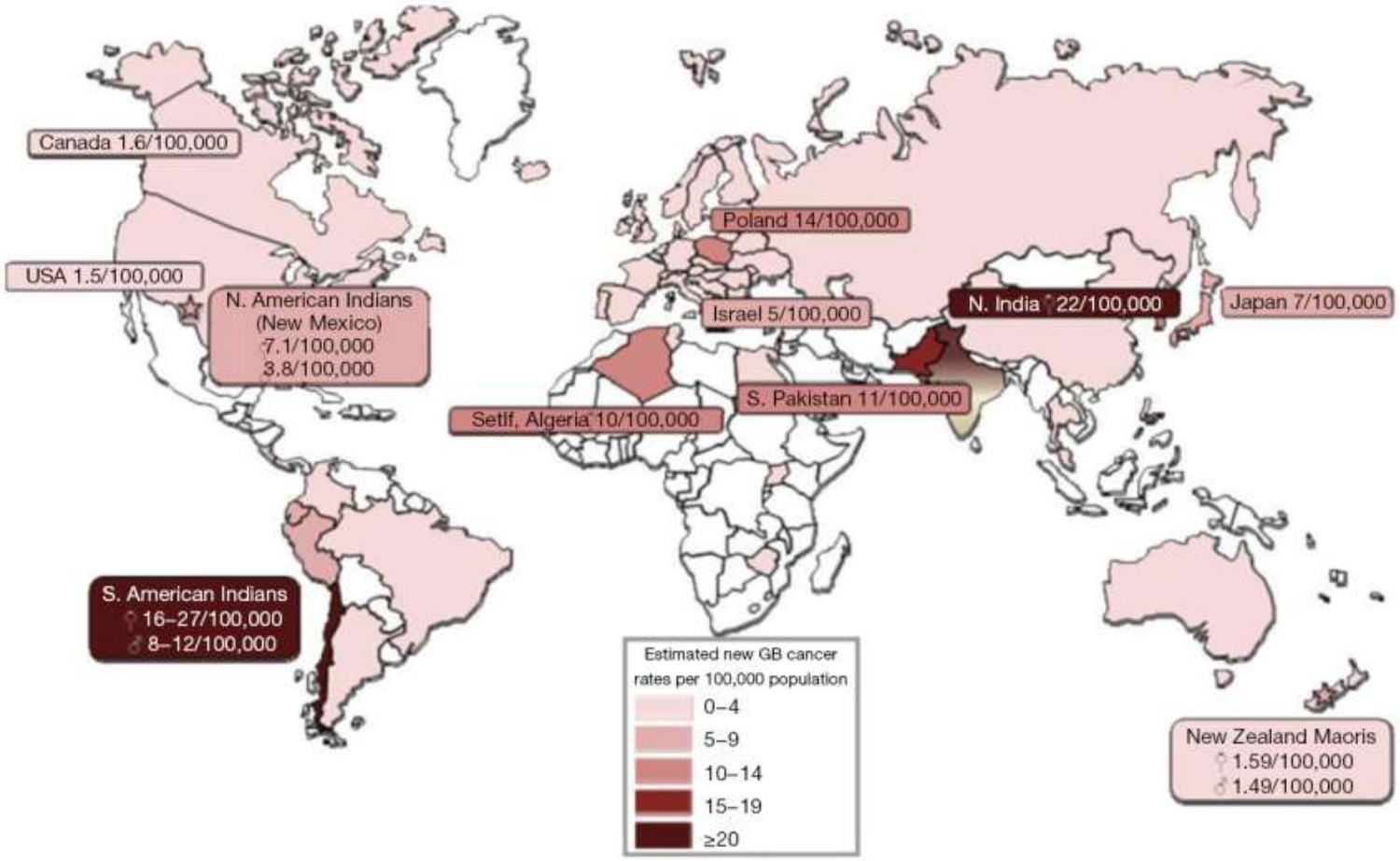
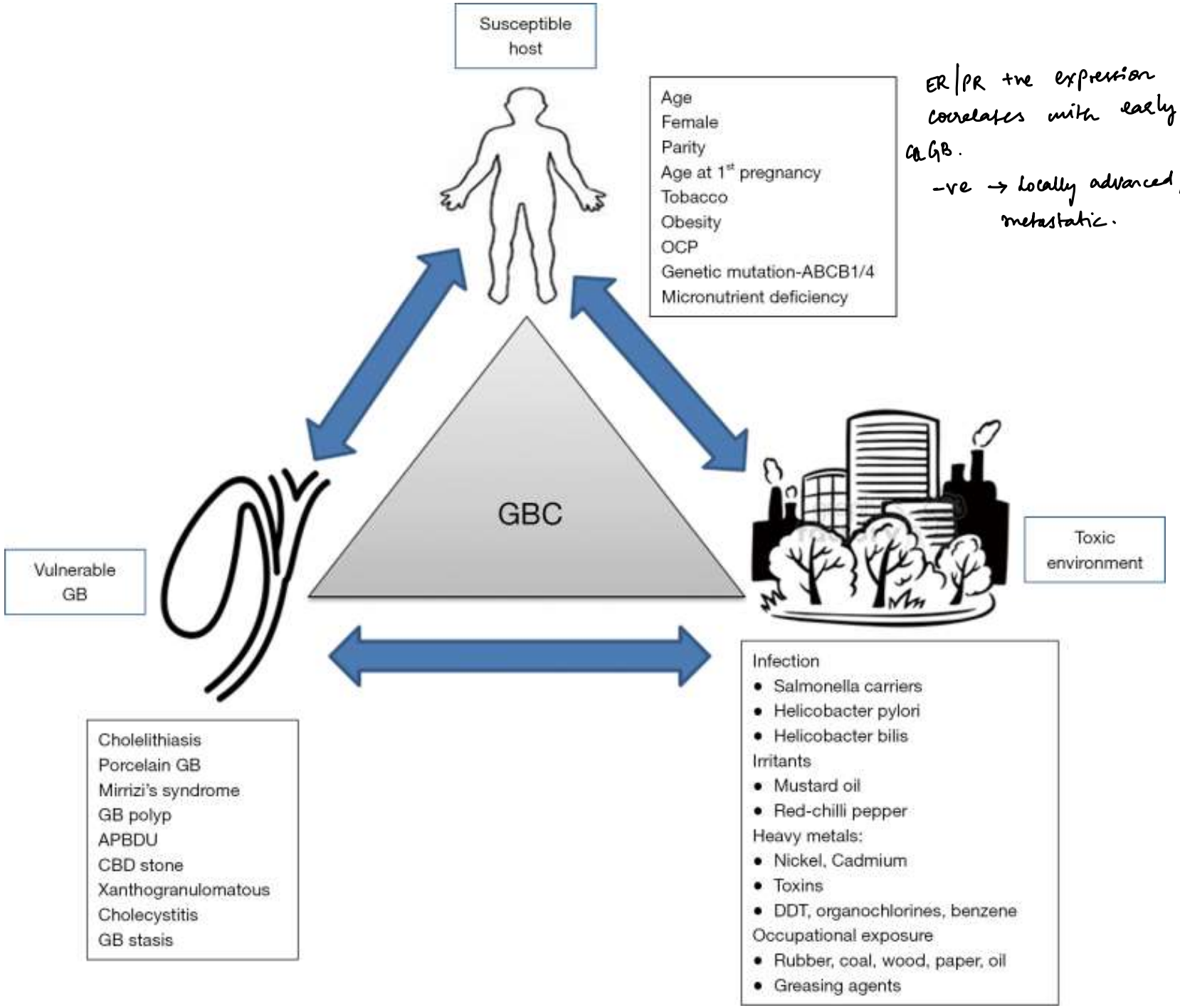
Gall Bladder

Incidence and etiology

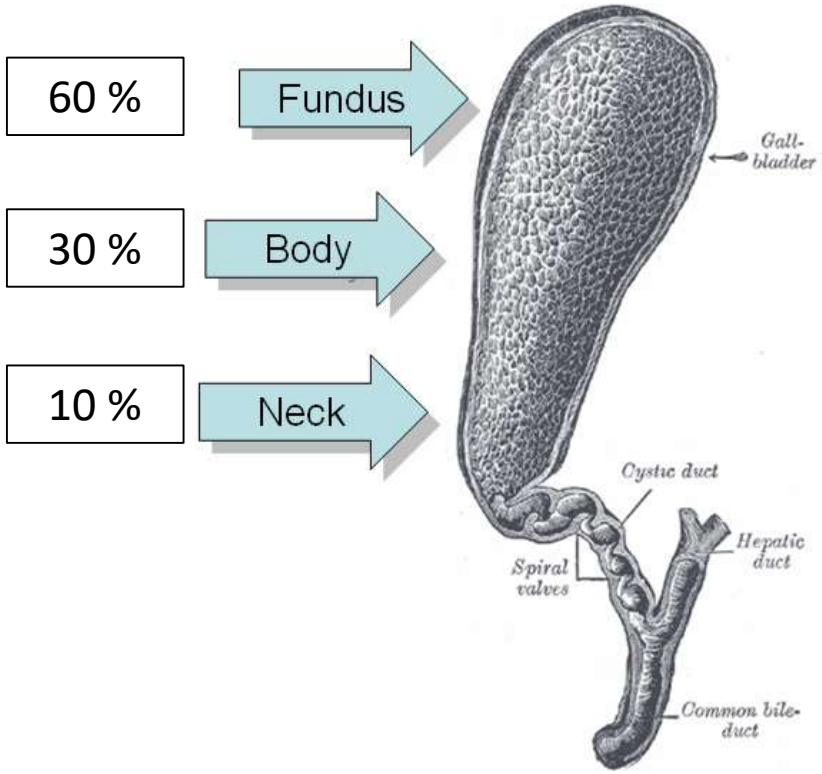
- Number of new cases diagnosed in 2020 – 1,15,949
- Number of deaths due to CA gall bladder in 2020 – 84,659 *(GLOBOCON 2020)*
- Affects women 3-4 times more than men
- Incidence increases with age
- India contributes to about 10% of global burden - north and north-eastern India



Risk factors and pathogenesis



Pathology



Patterns of growth

Infiltrative

- Most common pattern
- Subserosal spread
- Ill defined margins

Nodular

Mass forming CaGB

Early invasion into adjacent structures

Papillary

- Fill the lumen of the GB
- Minimal invasion of GB wall
- Better prognosis

Routes of metastasis

- Spread by direct extension into liver and adjacent organs

- Hematogenous spread - invasion into small veins that extend directly from the gallbladder into the portal venous system,
  leading to hepatic metastases in segments IV and V of the liver

