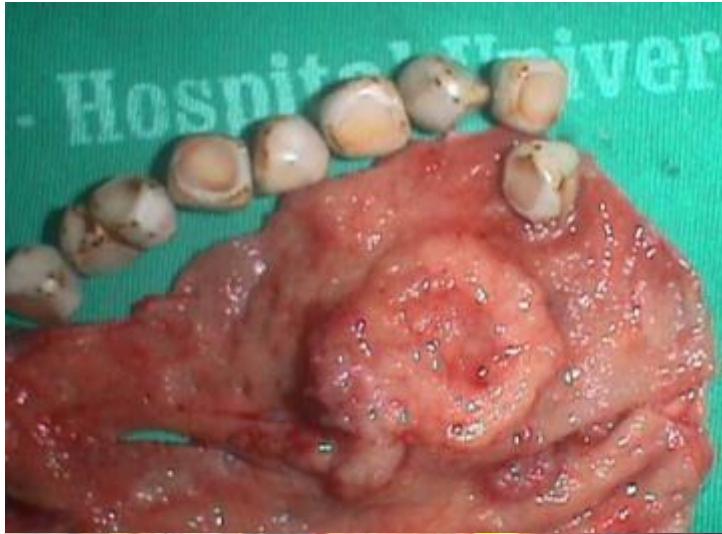
GALLBLADDER CANCER

- Suspected preoperatively
- Unexpected finding during laparoscopic cholecystectomy
- Discovered incidentally (IGBC) by the pathologist

GALLBLADDER CANCER



INCIDENTAL GALLBLADDER CANCER ?



Jarufe N, et al. In Torres OJM. Ed Rubio. 2019

GALLBLADDER CANCER

Detected or suspected preoperatively

Acute cholecystitis

Porcelain gallbladder

Irregular wall thickening

Polypoid lesions more than 10 mm

Fixed gallstones

Long-term disease (large gallstones)

Intraluminal mass

RISK FACTORS

FATORES DE RISCO RELACIONADOS AO CÂNCER DA VESÍCULA BILIAR¹⁻⁵

- Litíase biliar
- Lesões polipoïdes da vesícula biliar
- Anomalias na junção do ducto biliopancreático
- Cistos de colédoco
- Infecções bacterianas
- Vesícula biliar em porcelana
- Adenomiomatose
- Colangite esclerosante primária
- Outras: polipose colônica, doença inflamatória intestinal, exposição química, obesidade, tabagismo, colecistite xantogranulomatosa, multiparidade e estado pós-menopausa.

COLELITÍASE E CÂNCER DE VESÍCULA BILIAR

CHOLELITHIASIS AND GALLBLADDER CARCINOMA

Orlando Jorge Martins Torres, TCBC – MA¹

Lia Raquel de Alcântara Caldas²

Rodrigo Palácio de Azevedo²

Ricardo Lima Palácio²

Maria Luisa dos Santos Rodrigues³

José Anselmo Cordeiro Lopes⁴

RESULTADOS

Entre os 2.008 pacientes submetidos à colecistectomia, havia 1.649 do sexo feminino (82,1%) e 359 do sexo masculino (17,9%), com idade variando entre 5 e 99 anos (média de 46,3 anos).

A freqüência das lesões observadas evidenciou 2,3% de câncer da vesícula biliar (46 pacientes) e está representada na Tabela 1.

Tabela 1

Resultado do estudo anatomo-patológico da vesícula biliar.

	<i>Nº</i>	<i>%</i>
Colecistite aguda	32	1,6
Colecistite crônica	1.928	96,0
Câncer	46	2,3
Adenoma	2	0,1

A R T I G O

D E R E V I S Ã O

Conduta nas lesões polipoides da vesícula biliar

Management of polypoid lesions of the gallbladder

ORLANDO JORGE MARTINS TORRES¹, RACHEL JORGE DINO COSSETTI², JANAINA OLIVEIRA BENTIVI²,
MARIA HELENA ALMEIDA COSTA², ALINE MARIA SANTOS FARIAS², GLÁUCIA MESQUITA CORDEIRO³

Disciplina de Clínica Cirúrgica III da Universidade Federal do Maranhão – UFMA – São Luís (MA)

RESUMO

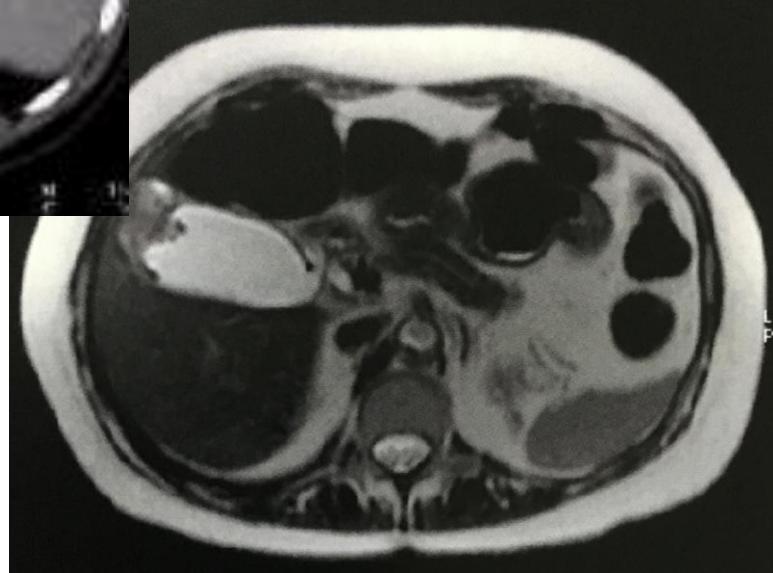
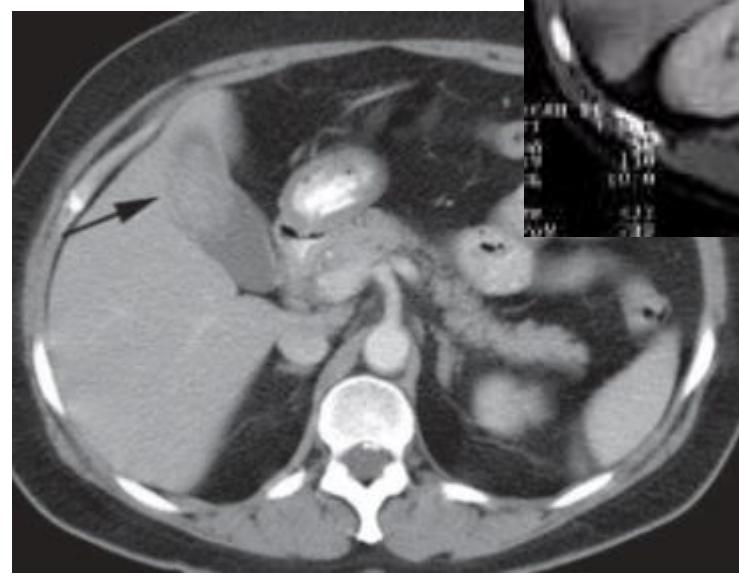
Com o aumento do uso da ultrassonografia na prática diária, mais lesões polipoides da vesícula

SUMMARY

With the increasing use of percutaneous ultrasonography in modern practice, more polypoid

- > 10 mm
- Age > 40 years

GALLBLADDER CANCER



GALLBLADDER CANCER



HIGH RISK PATIENTS



Carefully inspect the gallbladder once extracted

ROUTINE HISTOLOGICAL EVALUATION

SUSPECTED LESION

- Frozen section
 - Positive
- Specific surgery
- Refer to HPB centers



ORIGINAL ARTICLE

All cholecystectomy specimens must be sent for histopathology to detect inapparent gallbladder cancer

Anil K. Agarwal, Raja Kalayaranan, Shivendra Singh, Amit Javed & Puja Sahuja

Department of Gastrointestinal Surgery and Pathology, G. B. Pant Hospital and Maulana Azad Medical College, Delhi University, New Delhi, India

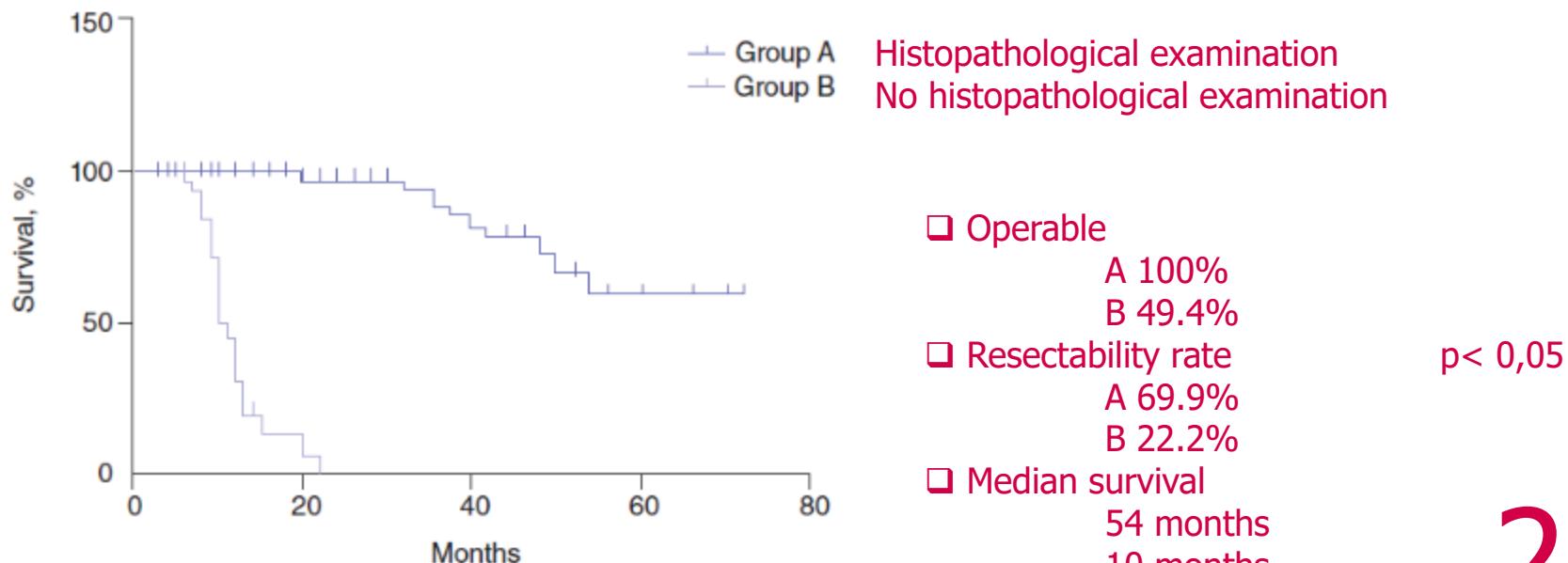
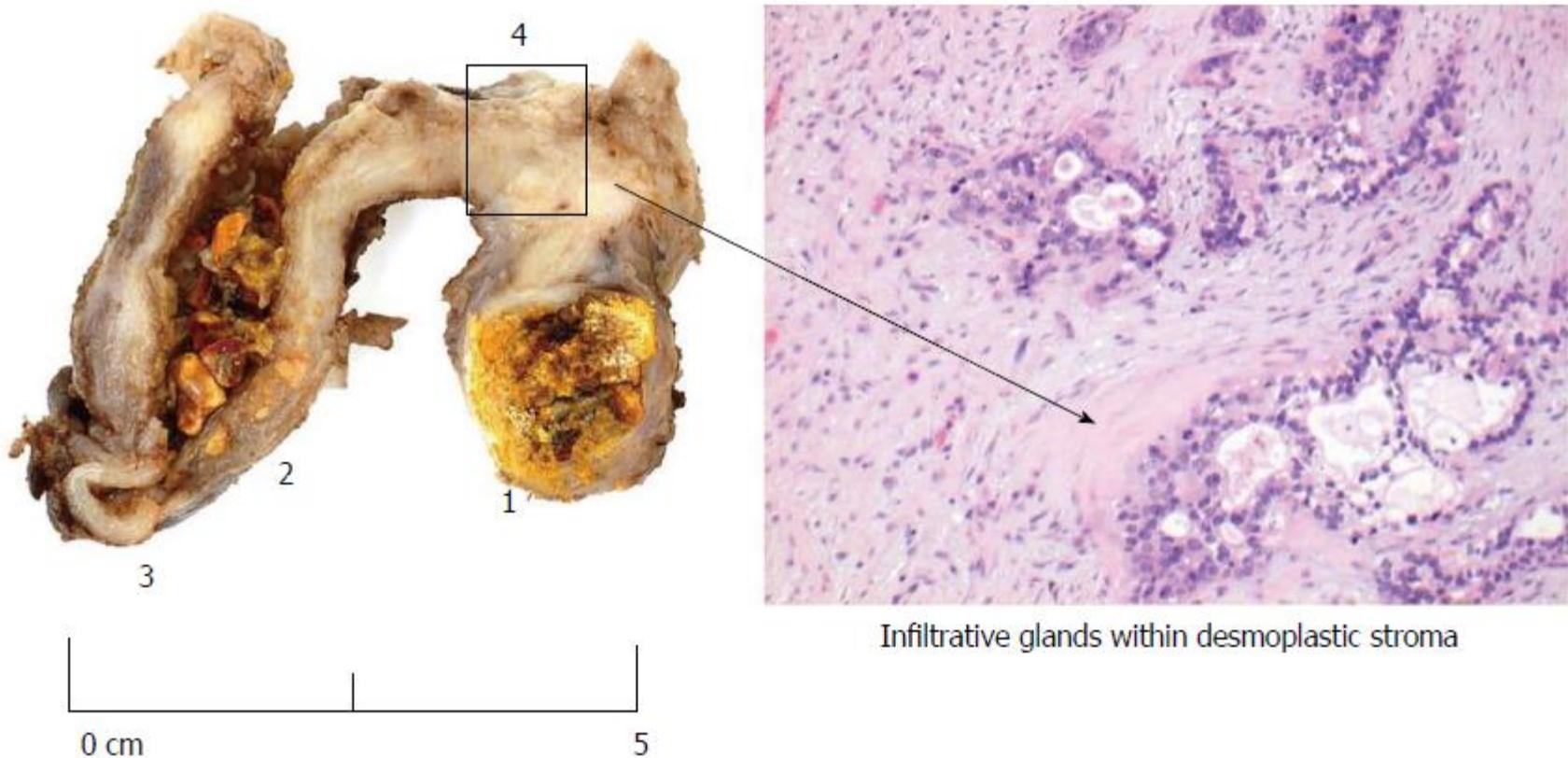


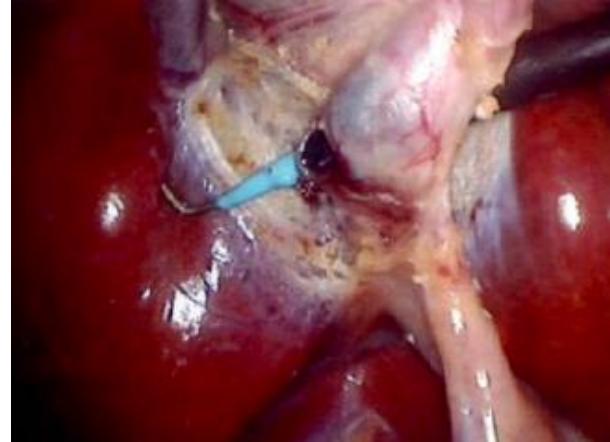
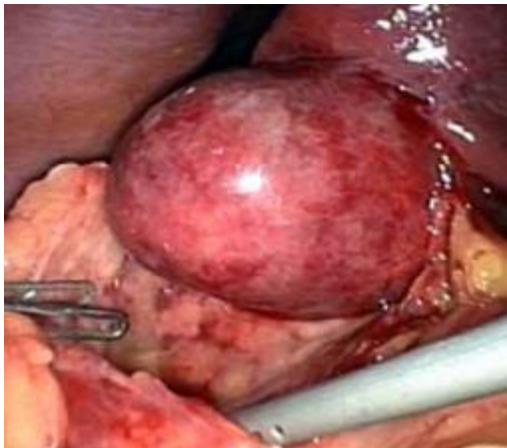
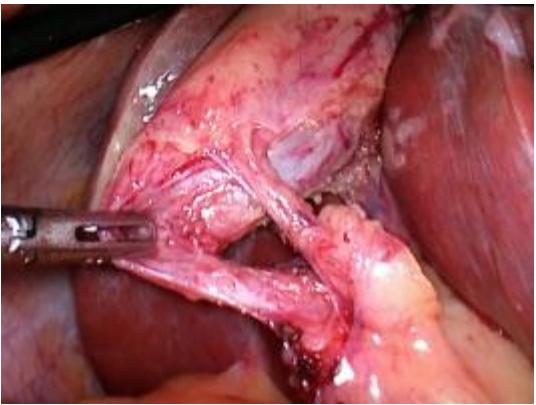
Figure 1 Survival rates in Groups A and B

INCIDENTAL GALLBLADDER CARCINOMA



- 1. Cholesterol gallstones, impacted
- 2. RA sinuses containing impacted stones
- 3. Chronic cholecystitis
- 4. Ruptured gallbladder carcinoma

INCIDENTAL GALLBLADDER CARCINOMA



□ Informations:

Laparoscopic or laparotomic

Risk factors (suspected)

Acute cholecystitis

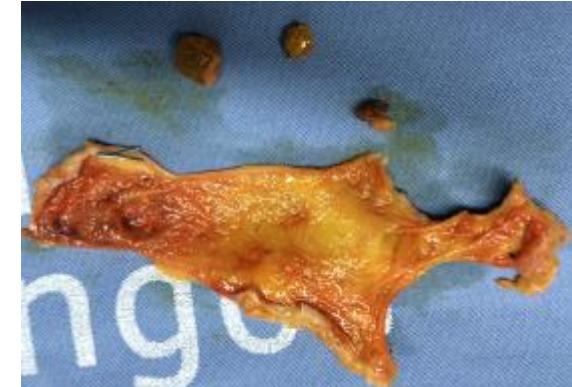
Gallbladder perforation (spillage of bile)

Use of endobag for the removal of the gallbladder

Pneumoperitoneum was desufflated with the trocars in situ

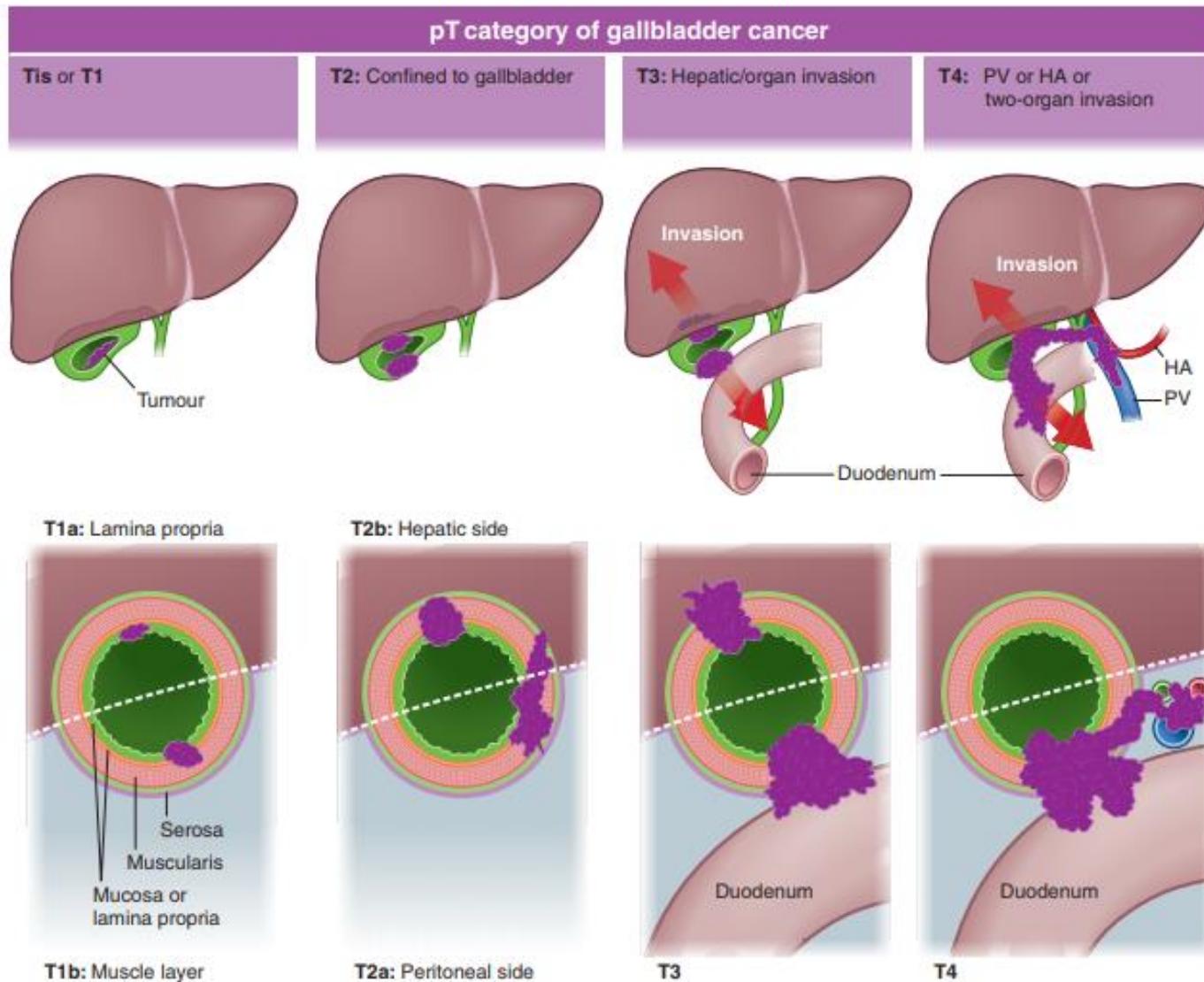
Gallbladder was inspected once extracted

