IASGO ICUR& KSGC 2018 JOINT SYMPOSIUM

Is laparoscopic radical cholecystectomy for gallbladder cancer standard?

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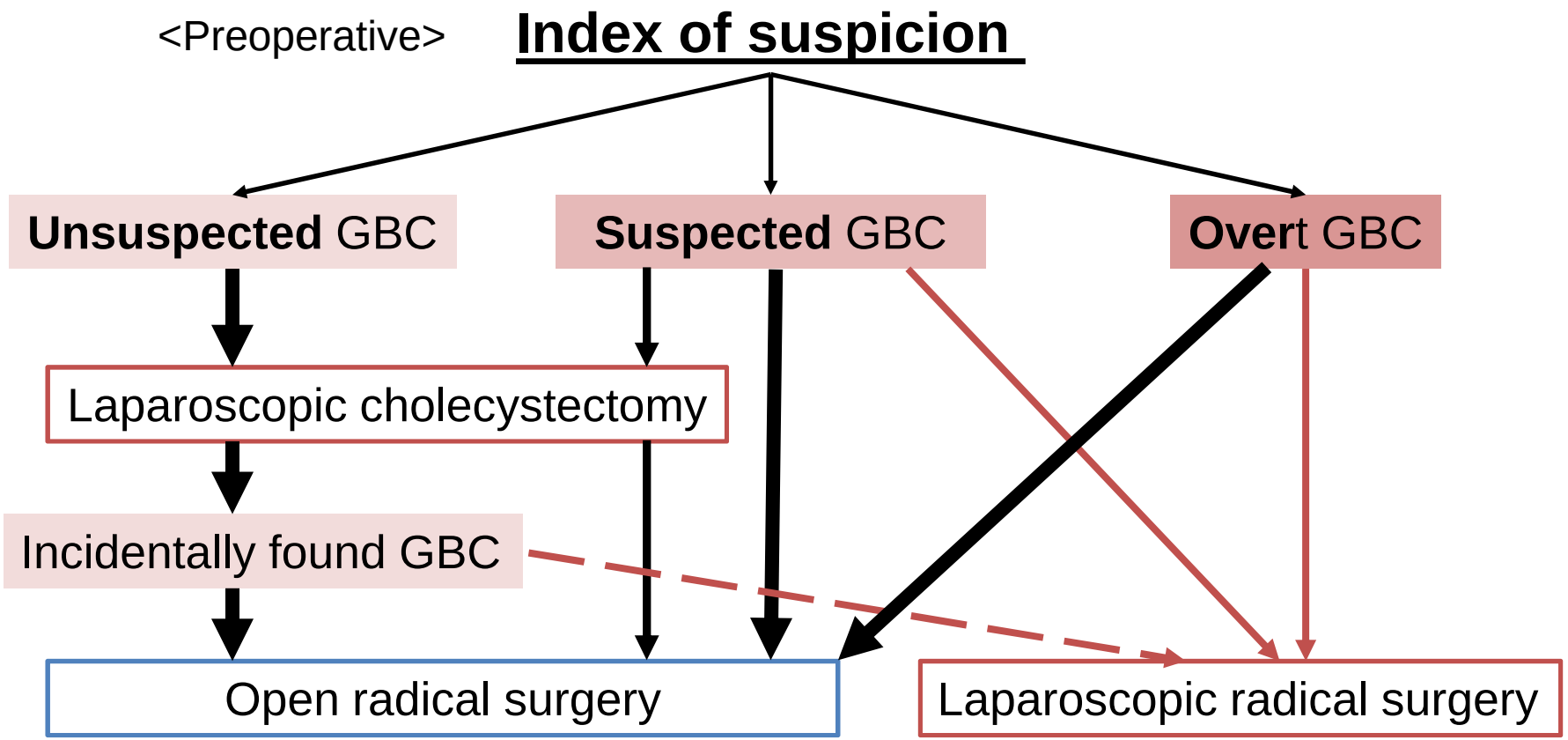
Current role of laparoscopic surgery in the treatment of GBC



Literature review

- Published case series in which more than 5 patients with GBC underwent laparoscopic extended cholecystectomy

Publication	Number of GBC patients	Indication	Open conversion (reason)	Operative time, min	Blood loss, mL	Complication, *n* (%)	Hospital stay, days
Cho et al. [7]	18	Primary	1 (portal vein injury)	190*	50*	3 (16.7)	4*
de Aretxabala et al. [8]	7	Completion	2 (LN metastasis, bile duct injury)	NA	NA	0	3
Gumbs et al. [9]	15	Primary (10), Completion (5)	1 (CBD resection)	220	160	0	4
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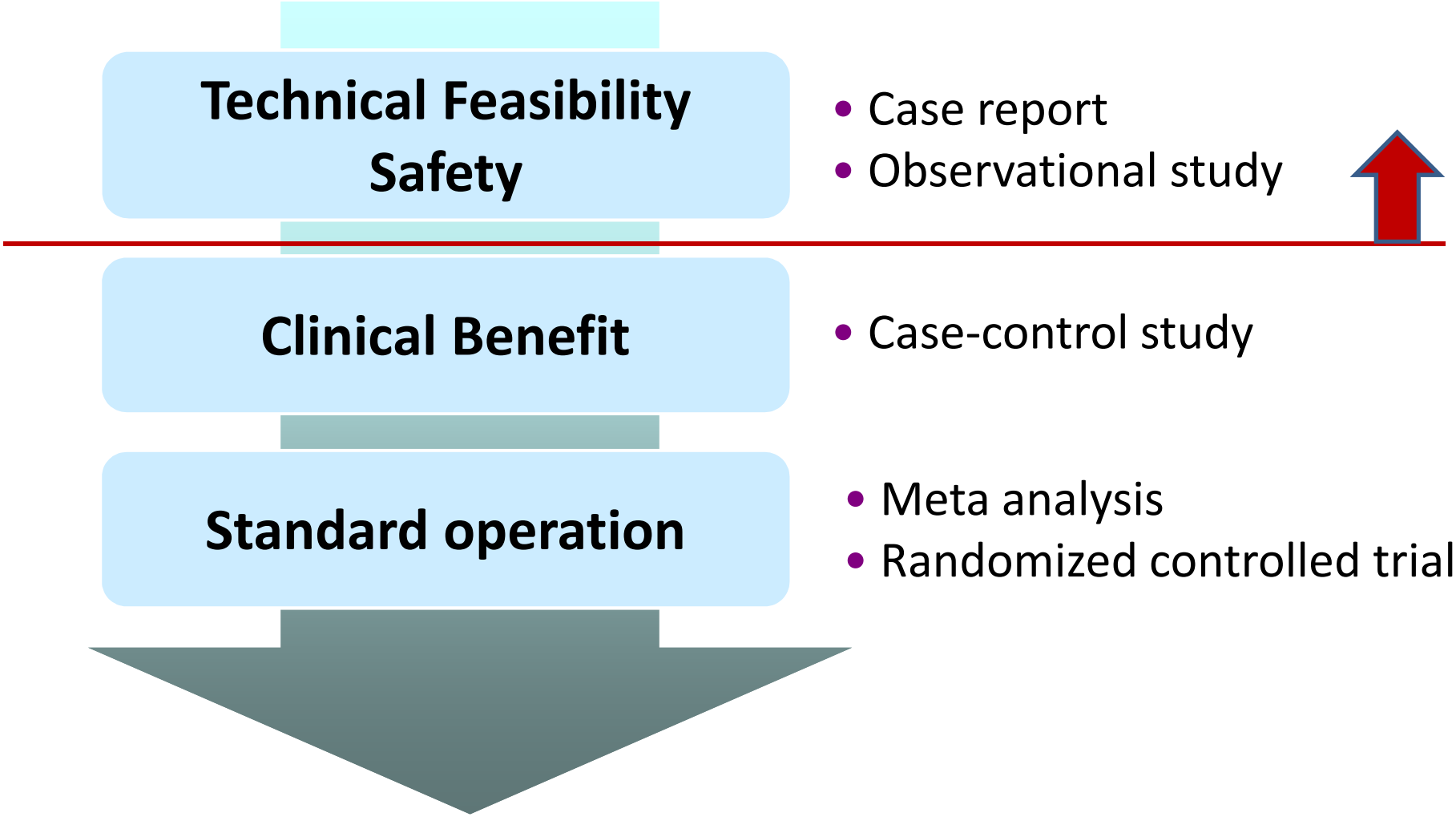
Yoon et al. [13]	30	Primary	1 (portal vein injury)	205*	100*	6 (18.8)	4*
Palanisamy et al. [11]	12	Primary	0	213	196	4 (28.6)	5