- Seed and grow in peritoneal cavity – port site , needle biopsy site

- Lymphatic spread

Regional LN

- Along cystic duct, CHD, Hepatic artery, portal vein

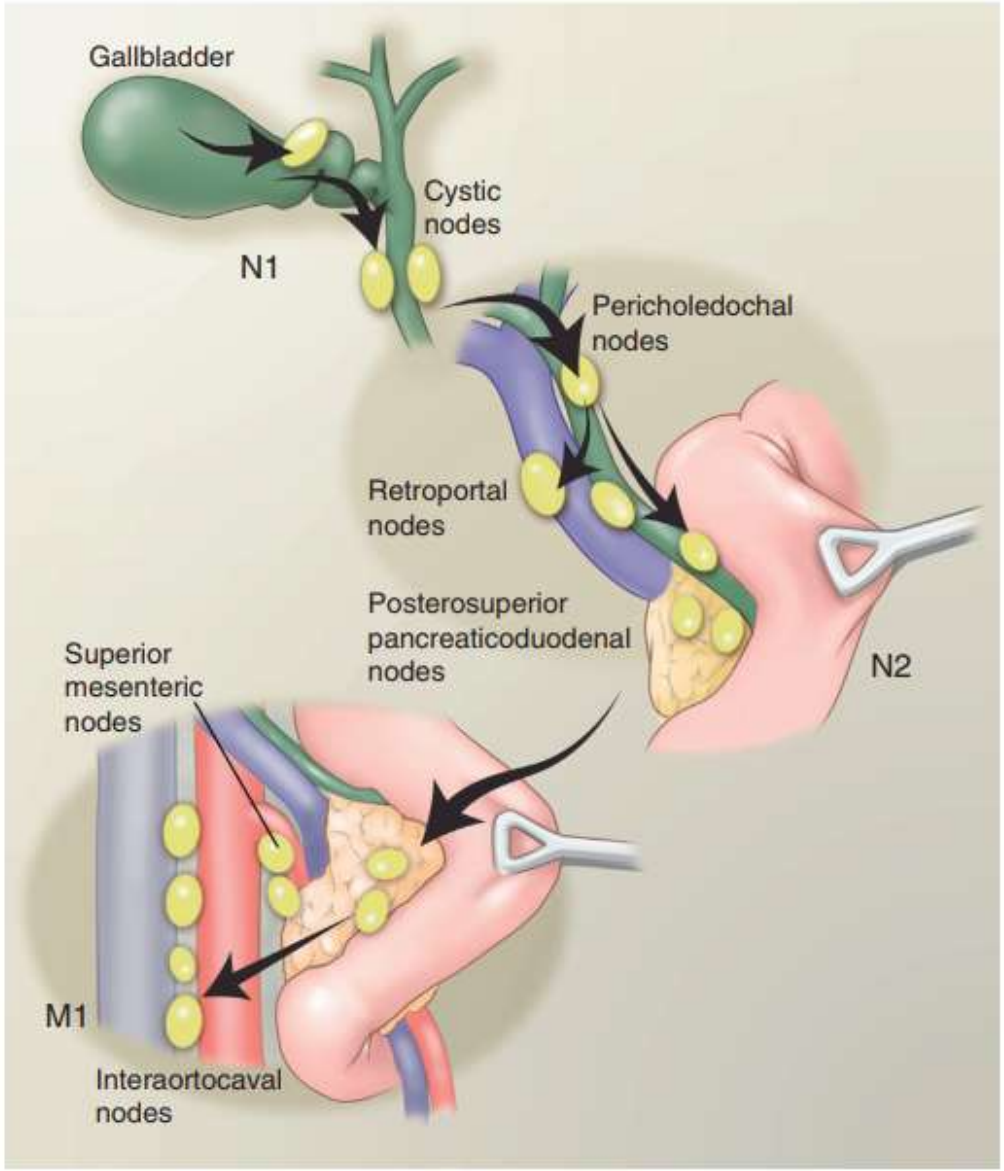


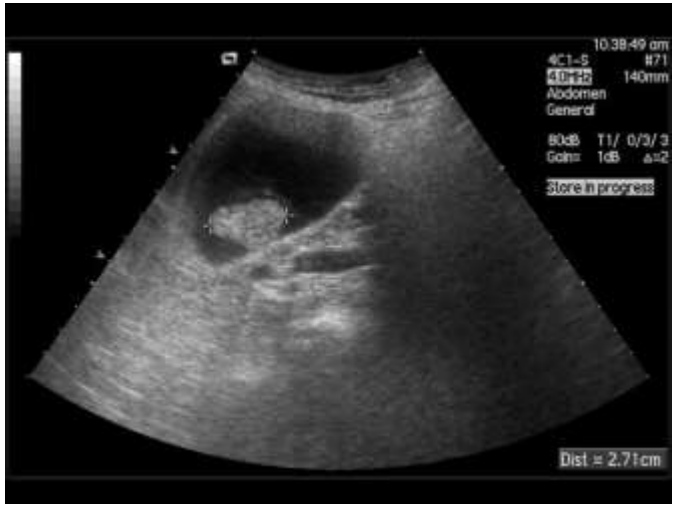
FIGURE 49.1. Representation of lymphatic drainage routes for gallbladder cancer, adapted from report by Shirai and colleagues (1992c). Note that direct drainage from N1 pericholedochal lymph nodes to M1 interaortocaval nodes is described. *(©2015, Memorial Sloan-Kettering Cancer Center.)*

Clinical presentation

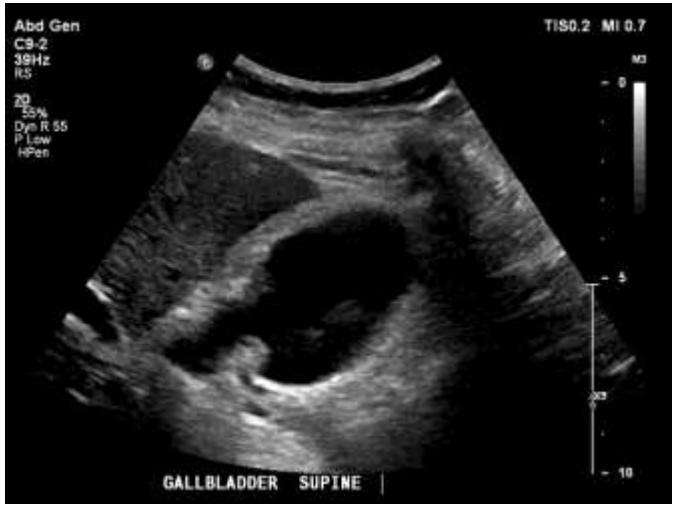
- Early stage asymptomatic
- Symptoms
  - Diffuse abdomen pain
  - Jaundice – poor prognostic factor
  - Weight loss
- 75% locally advanced or metastatic at the time of diagnosis
- Liver metastases without full-thickness invasion of the gallbladder wall occurs in <10% of cases.
- 85% of patients with jaundice have unresectable tumors.
- Look for
  - Supraclavicular LN
  - Palpable GB mass
  - Ascites
  - Port site / scar nodule
  - Umbilical nodule
  - hepatomegaly

Imaging studies – USG

- Best screening investigation
- Features suggestive of malignancy
  - Thickening of the wall
  - GB polyp
  - Calcification / porcelain GB
  - Mass lesion
- Not accurate for assessing peritoneal disease, CBD infiltration, LN spread
- Normal wall thickness - <3mm
- >20 mm - definitely malignant
- 4-20mm - equivocal



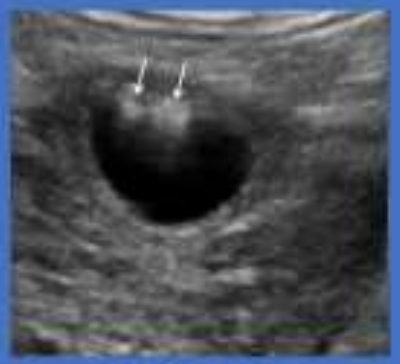
GB polyp



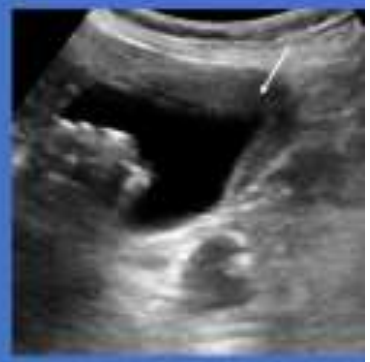
Focal thickening

Gallbladder reporting and data system (GB-RADS) for risk stratification of gallbladder wall thickening on ultrasonography: An international expert consensus

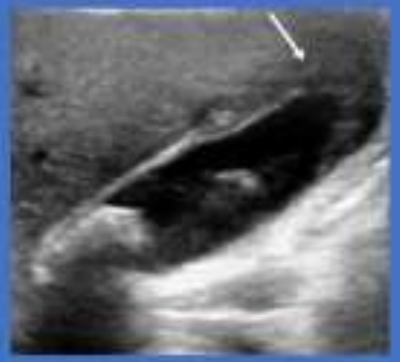
GB-RADS SCORE	RISK CATEGORY	PROBABILITY OF MALIGNANCY
0	Inadequate evaluation due to technical or patient factors gallbladder related factors	-
1	Normal	-
2	Benign	<2%
3	Equivocal	2-50%
4	Malignancy is likely	50-90%
5	Malignancy is highly likely	>90%