Tumor location



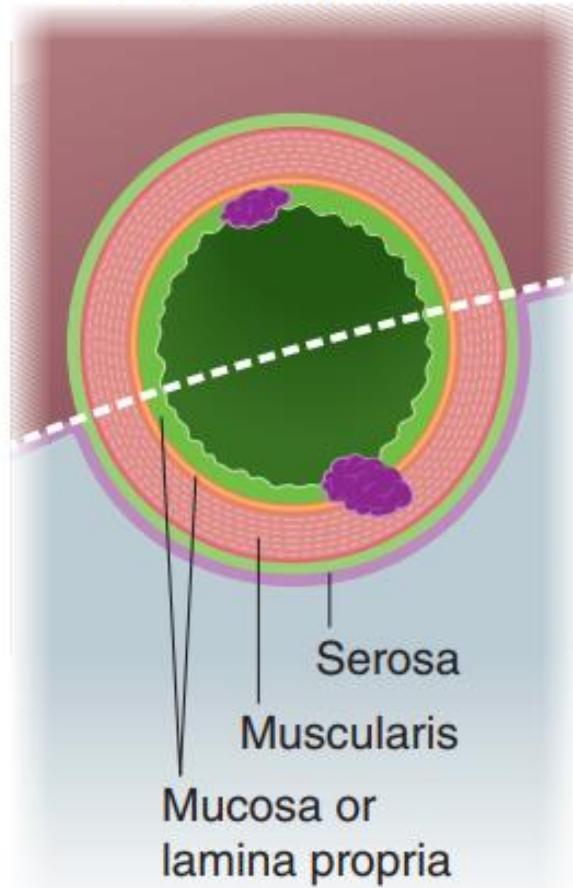
3

INCIDENTAL GALLBLADDER CARCINOMA



INCIDENTAL GALLBLADDER CARCINOMA

T1a: Lamina propria



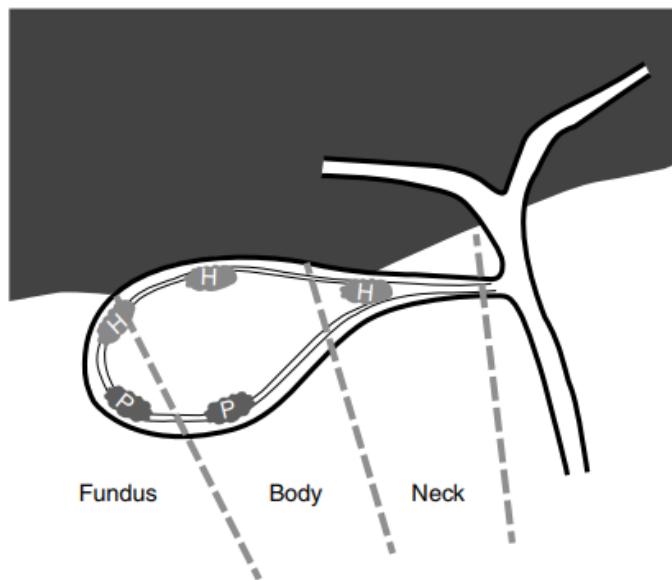
T1b: Muscle layer

ORIGINAL ARTICLE – HEPATOBILIARY TUMORS

Surgical Strategy for T2 Gallbladder Cancer According to Tumor Location

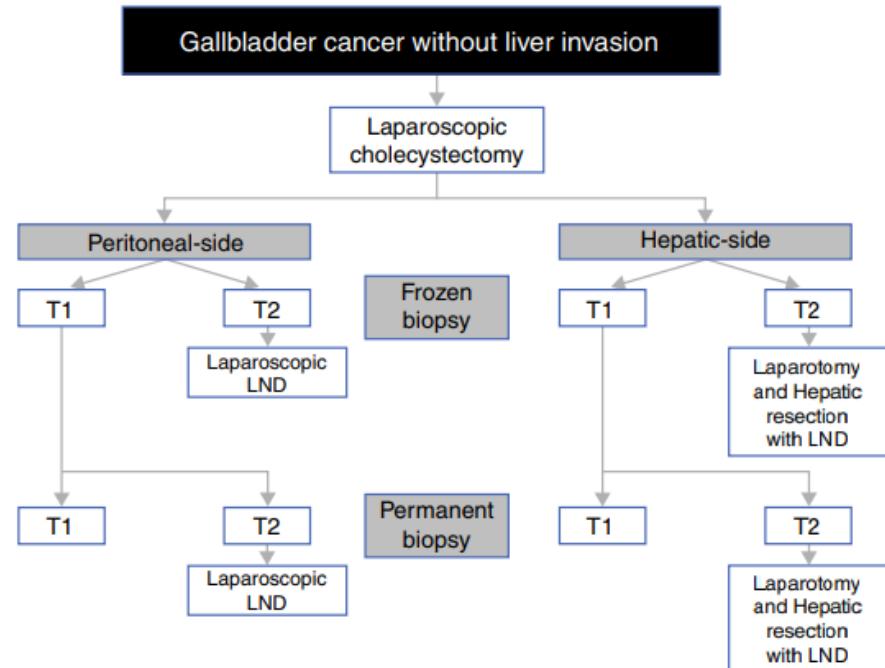
Huisong Lee, MD¹, Dong Wook Choi, MD, PhD¹, Jin Young Park, MD¹, Sangmin Youn, MD¹, Wooil Kwon, MD¹, Jin Seok Heo, MD, PhD¹, Seong Ho Choi, MD, PhD¹, and Kee-Taek Jang, MD, PhD²

A



TUMOR LOCATION

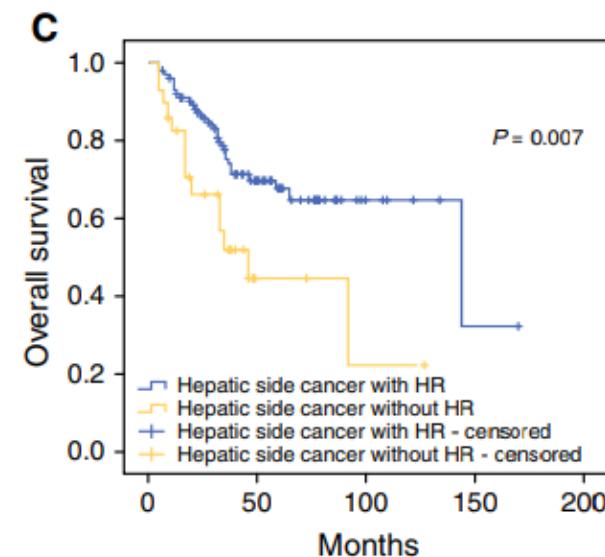
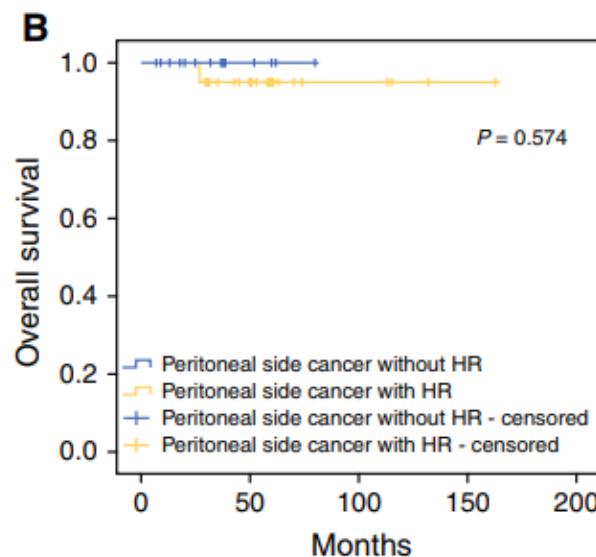
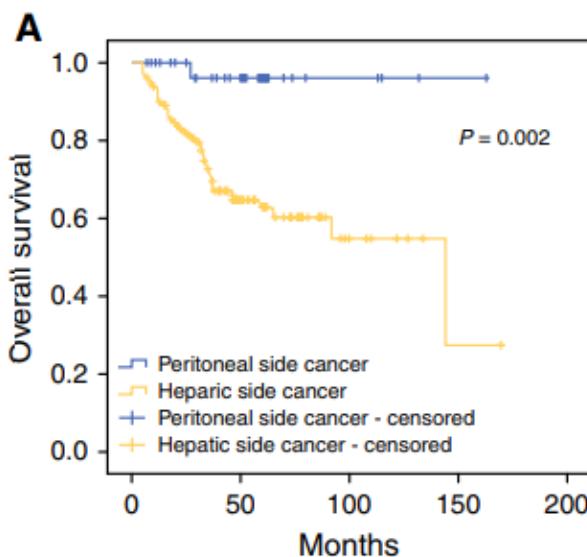
B



ORIGINAL ARTICLE – HEPATOBILIARY TUMORS

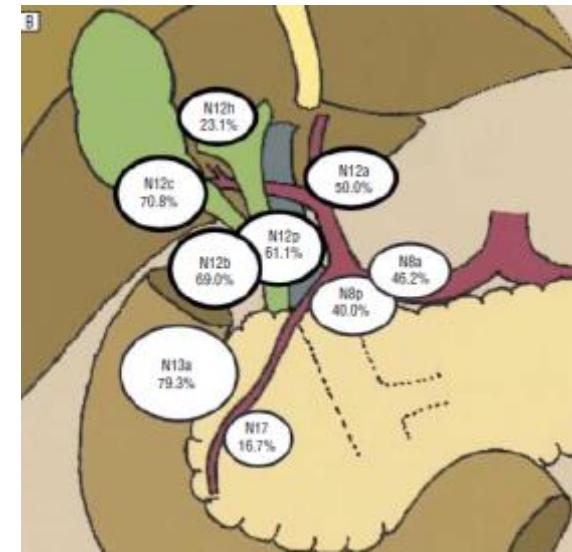
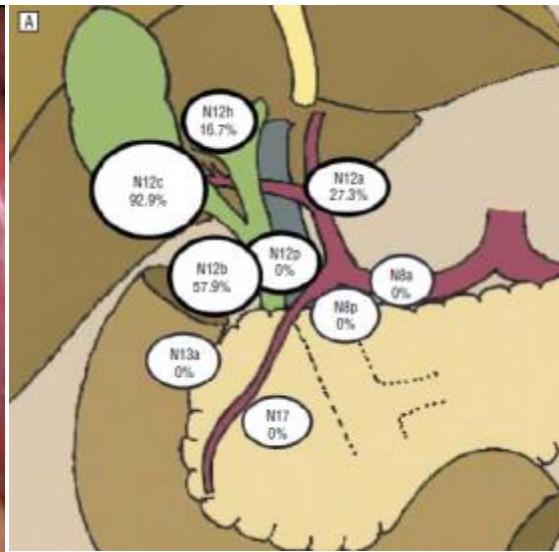
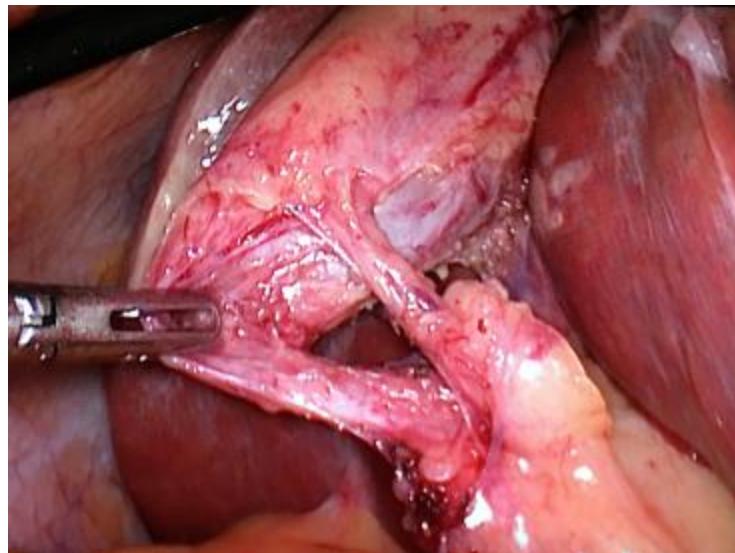
Surgical Strategy for T2 Gallbladder Cancer According to Tumor Location

Huisong Lee, MD¹, Dong Wook Choi, MD, PhD¹, Jin Young Park, MD¹, Sangmin Youn, MD¹, Wooil Kwon, MD¹, Jin Seok Heo, MD, PhD¹, Seong Ho Choi, MD, PhD¹, and Kee-Taek Jang, MD, PhD²



TUMOR LOCATION

CYSTIC DUCT LYMPH NODE



□ Lymph node station 12c (Calot's lymph node)

Initial site of spread of gallbladder cancer

Most prevalent site of metastasis

Potentially represents a prognosticator

Predicts the status of the D2 lymph nodes?

Indicates whether an extended resection is required?

SPILLAGE OF BILE

- 136 patients with gallbladder carcinoma
 - With spillage of bile
 - Disease free survival – 20.9 months
 - Overall survival – 25.8 months
 - Without spillage of bile
 - Disease free survival – 71.4 months
 - Overall survival – 72.6 months
- p < 0.05

4

Intraoperative bile spillage is associated with worse survival in gallbladder adenocarcinoma

SPILLAGE OF BILE

AVOID BILE SPILLAGE

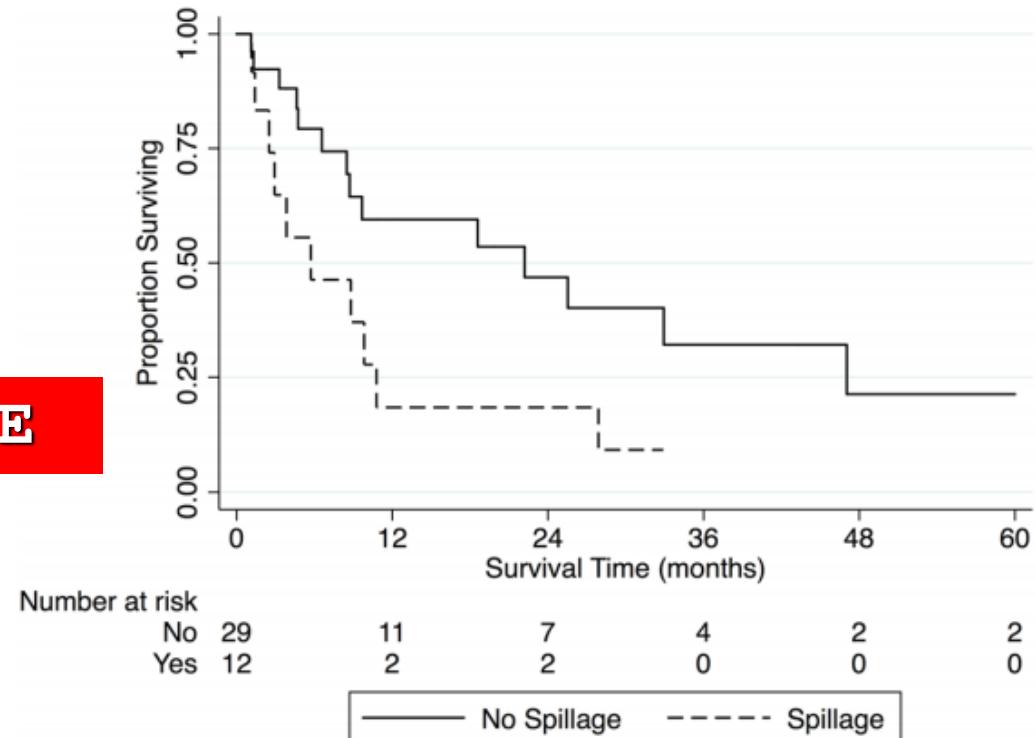
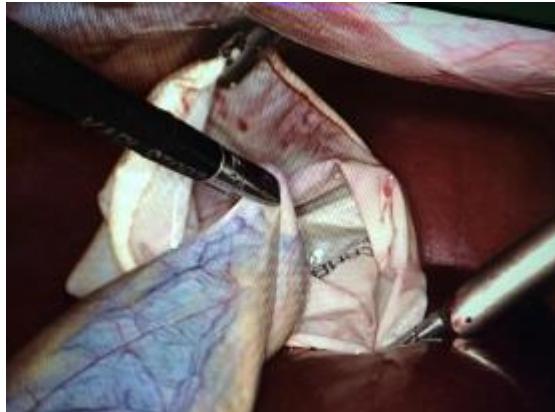


FIGURE 1 Progression-free survival by intraoperative bile spillage; Wilcoxon $P = .038$

Use of Retrieval Bags in Incidental Gallbladder Cancer Cases

Thorsten Oliver Goetze · Vittorio Paolucci

- Port-site metastases occur in 14–17% of patients with incidentally discovered gallbladder carcinoma within the first 2 years after the initial operation.
- The most important risk factor for port-site metastases is gallbladder perforation during retrieval.
- Intraoperative perforation increases the incidence of port-site metastases from 9% to 40%.



Use of Retrieval Bags in Incidental Gallbladder Cancer Cases

Thorsten Oliver Goetze · Vittorio Paolucci

Table 8 Recurrence rate of laparoscopic patients with versus without perforation of the organ

Laparoscopy (total)	No Perforation	Perforation
$n = 330$	$n = 257$	$n = 73$
Relapse	Relapse	Relapse
$n = 98$ (30%)	$n = 70$ (27.2%)	$n = 28$ (38.4%)

χ^2 and Fisher's exact test, $P = 0.047$

STAGING FOR GALLBLADDER CARCINOMA

Contrast-enhanced computed tomography

Portal lymph node

Peritoneal disease

Vascular invasion

Magnetic resonance imaging (MRI)

Biliary tract involvement

Vascular invasion

Liver parenchyma invasion

Lymph node involvement

18-FDG positron emission tomography (PET)-CT

Occult peritoneal and/or omental metastases

Lymph node metastases

Residual disease on gallbladder bed

Port site disease

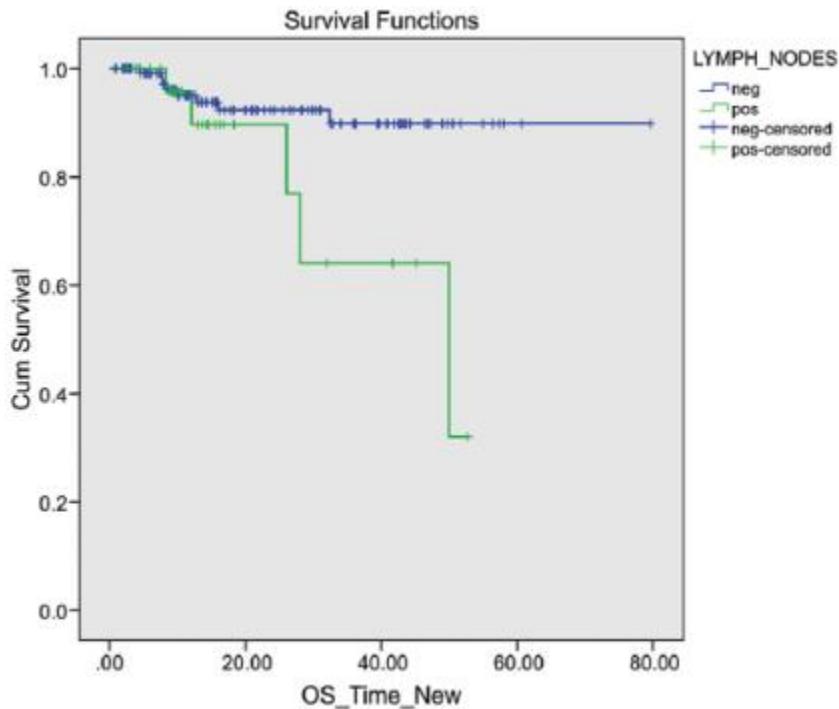
Role of PET CT Scan in Redefining Treatment of Incidental Gall Bladder Carcinoma

MAHESH GOEL, MS,^{1*} ANUP TAMHANKAR, MS, MCh,¹ VENKATESH RANGARAJAN, MD,²
SHRADDHA PATKAR, MS, MCh,¹ MUKTA RAMADWAR, MD,³ AND SHAILESH V. SHRIKHANDE, MS, FRCS¹

¹Gastrointestinal and Hepato-Pancreato-Biliary Surgical Service, Tata Memorial Centre, Mumbai, India

²Department of Nuclear Medicine, Tata Memorial Centre, Mumbai, India

³Department of Pathology, Tata Memorial Centre, Mumbai, India



PET-CT

Stratify patients
Avoid surgery in pT1b
Chemotherapy in pT2

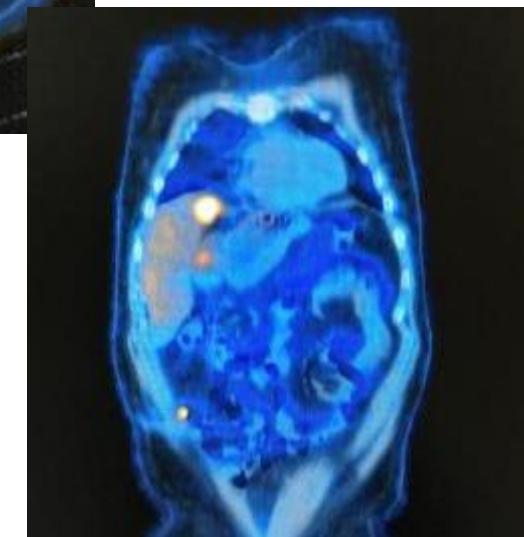
STAGING FOR GALLBLADDER CARCINOMA

6



PET-CT

- Metastasis
- Lymph node disease
- Residual disease on gallbladder bed
- Port site disease



