Pear Shaped in Clinic

Issues following laparoscopic cholecystectomy

Jonathan B. Koea MD FACS FRACS
Department of Surgery
North Shore Hospital
Takapuna
Auckland

Waitemata District Health Board
Te Wai Awhina
Making a healthy difference to the community

THE UNIVERSITY OF AUCKLAND
FACULTY OF MEDICAL & HEALTH SCIENCES

NZAGS
New Zealand Association of General Surgeons

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Introduction

- “Pear shaped”

- “meaning is mostly limited to the UK, South Africa and Australasia. It describes a situation that has gone awry, perhaps horribly so. A failed bank robbery could be said to have gone pear-shaped. The origin for this use of the term is in dispute. The *OED* cites its origin as within the RAF as a cleaned-up alternative version of its phrase “ti*s up" meaning completely broken or dead; as of 2018 the earliest citation is a quote in the 1983 book *Air War South Atlantic*.”

- Surprisingly common!

- Accompanied by emotions of distress, guilt, anxiety, low self worth and occasionally panic

https://en.wikipedia.org/wiki/Pear-shaped

Cholecystectomy in New Zealand

Table 32: Mortality following cholecystectomy by year, New Zealand 2010–2015

YEAR	Deaths	Admissions	Mortality per 100 admissions (%)
2010	16	6,301	0.25
2011	30	6,624	0.45
2012	21	6,654	0.32
2013	25	6,869	0.36
2014	26	7,187	0.36
*2015**	*15*	*6,244*	*0.24*
2010–2015			
Laparoscopic	34	35,931	0.09
Open	89	2,726	3.26
Laparoscopic to open	10	1,153	0.87
Acute	75	13,036	0.58
Elective/waiting list	57	25,899	0.22
Overall	**133**	**39,879**	**0.33**

Numerator: NMC: Deaths occurring within 30 days of a cholecystectomy, as recorded in the NMDS.
Denominator: NMDS: Admissions with a cholecystectomy listed in any of the first 90 procedures.
* Provisional data.

POMRC, 6th report, June 2017, pp66

What About Follow up?

- Conventional – 6 weeks SOPC
  - » “is everything OK?”
  - » Review pathology
- Post COVID
  - » SOS – follow up only if patient requests within time frame
  - » Telephone
  - » ZOOM/video
  - » Via GP referral “if problems”
- Many seen as new referrals in public system or in private system

Pear Shaped Possibilities

Pear Shaped Early (≤ 7 days of surgery)	Pear Shaped Late (> 7 days of surgery)
Bile duct injury	Persisting bile leak
Bleeding	Bowel obstruction (adhesive, hernia)
Abdominal wall haematoma	Sepsis (spillage, cholangitis, other)
Intra-abdominal haematoma	Incidental cancer or dysplasia
Intra-abdominal abscess	Post cholecystectomy pain (retained stone, sphincter of Oddi, other)
Enteric injury	Diarrhoea
	Gastro-oesophageal reflux

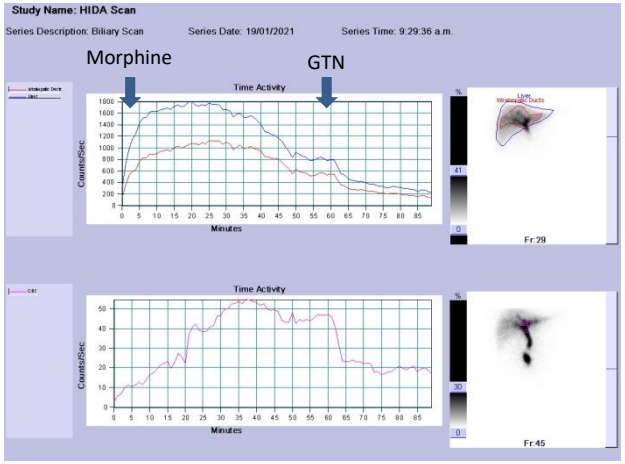
Collectively and individually have been referred to as “post-cholecystectomy syndrome”

A 48 year old female undergoes laparoscopic cholecystectomy for recurrent biliary colic. The operative findings confirm multiple small stones, omental adhesions, and a normal cholangiogram. A critical view was achieved.