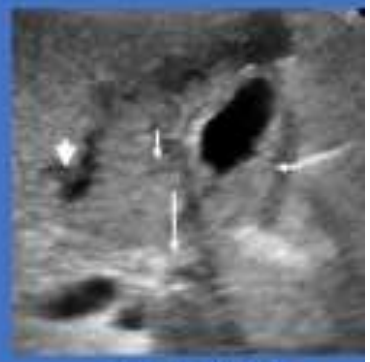
GB-RADS 2



GB-RADS 3



GB-RADS 4



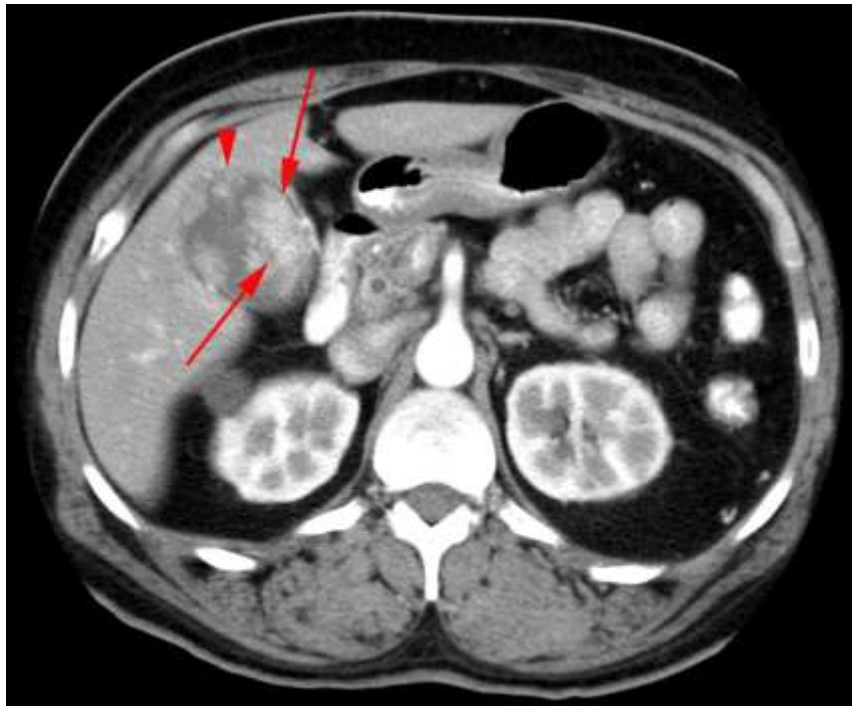
GB-RADS 5

Gupta P et al 2021

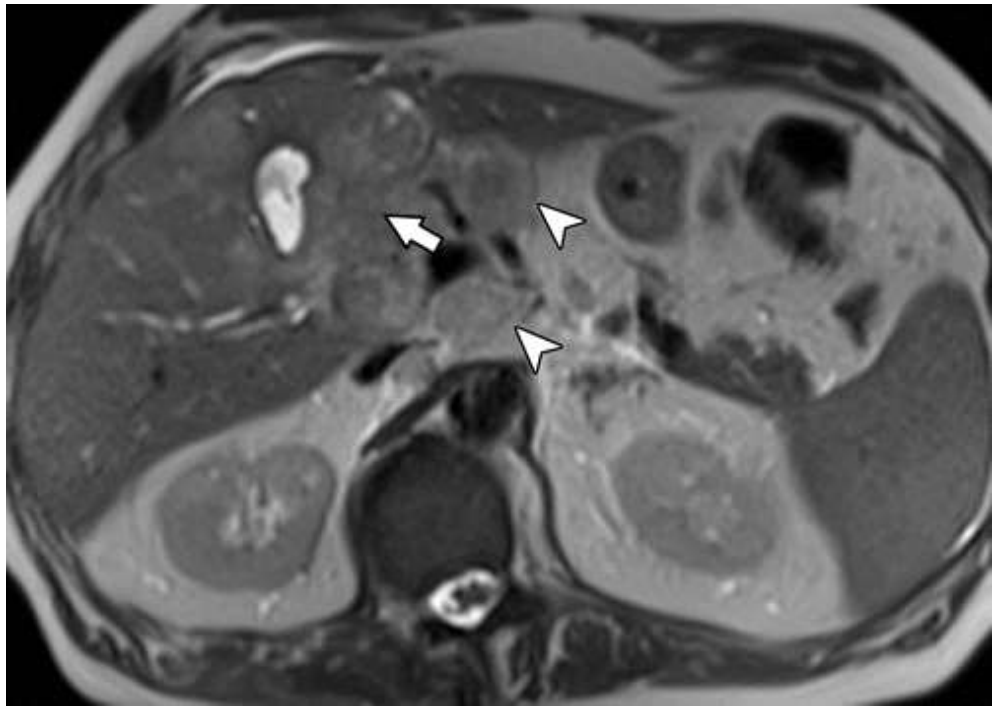
Abdominal Radiology

CT versus MRCP

Imaging	Accuracy	Pros	Cons
Ultrasound (US)	87%[1]	Cost-effective Better than CT for diagnosing cholelithiasis Detailed view of gallbladder wall/polyps No radiation exposure	Difficult to evaluate regional nodes and CBD Operator dependent
Computed tomography (CT)	Overall: 71-84%[2,3] T1 vs. T2: 79%[3] T2 vs. T3: 93%[3] T3 vs. T4: 100%[3]	Cost-effective Evaluation of regional nodes Diagnosis of extrahepatic disease More anatomic information than US	Difficult to differentiate between inflammation and malignancy Low sensitivity for diagnosing peritoneal implants
Magnetic resonance imaging (MRI)	Hepatic invasion: 67% sensitivity, 89% specificity[4] Vascular invasion: 100% sensitivity, 87% specificity[4] CBD invasion: 100% sensitivity, 89% specificity[4] Nodal involvement: 56% specificity, 89% sensitivity	Detailed images of CBD and vascular involvement No radiation MRA and MRCP images provide more detail than CT scan	Expensive Low sensitivity for diagnosing peritoneal disease



CT shows enhancing mass within the gallbladder (arrows) with involvement of the liver (arrowhead).



Axial T2-weighted image showing a gallbladder mass (arrow) invading the liver with extensive lymphadenopathy, including paraceliac nodes (arrowheads)

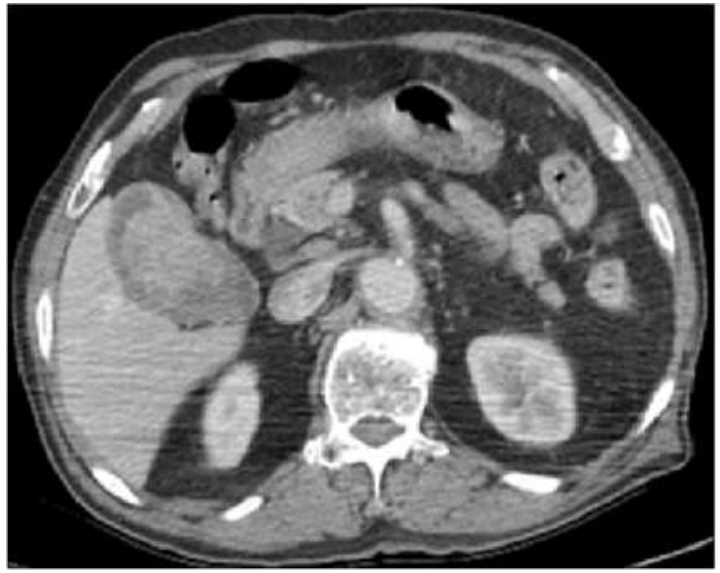
Role of PET-CT

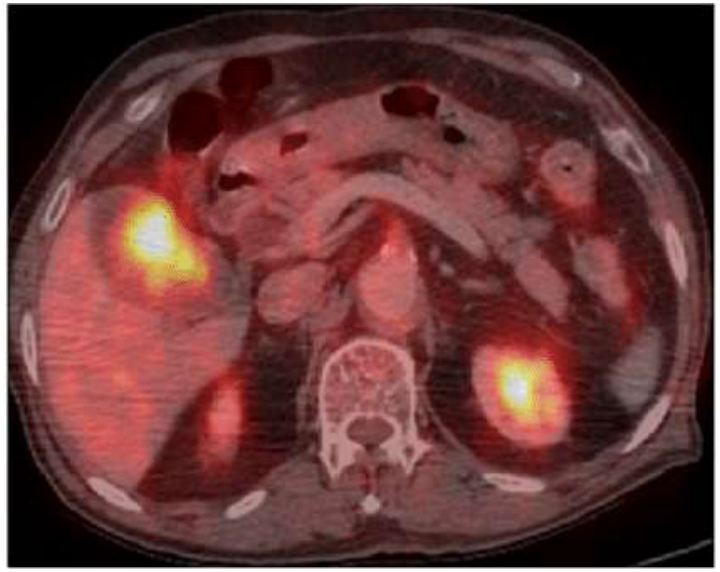
- PET/CT has a sensitivity of 100% compared to 25% with CT alone ($P < .001$), and PET alone changed surgical management in 17% of cases.

  (Petrowsky et al, 2006)

- The overall sensitivity and specificity of PET for metastatic disease, including regional and distant lymph nodes, were 57% and 94%, respectively.

- False positives with inflamed gall bladder



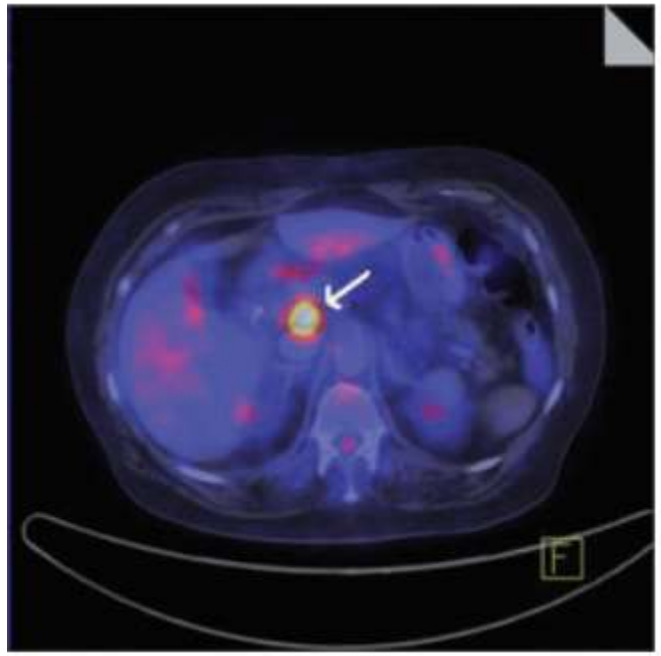


ORIGINAL ARTICLE

The role of PET-CT in patients with incidental gallbladder cancer

Jean M. Butte, Francisca Redondo, Enrique Waugh, Manuel Meneses, Rossana Pruzzo, Hugo Parada, Horacio Amaral & Hernán A. De La Fuente

Instituto Oncológico Fundación Arturo López Pérez, Santiago, Chile



18FDG PET-CT which showed evidence (positive finding) of localized disease (arrow) in a patient who was diagnosed with an incidental gallbladder carcinoma after cholecystectomy

Abstract

Introduction: After a cholecystectomy, incidental gallbladder cancer (IGC) requires accurate imaging studies to determine the actual extent of the disease to properly tailor subsequent treatment. The aim of this study was to evaluate the utility of ^{18}F-fluorodeoxyglucose positron emission tomography-computed tomography (^{18}FDG PET-CT) to provide optimal pre-treatment staging in patients with IGC.

Material and Methods: Between January 2006 and August 2008, all patients with IGC and at least muscular layer invasion were studied with ^{18}FDG PET-CT. The examination was considered positive when the standardized uptake values (SUV) were ≥2.5. In all instances patients were offered to undergo definitive exploration and possible radical resection.

Results: The series included 32 patients, 26 women and 6 men, with a median age of 57 years (range 30–81 years). The examination was performed at a median time of 6 weeks after cholecystectomy (range 2–52 weeks). ^{18}FDG PET-CT was negative in 13 patients and positive in 19 patients: 9 with localized potentially resectable disease (PRD) and in 10 with disseminated disease. Of the 13 patients with negative PET-CT, 9 refused surgery and 4 underwent formal exploration: 3 patients were resected with no disease identified in the final pathology report (FPR) and 1 was not resected as a result of peritoneal carcinomatosis. Of the 9 with PRD, 4 patients refused reoperation and 5 underwent exploration: 3 were resected with residual disease noted in the FPR and 2 did not undergo resection because of dissemination. Two patients with disseminated disease were reoperated and in both instances disseminated disease was confirmed. The median survival for the entire group was 20.3 months (range 1.6–32.9 months). The median survival for those patients with negative PET-CT was 13.5 months (range 5.6–32.9 months), 6.2 months (range 1.6–18.7 months) for localized potentially resectable disease and 4.9 months (range 2–14.1 months) for disseminated disease ($P < 0.003$).

Conclusions: For patients presenting with stage T1b or greater IGC, the use of ^{18}FDG PET-CT will help reduce the number of patients undergoing non-therapeutic re-exploration and may help to determine the likely prognosis. ^{18}FDG PET-CT might be a useful tool for the selection of patients for potentially curative treatment.