Incidence of residual disease

Re-resection associated with better survival
41% versus 15% (five years)

ORIGINAL SCIENTIFIC REPORT

What is the Better Choice for T1b Gallbladder Cancer: Simple Versus Extended Cholecystectomy

INCIDENTAL GALLBLADDER CARCINOMA

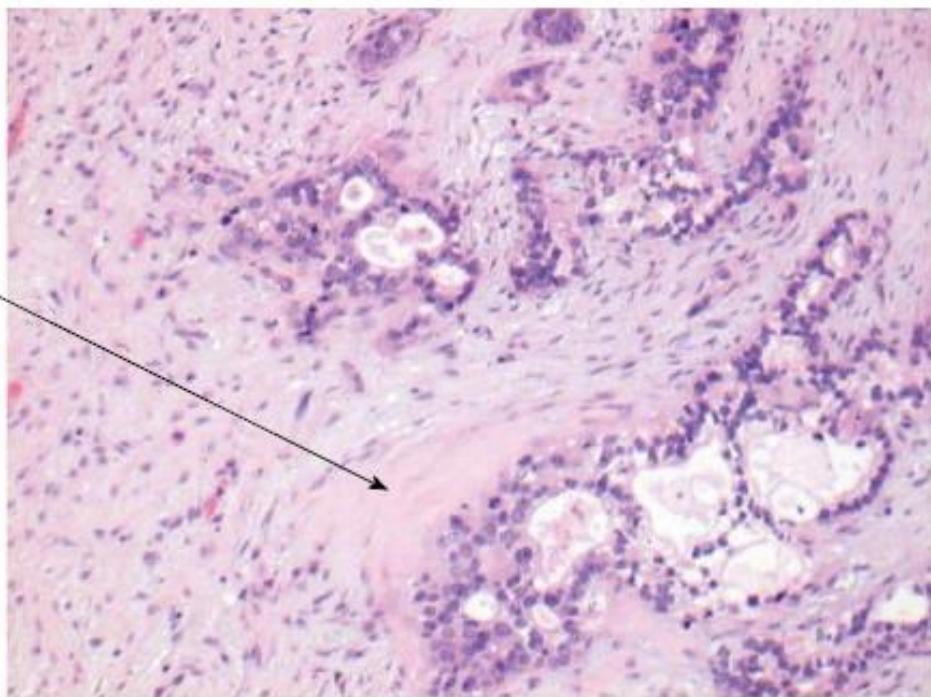
EXTENDED CHOLECYSTECTOMY

INCIDENCE OF RESIDUAL DISEASE

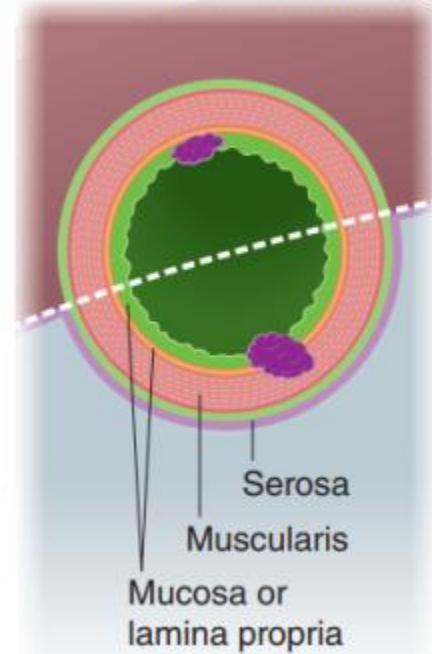
Site of Disease After 2nd Surgery	Number of Patients (%)		
	T1 (n=8)	T2 (n=67)	T3 (n=22)
Disease any site	3 (37.5)	38 (56.7)	17 (77.3)
Residual cancer in liver bed	0 (0)	7 (10.4)	8 (36.4)
Metastatic disease in lymph nodes	1 (12.5)	21 (31.3)	10 (45.5)
Common bile duct			

INCIDENTAL GALLBLADDER CARCINOMA

RE-RESECTION



T1a: Lamina propria



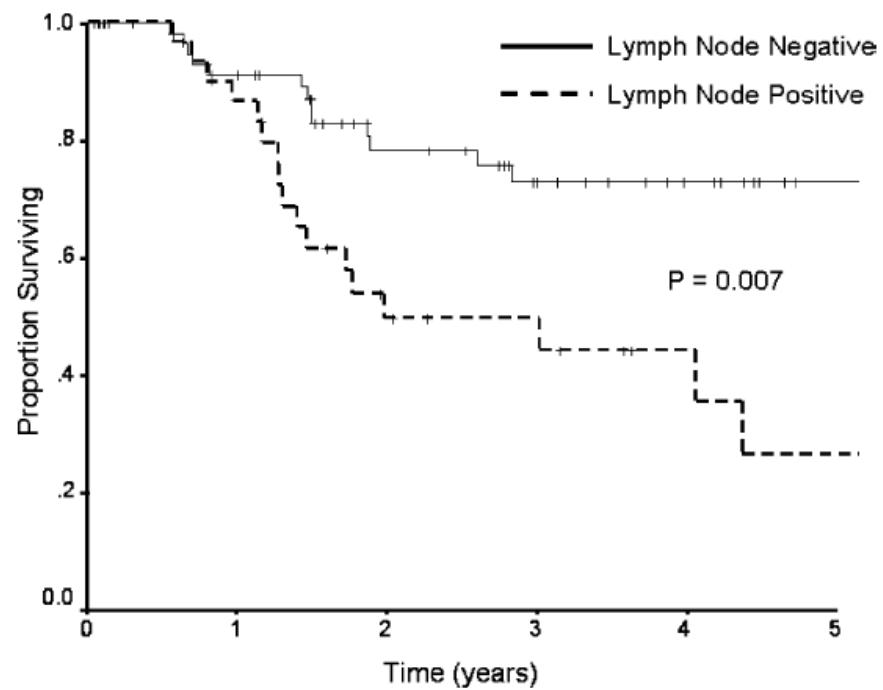
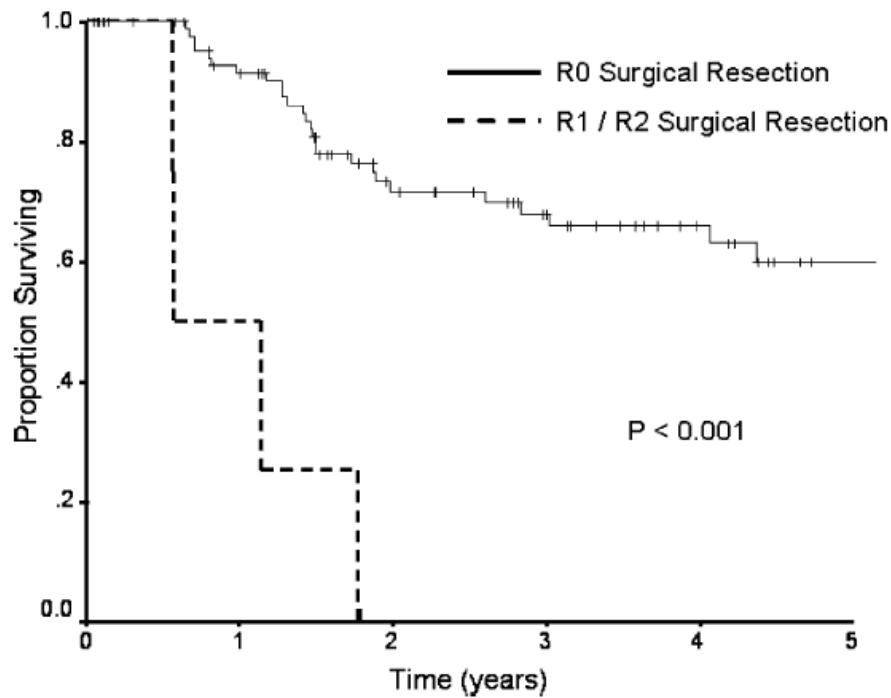
T1b: Muscle layer

- 1. T1b or more (including cystic duct)
- 2. Positive cystic duct lymph node

7

RE-RESECTION

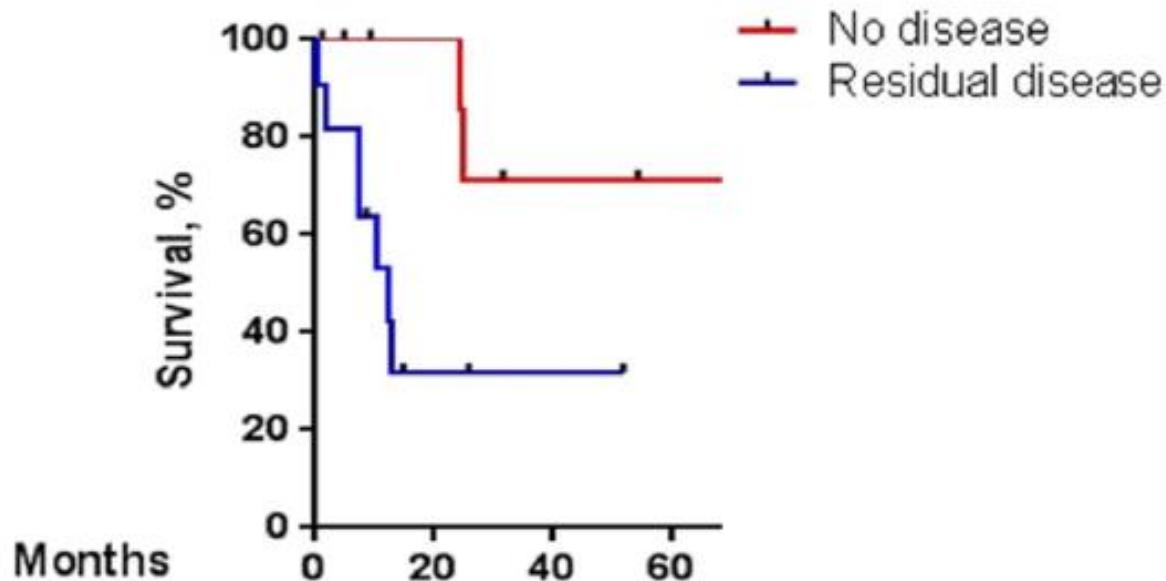
- R0 resection
- Lymphadenectomy



ORIGINAL ARTICLE

Does a second resection provide a survival benefit in patients diagnosed with incidental T1b/T2 gallbladder cancer following cholecystectomy?

Henry Watson¹, Bobby Dasari¹, Judy Wyatt², Ernest Hidalgo¹, Raj Prasad¹, Peter Lodge¹ & Giles Toogood¹



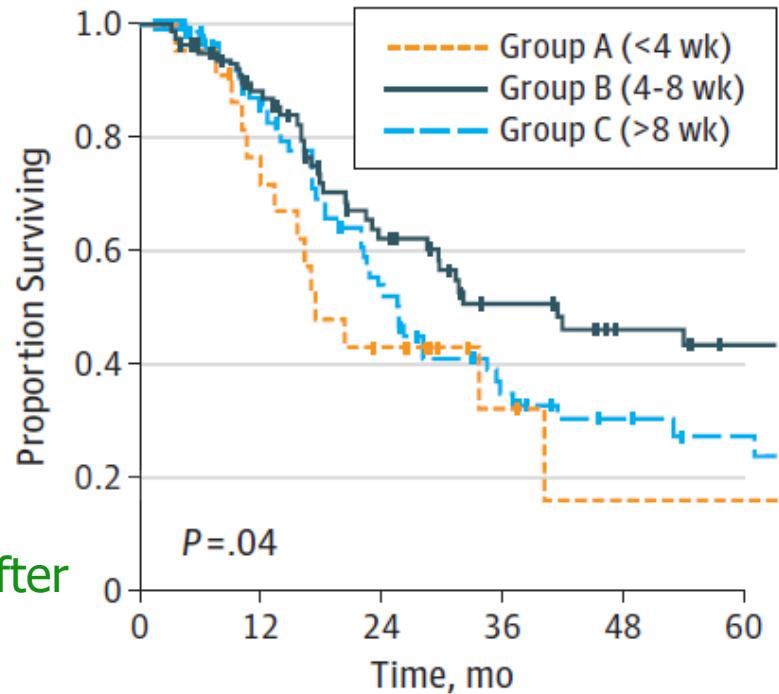
TIME TO RE-RESECTION

JAMA Surgery | Original Investigation

Association of Optimal Time Interval to Re-resection for Incidental Gallbladder Cancer With Overall Survival A Multi-Institution Analysis From the US Extrahepatic Biliary Malignancy Consortium

Cecilia G. Ethun, MD; Lauren M. Postlewait, MD; Nina Le, BS; Timothy M. Pawlik, MD, MPH, PhD; Stefan Buettner, MD; George Poulsides, MD; Thuy Tran, MD; Kamran Idrees, MD; Chelsea A. Isom, MI; Ryan C. Fields, MD; Linda X. Jin, MD; Sharon M. Weber, MD; Ahmed Salem, MD; Robert C. G. Martin, N; Charles Scoggins, MD; Perry Shen, MD; Harveshp D. Mogal, MD; Carl Schmidt, MD; Eliza Beal, MD; Ioannis Hatzaras, MD; Rivfka Shenoy, MD; David A. Kooby, MD; Shishir K. Maithel, MD

C OS since cholecystectomy



□ Time to re-resection

Appears to be between 4 and 8 weeks after the initial cholecystectomy. $p < 0.05$

TIME TO RE-RESECTION

Nicolas Jarufe
Santiago (Chile)



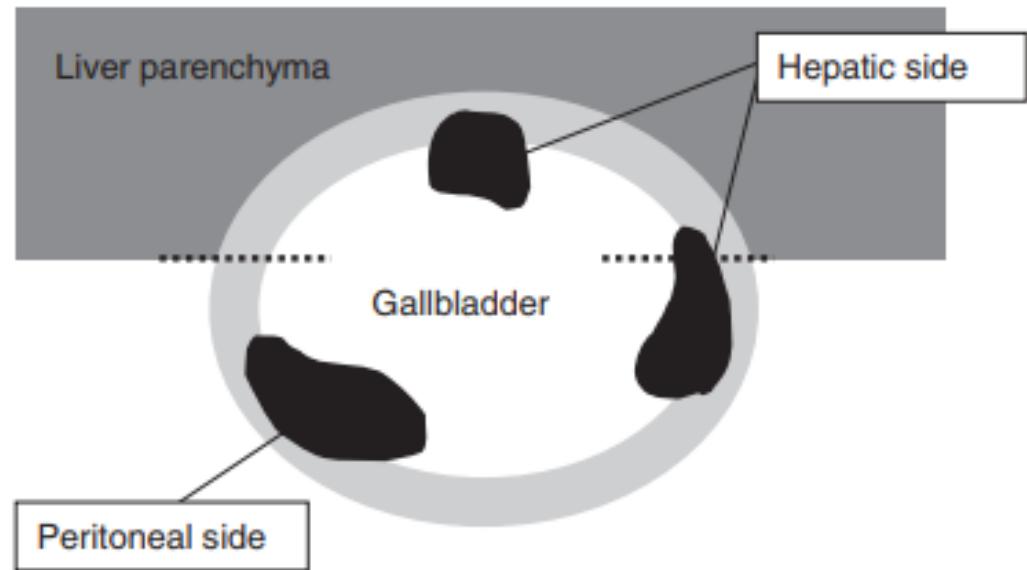
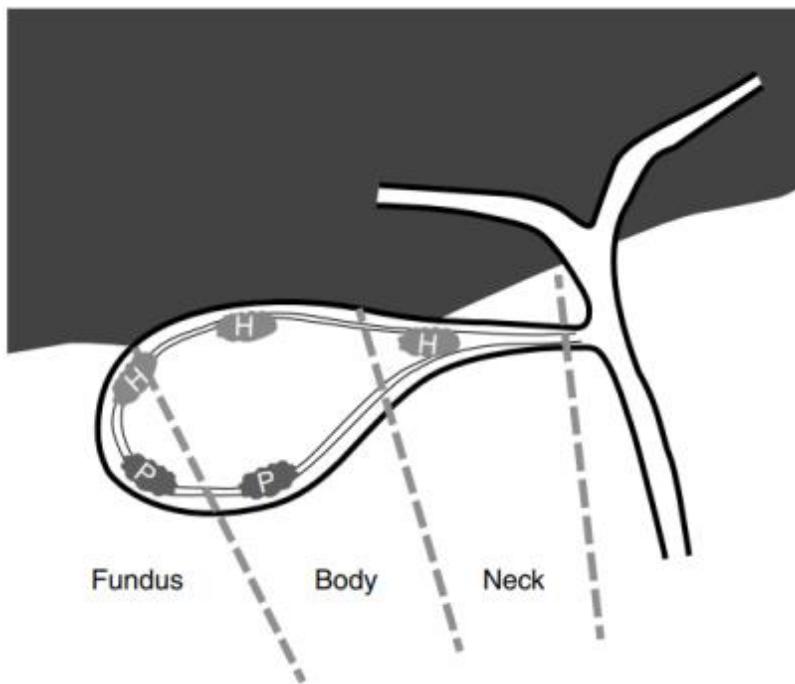
Anil Agarwal
New Delhi (India)



Time to re-resection
Immediately

8

TUMOR LOCATION



LAPAROSCOPIC STAGING

- ❑ Avoid unnecessary surgery (38-62%)
- ❑ Oncologic irresectability in up to 23%
- ❑ High incidence of positive findings
- ❑ Recommended for re-resection

9

LAPAROSCOPIC STAGING

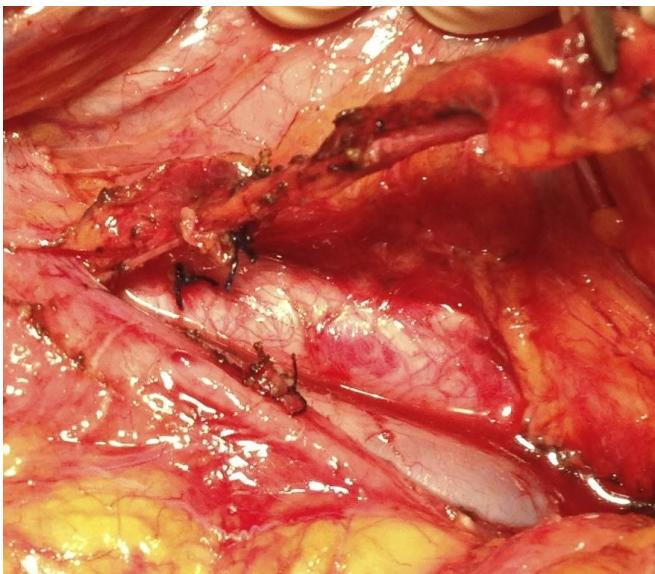


Ascites



Carcinomatosis

- ☐ Frozen section of lymph node 16b1



Liver metastasis

LYMPH NODE STAGING

Table 2. DEFINITION OF REGIONAL LYMPH NODE GROUPS

TNM classification	This Study
N1	N1
Hilar	Pericholedochal (No. 12h, 12c, 12b)
Cystic duct	
Pericholedochal	
N2	N2
Periportal	Periportal (No. 12 p, 12a)
Periduodenal	Common hepatic (No. 8a, 8p)
Peripancreatic	Posterior pancreaticoduodenal (No. 13a)
Celiac	Celiac (No. 9)
Superior mesenteric	Superior mesenteric (No. 14)

Numbers in parentheses indicate lymph node group according to the classification by the Japanese Society of Biliary Surgery.