Yoon Y-S, Han H-S, et al. Dig Surg. 2018.

Laparoscopic Surgery for GBC
standard operation?



Laparoscopic Surgery for Gallbladder Cancer: An Expert Consensus Statement

Ho-Seong Han[a] Yoo-Seok Yoon[a] Anil K. Agarwal[b] Giulio Belli[c]
Osamu Itano[d] Andrew A. Gumbs[e] Dong Sup Yoon[f] Chang Moo Kang[f]
Seung Eun Lee[g] Toshifumi Wakai[h] Roberto I. Troisi[i]

Han H-S, Yoon Y-S, et al. Dig Surg. 2018.

- Expert consensus meeting during the 26th World Congress of IASGO (September 10, 2016)

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- Patient selection
- Technique:
  - LN dissection
  - Liver resection
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- Shor-term and long-term outcomes
- Laparoscopic redo operation

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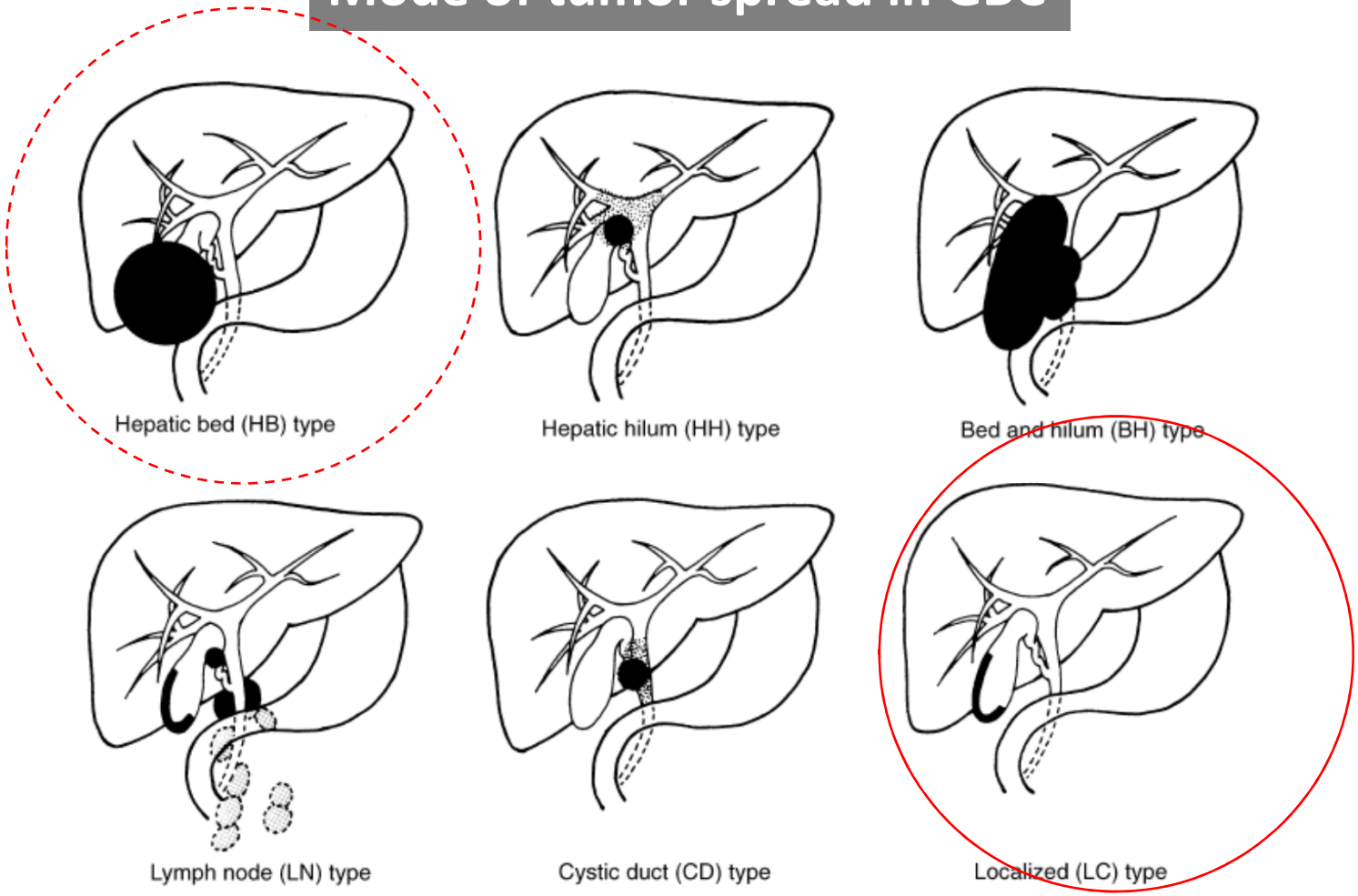
Current indication for Laparoscopic extended cholecystectomy

Mode of tumor spread in GBC



Kondo S, et al . Langenbecks Arch Surg 2002.

Current indication for Laparoscopic extended cholecystectomy

Depth of invasion in GBC

- **T1a:** invades lamina propria
- **T1b:** invades the muscle layer
- **T2:** invades perimuscular connective tissue
- **T3:** Tumor perforates the serosa and/or directly invades the liver and/or one other adjacent organ
- **T4:** Tumor invades the main blood vessels leading into the liver or several organs outside the liver.