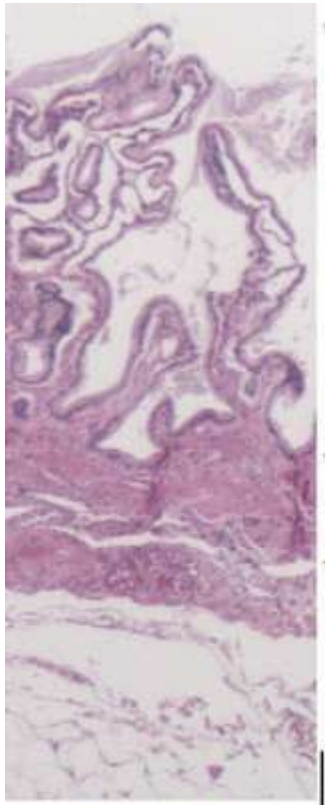
Tumor markers

- CA 19-9 > 35.0 units/mL
- CEA > 4 ng/mL
- CA 19-9 has higher specificity – 92.7% vs 72.9% for CEA, but lower sensitivity
- As part of baseline assessment
- Not for diagnostic purpose

Role of preoperative pathologic diagnosis

- Tendency to seed the peritoneum, biopsy tracts, and surgical wounds.
- Preoperative histologic diagnosis is unnecessary in resectable disease.
- For unresectable / metastatic disease, percutaneous Bx has accuracy of 90% *(Akosa et al, 1995)*
- Sensitivity of bile cytology has been reported to be approximately 75%, but deliberate attempt to make the diagnosis this way is unwarranted. *(Akosa et al,1995)*

Staging



T1a - Lamina Propria

T1b - Muscularis propria

T2 - Perimuscular connective tissue, not beyond serosa

T3 - Perforates serosa and/or liver and/or one other adjacent organ

T4 - Tumor invades portal vein/hepatic artery or other extrahepatic structures

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Hepatobiliary Cancers

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Discussion

American Joint Committee on Cancer (AJCC)
TNM Staging for Gallbladder Carcinoma (8th ed., 2017)

***Table 3.* Definitions for T, N, M**

T	**Primary Tumor**
TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Tis	Carcinoma in *situ*
T1	Tumor invades lamina propria or muscular layer
T1a	Tumor invades lamina propria
T1b	Tumor invades muscle layer
T2	Tumor invades the perimuscular connective tissue on the peritoneal side, without involvement of the serosa (visceral peritoneum) Or tumor invades the perimuscular connective tissue on the hepatic side, with no extension into the liver
T2a	Tumor invades the perimuscular connective tissue on the peritoneal side, without involvement of the serosa (visceral peritoneum)
T2b	Tumor invades the perimuscular connective tissue on the hepatic side, with no extension into the liver
T3	Tumor perforates the serosa (visceral peritoneum) and/or directly invades the liver and/or one other adjacent organ or structure, such as the stomach, duodenum, colon, pancreas, omentum, or extrahepatic bile ducts
T4	Tumor invades main portal vein or hepatic artery or invades two or more extrahepatic organs or structures

New update in 8th AJCC
T2a has better prognosis than T2b.

↓
Better seen on MRCP/MR angio scan.

N	**Regional Lymph Nodes**
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastases to one to three regional lymph nodes
N2	Metastases to four or more regional lymph nodes

M	**Distant Metastasis**
M0	No distant metastasis
M1	Distant metastasis

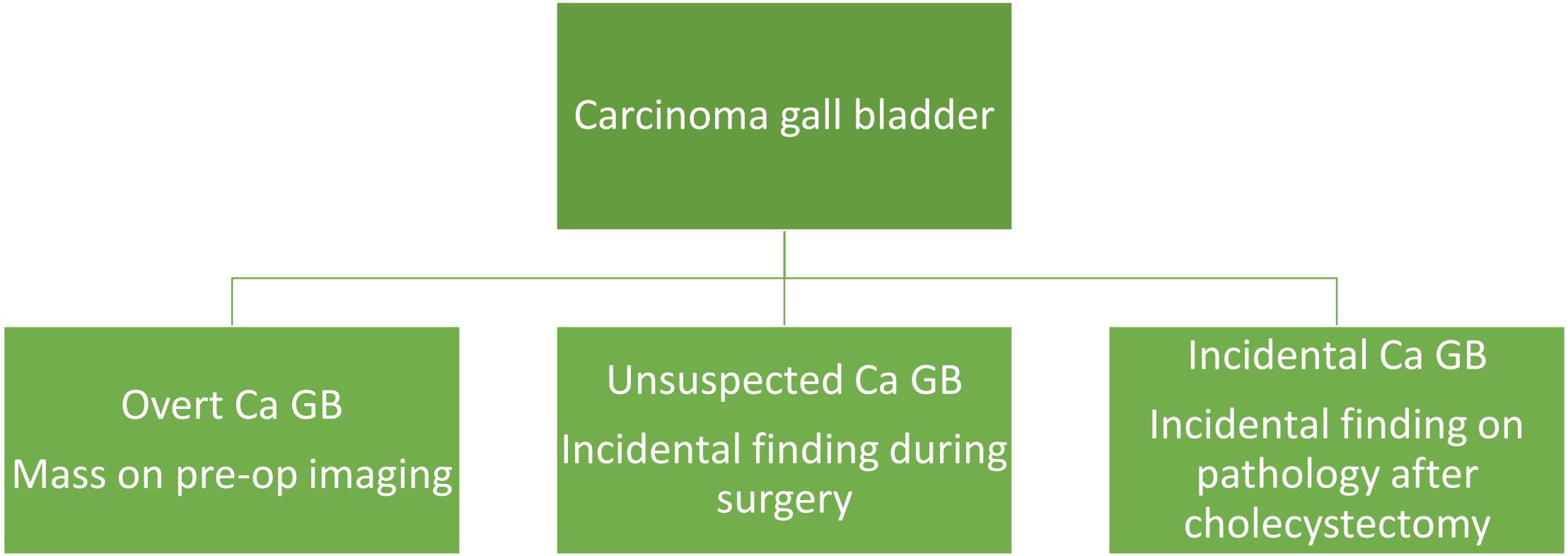
***Table 4.* AJCC Prognostic Groups**

	T	N	M
Stage 0	Tis	N0	M0
Stage I	T1	N0	M0
Stage IIA	T2a	N0	M0
Stage IIB	T2b	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

Histologic Grade (G)

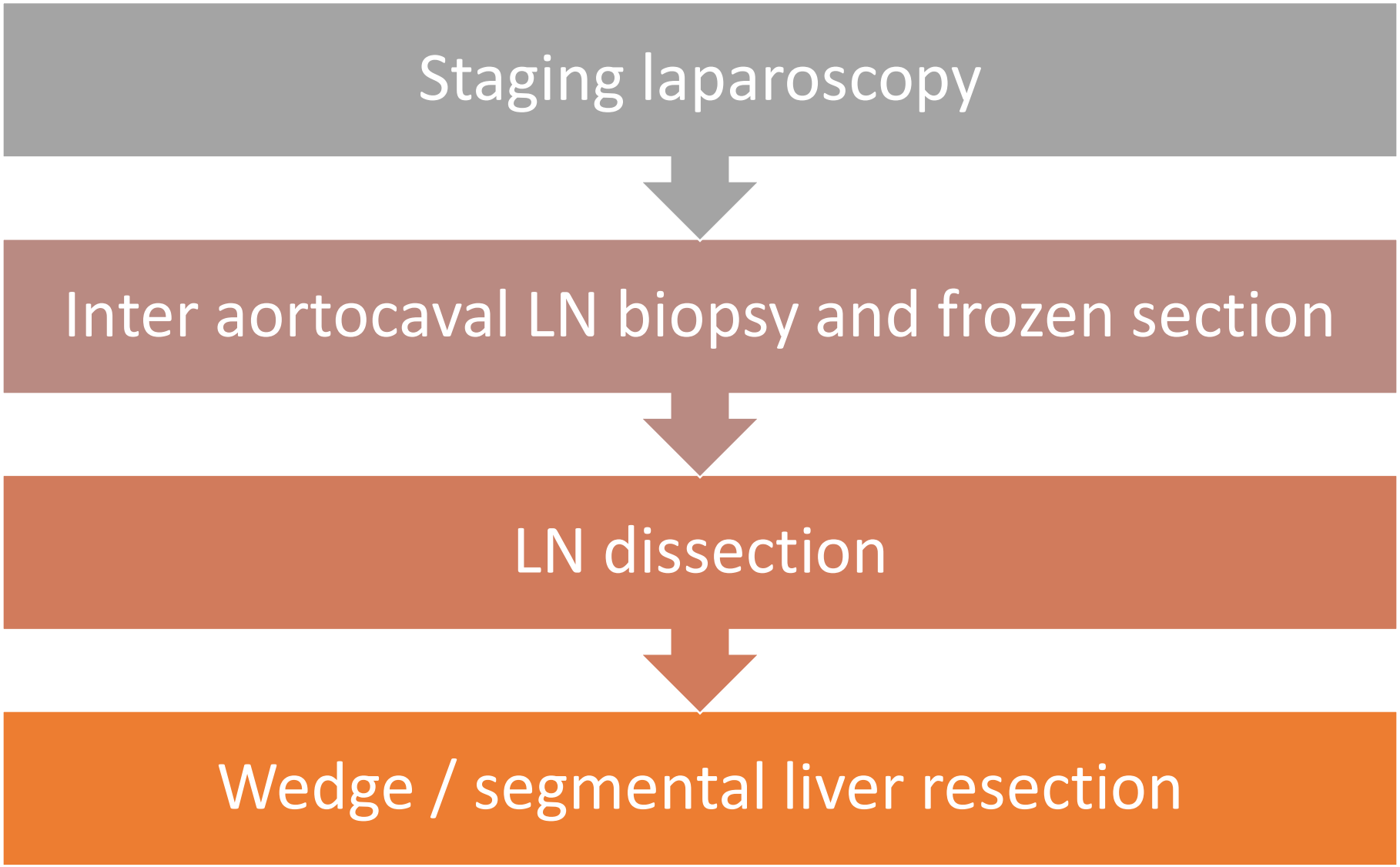
GX	Grade cannot be assessed
G1	Well differentiated
G2	Moderately differentiated
G3	Poorly differentiated

Clinical scenarios



Management of overt carcinoma GB

Overt CaGB


Staging laparoscopy
Inter aortocaval LN biopsy and frozen section
LN dissection
Wedge / segmental liver resection

Role of staging laparoscopy

→ Detectable lesions - peritoneal deposits, liver surface deposits.

↓ yield of staging lap can be improved with intra op USG to detect aortocaval nodes and deep parenchymal liver mets.

1. GB Part.

ORIGINAL ARTICLE

The Role of Staging Laparoscopy in Primary Gall Bladder Cancer—An Analysis of 409 Patients

A Prospective Study to Evaluate the Role of Staging Laparoscopy in the Management of Gallbladder Cancer

Anil K. Agarwal, MCh, Raja Kalayarasan, MCh, Amit Javed, MCh, Nikhil Gupta, MCh, and Hirdaya H. Nag, MS

2. MSKCC Case series – 44 patients.

Almost half of them had disseminated disease on staging lap.

Objective: To evaluate the role of staging laparoscopy (SL) in the management of gallbladder cancer (GBC).

Methods: A prospective study of primary GBC patients between May 2006 and December 2011. The SL was performed using an umbilical port with a 30-degree telescope. Early GBC included clinical stage T_1/T_2. A *detectable lesion* (DL) was defined as one that could be detected on SL alone, without doing any dissection or using laparoscopic ultrasound (surface liver metastasis and peritoneal deposits). Other metastatic and locally advanced unresectable disease qualified as undetectable lesions (UDL).

Results: Of the 409 primary GBC patients who underwent SL, 95 had disseminated disease [(surface liver metastasis (n = 29) and peritoneal deposits (n = 66)]. The overall yield of SL was 23.2% (95/409). Of the 314 patients who underwent laparotomy, an additional 75 had unresectable disease due to surface liver metastasis (n = 5), deep parenchymal liver metastasis (n = 4), peritoneal deposits (n = 1), nonlocoregional lymph nodes (n = 47), and locally advanced unresectable disease (n = 18), that is, 6-DL and 69-UDL. The accuracy of SL for detecting unresectable disease and DL was 55.9% (95/170) and 94.1% (95/101), respectively. Compared with early GBC, the yield was significantly higher in locally advanced tumors (n = 353) [25.2% (89/353) vs 10.7% (6/56), $P = 0.02$]. However, the accuracy in detecting unresectable disease and a DL in locally advanced tumors was similar to early GBC [56.0%, (89/159) and 94.1%, (89/95) vs 54.6% (6/11) and 100% (6/6), $P = 1.00$].

Conclusions: In the present series with an overall resectability rate of 58.4%, SL identified 94.1% of the DLs and thereby obviated a nontherapeutic laparotomy in 55.9% of patients with unresectable disease and 23.2% of overall GBC patients. It had a higher yield in locally advanced tumors than in early-stage tumors; however, the accuracy in detecting unresectable disease and a DL were similar.