ORIGINAL ARTICLE

Role of routine 16b1 lymph node biopsy in the management of gallbladder cancer: an analysis

Anil K. Agarwal, Raja Kalayarasan, Amit Javed & Puja Sahuja

Department of Gastrointestinal Surgery and Pathology, Govind Ballabh Pant Hospital and Maulana Azad Medical College, Delhi University, New Delhi, India

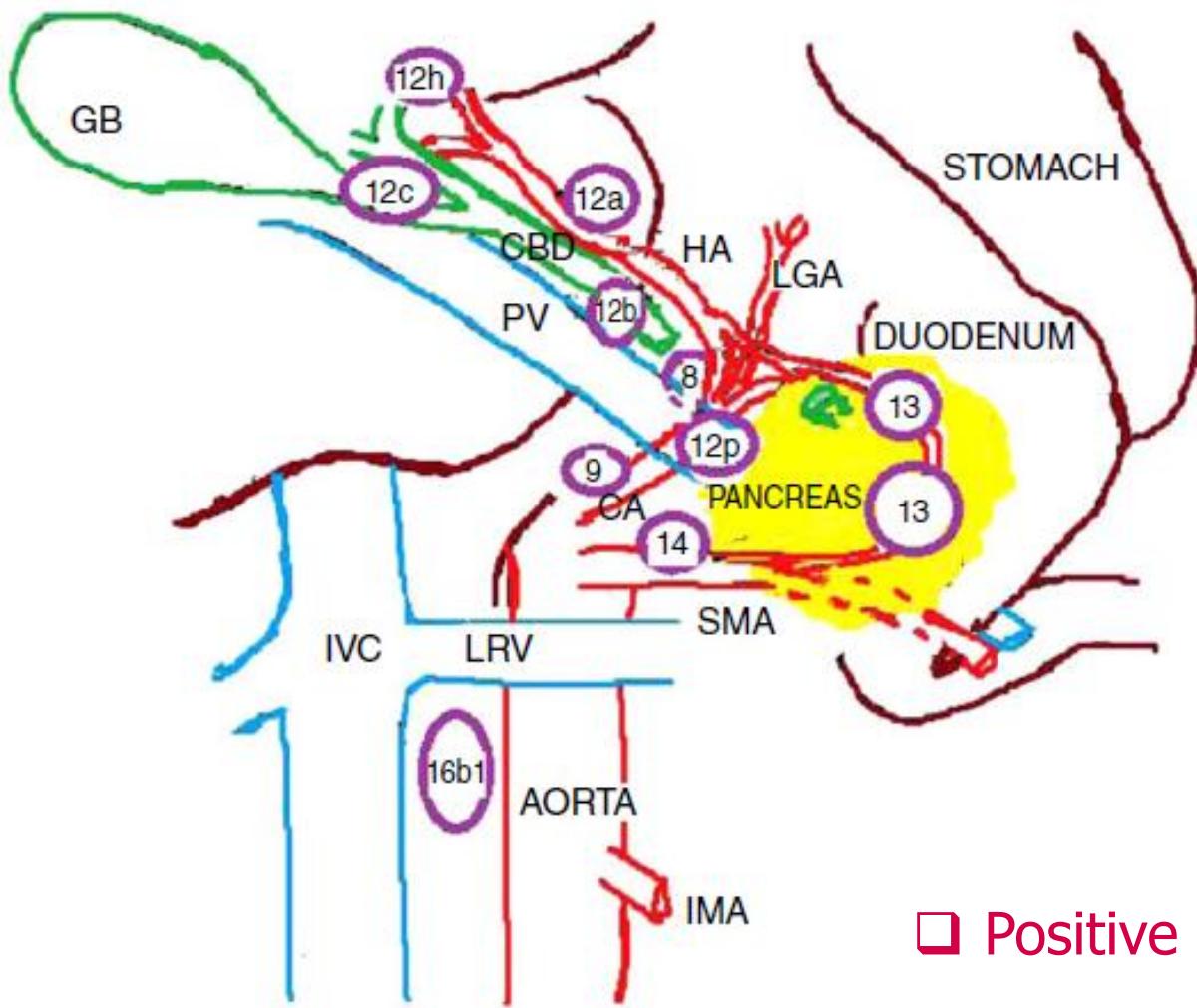
Table 1 Clinicopathological characteristics in gallbladder cancer (GBC) patients with 16b1 lymph node (LN) metastases (Group A) and without 16b1 LN metastases (Group B)

Characteristics	Group A (n = 34)	Group B (n = 149)	P-value
Clinical stage, n (%)			
Early GBC	2 (5.9%)	23 (15.4%)	0.175
Locally advanced GBC	32 (94.1%)	126 (84.6%)	
Jaundice	11 (32.4%)	18 (12.1%)	0.008
Gastric outlet obstruction	4 (11.8%)	5 (3.4%)	0.063
Incidental GBC, n (%)			
Stage T1b	–	6 (4.0%)	1.000
Stages T2 and T3	2 (5.9%)	23 (15.4%)	
Tumour markers			
CEA, ng/ml, median (range)	21.7 (2.3–189)	10.6 (2.7–105)	0.012
CA 19-9, U/ml, median (range)	181.5 (10.3–1081)	79.3 (12.6–313)	0.023

CEA, carcinoembryonic antigen; CA 19-9, carbohydrate antigen 19-9.

LYMPH NODE BIOPSY

Frozen section of lymph node 16b1



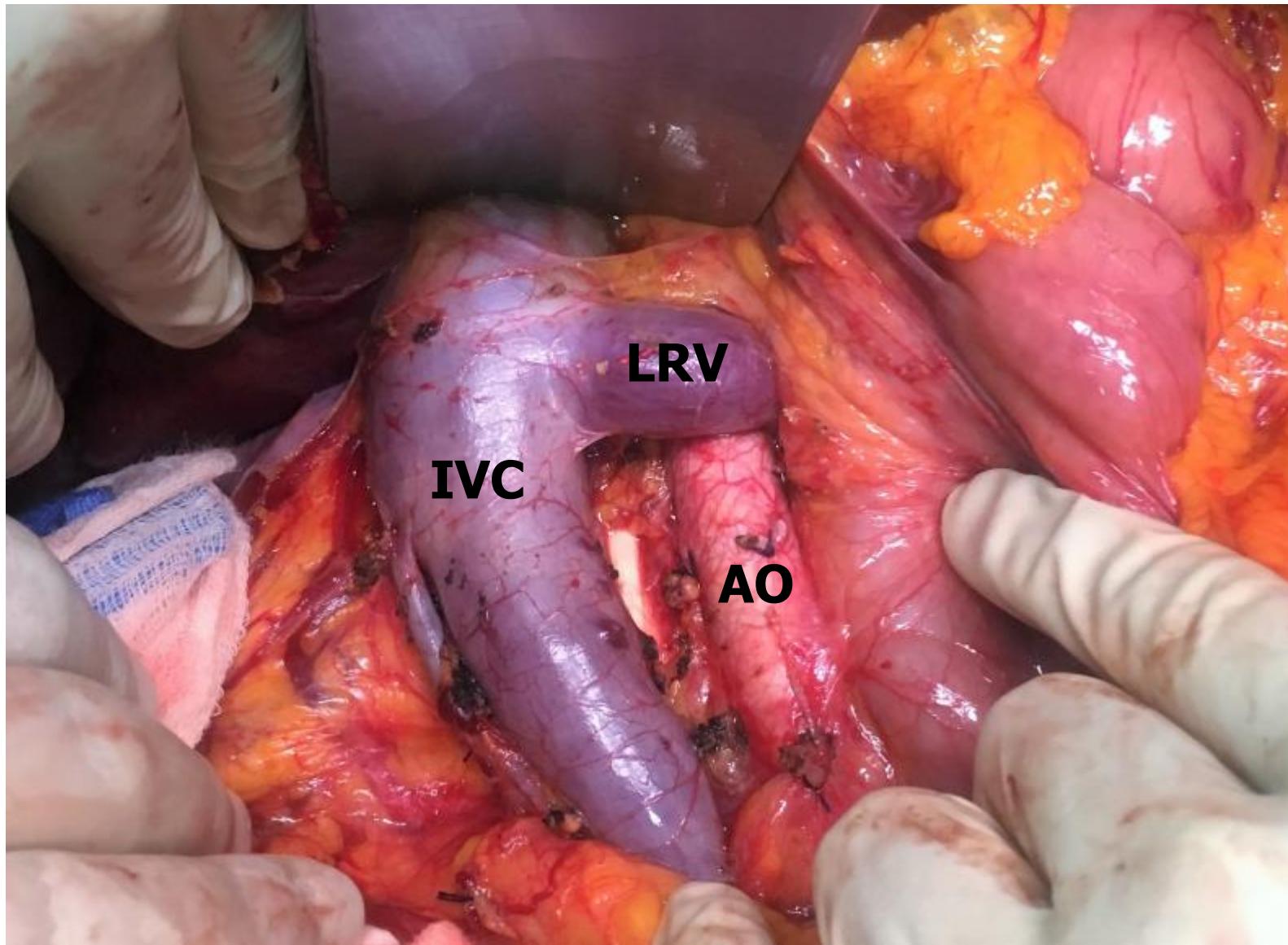
Abbreviations

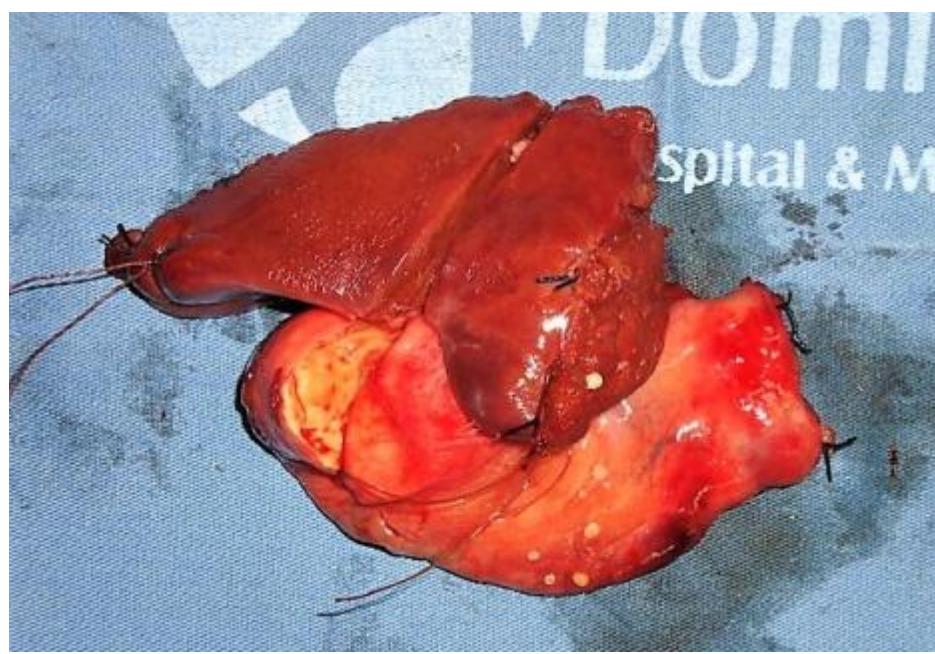
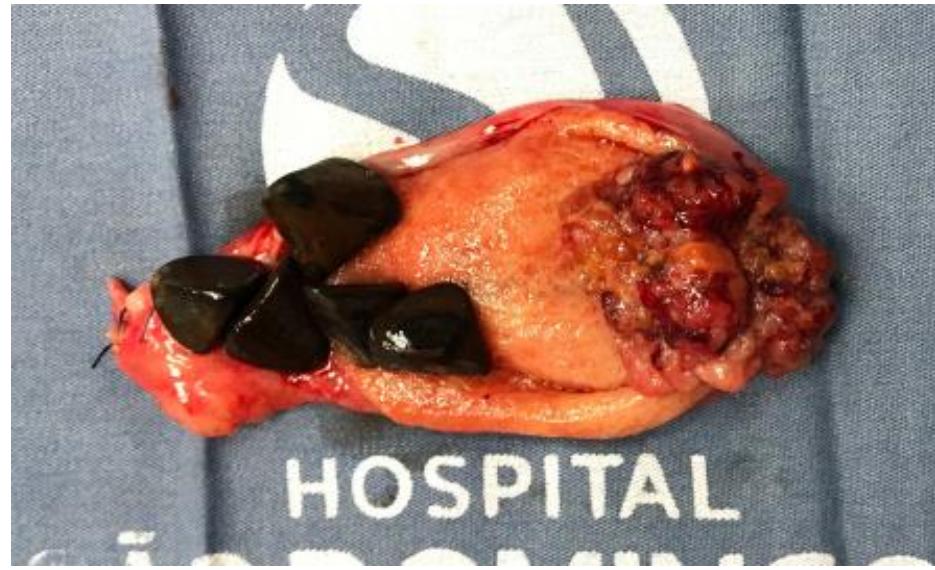
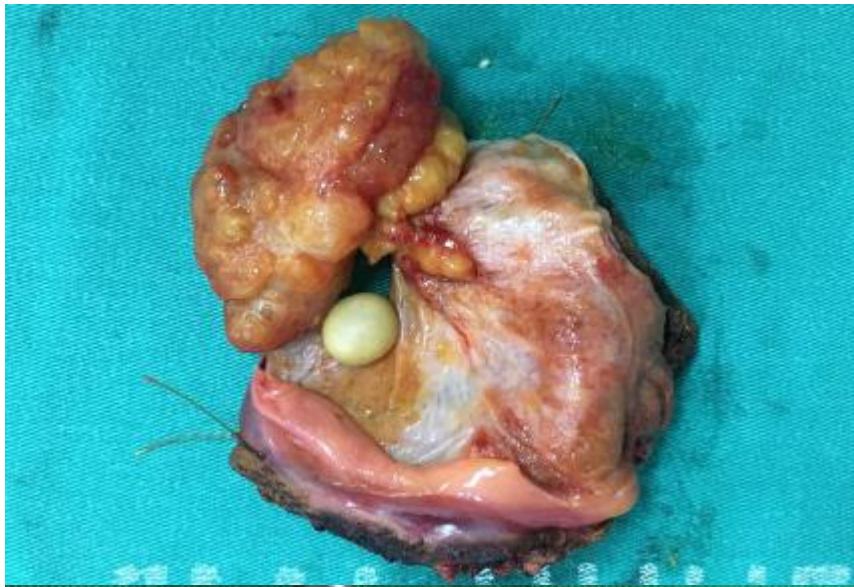
- GB – Gallbladder
- CBD – Common bile duct
- PV – Portal vein
- HA – Hepatic artery
- LGA – Left gastric artery
- CA – Coeliac artery
- SMA – Superior mesenteric artery
- IMA – Inferior mesenteric artery
- LRV – Left renal vein
- IVC – Inferior vena cava

Positive

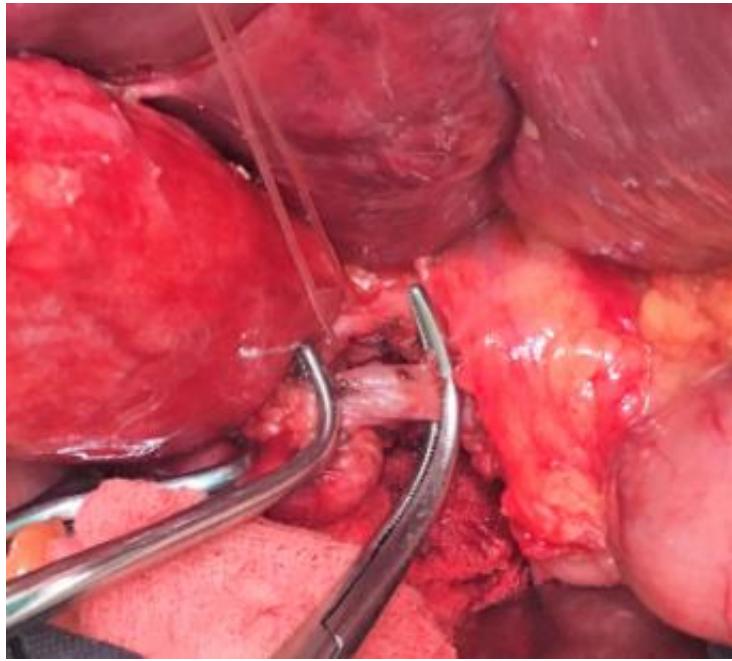
10

Do not proceed the surgery





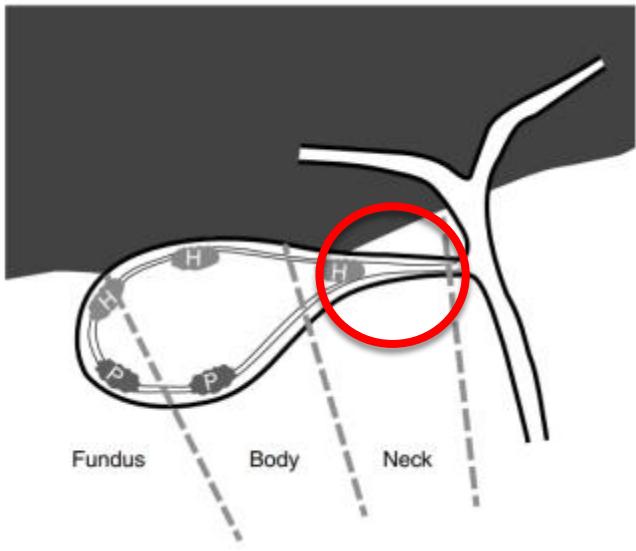
CYSTIC DUCT EVALUATION

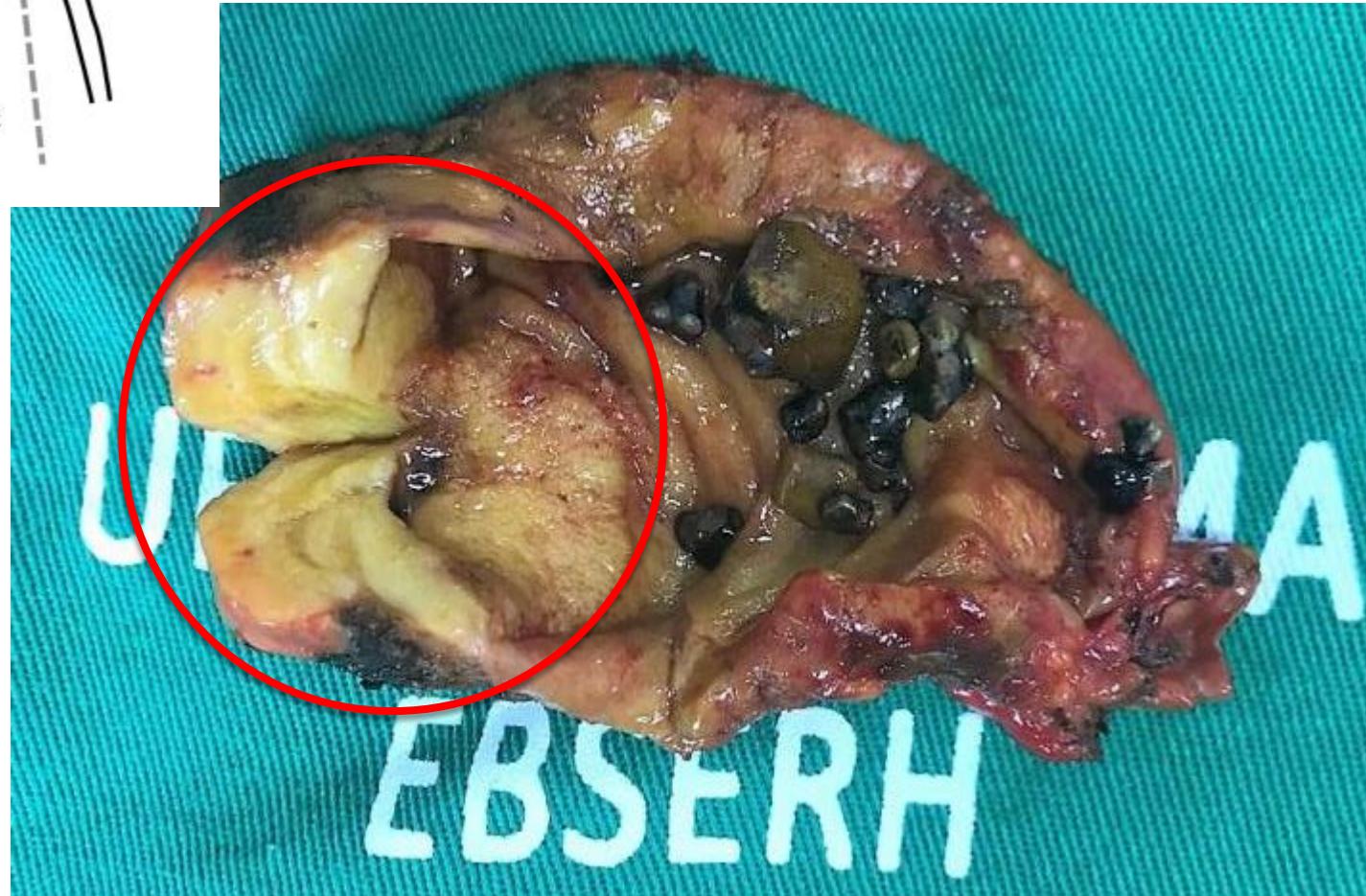
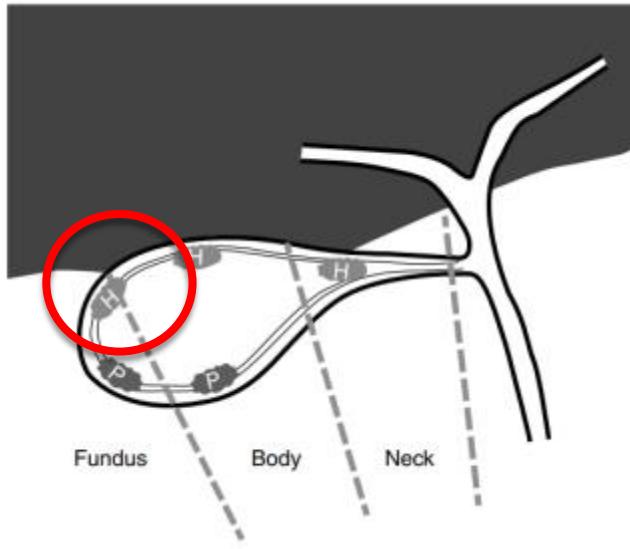