Consensus: For safe selection of indicated patients, accurate preoperative staging in terms of depth of invasion is important.

ORIGINAL ARTICLE

Laparoscopic Approach for Suspected Early-Stage Gallbladder Carcinoma

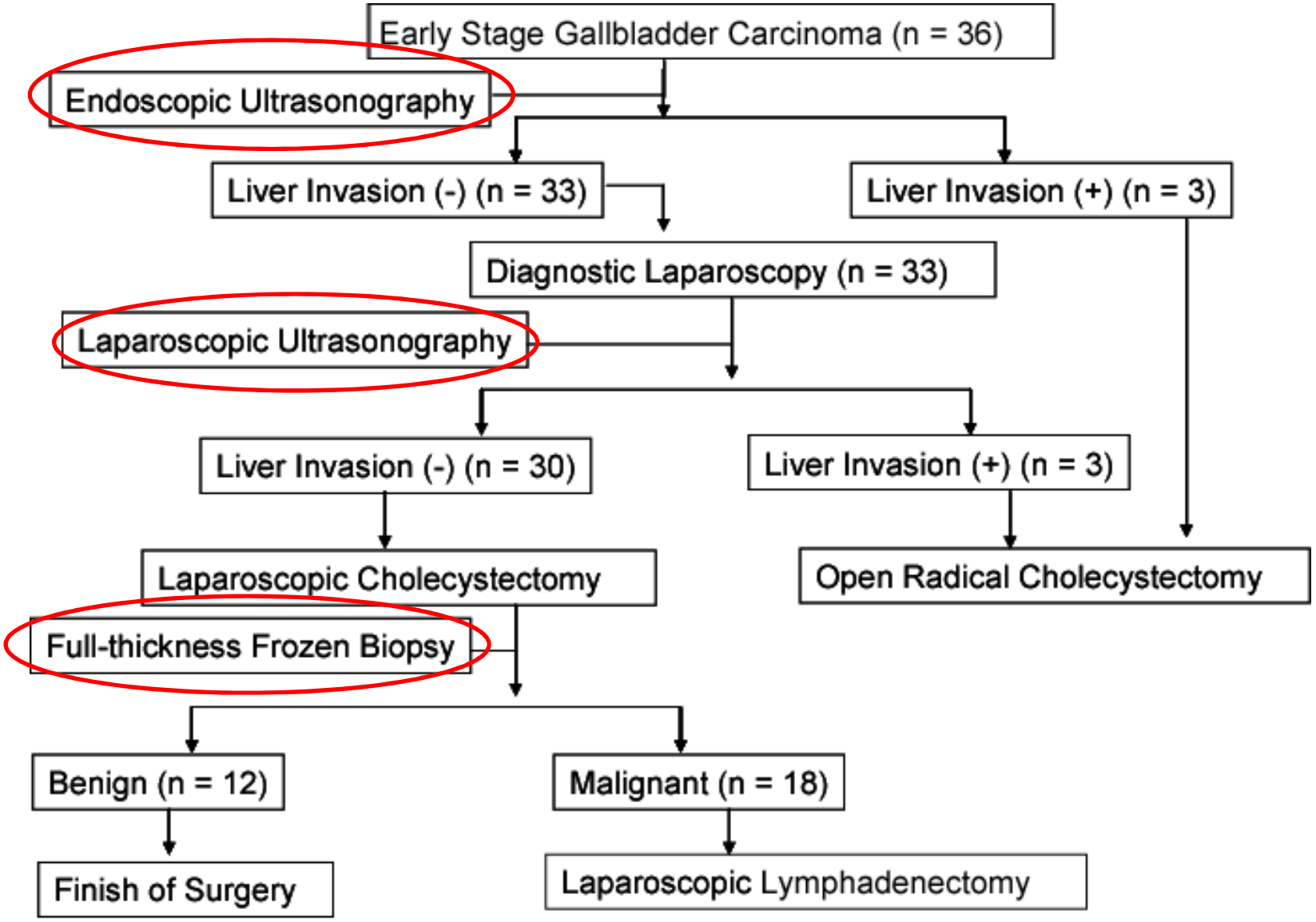
Jai Young Cho, MD, PhD; Ho-Seong Han, MD, PhD; Yoo-Seok Yoon, MD, PhD; Keun Soo Ahn, MD; Young-Hoon Kim, MD, PhD; Kyoung-Ho Lee, MD, PhD

Arch Surg. 2010;145(2):128-133

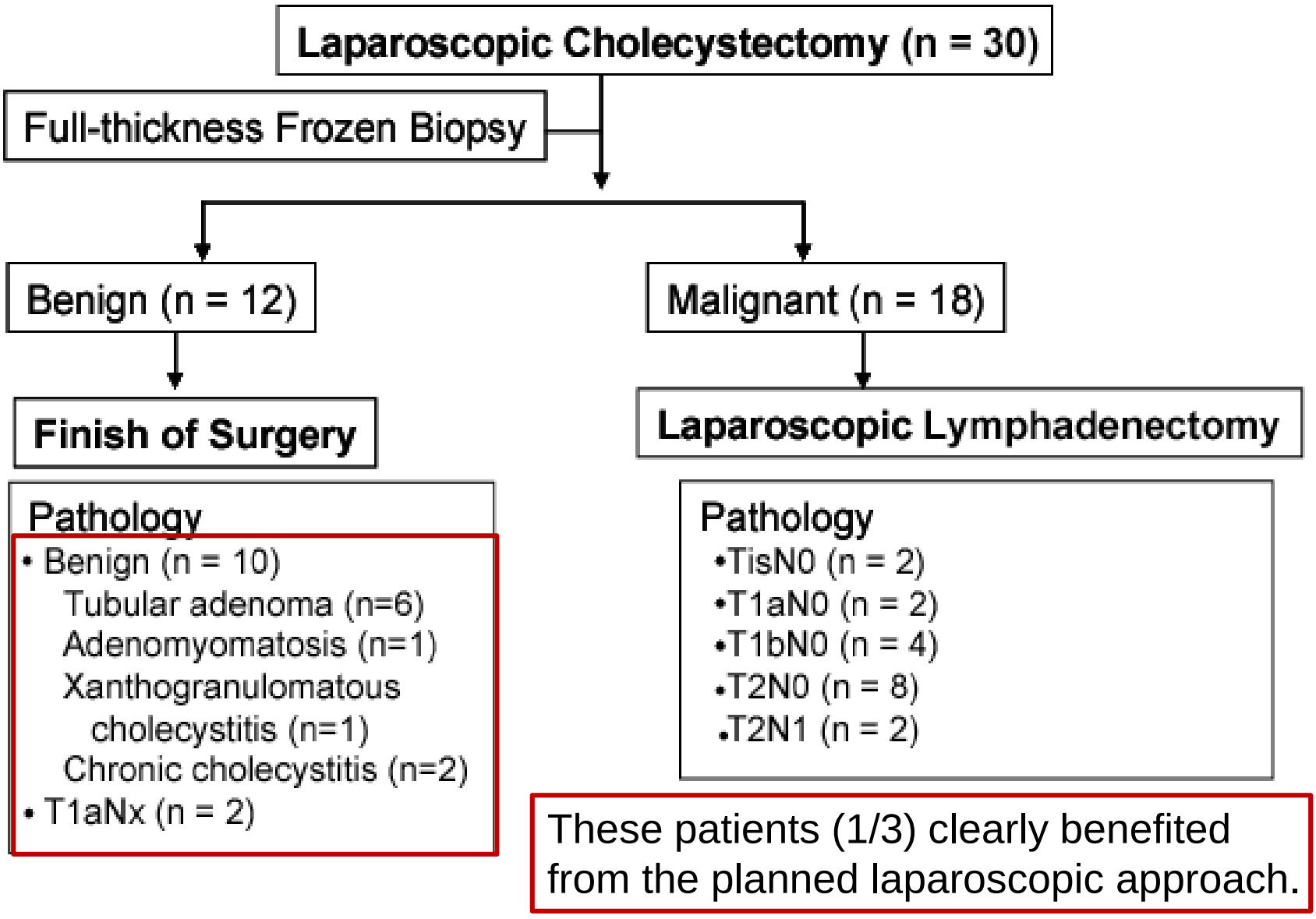
- Intention-to-treat analysis for planned laparoscopic surgery for GBC, including **laparoscopic LN dissection** (May 2004 - October 2007)
- Inclusion criteria: suspicious GBC on the preoperative CT
  - **Radiological T1 or T2**
  - No liver invasion
  - No involvement of the extrahepatic bile duct