She is discharged without followup but represents as a new referral 5 months later with post prandial pain similar to her biliary colic.

Liver function tests show ALT 67 (<45 U/L), ALP 155 (40-110 U/L), γGT 76 (<50 U/L)

- MRCP confirms:
  - absence of strictures
  - absence of filling defects
  - all major ducts present and not dilated



- HIDA scan confirms:
  - good concentration of contrast in liver
  - good excretion into extrahepatic ducts
  - Delayed emptying to duodenum improved with GTN
  - Confirms sphincter of Oddi dysfunction

Table 1
Modified Milwaukee classification scheme

Classification	Diagnostic Criteria
A. Biliary SOD	
Type 1	1. Biliary-type pain 2. Elevated ALT, AST, AP more than 1.5–2.0 times the upper limit of normal on at least 2 or more occasions 3.Bile duct diameter ≥10 mm
Type 2	Biliary-type pain with either B or C in the aforementioned criteria
Type 3	Biliary-type pain only with no other abnormalities
B. Pancreatic SOD	
Type 1	1. Pancreatic-type pain 2. Elevated serum amylase or lipase more than 1.5–2.0 times the upper limit of normal on at least 2 or more occasions 3. Pancreatic duct diameter ≥6 mm in the head and ≥5 mm in the body
Type 2	Pancreatic-type pain with either B or C in the aforementioned criteria
Type 3	Pancreatic-type pain only with no other abnormalities

Box 2
Selection for endoscopic sphincterotomy based on classification type

After exhausting all other potential causes and medical therapies and assuming documented evidence of abnormal biochemistries and/or imaging above thresholds

Patients who should be treated

- SOD type I

Patients who should not be treated

- SOD type III

Patients who should possibly be treated

- SOD type II (with high manometric pressures)