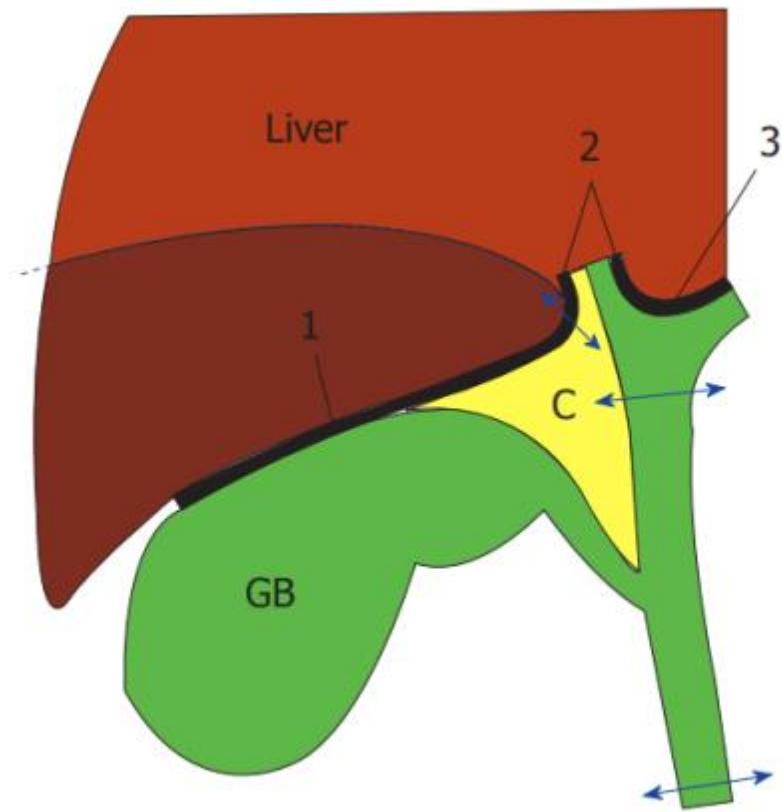
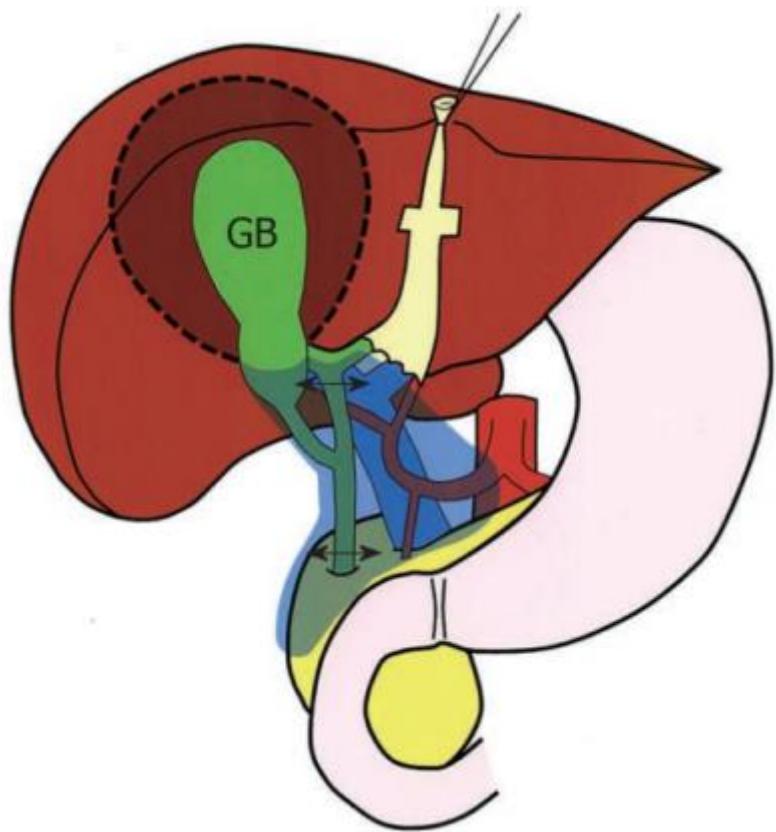
- Adequate sample
- Careful evaluation
- Prognostic

ROUTINELY

11



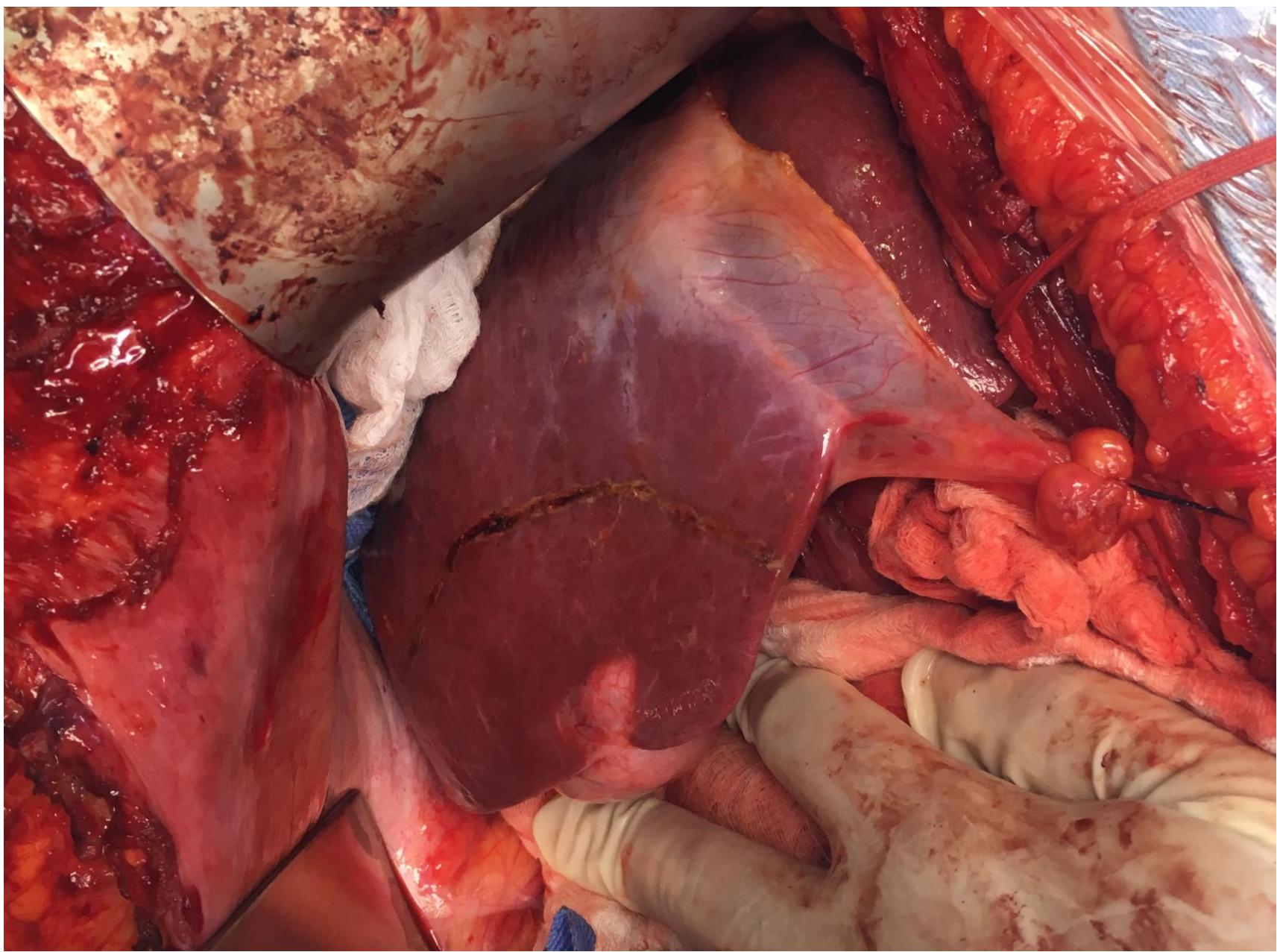


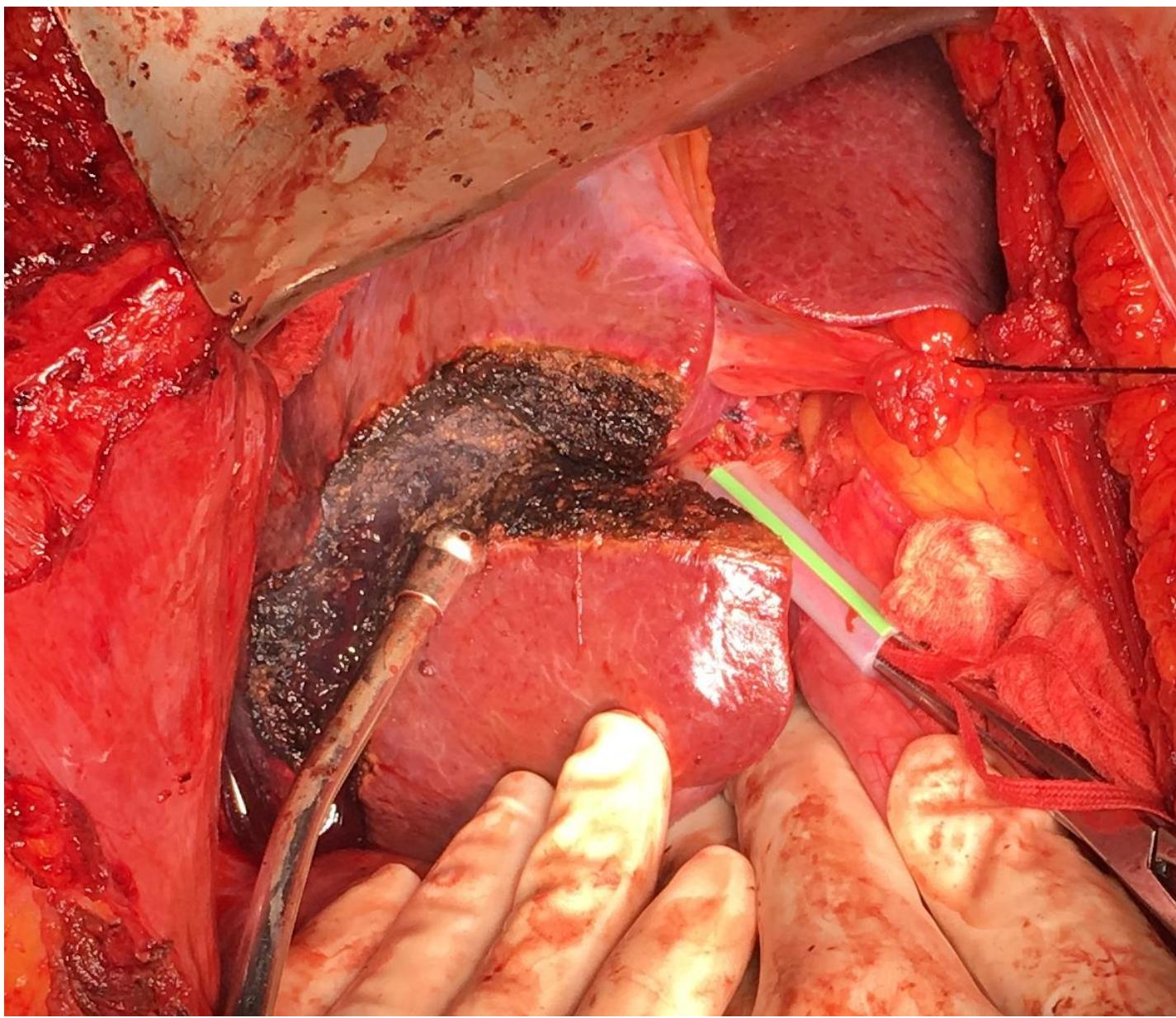


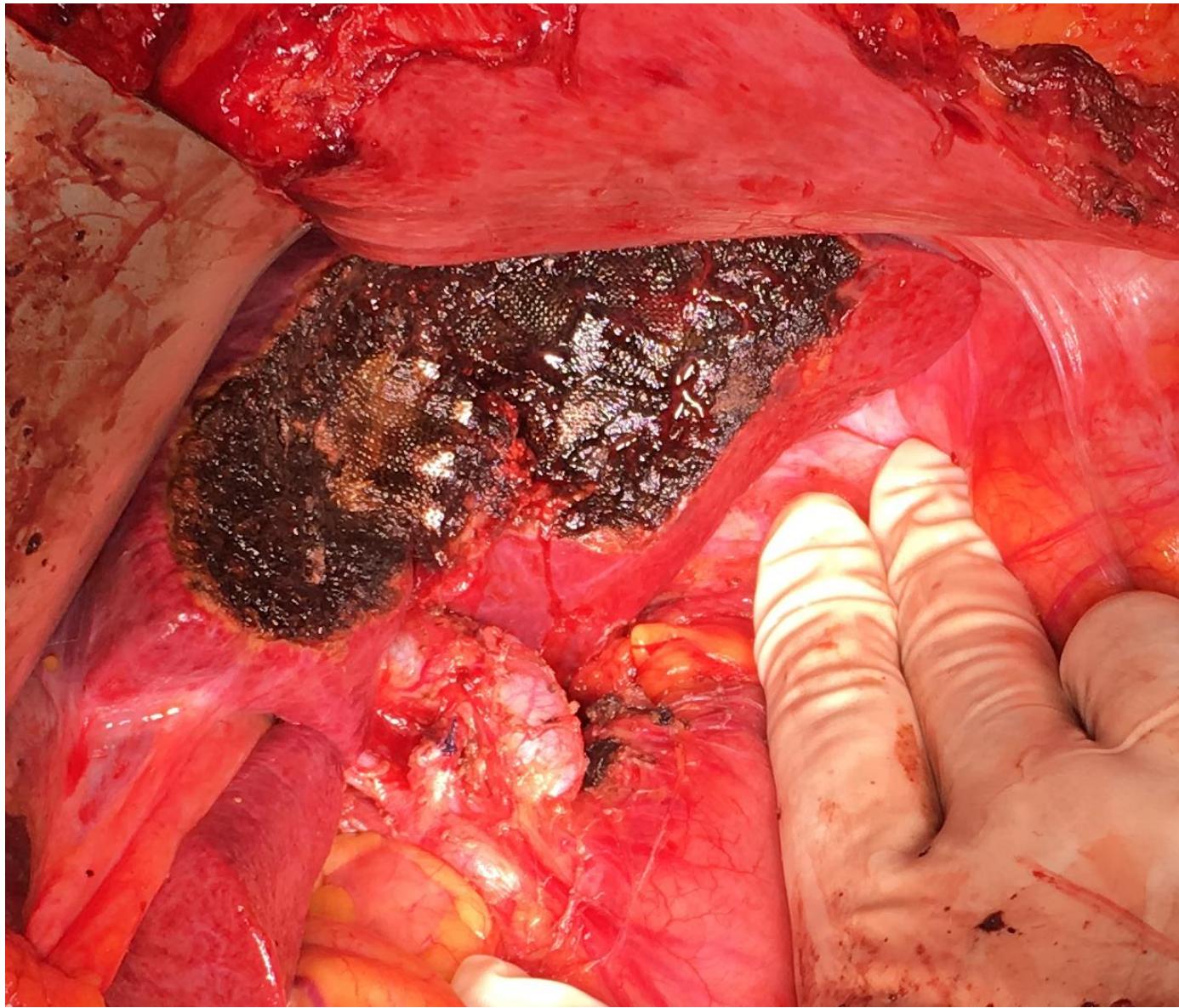
EXTENT OF LIVER RESECTION

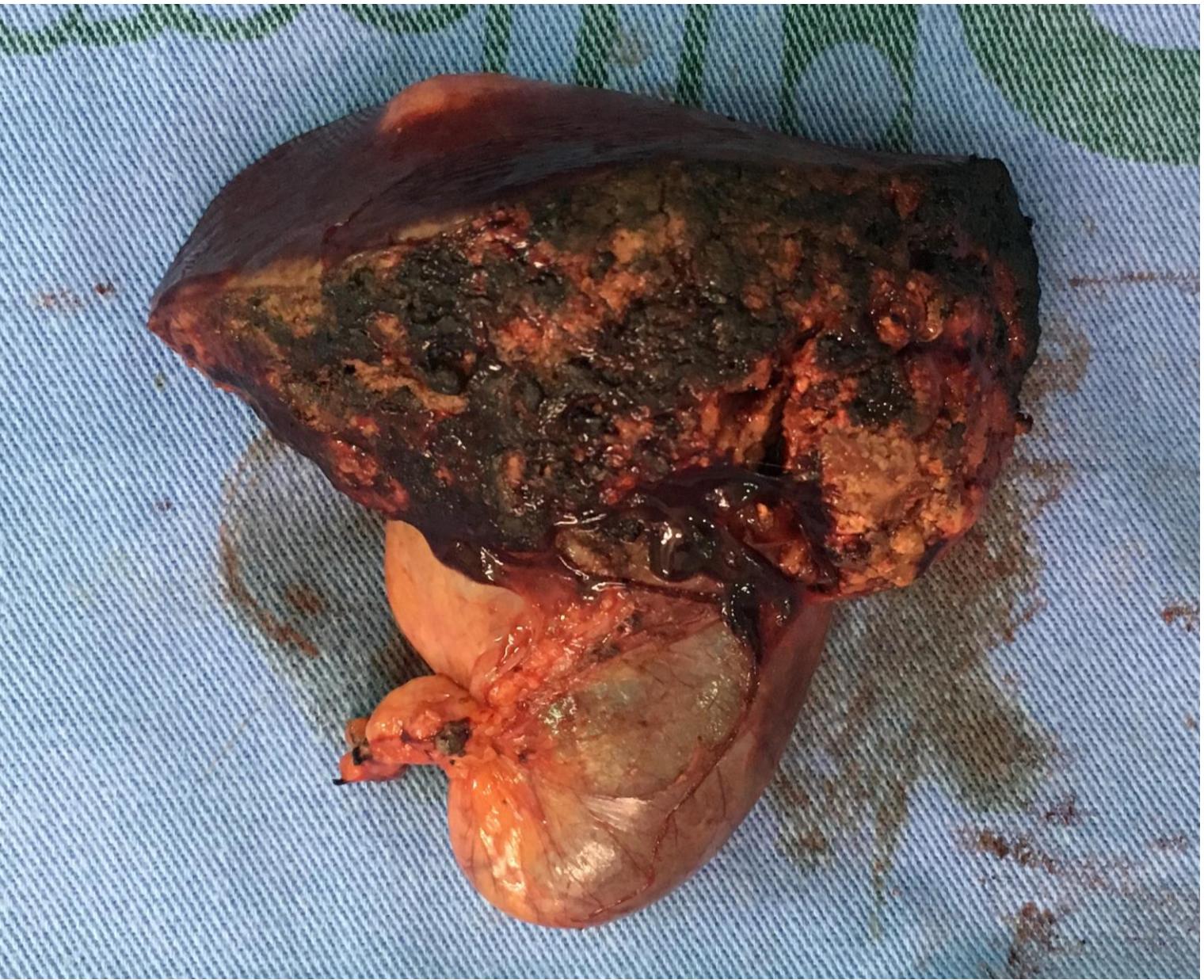
- Wedge resection
 - No infiltration
- Hepatectomy IVb/V
 - No infiltration
 - Limited infiltration
- Major hepatectomy
 - Extensive infiltration
 - Vascular involvement