Treatment Algorithm of SNUBH

from May 2004 to October 2007

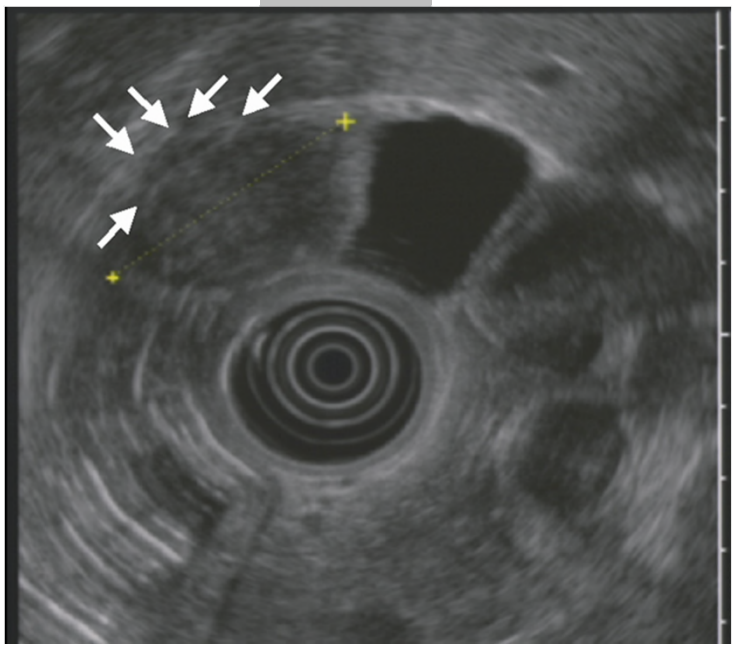


Postoperative pathologic results

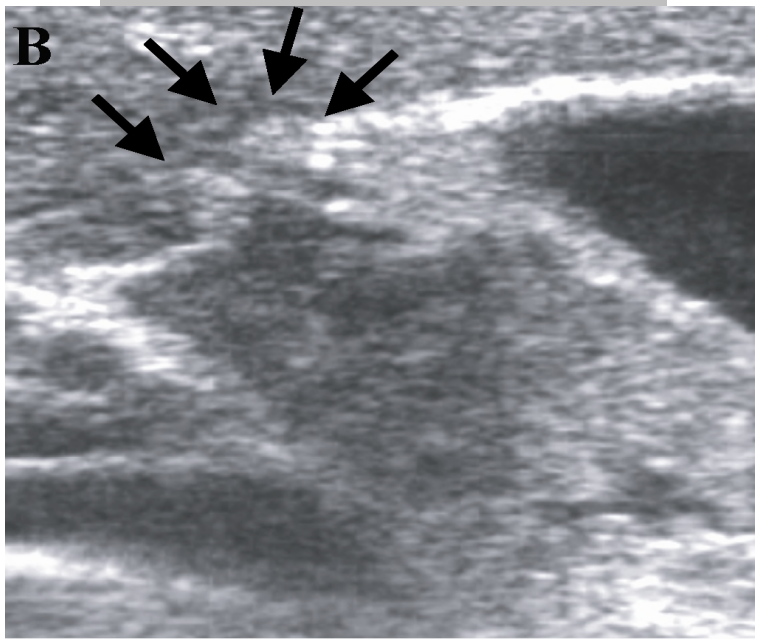


Endoscopic/Laparoscopic US

EUS



Laparoscopic US

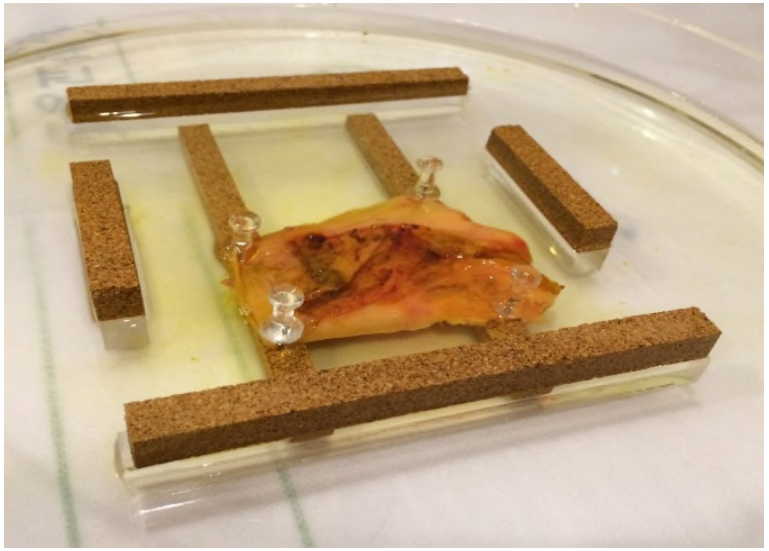


- **Newly detected liver invasion**: 16.7%
- **Negative predictive value for liver invasion**
  - CT + **EUS + LUS**: 100% >> **CT**: 83.3%

Consensus: EUS or LUS may be more useful as a complementary procedure compared with conventional US and CT.