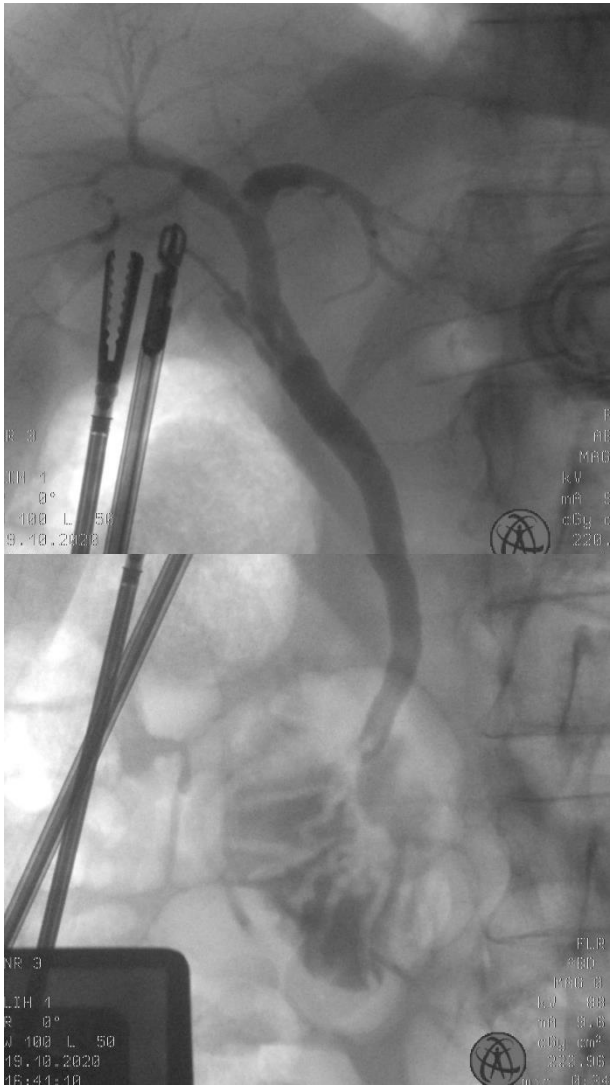
Surg Clin Nth Am 2015;25:749

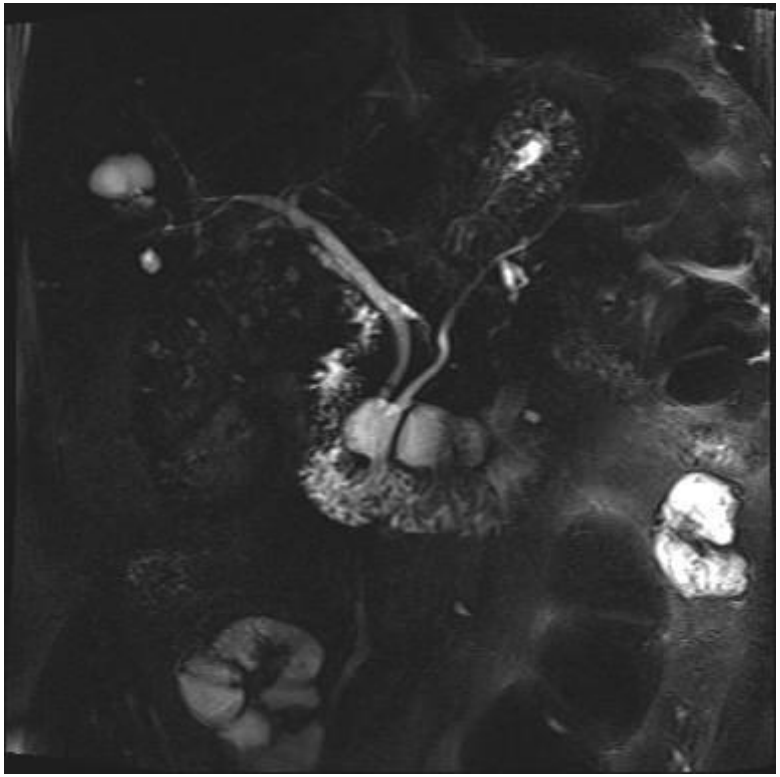
Management Options

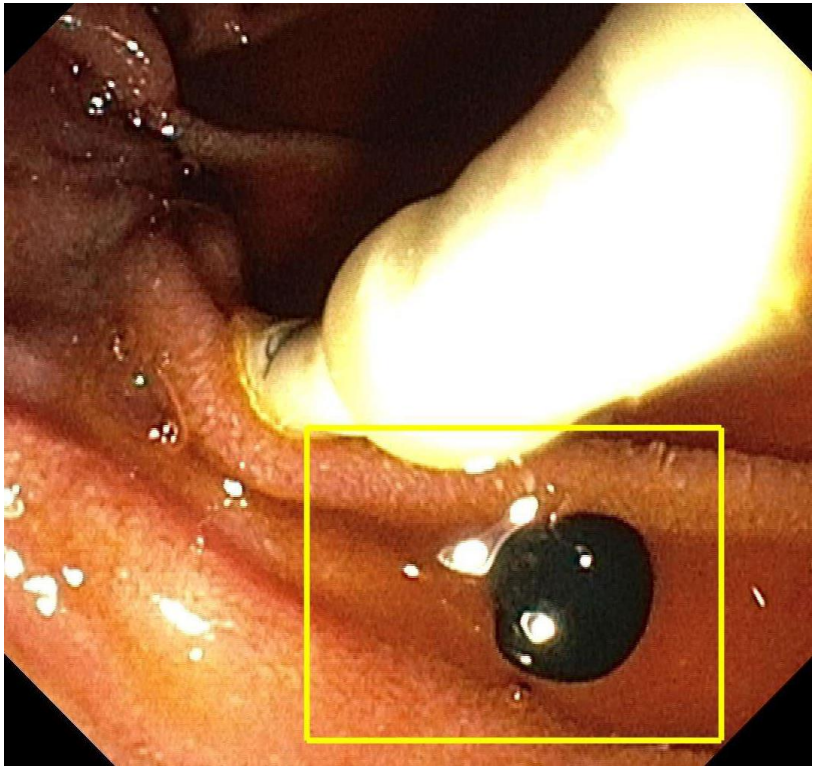
- Reassure and wait
  - » Symptoms may settle
- GTN spray PRN
  - » Headache is common and major complication
- ERCP and sphincterotomy
  - » Effective
  - » Risk associated with ERCP in small duct
  - » Long term risks of sphincterotomy unclear
  - » Recurrence is possible