Keywords: gallbladder cancer, staging laparoscopy

(*Ann Surg* 2013;258: 318–323)

Extent of LN dissection

- Regional lymphadenectomy for gallbladder cancer includes removal of nodes in the porta hepatis, gastrohepatic ligament, and retroduodenal space (all N1 nodes)

- Kocherisation and frozen section assessment of inter-aortocaval LN

- At least six lymph nodes (LNs) should be examined – AJCC 8th edition

Based on MSKCC data.

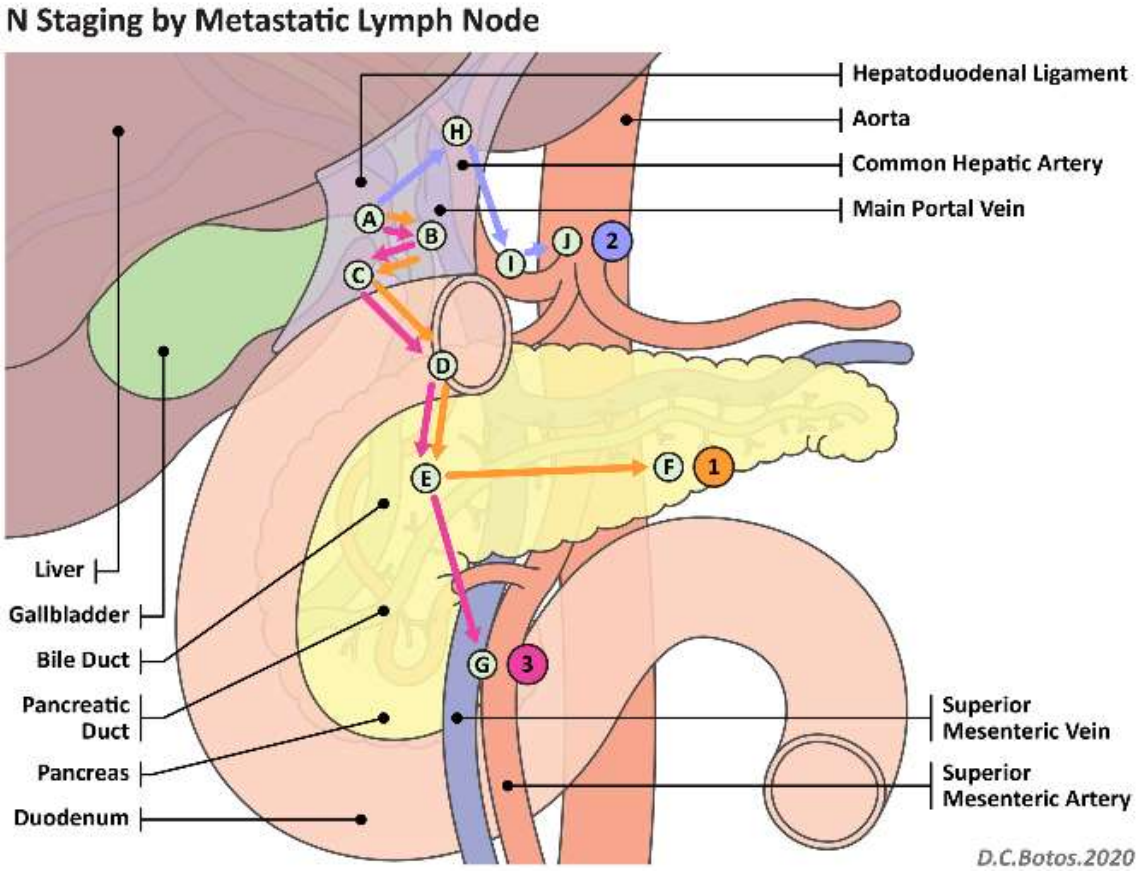


Figure 1. N staging is determined by the number of metastatic lymph nodes. *1* = cholecysto-retropancreatic pathway (main pathway) (orange), *2* = cholecystoceliac pathway (blue), *3* = cholecystomesenteric pathway (pink), *A* = cystic duct node, *B* = porta hepatis node, *C* = node of foramen of Winslow, *D* = superior retropancreaticoduodenal node, *E* = posterior pancreaticoduodenal node (principal retroportal node), *F* = paraaortic lymph node, *G* = superior mesenteric lymph node, *H* = suprapyloric node, *I* = retroligamentous node, *J* = paraceliac node. (Courtesy of D. C. Botos.)

ORIGINAL ARTICLE

Regional lymphadenectomy for gallbladder cancer: Rational extent, technical details, and patient outcomes

Yoshio Shirai, Toshifumi Wakai, Jun Sakata, Katsuyoshi Hatakeyama

- "Extended" portal lymph node dissection (defined as en bloc removal of the first- and second-echelon nodes with hepaticopancreaticoduodenectomy)

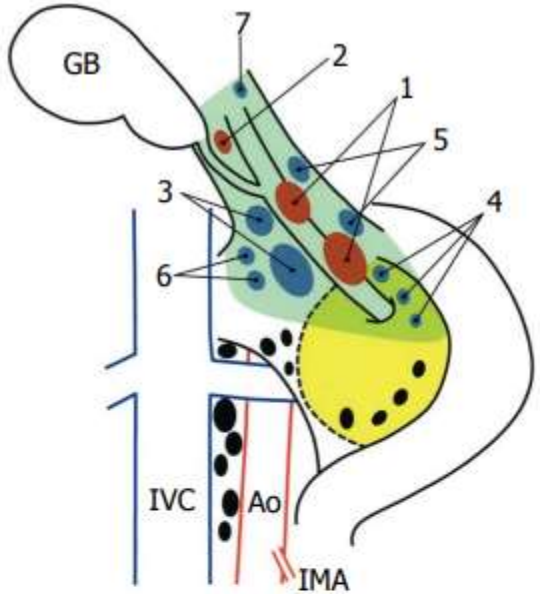
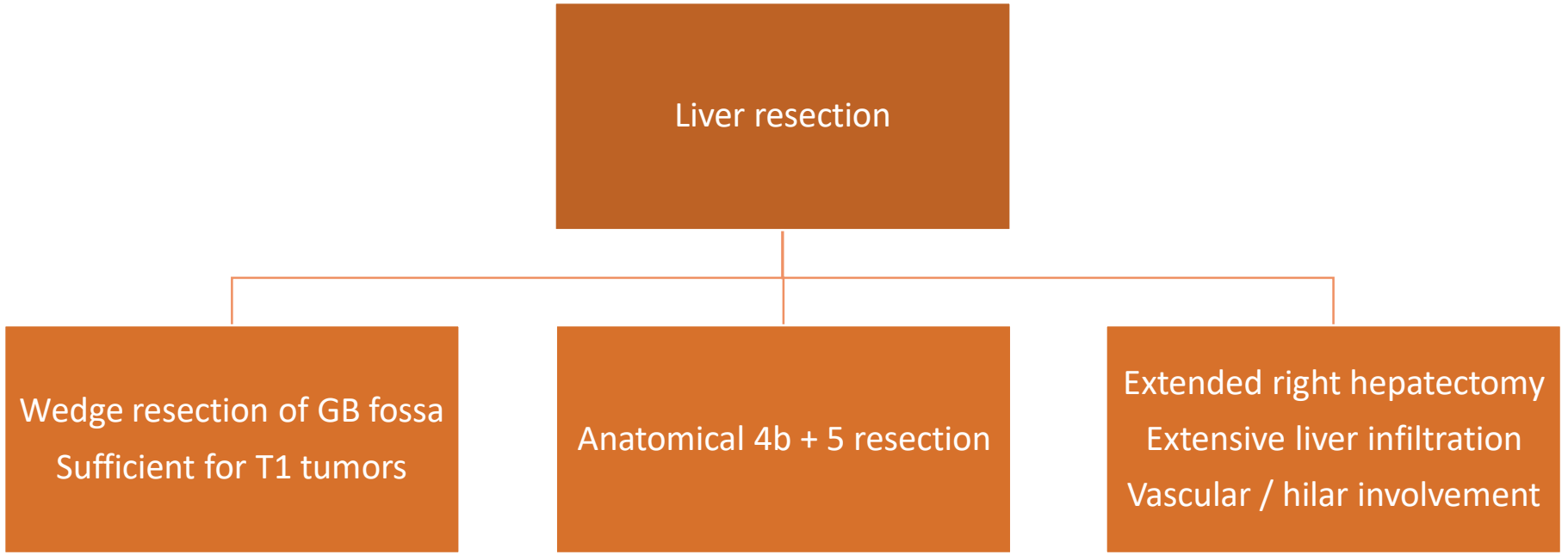


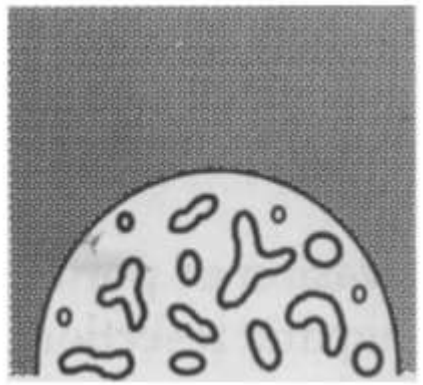
Figure 1 Topographical distribution of the regional lymph nodes of the gallbladder, shown after a full Kocher maneuver. Solid ellipses represent individual lymph nodes: first-echelon nodes (red), second-echelon nodes (blue), and more distant nodes (black). The yellow painted area represents the head of the pancreas, and the dashed line indicates the border of the uncinate process of the pancreas. Arabic numerals indicate each of the first- and second-echelon node groups: (1) pericholedochal, nodes along the common bile duct; (2) cystic duct, node(s) along the cystic duct; (3) retroportal, nodes posterior to the portal vein and cephalad to the uncinate process; (4) posterior superior pancreaticoduodenal, nodes on the posterosuperior aspect of the head of the pancreas; (5) hepatic artery, nodes along the common or proper hepatic artery; (6) right celiac, nodes located right of the celiac axis and posterior to the common hepatic artery; and (7) hilar, nodes within the porta hepatis. The pale green area indicates the extent of a typical "extended" portal lymph node dissection (*en bloc* removal of the first- and second-echelon node groups) in the study department. GB: Gallbladder; IVC: Inferior vena cava; Ao: Aorta; IMA: Inferior mesenteric artery.

Extent of liver resection

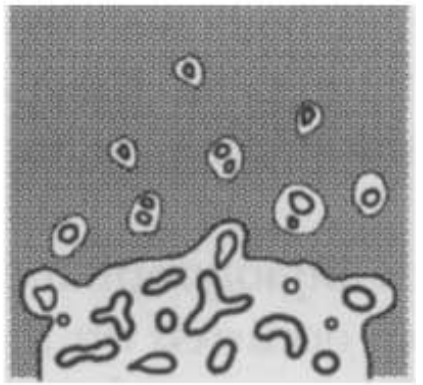
- Tumor location on the hepatic side is associated with poor prognosis.
- Most of the micrometastasis occur within 15 – 27 mm (Endo I, Shimada H, Takimoto A et al)
- Ensure a margin of resection of approximately 2 cm
-



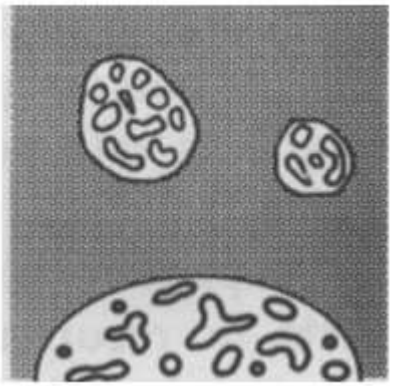
Shirai et al



Direct expansive invasion



Angiolymphatic invasion



Distant parenchymal mets

Hepatectomy strategy for T2 gallbladder cancer between segment IVb and V resection and wedge resection: A propensity score-matched study

ABSTRACT

Background: Liver resection is recommended for T2 gallbladder cancer, but the optimal hepatectomy strategy remains controversial. We aimed to assess the safety and effectiveness of segment IVb and V resection versus wedge resection in patients with T2 gallbladder cancer.