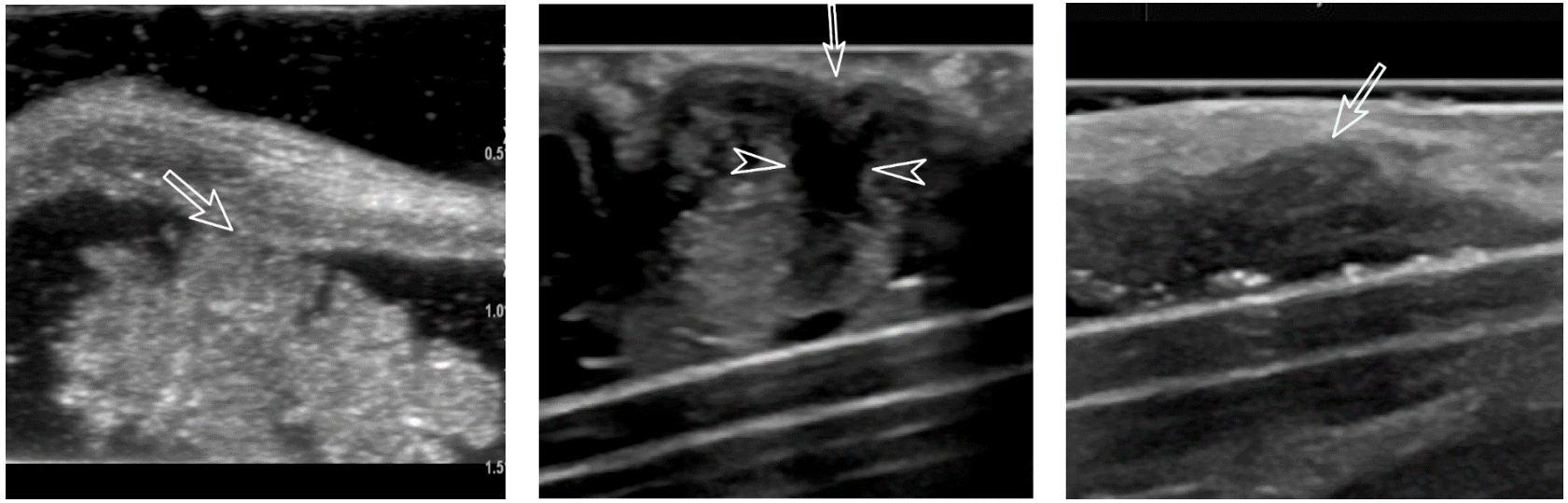
Determining the extent of cholecystectomy using intraoperative specimen ultrasonography in patients with suspected early gallbladder cancer

Park JH, Yoon YS, et al. Surg Endosc 2016.



- GB specimen: opened with an incision and pinned on flat corks bars with the mucosal side facing down.
- Saline: the medium for ultrasound transmission.
- Scanned with a linear hockey-stick transducer: 18 MHz

<Specimen US images of each T stage>



T1a T1b T2

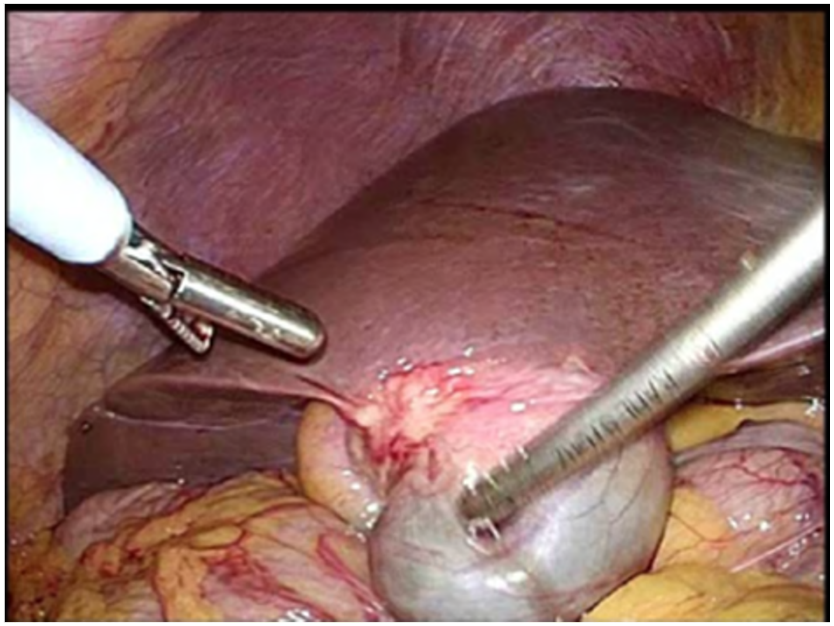
- Diagnosis of T1b or greater GB cancer (n=45)

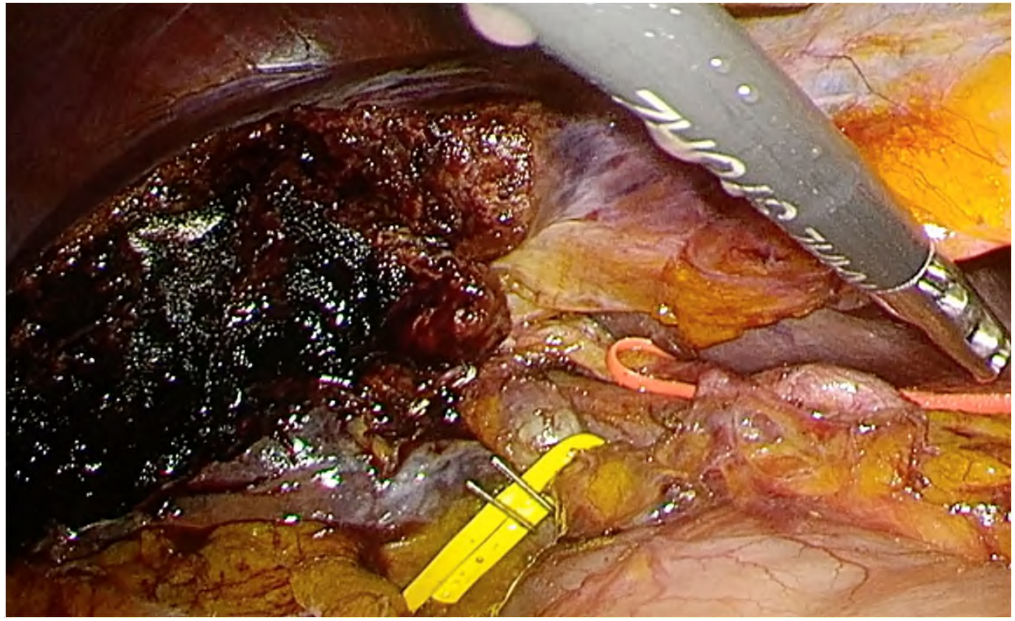
	Sensitivity	Specificity
Frozen biopsy	43 % (95 % CI, 10–82 %)	95 % (75–100 %)
Specimen US	81 % (54–96 %)	85 % (65–96 %)
Both	88 % (62–98 %)	89 % (72–98 %)

Laparoscopic extended cholecystectomy for T3 gallbladder cancer

Sungho Kim[1] · Yoo-Seok Yoon[1] · Ho-Seong Han[1] · Jai Young Cho[1] · YoungRok Choi[1]