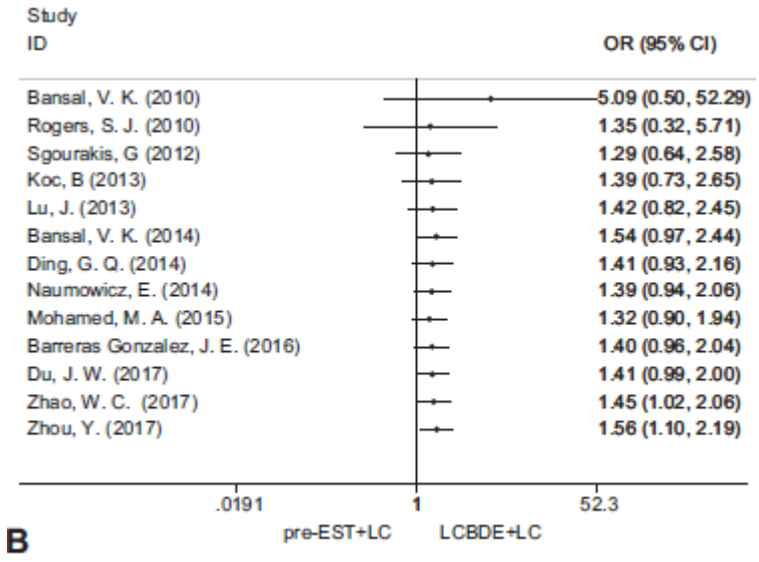
A 73 year old man presented with RUQ pain. US confirmed calculous cholecystitis. Liver function tests were all within the normal range. Laparoscopic cholecystectomy with IOC was undertaken with the operative findings of a thick walled, inflamed gallbladder. The critical view was obtained and an IOC was performed.

The patient represented 8 weeks later acutely with colicky right upper quadrant pain.