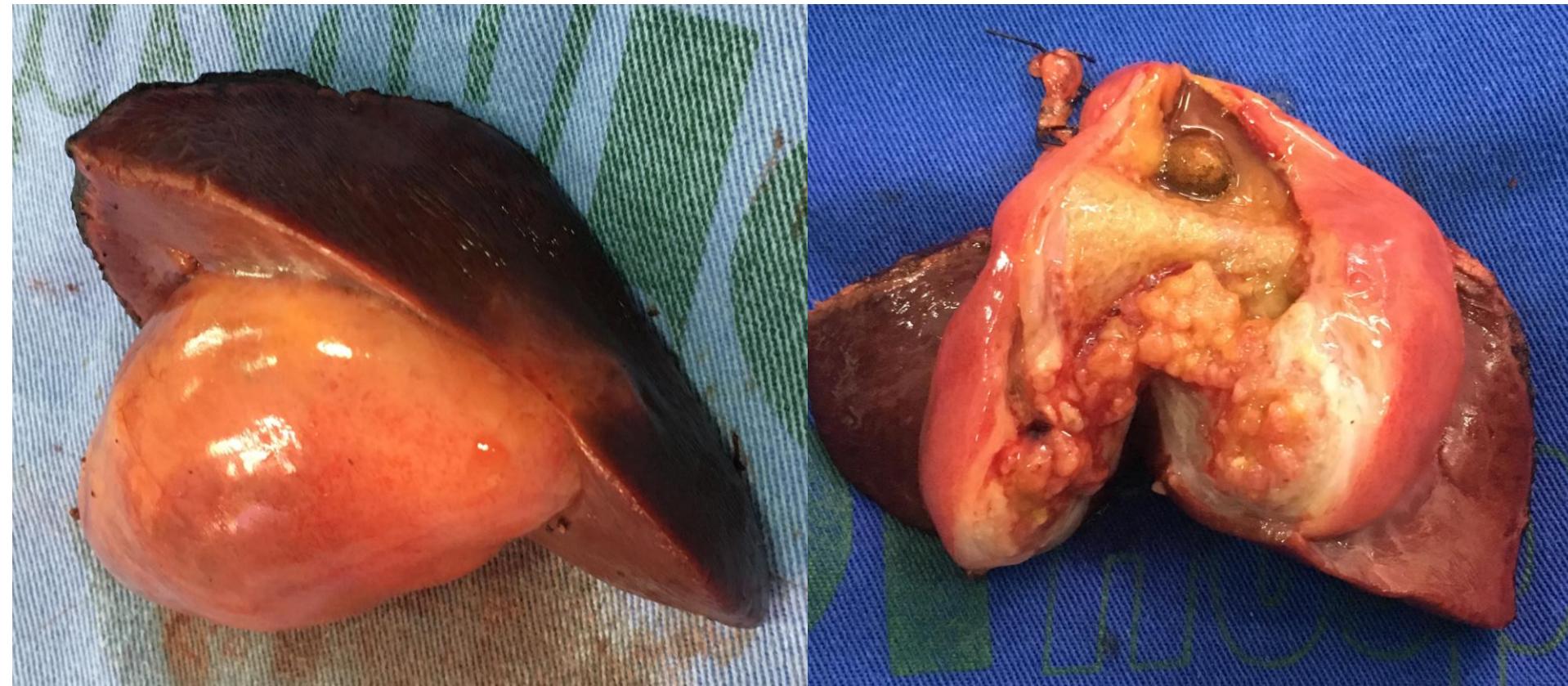


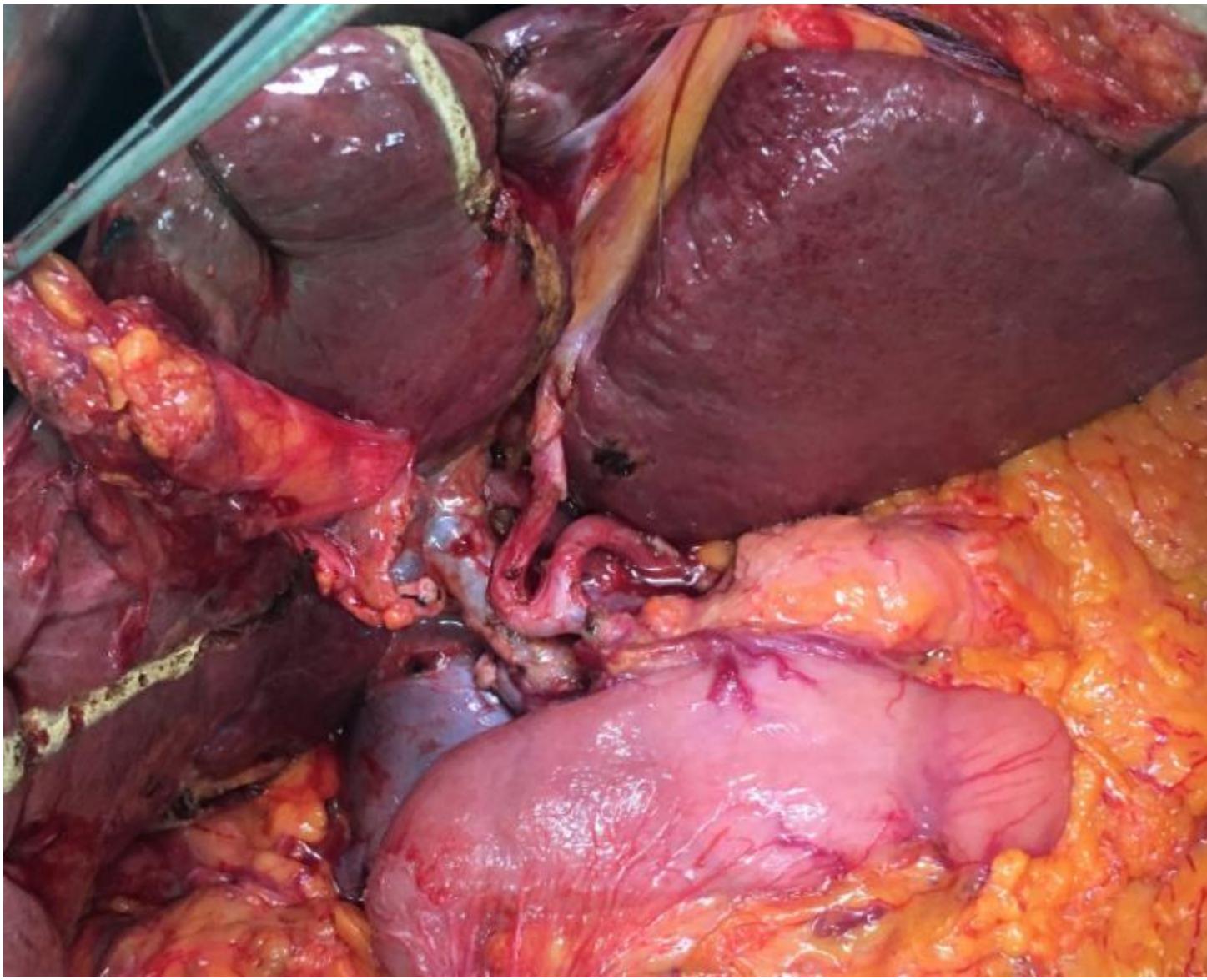


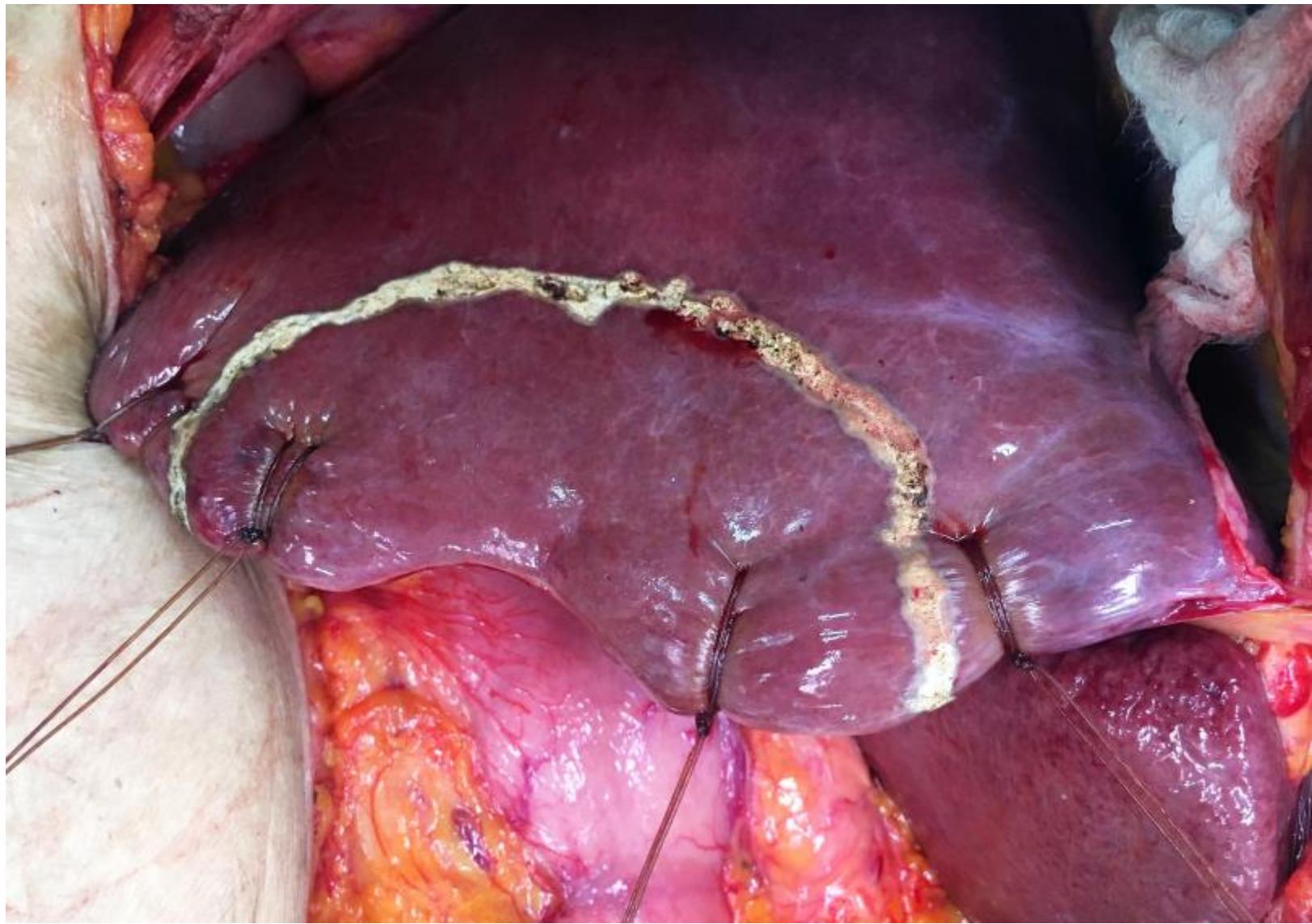








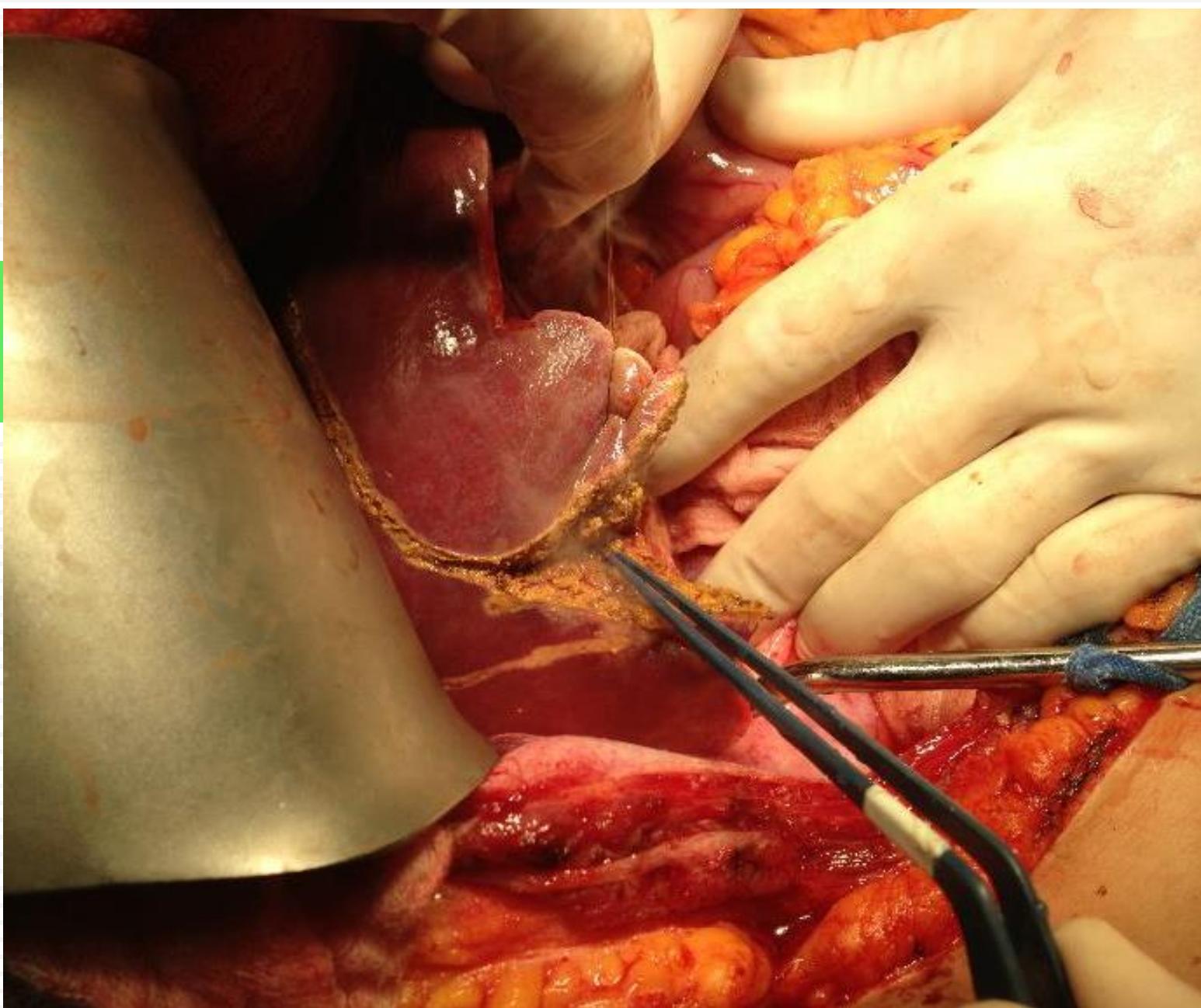


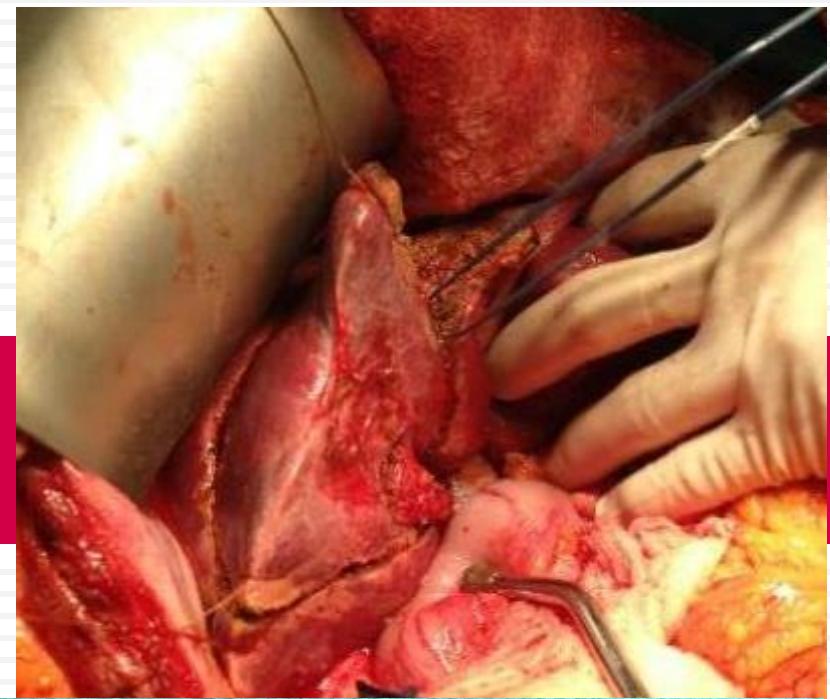
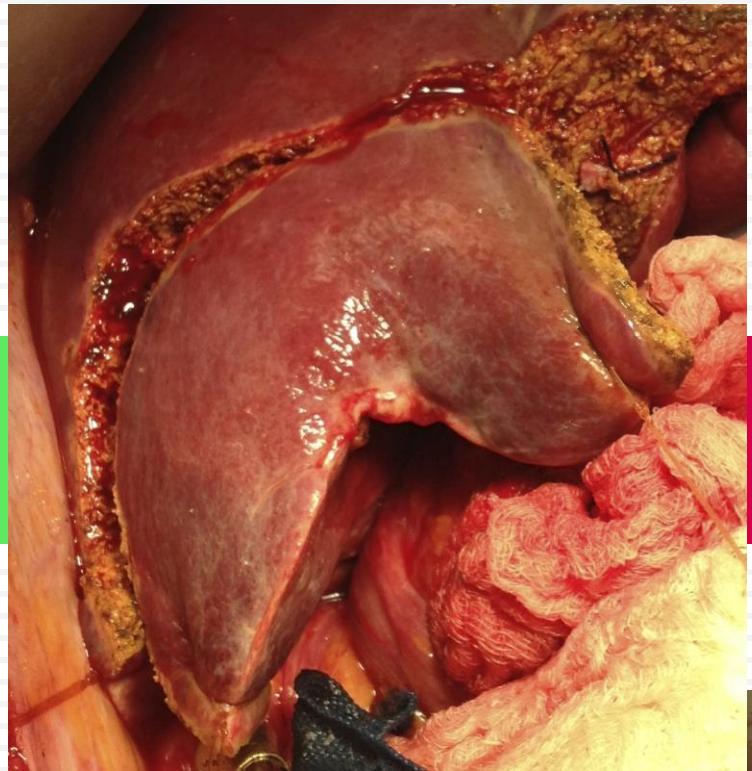


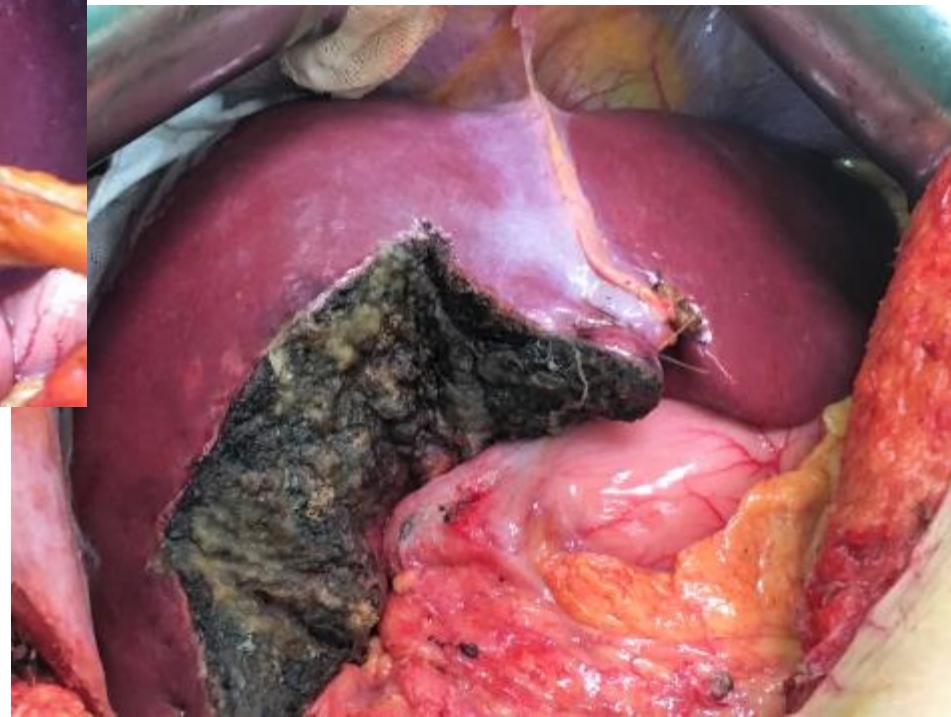
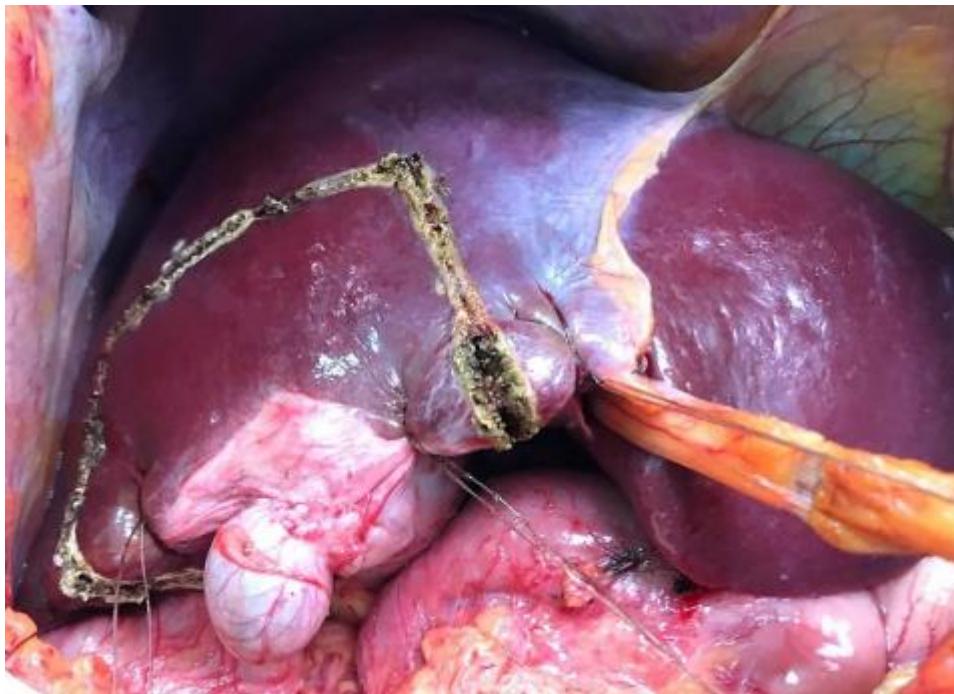


EXTENT OF LIVER RESECTION

- Wedge resection
 - No infiltration
- Hepatectomy IVb/V
 - No infiltration
 - Limited infiltration
- Major hepatectomy
 - Extensive infiltration
 - Vascular involvement







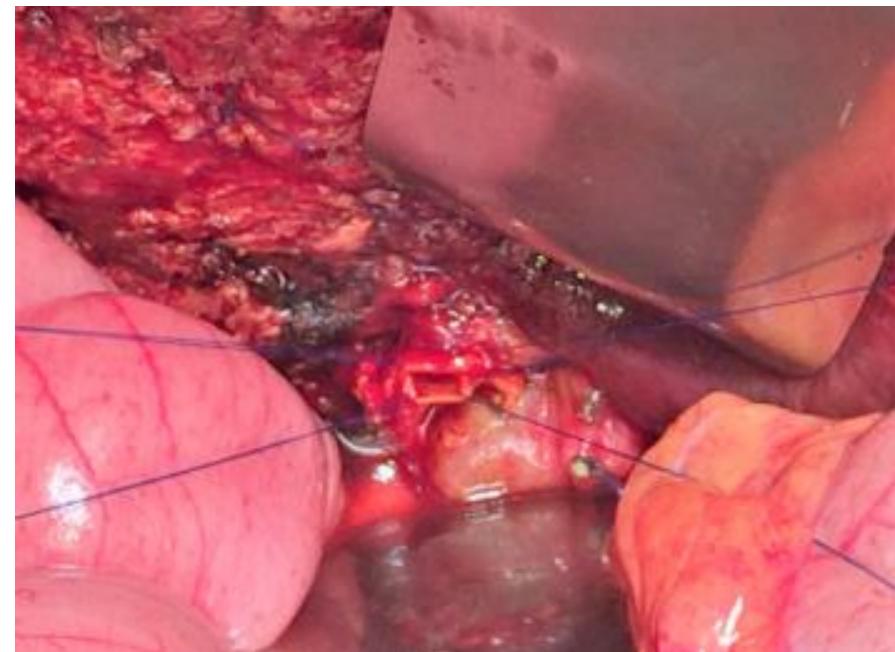
EXTENT OF LIVER RESECTION

- Wedge resection
 - No infiltration
- Hepatectomy IVb/V
 - No infiltration
 - Limited infiltration
- Major hepatectomy
 - Extensive infiltration
 - Vascular involvement