Methods: This is a retrospective multicenter propensity score-matched study in China. Overall survival, disease-free survival, perioperative complications, and hospital length of stay were used to evaluate safety and effectiveness.

Results: There are a total of 512 patients. 112 of 117 patients undergoing segment IVb and V resection were matched to 112 patients undergoing wedge resection. After matching, segment IVb and V resection demonstrated no statistical difference in overall survival (hazard ratio, 0.970 [0.639−1.474]; $P = .886$), but significance in disease-free survival (hazard ratio, 0.708 [0.506−0.991]; $P = .040$). Patients with incidental gallbladder cancer (hazard ratio, 0.390 [0.180−0.846]; $P = .019$), stage T2b (hazard ratio, 0.515 [0.302−0.878]; $P = .016$), and negative lymph nodes status (hazard ratio, 0.627 [0.406−0.991]; $P = .043$) were associated with improved disease-free survival after segment IVb and V resection, but not in wedge resection. However, perioperative complications occurred more frequently after segment IVb and V resection (28.5% vs 9.1%, $P < .001$) along with the longer hospital length of stay (17.3 vs 10.2 days, $P < .001$). Notably, patients with jaundice (odds ratio, 4.053 [1.361−12.23]; $P = .013$), undergoing laparoscopic resection (odds ratio, 2.387 [1.059−4.484]; $P = .028$) or surgeon performing per the first 10 segment IVb and V resections (odds ratio, 2.697 [1.035−6.998]; $P = .041$), were the independent risk factors for perioperative complications in the segment IVb and V resection group.

Conclusion: T2 gallbladder cancer patients undergoing segment IVb and V resection rather than wedge resection have an improved disease-free survival, especially for incidental gallbladder cancer or hepatic-sided (T2b) gallbladder cancer. However, high rates of perioperative complications and longer hospital length of stay after segment IVb and V resection indicated that surgeons must rely on their own surgical skills and the patient profile to decide the optimal hepatectomy strategy.

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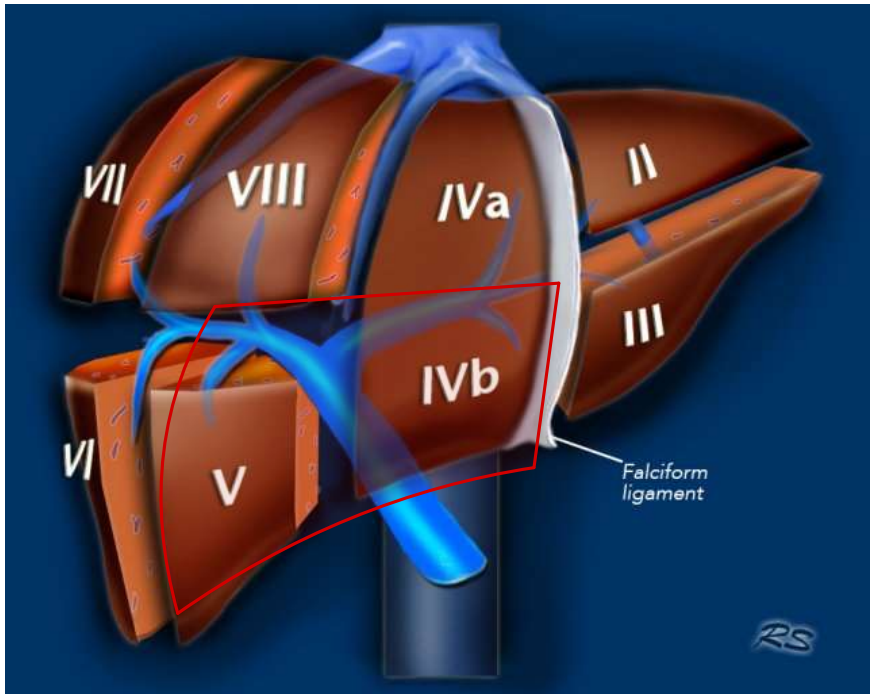
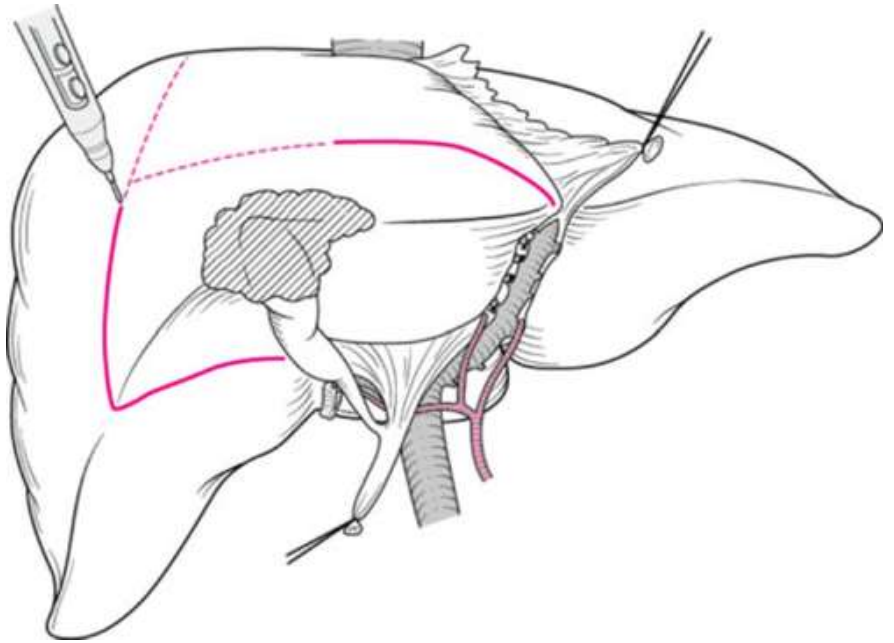
Approach to anatomical 4b + 5 resection

- Miyazaki technique
- Intra-operative Ultrasound guided technique
- ICG injection into cystic artery





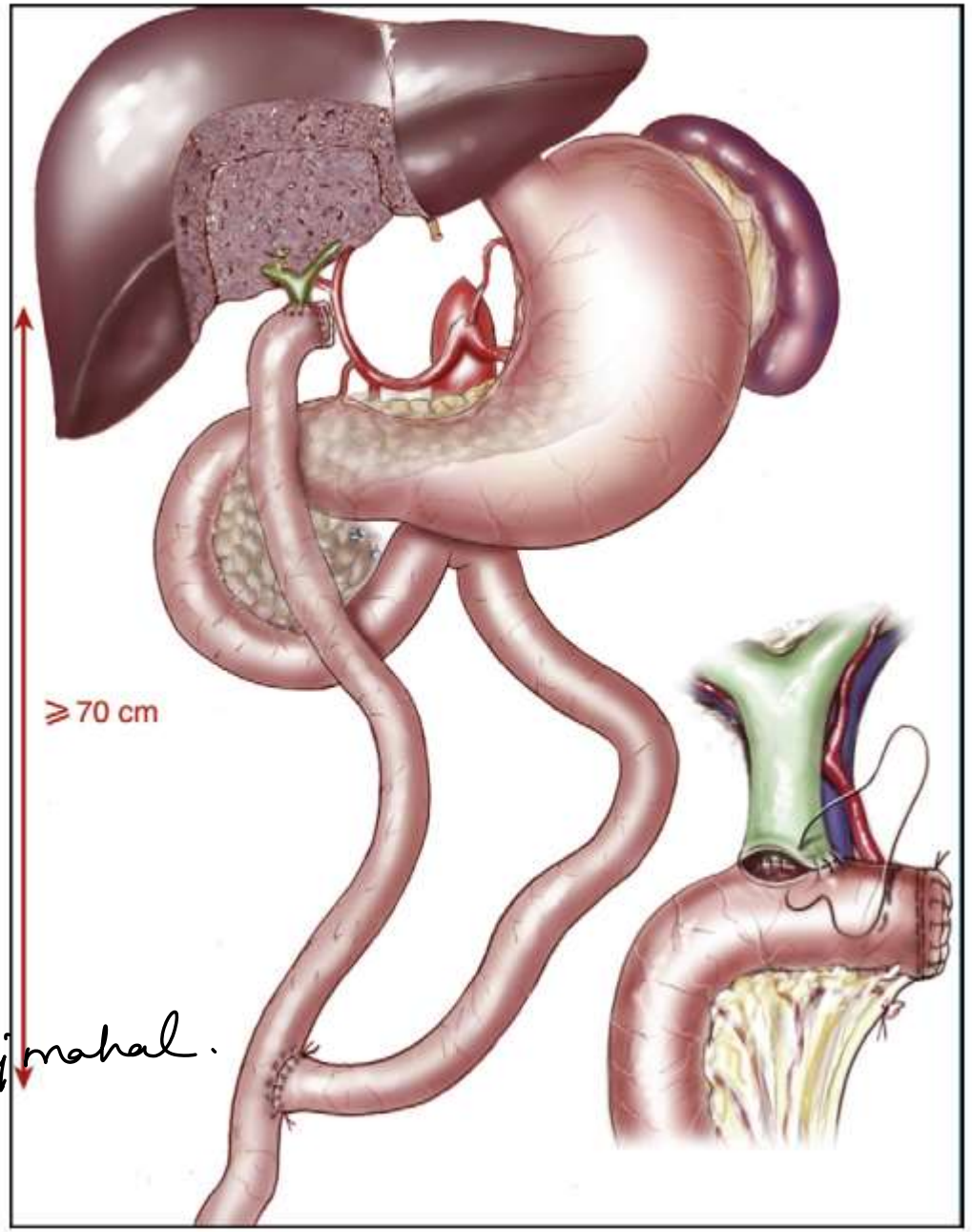
Superior limit – Portal bifurcation

Right margin – Right hepatic vein

Left margin – Falciform ligament

Role of CBD excision

- No role of routine CBD excision
- Indicated in
  - Direct invasion
  - Positive cystic duct margin
  - Associated choledochal cyst
  - Extensive lymphadenopathy in hepatoduodenal ligament
  - Anomalous pancreatico – biliary duct junction (APBDJ)