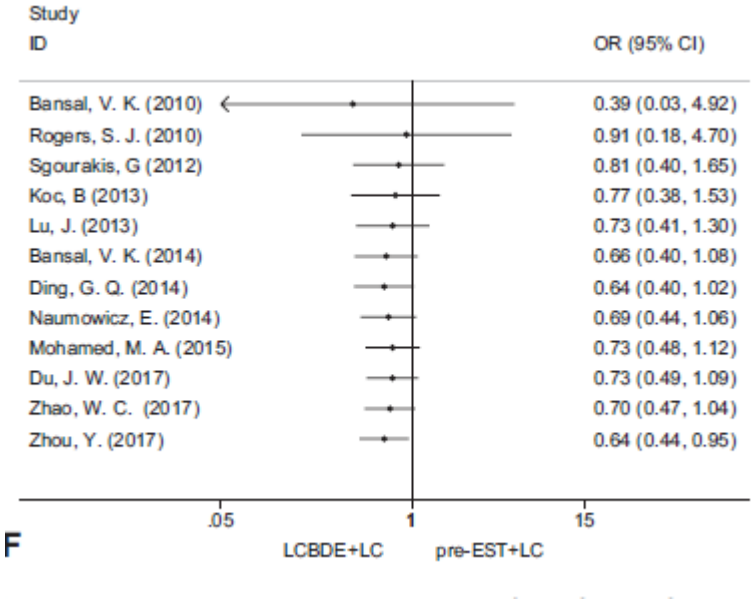






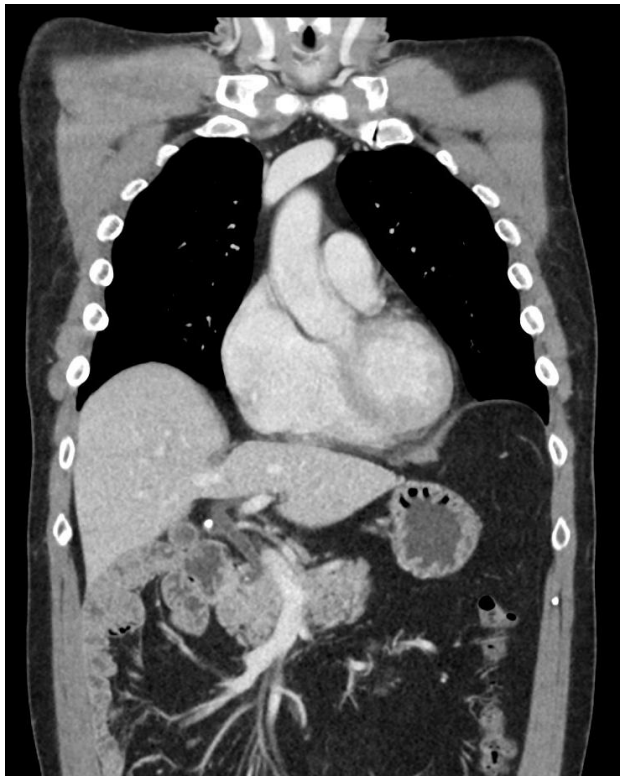


Stone clearance



Conversion to other procedure

Ann Surg 2018;268:247



- Cystic duct remnant with calculi
- ERCP removal difficult
- Consider laparoscopic resection

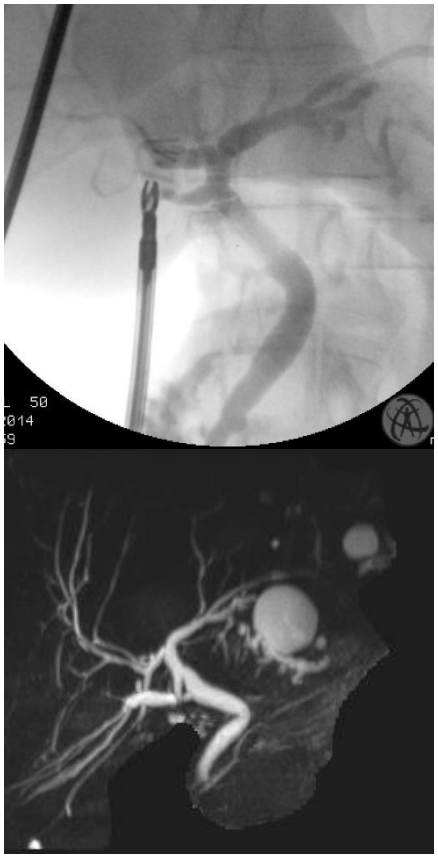
- Remnant gallbladder with calculi
- Consider laparoscopic resection

A 50 year old female presented with gallstone pancreatitis. Her condition settled rapidly and laparoscopic cholecystectomy with IOC was performed on day 5. Recovery was uneventful and she was discharged on day 6.

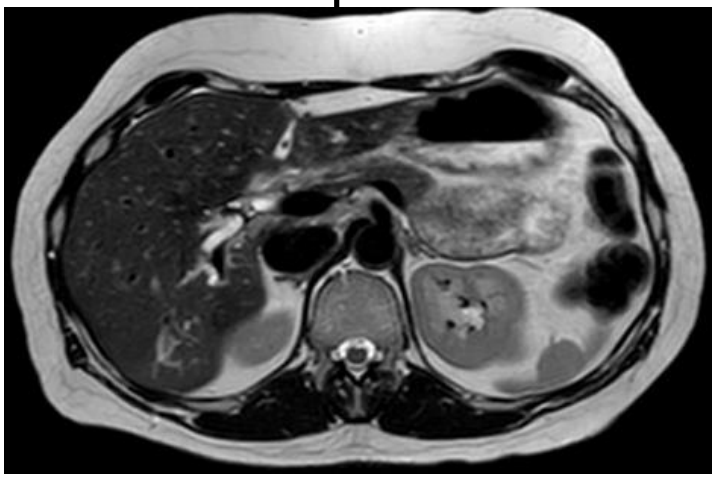
She represented 9 days later with back pain.

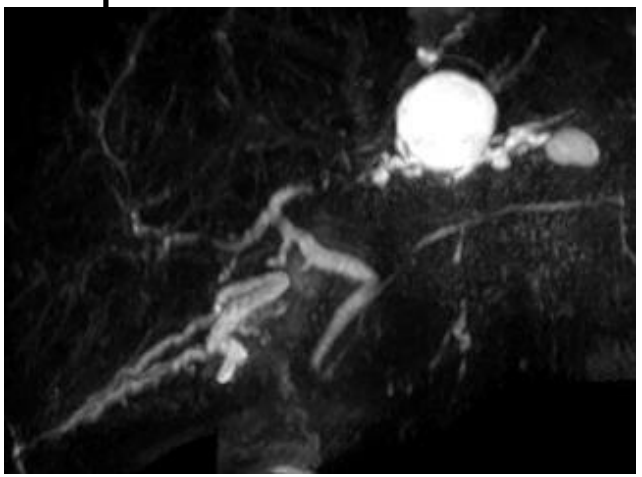
CT scan was unremarkable

She again represented 3 months later with abdominal pain. MRCP reported as normal



The patient presented 14 months later with persistent right sided abdominal pain. An MRCP was requested.