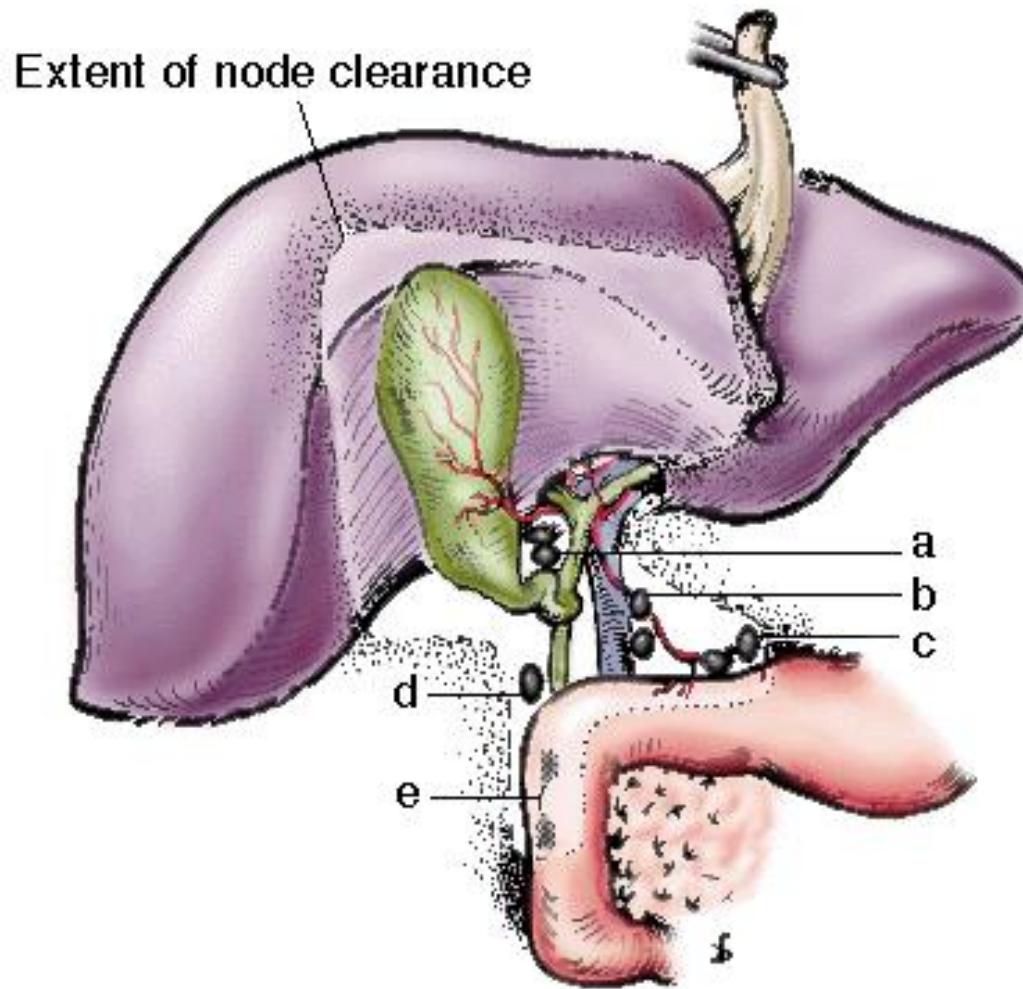


12

“Negative margin”



EXTENT OF LYMPHADENECTOMY



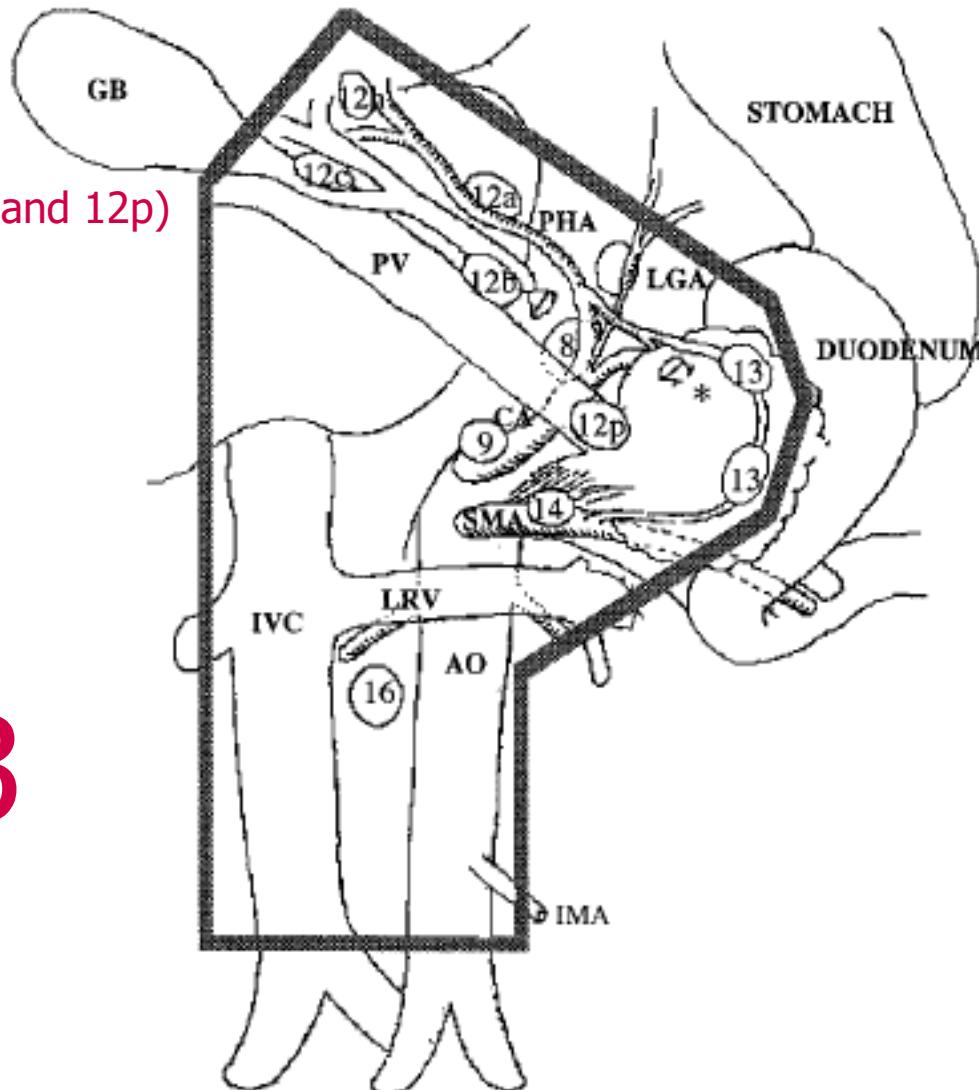
EXTENT OF LYMPHADENECTOMY

- Hepatoduodenal ligament (12h,12c,12b,12^a and 12p)
- Common hepatic artery (8)
- Posterior pancreateoduodenal (13)

“No survival benefit”

- Celiac trunk (9)
- SMA (14)
- Paraaortic (16)

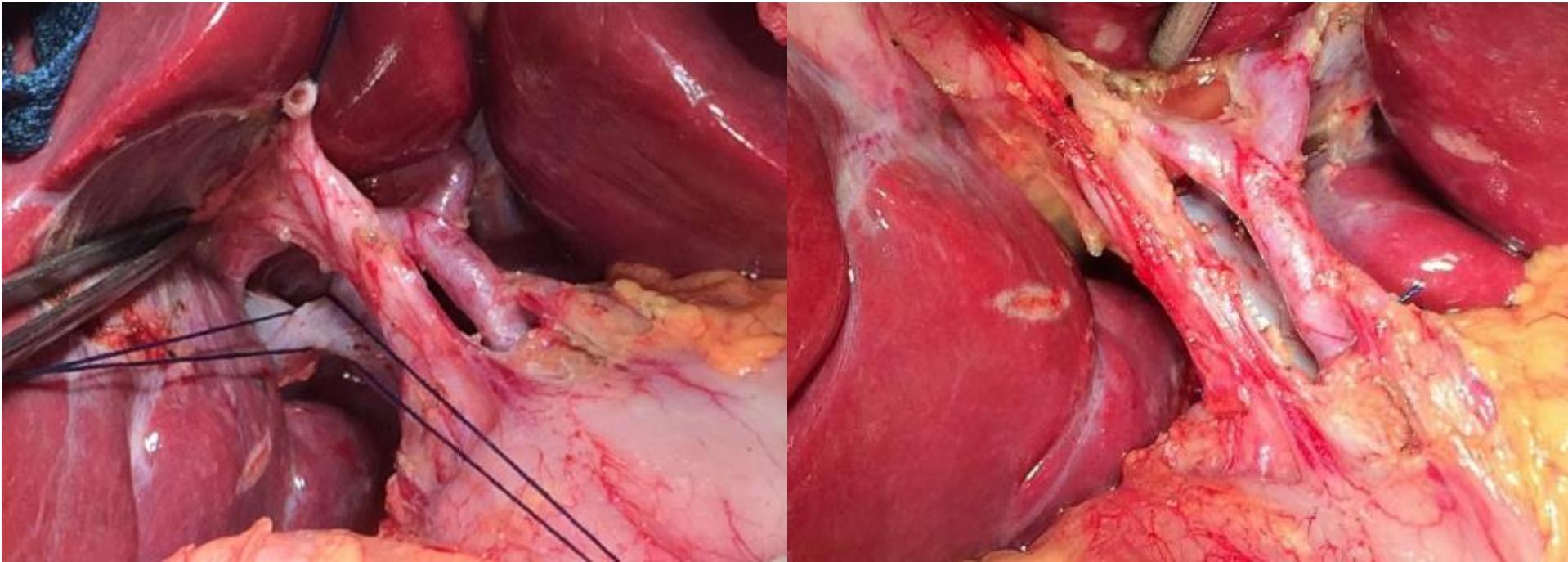
13



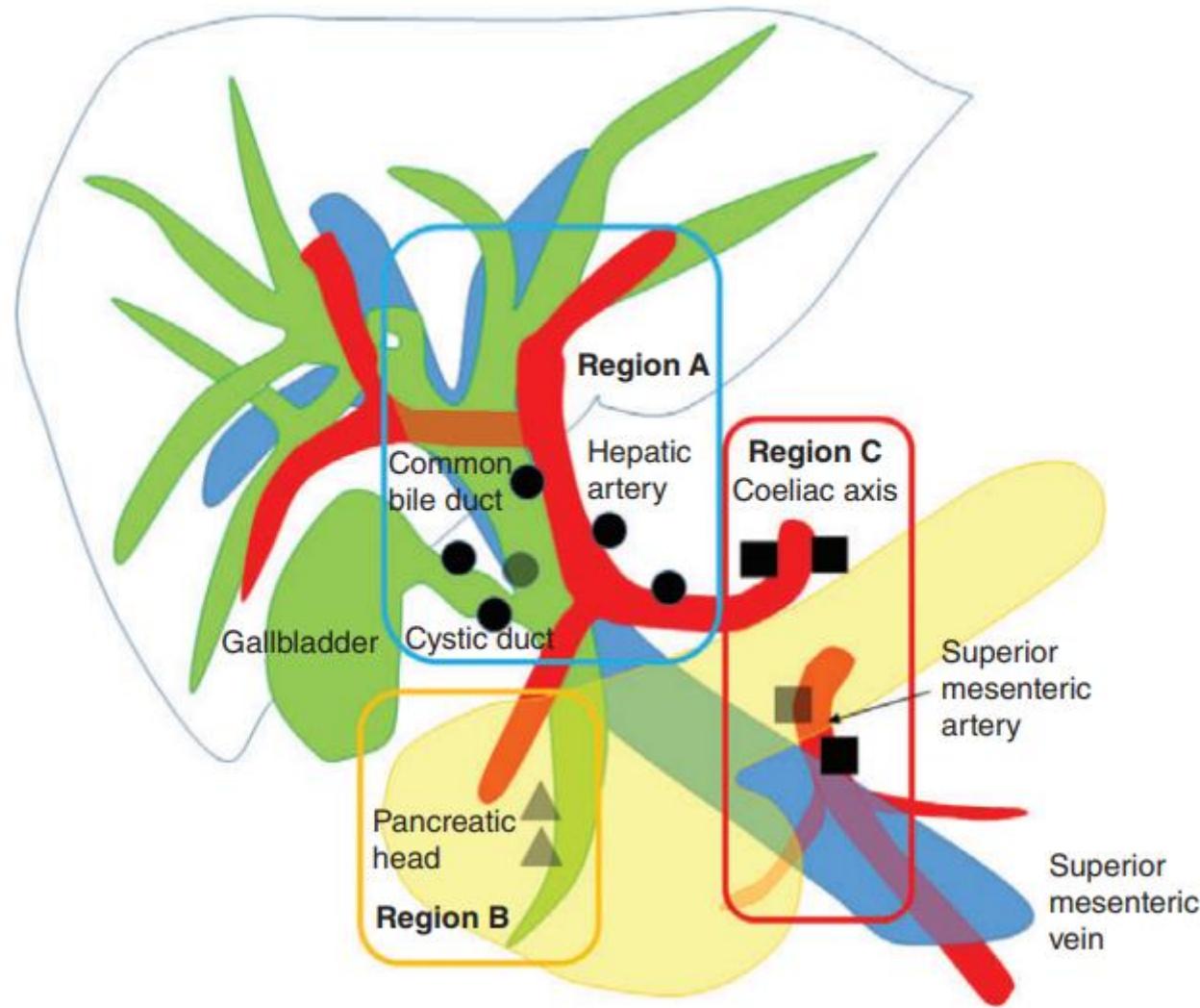


EXTENT OF LYMPHADENECTOMY

Adequate staging – 6 lymph nodes



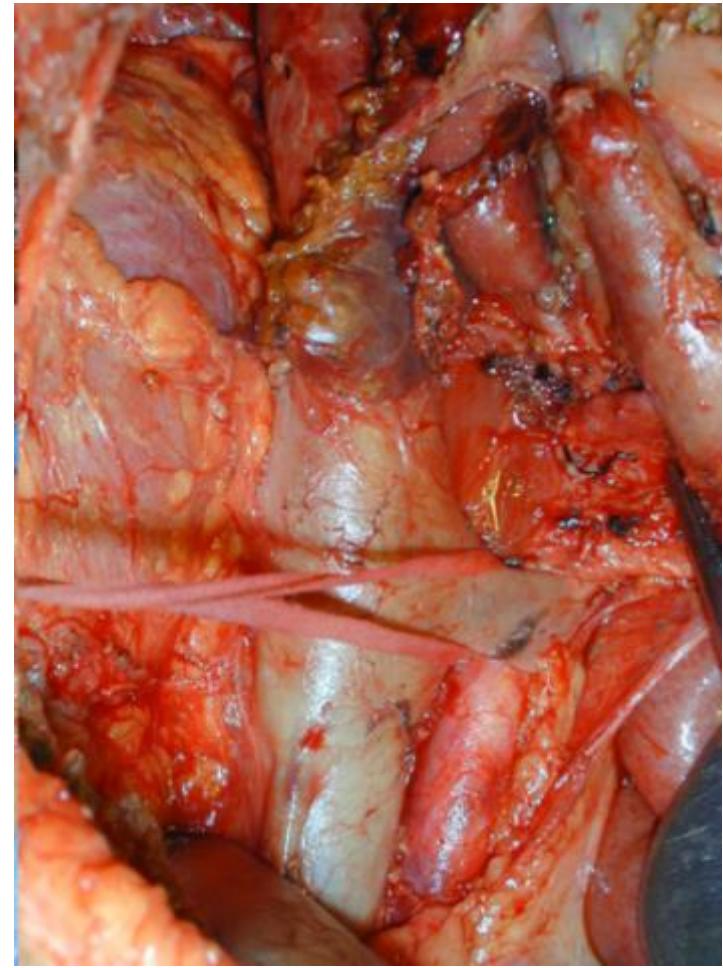
EXTENT OF LYMPHADENECTOMY



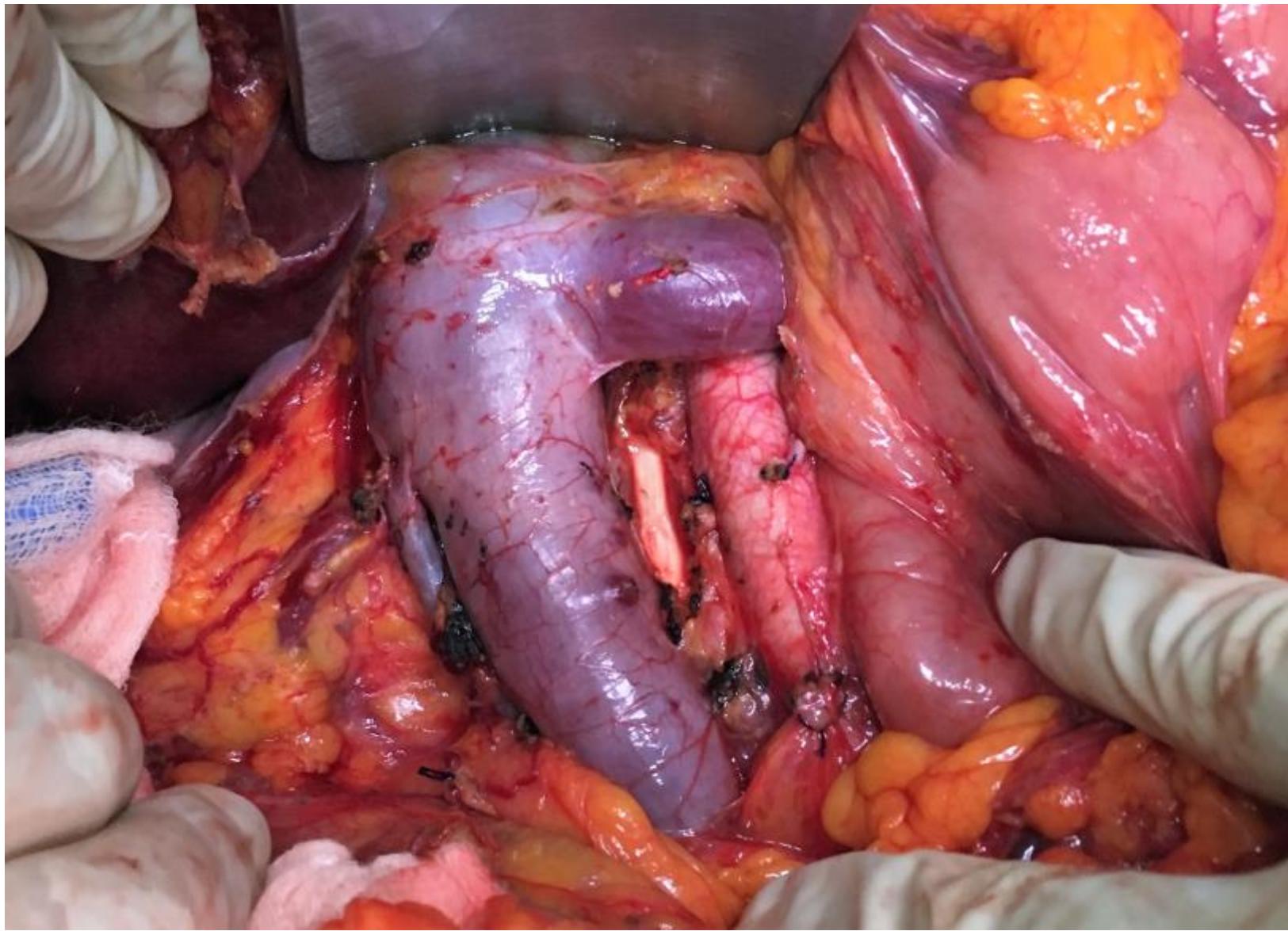
EXTENT OF LYMPHADENECTIONY

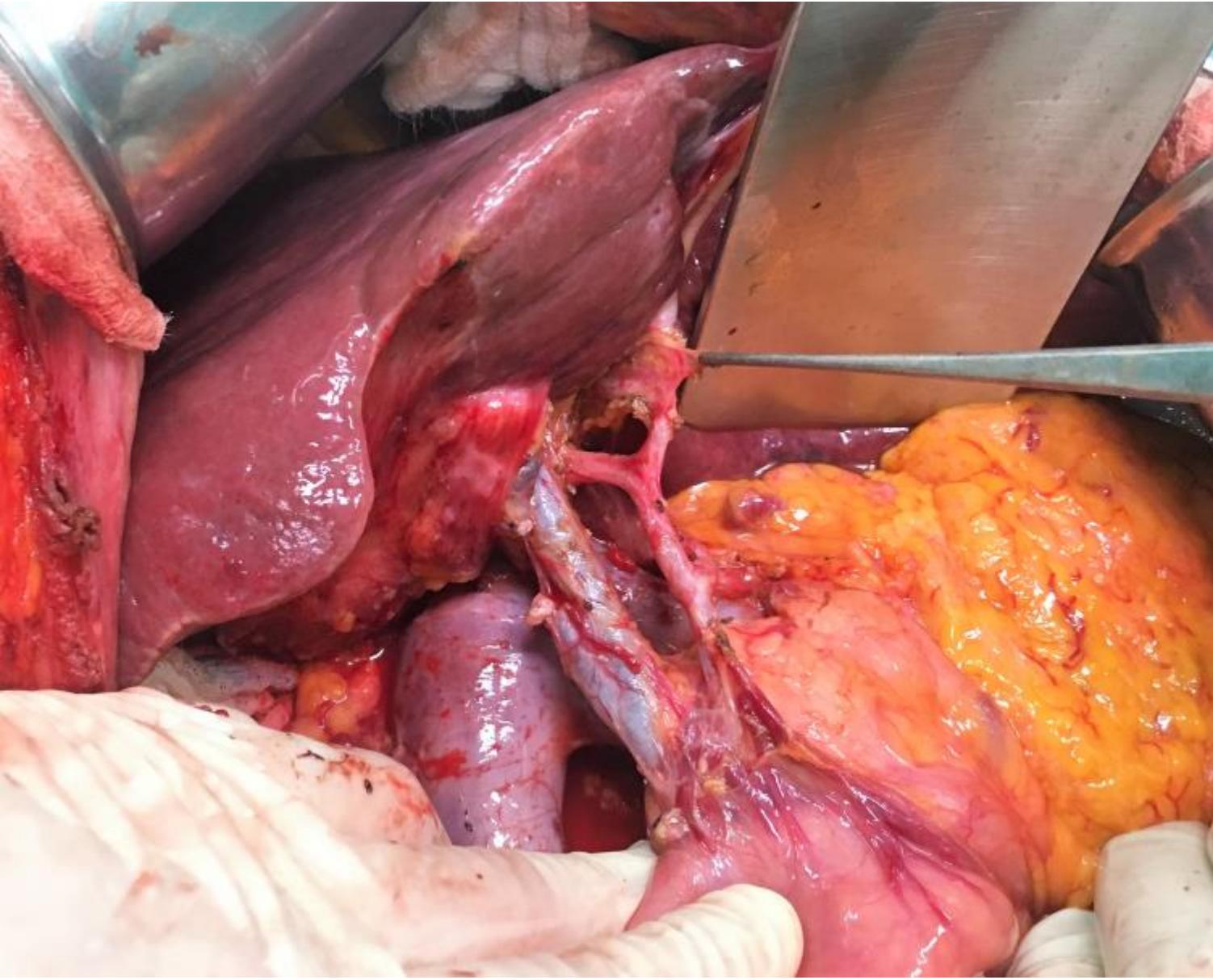


Right hepatectomy + 4b



Extended lymph node dissection







2017 SSAT PLENARY PRESENTATION

Extended Lymphadenectomy Is Required for Incidental Gallbladder Cancer Independent of Cystic Duct Lymph Node Status