Surg Endosc 2017





- Expansion of indication to T3 (focal liver invasion)

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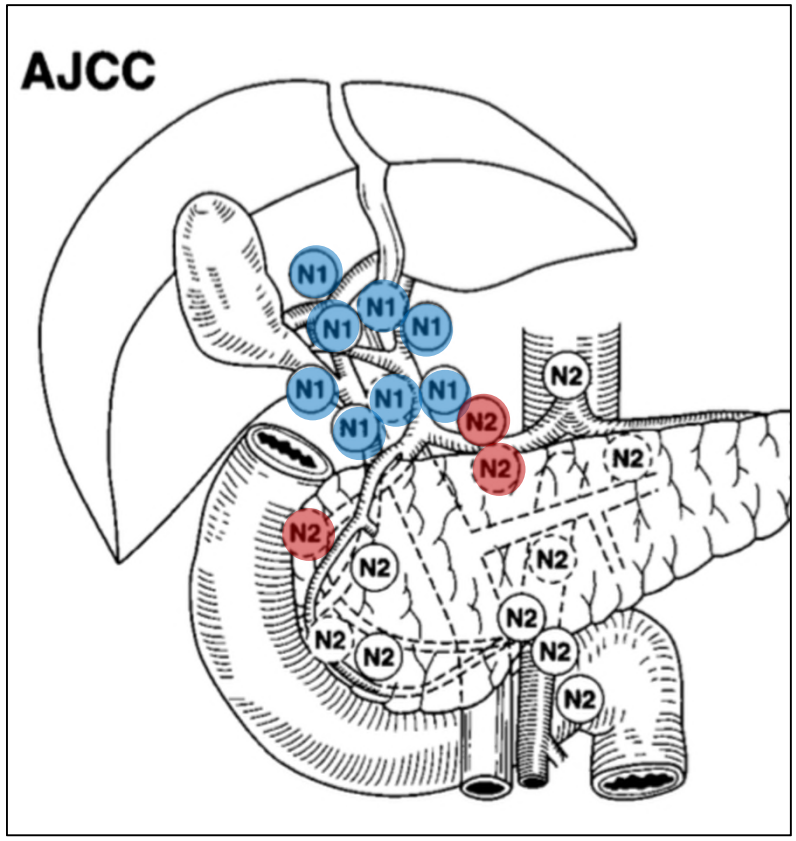
Extent of LN dissection

No RCT comparing survival with the extent of LN dissection

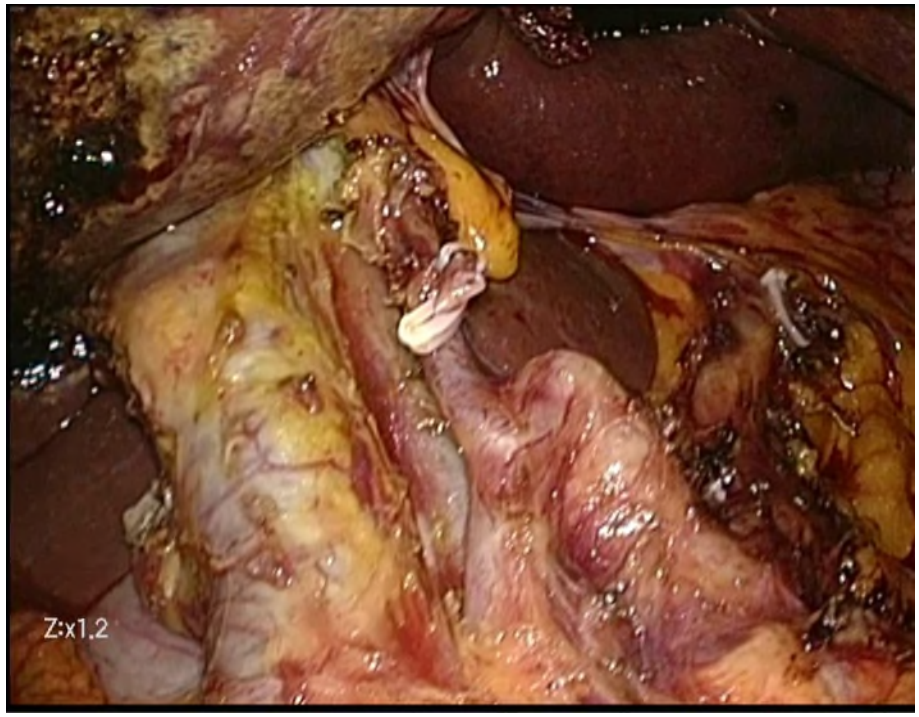


Western: LN 12
(NCCN guideline)

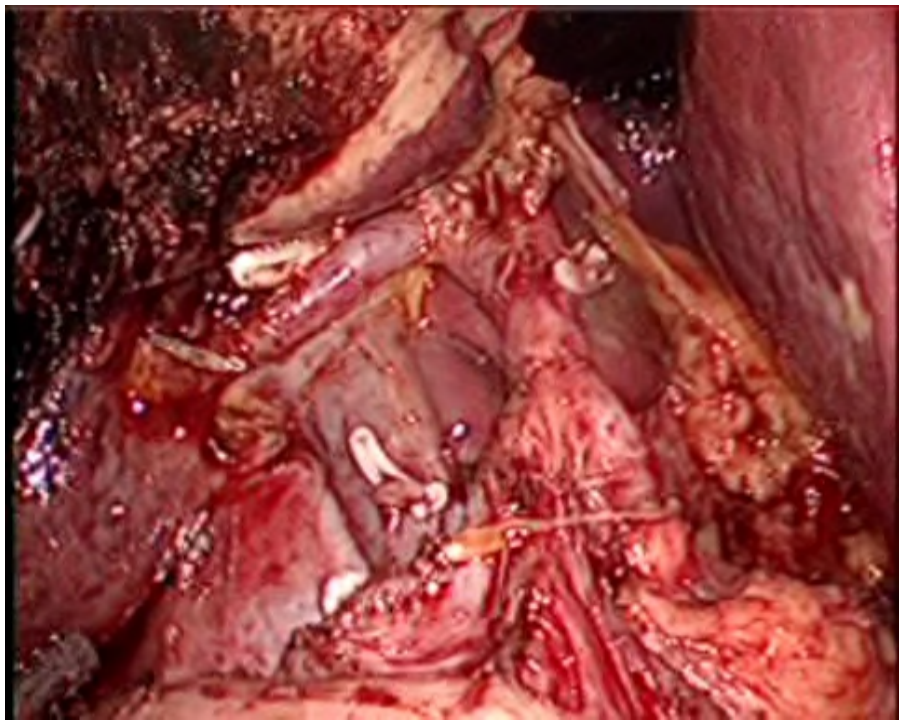
Eastern: LN 12 +LN 8, 13a
(Korea & Japan guideline)