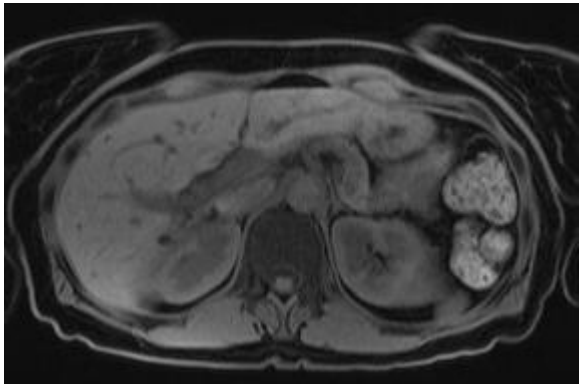




<u>Treatment options</u>

“watch and wait” and resect if pain ± sepsis

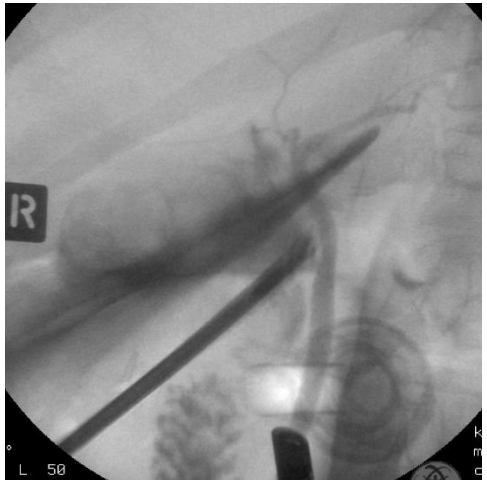
Posterior sectoral resection



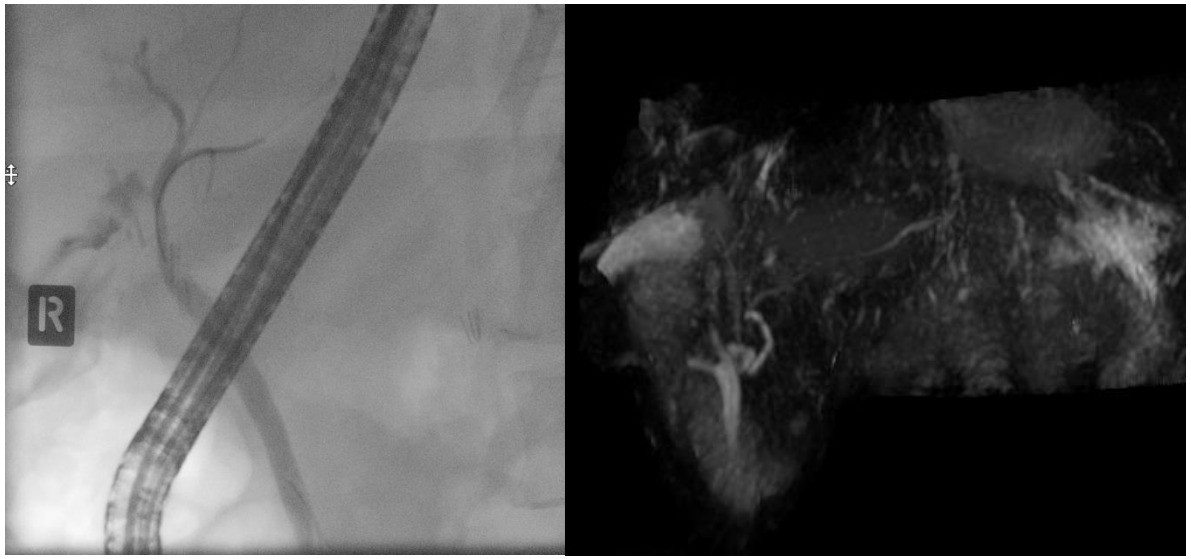
A 52 year old woman was referred for assessment of biliary colic in December 2019. Due to COVID-19 she was seen in clinic on 6 July 2020. At that time she had a 12 months history of episodes of RUQ pain that could last for up to 12 hours and occurred several times per week. There were no symptoms of choledocolithiasis.