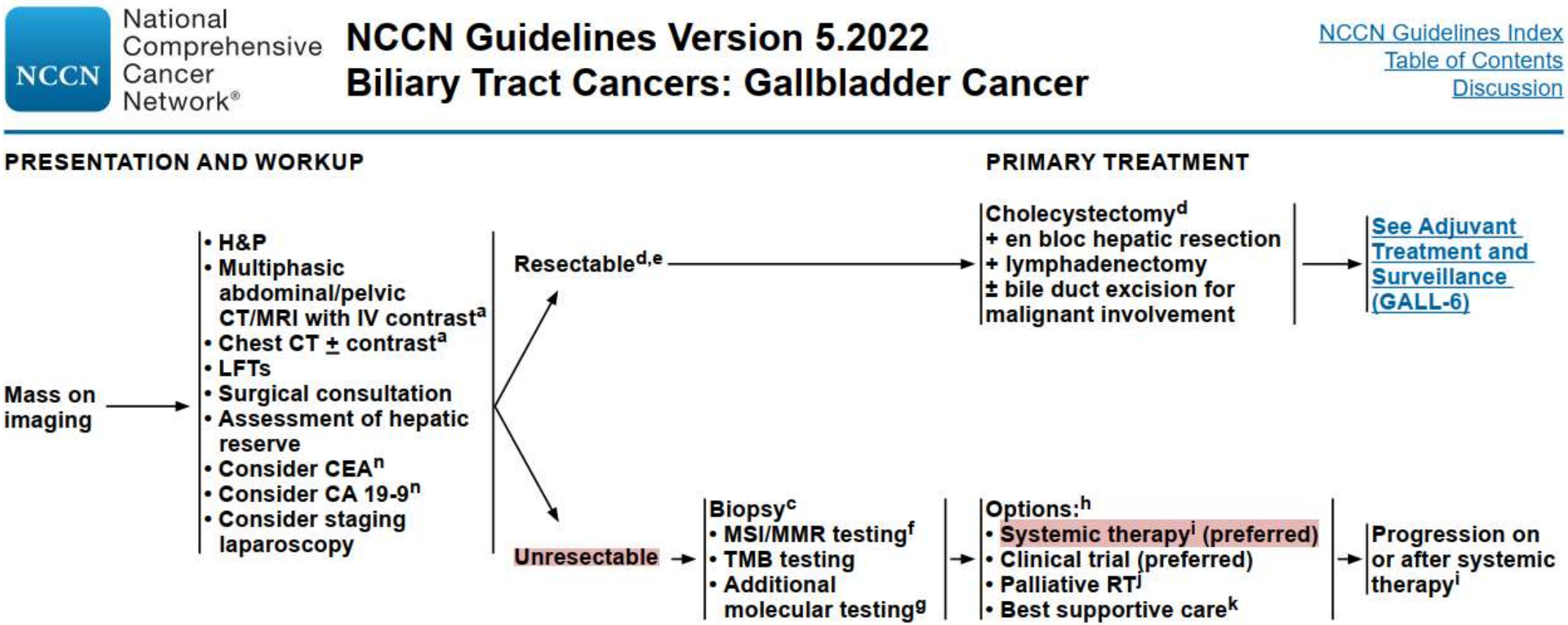


Taj mahal Resection

→ Defect shaped like the dome of Taj mahal.

→ Segment 4b + 5 + Caudate lobe + excision of CBD + (R) & (L) Hepatic duct.

Role of NACT


National Comprehensive Cancer Network®
NCCN Guidelines Version 5.2022
Biliary Tract Cancers: Gallbladder Cancer
NCCN Guidelines Index
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ORIGINAL ARTICLE

Outcome of neoadjuvant chemotherapy in "locally advanced/borderline resectable" gallbladder cancer: the need to define indications

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Abstract

Background: Studies evaluating neo-adjuvant chemotherapy (NACT) exclusively in gallbladder cancer (GBC) are few and there are no randomized trials on the subject. Locally advanced GBC and indications for NACT in GBC are not yet clearly defined.

Methods: We analysed 160 consecutive GBC patients who received NACT based on clinico-radiologic criteria suggesting high-risk disease (*TMH Criteria*) from January 2010 to February 2016.

Results: On initial assessment, 140 (87.5%) patients had T3/T4 disease and 105 (65%) patients were node positive. Response rate and clinical benefit rate was 52.5% and 70% respectively. Sixty six (41.2%) patients could undergo curative intent resection. With a median follow-up of 33 months, the median OS and EFS of the entire cohort were 13 and 8 months respectively. Patient undergoing curative surgery had a statistically superior OS (49 vs. 7 months; p = 0.0001) and EFS (25 months vs. 5 months; p = 0.0001) compared to those who did not.

Conclusion: Locally advanced GBC remains a disease with poor prognosis. Chemotherapy with neoadjuvant intent in locally advanced/borderline resectable GBC showed good response rates. This resulted in curative surgical resection or disease stabilisation in significant proportion of patients. Patients who undergo definitive surgery after favourable response to NACT experience good survival.

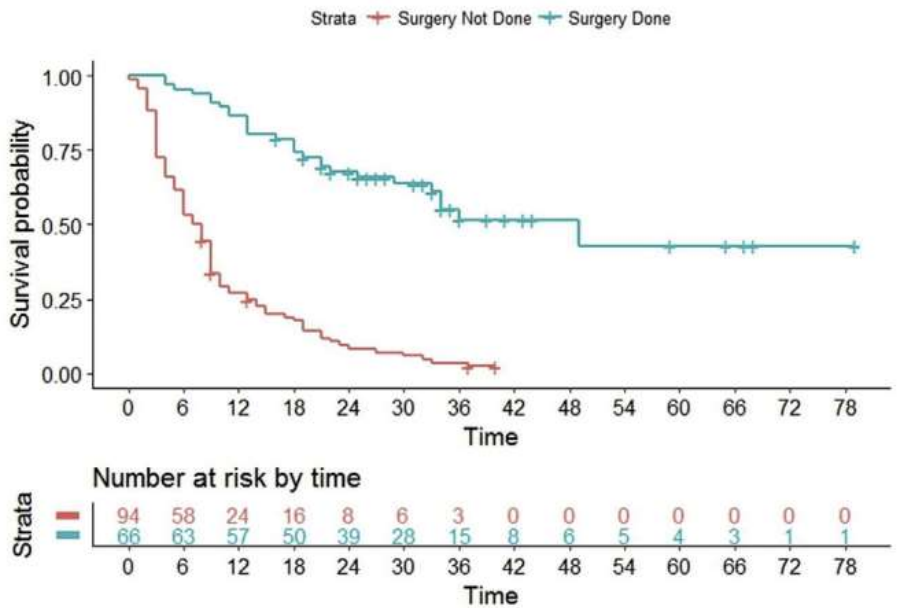

Figure 2 Overall survival- Surgery vs. no surgery

TMH criteria

- GEMCIS (gemcitabine 1000 mg/m2 as a 30-min infusion on day 1, 8 and cisplatin 25 mg/m2 on day 1 and 8 of a 21-day cycle)
- GEMOX (gemcitabine 1000 mg/m2 on day 1 as a 100-min infusion and oxaliplatin 100 mg/m2 on day 2 over 2 h every 14 days).

Table 1 TMH criteria (for Locally advanced/Borderline Resectable GBC used as an indication for Neoadjuvant Chemotherapy)

Tumour (T3–T4 tumours)	■ Contiguous liver involvement > 2 cm ■ Involvement of bile duct causing obstructive jaundice (Type I/II block on MRCP/ERCP/PTBD) ■ Radiological/Endoscopic involvement of antropyloric region of stomach, duodenum, hepatic flexure of colon or small intestine
Node (N1 station)	Radiological suspicion of lymph node involvement N1 ■ Hepatic artery (Station 8), ■ Hepatoduodenal ligament (Station12), ■ Retro pancreatic/retroduodenal (Station 13) Size > 1 cm in short axis, round in shape, and heterogenous enhancement on CT/PET scan.
Vascular (T4 tumours)	Impingement/involvement (<180-degree angle) of one or more of the following blood vessels: ■ Common Hepatic Artery and Right & Left Hepatic artery ■ Main Portal vein and Right & Left Portal vein
For incidental GBC	■ Residual/Recurrent mass in GB fossa/liver bed ■ N1 nodes as per nodal criteria. ■ Involvement of bile duct causing OJ (Type I/II Block)

Role of surgery in CaGB with jaundice

Resectional surgery in gallbladder cancer with jaundice—how to improve the outcome?

Rahul K. Chaudhary[1] · Ryota Higuchi[1] · Takehisa Yazawa[1] · Shuichirou Uemura[1] · Wataru Izumo[1] · Yutaro Matsunaga[1] · Erika Nagano[1] · Yasuto Sato[2] · Takehiro Ota[3] · Toru Furukawa[4] · Masakazu Yamamoto[1]

Abstract

Purpose To evaluate the surgical outcomes of patients with gallbladder cancer (GBC) with jaundice due to as-yet unelucidated prognostic factors.

Methods A total of 348 GBC patients underwent resection at our institute between 1985 and 2016. Of these, 67 had jaundice (serum total bilirubin ≥ 2 mg/dL). Preoperative biliary drainage was performed, with portal vein embolization as required. All patients underwent radical surgery. We retrospectively evaluated the outcomes, performed multivariate analysis for overall survival, and compared our findings to those reported in the literature.

Results The 5-year survival rate of M0 (no distant metastasis) GBC patients with jaundice, who underwent resectional surgery, was 21.9%, versus 68.3% in those without jaundice ($p < 0.05$). Since 2000, surgical mortality in GBC patients with jaundice has decreased from 12 to 6.8%. Patients with jaundice had more advanced disease and underwent major hepatectomies and vascular resections; however, preoperative jaundice alone was not a prognostic factor. Multivariate analysis of jaundiced patients revealed that percutaneous biliary drainage (PTBD) (vis-à-vis endoscopic drainage [EBD], hazard ratio [HR] 2.82), postoperative morbidity (Clavien–Dindo classification ≥ 3, HR 2.31), and distant metastasis (HR 1.85) were predictors of poor long-term survival. The 5-year survival and peritoneal recurrence rates in M0 patients with jaundice were 16% and 44%, respectively, for patients with PTBD and 39% ($p < 0.05$) and 13% ($p = 0.07$) for those with EBD.

Conclusion M0 GBC patients with jaundice should undergo surgery if R0 resection is possible. Preoperative EBD may be superior to PTBD in M0 GBC patients with jaundice, although further studies are needed.

Prognostic value of jaundice in patients with gallbladder cancer by the AFC-GBC-2009 study group

EJSO
the Journal of Cancer Surgery

J.M. Regimbeau [a,*], D. Fuks [a], P. Bachellier [b], Y.P. Le Treut [c], F.R. Pruvot [d], F. Navarro [e], L. Chiche [f], O. Farges [g]