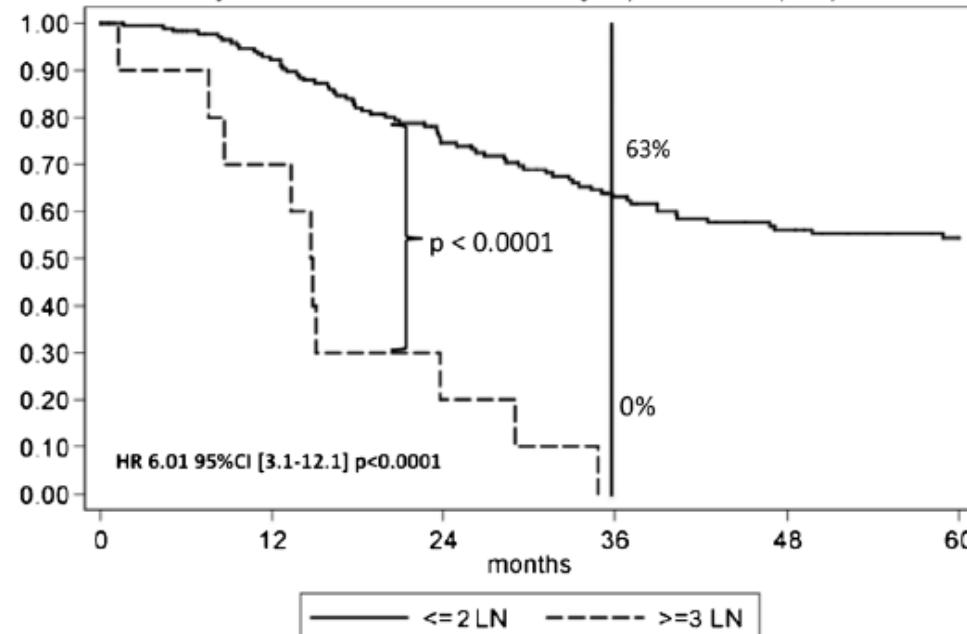
Eduardo A. Vega^{1,2} • Eduardo Vinuela^{2,3} • Suguru Yamashita^{1,4} • Marcel Sanhueza^{2,3} •

Gabriel Cavada⁵ • Cristian Diaz^{2,3} • Thomas A. Aloia¹ • Yun Shin Chun¹ •

Ching-Wei D Tzeng¹ • Masayuki Okuno¹ • Claire Goumard¹ • Jean-Nicolas Vauthey¹ •

Jeffrey E. Lee¹ • Claudius Conrad¹

Survival by Number Metastatic Lymph Node (Kaplan-Meier)



EXTRAHEPATIC BILE DUCT RESECTION

- Incidental gallbladder carcinoma
 - Cistic duct not identified during re-resection
- Lymph node involving the biliary tract
- Adequate lymphadenectomy not possible

EXTRAHEPATIC BILE DUCT RESECTION

Langenbecks Arch Surg (2013) 398:1137–1144
DOI 10.1007/s00423-013-1120-3

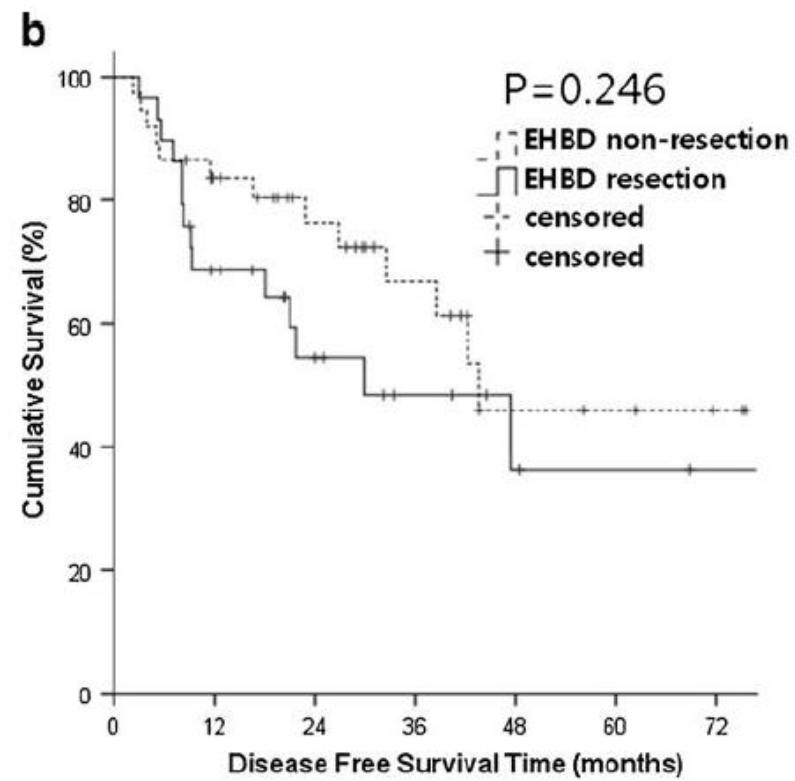
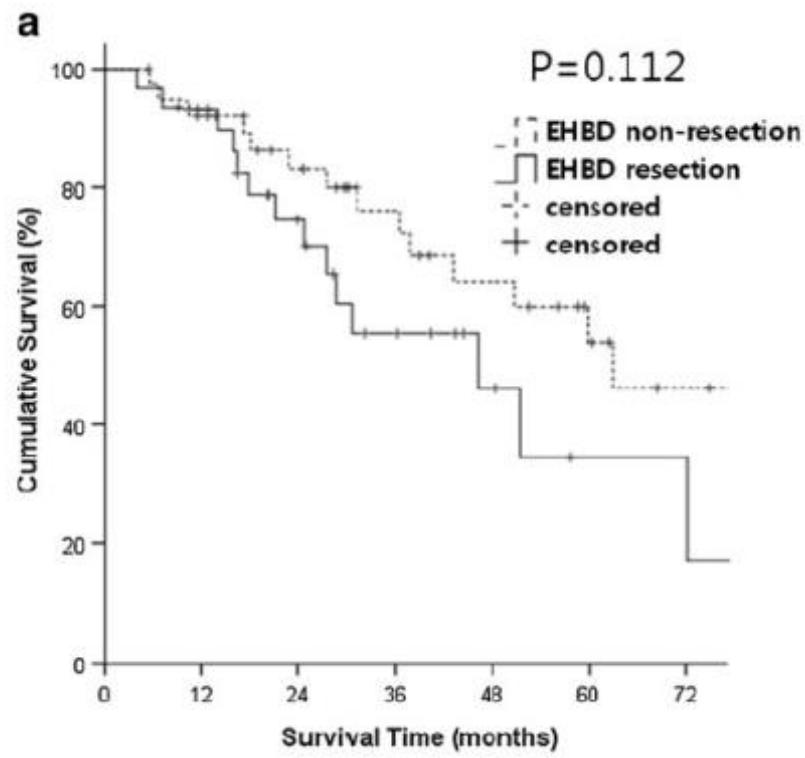
ORIGINAL ARTICLE

Surgical strategy for T2 and T3 gallbladder cancer: is extrahepatic bile duct resection always necessary?

Sae Byeol Choi · Hyung Joon Han · Wan Bae Kim ·
Tae Jin Song · Sung Ock Suh · Sang Yong Choi

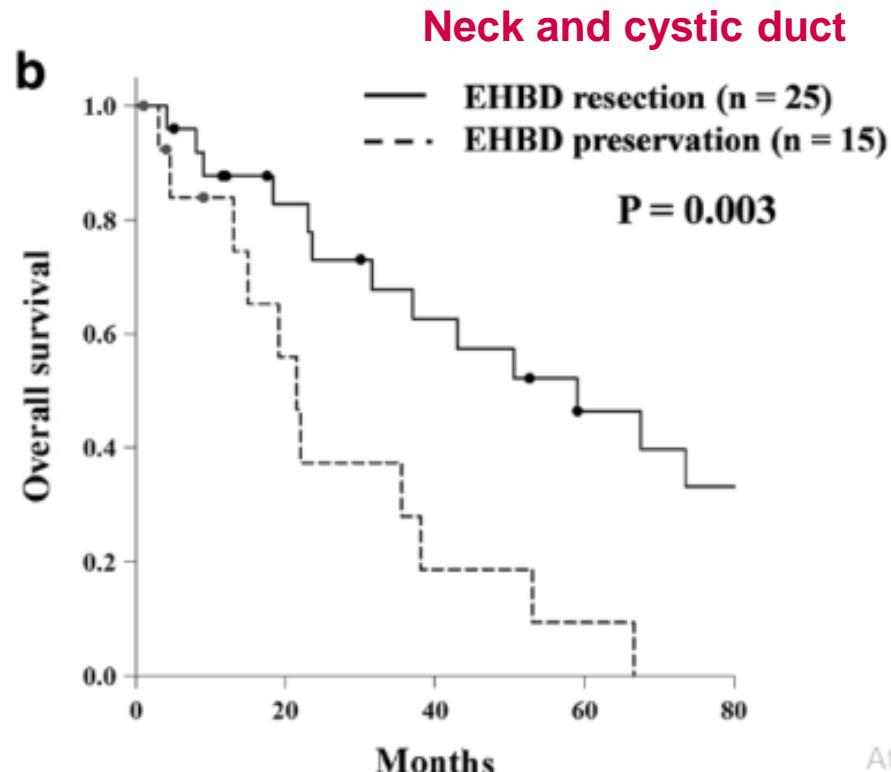
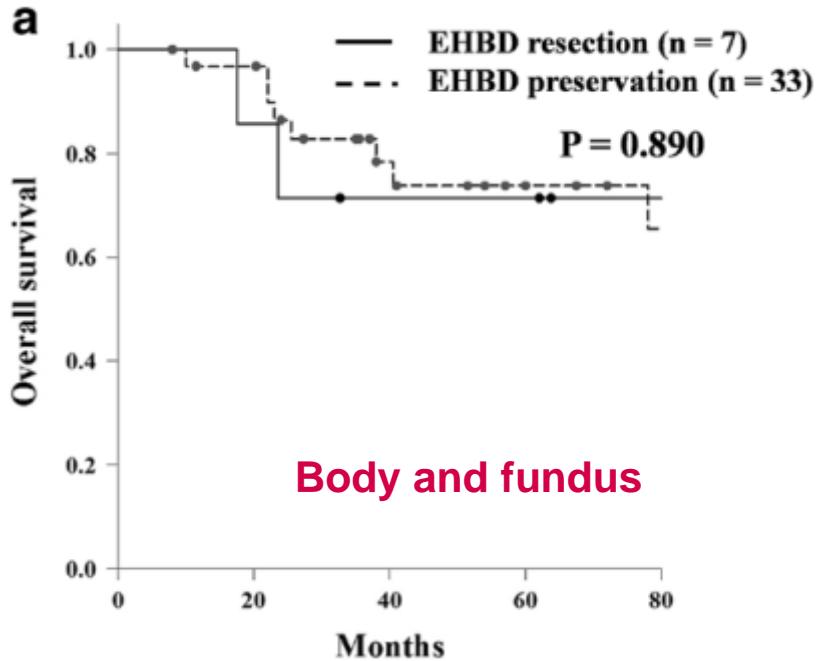


EXTRAHEPATIC BILE DUCT RESECTION



Indication of extrahepatic bile duct resection for gallbladder cancer

Hiroshi Kurahara¹  • Kosei Maemura¹ • Yuko Mataki¹ • Masahiko Sakoda¹ •
Satoshi Iino¹ • Yota Kawasaki¹ • Shinichiro Mori¹ • Takaaki Arigami¹ • Yuko Kijima¹ •
Hiroyuki Shinchi² • Shoji Natsugoe¹



Indication of extrahepatic bile duct resection for gallbladder cancer

Hiroshi Kurahara¹  • Kosei Maemura¹ • Yuko Mataki¹ • Masahiko Sakoda¹ •
Satoshi Iino¹ • Yota Kawasaki¹ • Shinichiro Mori¹ • Takaaki Arigami¹ • Yuko Kijima¹ •
Hiroyuki Shinchi² • Shoji Natsugoe¹

Conclusions Extended cholecystectomy with EHBD resection should be performed for patients with GB cancer involving the neck and cystic duct to reduce local and regional lymph node recurrence and achieve better prognosis.

PORT-SITE RESECTION

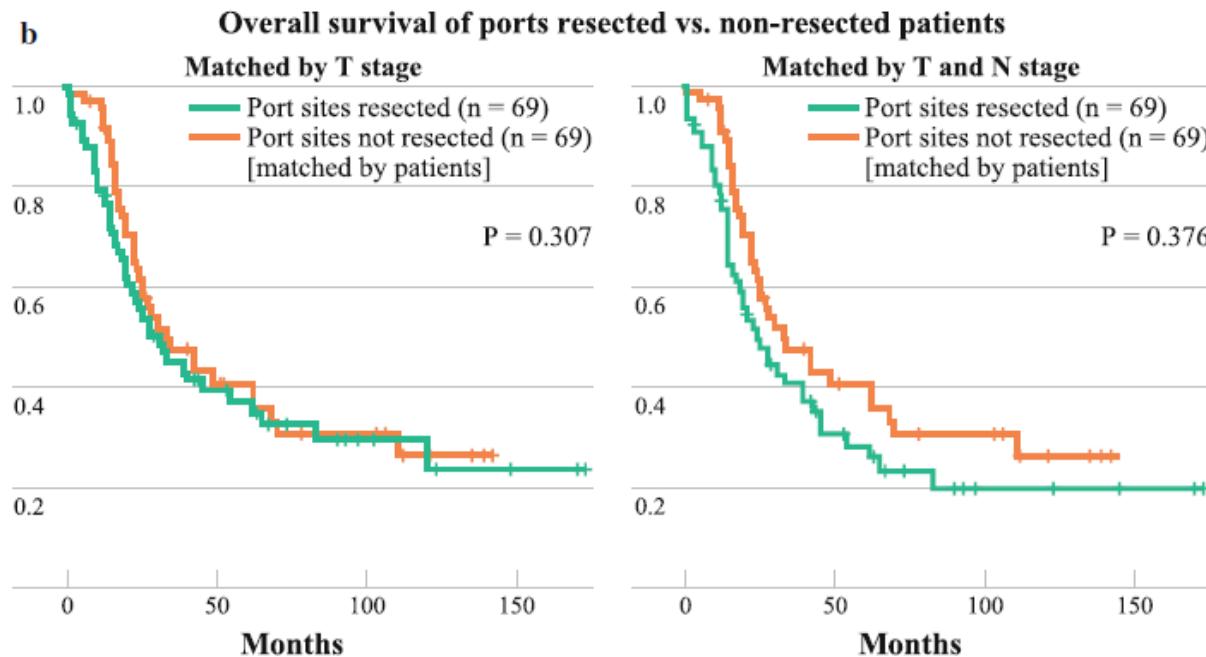
- Peritoneal disease
- No survival benefit
- Incisional hernia



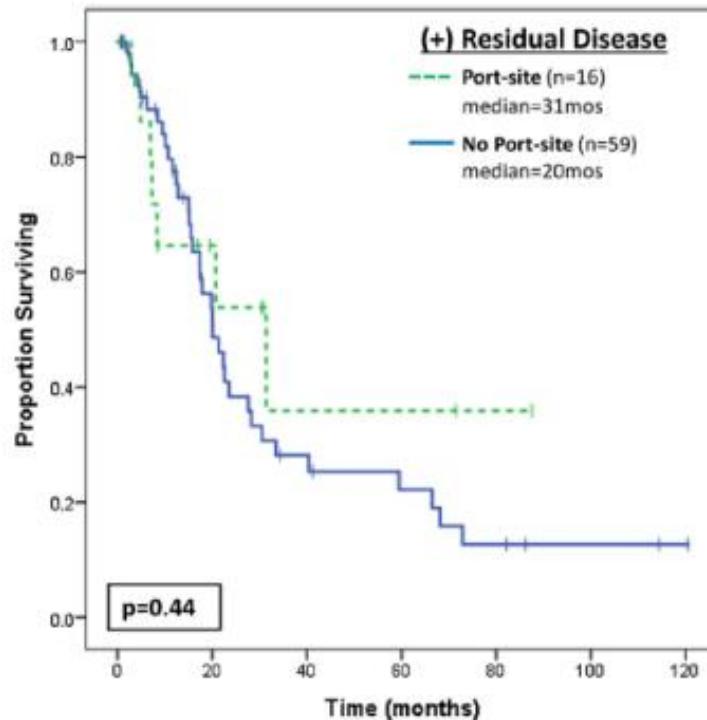
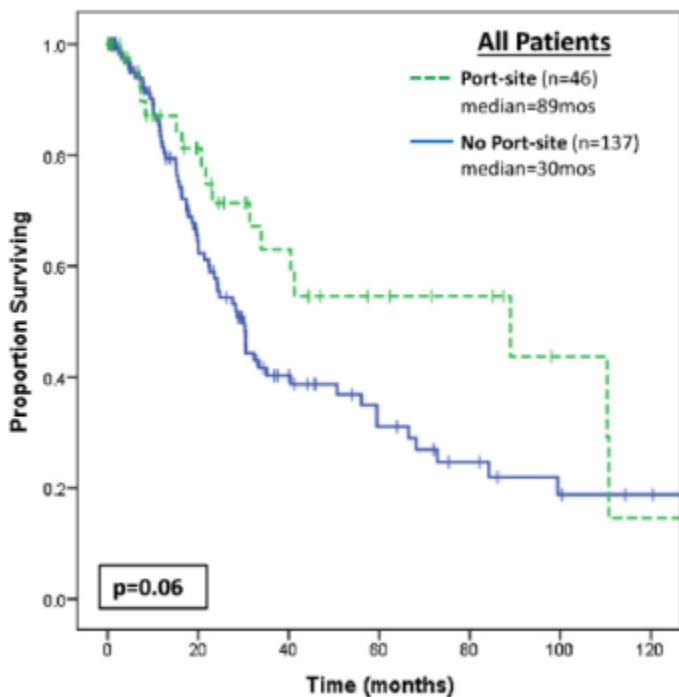
ORIGINAL ARTICLE – HEPATOBILIARY TUMORS

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

Ajay V. Maker, MD^{1,2}, Jean M. Butte, MD², Jacqueline Oxenberg, DO², Deborah Kuk, MS³, Mithat Gonen, PhD³, Yuman Fong, MD², Ronald P. DeMatteo, MD², Michael I. D'Angelica, MD², Peter J. Allen, MD², and William R. Jarnagin, MD²



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



Received: 12 January 2017

Revised: 30 January 2017

Accepted: 1 February 2017

DOI 10.1002/jso.24591

RESEARCH ARTICLE



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

- Port-site excision
 - Peritoneal disease
 - No survival benefit
 - Recurrence similar to no excision
 - Not recommended routinely

15

ORIGINAL ARTICLE

Minimally invasive versus the conventional open surgical approach of a radical cholecystectomy for gallbladder cancer: a retrospective comparative study

Anil K. Agarwal¹, Amit Javed¹, Raja Kalayarasan¹ & Puja Sakhija²

¹Department of Gastrointestinal Surgery, and ²Department of Pathology, GB Pant Hospital & MAM College, Delhi University, New Delhi, India

Table 1 Comparison of clinicopathological features of patients who underwent a laparoscopic (Group A) and open (Group B) radical cholecystectomy

Parameter	Group A (<i>n</i> = 24)	Group B (<i>n</i> = 46)	P value
Demography			
Age, median (range)	44 (21–61)	49 (23–70)	0.281
Sex ratio, female: male	2.6:1	3:1	0.848
Operative data			
Duration of surgery in min, median (range)	270 (180–340)	240 (180–360)	0.021
Blood loss in ml, median (range)	200 (100–850)	275 (100–800)	0.034
Post-operative data			
Hospital stay in days, median (range)	5 (3–16)	5 (3–17)	0.111
Morbidity, <i>n</i> (%)	3 (12.5)	8 (17.4)	0.737
Histopathology			
Lymph node yield, median (range) [mean (\pm SD)]			
Overall	10 (4–31) [12.5 (\pm 5.4)]	11 (5–26) [12.9 (\pm 5.4)]	0.642
Primary GBC	12 (6–31) [13.6 (\pm 4.8)]	12.5 (5–26) [13.9 (\pm 5.6)]	0.781
IGBC	5 (4–10) [5.5 (\pm 1.7)]	6 (5–10) [7.4 (\pm 1.9)]	0.146

Especialized centers

- Adequate nodal evaluation (aortocaval)
- Achieve R0 resection
- Hepatectomy and biliary reconstruction
- No difference

16



Thanks !