Laparoscopic cholecystectomy was scheduled in September 2020. The procedure was technically difficult due to severe inflammation and fibrosis within the biliary- cystic triangle. The right hepatic artery was thrombosed.

A cholangiogram was performed after a critical view was obtained.

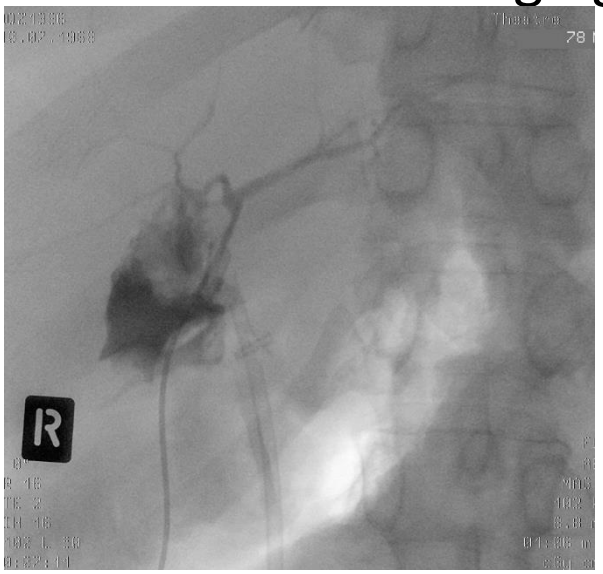


- The operation was completed and a drain was left
- There was a small amount of bile in the drain the following day. The patient was placed on ward leave with arrangements to be reviewed in 72 hours
- 3 days later she returned with 500 ml of bile in her drain



- ERCP ? Right posterior ductal injury
- MRCP technically compromised

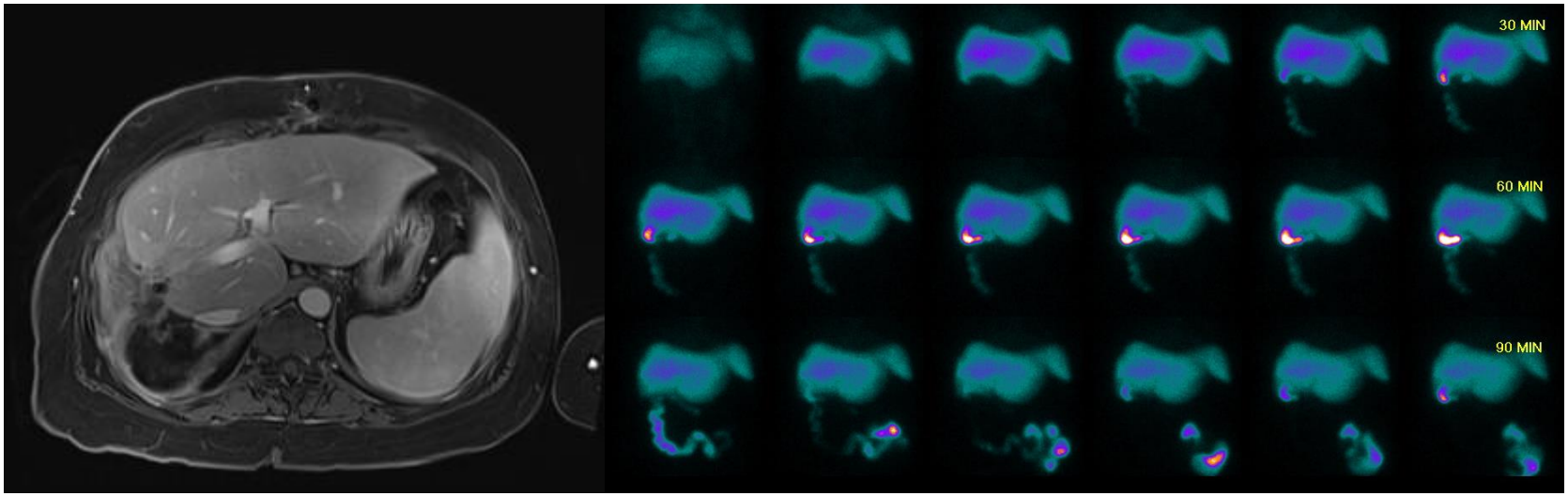
- Challenging family discussion
- Proceeded to theatre for direct cholangiogram ± resection