Abstract

Introduction: Jaundice is frequent in patients with gallbladder cancer (GBC) and indicates advanced disease and, according to some teams, precludes routine operative exploration. The present study was designed to re-assess the prognostic value of jaundice in patients with GBC.
Methods: Patients with GBC operated from 1998 to 2008 were included in a retrospective multicenter study (AFC). The main outcome measured was the prognostic value of jaundice in patients with GBC focusing on morbidity, mortality and survival.
Results: A total of 110 of 429 patients with GBC presented with jaundice, with a median age of 66 years (range: 31–88). The resectability rate was 45% ($n = 50$) and the postoperative mortality and morbidity rates were 16% and 62%, respectively; 71% had R0 resection and 46% had lymph node involvement. Overall 1- and 3-year survivals of the 110 jaundiced patients were 41% and 15%, respectively. For the 50 resected patients, 1- and 3-year survivals were 48% and 19%, respectively (real 5-year survivors $n = 4$) which were significantly higher than that of the 60 non-resected patients (31%, 0%, $p = 0.001$). Among the resected jaundiced patients, T-stage, N and M status were found to have a significant impact on survival. R0 resection did not increase the overall survival in all resected patients, but R0 increased median survival in the subgroup of N0 patients (20 months versus 6 months, $p = 0.01$).
Conclusion: This series confirms that jaundice is a poor prognostic factor. However, the presence of jaundice does not preclude resection, especially in highly selected patients (N0).
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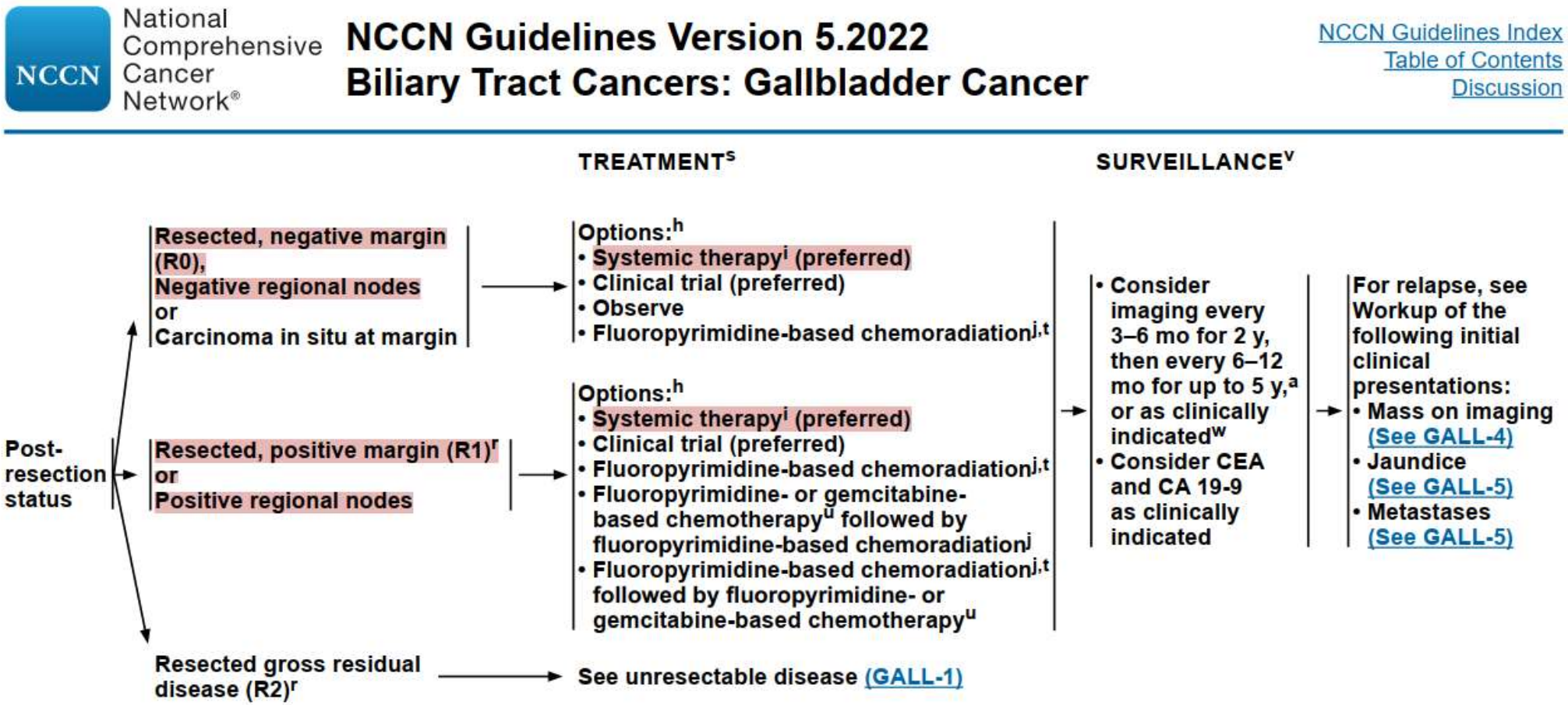
Adjuvant therapy



Capecitabine compared with observation in resected biliary tract cancer (BILCAP): a randomised, controlled, multicentre, phase 3 study

John N Primrose, Richard P Fox, Daniel H Palmer, Hassan Z Malik, Raj Prasad, Darius Mirza, Alan Anthony, Pippa Corrie, Stephen Falk, Meg Finch-Jones, Harpreet Wasan, Paul Ross, Lucy Wall, Jonathan Wadsley, Jeff T R Evans, Deborah Stocken, Raaj Praseedom, Yuk Ting Ma, Brian Davidson, John P Neoptolemos, Tim Iveson, James Raftery, Shihua Zhu, David Cunningham, O James Garden, Clive Stubbs, Juan W Valle, John Bridgewater, on behalf of the BILCAP study group

Adjuvant Therapy[b,2]

Preferred Regimens

- **Capecitabine[c,3] (category 1)**

Other Recommended Regimens

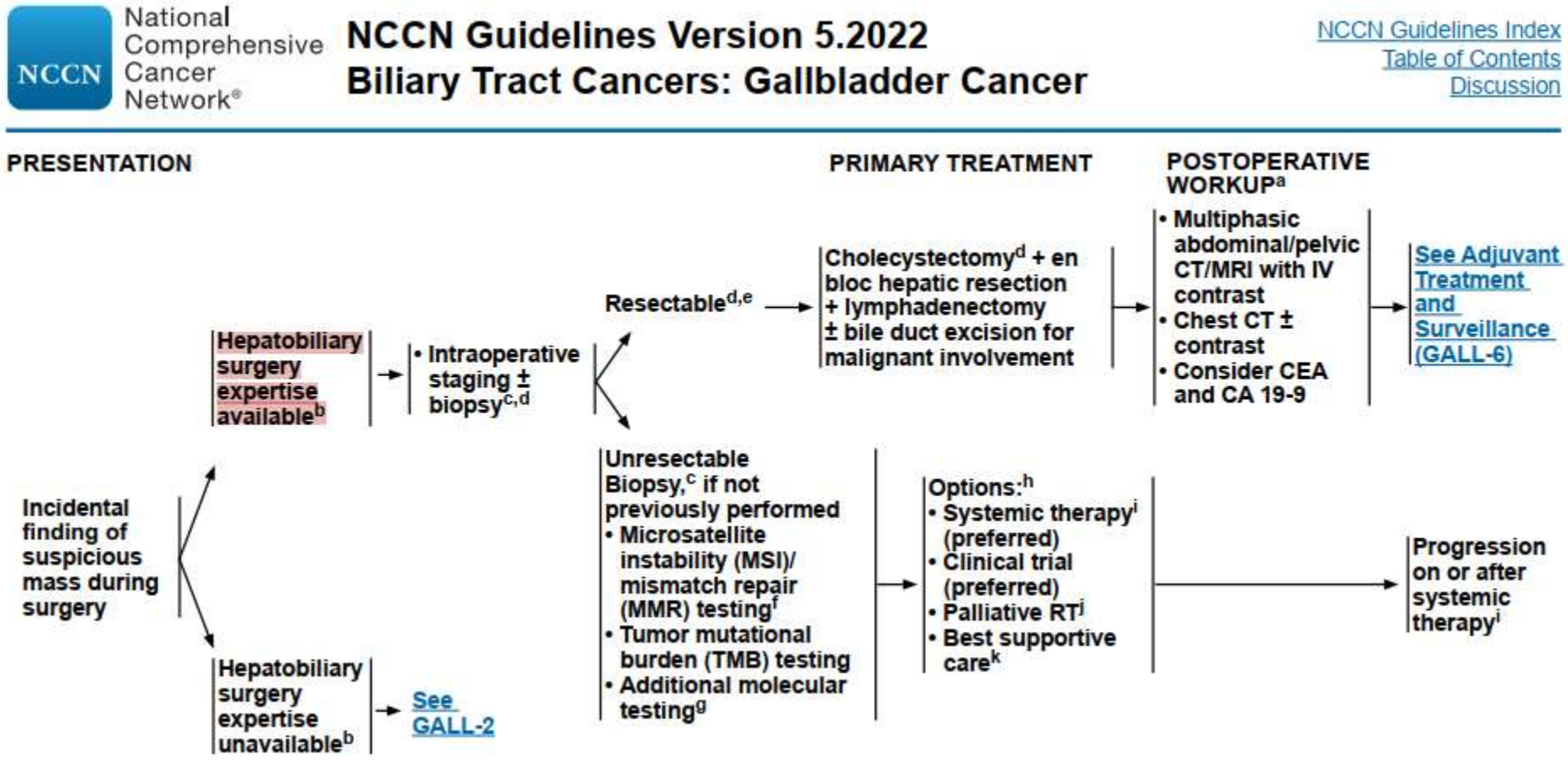
- **5-fluorouracil + oxaliplatin**
- **Capecitabine + oxaliplatin**
- **Gemcitabine + capecitabine**
- **Gemcitabine + cisplatin**
- **Capecitabine + cisplatin (category**
- **Single agents:**
  - **5-fluorouracil**
  - **Gemcitabine**

original report

Gemcitabine and Oxaliplatin Chemotherapy or Surveillance in Resected Biliary Tract Cancer (PRODIGE 12-ACCORD 18-UNICANCER GI): A Randomized Phase III Study

Julien Edeline, MD, PhD[1]; Meher Benabdelghani, MD[2]; Aurélie Bertaut, MD, PhD[3]; Jérôme Watelet, MD[4]; Pascal Hammel, MD[5]; Jean-Paul Joly, MD[6]; Karim Boudjema, MD, PhD[7]; Laetitia Fartoux, MD[8]; Karine Bouhier-Leporrier, MD[9]; Jean-Louis Jouve, MD[10]; Roger Faroux, MD[11]; Véronique Guerin-Meyer, MD[12]; Jean-Emmanuel Kurtz, MD, PhD[13]; Eric Assénat, MD, PhD[14]; Jean-François Seitz, MD[15]; Isabelle Baumgaertner, MD[16]; David Tougeron, MD, PhD[17]; Christelle de la Fouchardière, MD[18]; Catherine Lombard-Bohas, MD[19]; Eveline Boucher, MD[20]; Trevor Stanbury, PhD[21]; Christophe Louvet, MD, PhD[22]; David Malka, MD, PhD[23]; and Jean-Marc Phelip, MD, PhD[24]

Management of unsuspected CaGB



If expert GI surgeon not available, do not proceed with radical surgery.

Management of incidental CaGB

- 0.2% to 2.0% of all laparoscopic cholecystectomies *(Darmas et al, 2007)*
- Consider pathologic review – T stage, cystic duct margin, cystic LN status
- Discuss with primary surgeon regarding completeness of cholecystectomy, signs of disseminated disease, location of tumor, use of endobag, Hfo intra op bile spillage
- Repeat staging work-up – PET/ct.
- Diagnostic lap in patients with suspicious metastasis on imaging not amenable to Bx.

(Butte JM, Gonen M, Allen PJ, et al. The role of laparoscopic staging in patients with incidental gallbladder cancer. HPB (Oxford) 2011;13:463-472)

Tis and T1a – observe → as long as cystic duct margin is negative

- T1b or more +/- Nodes – Re-resection
- Resection of CBD only in cystic duct margin positive patients
- Port site implant is a surrogate marker for systemic disease – Port site excision not effective.
- Role of NACT in incidental GBC → TNM criteria.

→ Rationale for re-resection:

* Pawlik et al → incidence of residual disease correlates ↑ T-stage (overall - 46%)
* Fuks et al → improvement in overall survival following re-resection.

→ timing of re-resection - 4-8 weeks after cholecystectomy

→ Port site excision in incidental GBC:

Rate of port site recurrence, especially after intra op bile spillage → 40%.

↓

earlier, port site routinely excised.

↓

MSKCC data (Maker et al)
- port site excision did not improve OS or RFS
- Presence of port site mets correlated ↑ disseminated mets.

↓

Fuks et al
- No improvement in OS/RFS
- Hernia rate - 15%

↓

currently, routine port site resection is not recommended in re-resection of incidental GBC.

Thank you!