Extent of laparoscopic LN dissection
- SNUBH-

Without CBD resection



With CBD resection



Dissection of LN 8,12,13a

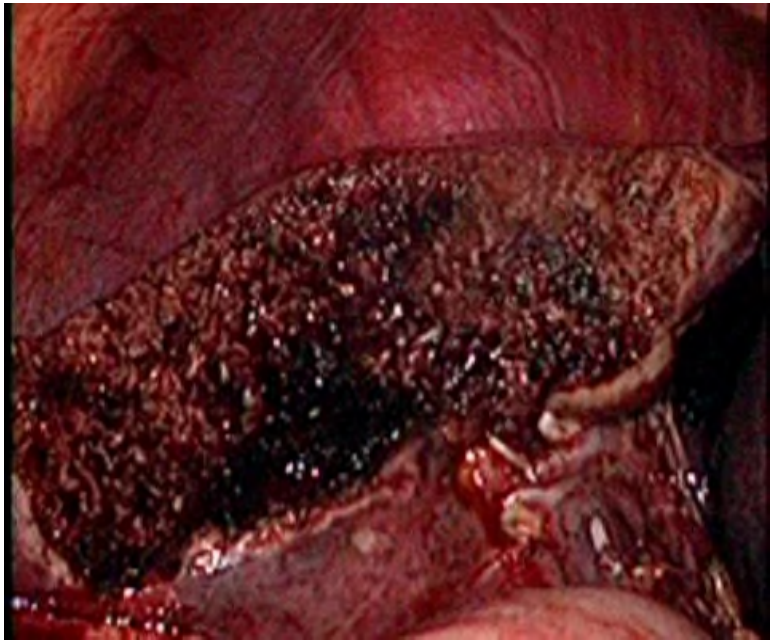
Laparoscopic LN dissection for GBC

	No.	Extent of LN dissection	No. of Resected LNs	Postop Complications
Cho A, 2008	3	LN 12	4 (4-5)	No
Gumbs AA, 2010	6	LN 12 + CBD resection	3 (1-6)	No
Aretxabala X, 2010	5	LN 12	5.8 (3-12)	No
Belli G, 2011	4	LN 12	-	No
Agarwal, 2015	24	LN 8, 12, 13a + LN16 sampling	10 (4-31)	3 (12.5%)
Itano, 2015	19	LN 8, 12, 13a	11.4	1 (5/3%)
Shirobe T, 2015	11	LN 8, 12, 13a + CBD resection (2)	13.1 (9-18)	1 (9.1%)
Cho JY, 2010 /Yoon YS, 2015	32	LN 8, 12, 13a	7 (1-15)	6 (18.8%)

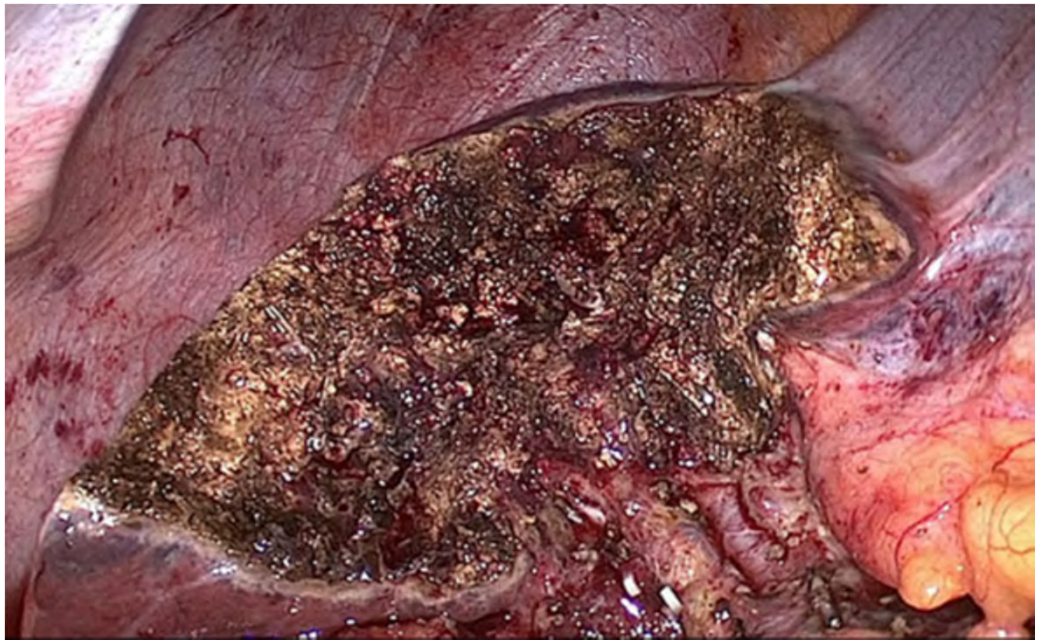
Concensus: safe and adequate procedure from an oncologic point of view.

Liver resection of GB bed

Wedge resection



IVb+V bisegmentectomy



Consensus:

- The most common type of liver resection reported is wedge resection of the GB bed.
- Laparoscopic IVb/V segmentectomy is performed in some centers.

Extrahepatic bile duct resection

Consensus: not a contraindication for laparoscopic surgery for GBC

- Routine resection of the bile duct for LN dissection is not recommended
  - increases morbidity
  - no evidence of improving survival
- **Indications**: same as open surgery
  - a positive cystic duct margin after cholecystectomy
  - approaching the hepatoduodenal ligament, involving lymph node or perineural infiltration
  - inflammation and scarring that compromises adequate skeletonization of the porta hepatis

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Postoperative outcomes

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Consensus: acceptable postoperative outcomes compared with those of open surgery.

Laparoscopic extended cholecystectomy for suspicious/overt GBC

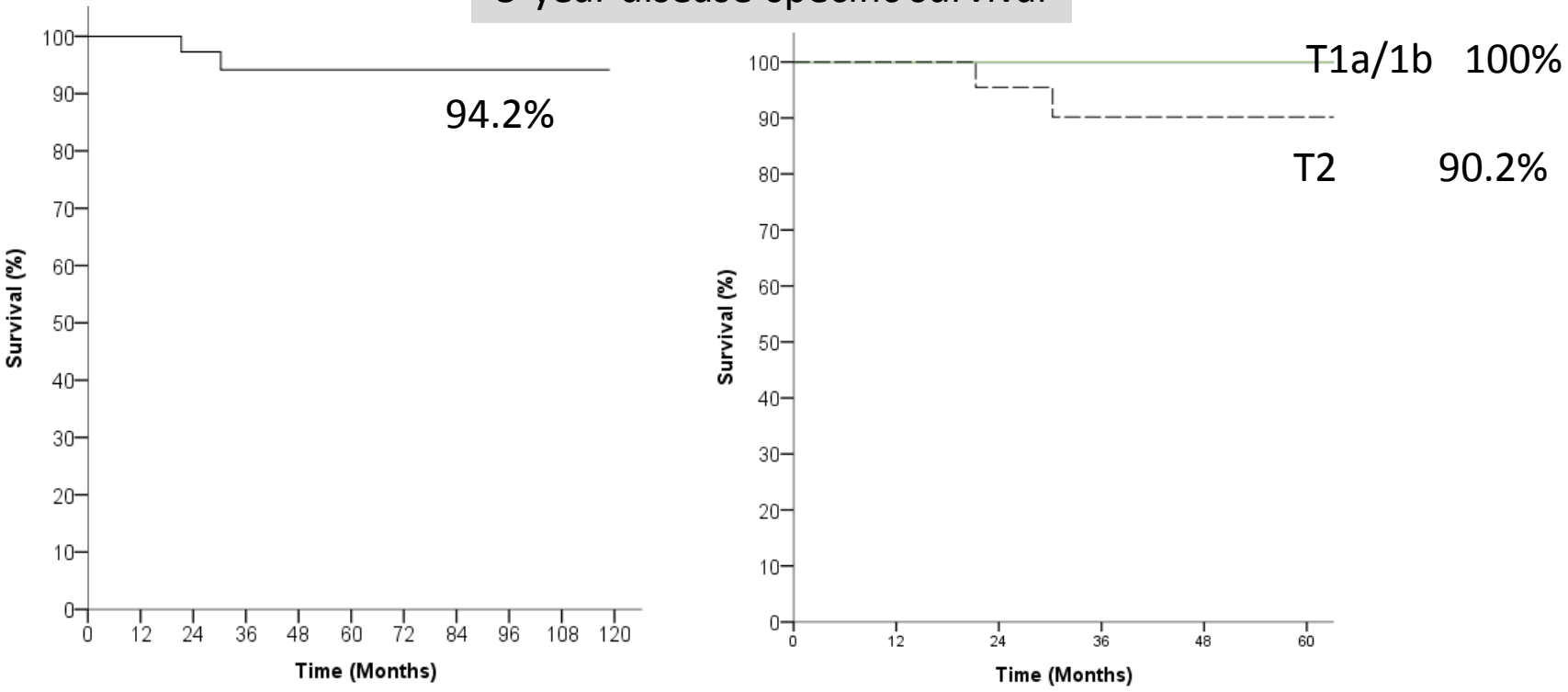
	No.	Pathology	Surgical procedure	Follow-up
Cho A, 2008	3	2 T2, 1 Benign	Wedge liver resection LN dissection	No recurrence (9,20 months)
Gumbs AA, 2010	6	3 GBC, 3 Benign	Wedge liver resection LN dissection CBD resection	-
Aretxabala X* , 2010	5	5 GBC	Wedge liver resection LN dissection	1 recurrence (Mean:22 months)
Argarwal, 2015	24	1 T1b, 11 T2, 8 T3	IVb+V liver resection LN dissection	1 recurrence (median:18 months)
Itano, 2015	19	19 T2	Wedge liver resection LN dissection	No recurrence (median: 37 months)
Shirobe T, 2015	11	T1b (1), T2 (6)	Wedge liver resection LN dissection ± CBD resection	5-year survival T1b: 100% T2: 83.3%
Cho JY, 2010 /YOON YS, 2015	45	2 Tis, 10 T1a, 8 T1b, 25 T2	LN dissection	5-year survival T1a/1b: 100% T2: 90.2%

Is Laparoscopy Contraindicated for Gallbladder Cancer? A 10-Year Prospective Cohort Study

Yoon YS, Han HS, et al. J Am Coll Surg. 2015

- 45 patients with pathologically proven GBC

5-year disease-specific survival



Consensus: The survival outcomes of highly selected patients are similar between laparoscopic and open surgeries.

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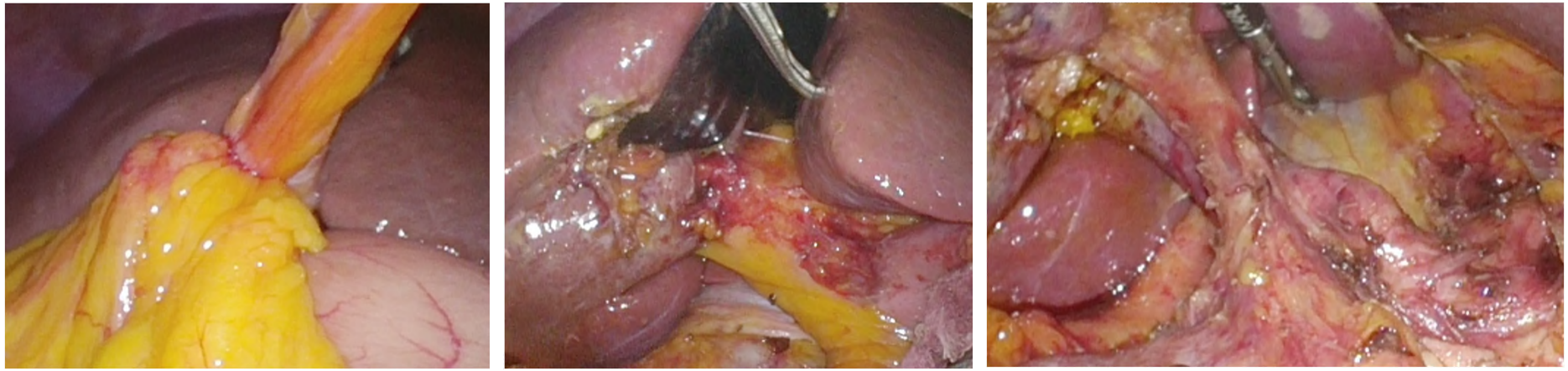
Laparoscopic redo surgery for incidentally found GBC

	Patients (n)	Pathology	Surgical procedure	Follow-up
Gumbs AA, 2010 (USA)	3	T2	Wedge liver resection LN dissection ± CBD resection Port-sites excision	-
Aretxabala X* , 2010 (Chile)	5	5 GBC	Wedge liver resection LN dissection	1 recurrence (mean: 22 months)
Belli G, 2011 (Italy)	4	T1b (3) Tis (1)	Wedge liver resection LN dissection Port-sites excision	No recurrence (mean: 30 months)
Agarwal, 2015 (India)	4	-	IVb+V liver resection LN dissection	No recurrence (median:18 months)
Shirobe T, 2015 (Japan)	7	T1b (1) T2 (6)	Wedge liver resection LN dissection ± CBD resection	5-year survival T1b: 100% T2: 83.3%
Yamashita S, 2016 (USA)	1	T3	IVb+V liver resection LN dissection	No recurrence (27 months)

Laparoscopic redo surgery for incidentally found GBC



Consensus

- Technically challenging due to inflammatory adhesions or fibrosis around the GB bed and hepatoduodenal ligament.
- Its feasibility has been demonstrated by some expert teams.
- Routine excision of the port site is not recommended

Conclusion

- Although experience with laparoscopic extended cholecystectomy for GBC has been limited to a few experts, the postoperative and survival outcomes of highly selected patients were favorable.
- Laparoscopic surgery for GBC is still in the early phase of the adoption curve, and more evidence is required before this procedure can be widely accepted as standard.


Thank you for your kind attention.