- Elected to proceed with right hepatic lobectomy and Roux-en-Y biliary reconstruction to the left bile duct

MRI scan showed no isolated or dilated ducts

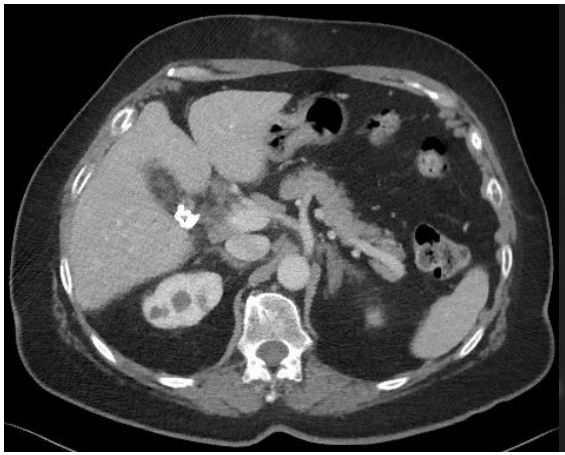
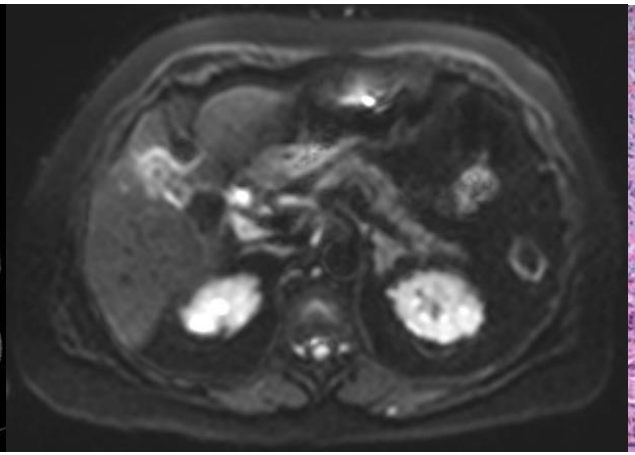
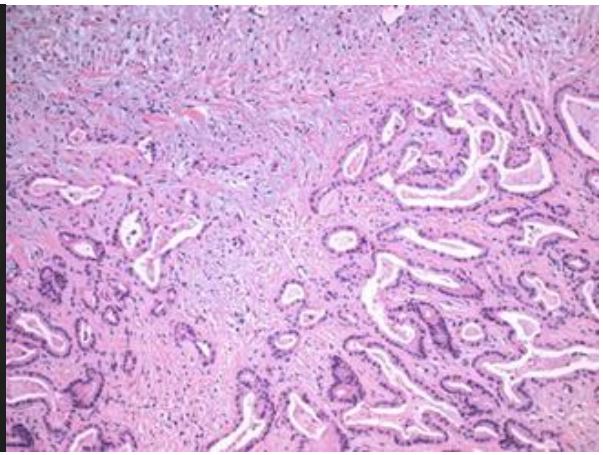
HIDA scan showed good concentration of contrast within the remnant and prompt excretion into the Roux limb



A 65 year old woman underwent daystay elective laparoscopic cholecystectomy for chronic cholecystitis. The operative findings were of a thick walled gallbladder, normal biliary cystic anatomy and an unremarkable cholangiogram.

On clinical review at 4 weeks post operation there were no clinical issues but the pathology report shows a moderately differentiated adenocarcinoma of the hepatic aspect of the gallbladder that penetrated to the diathermied margin. The cystic duct was negative for dysplasia or malignancy. The cystic node was not included in the specimen.

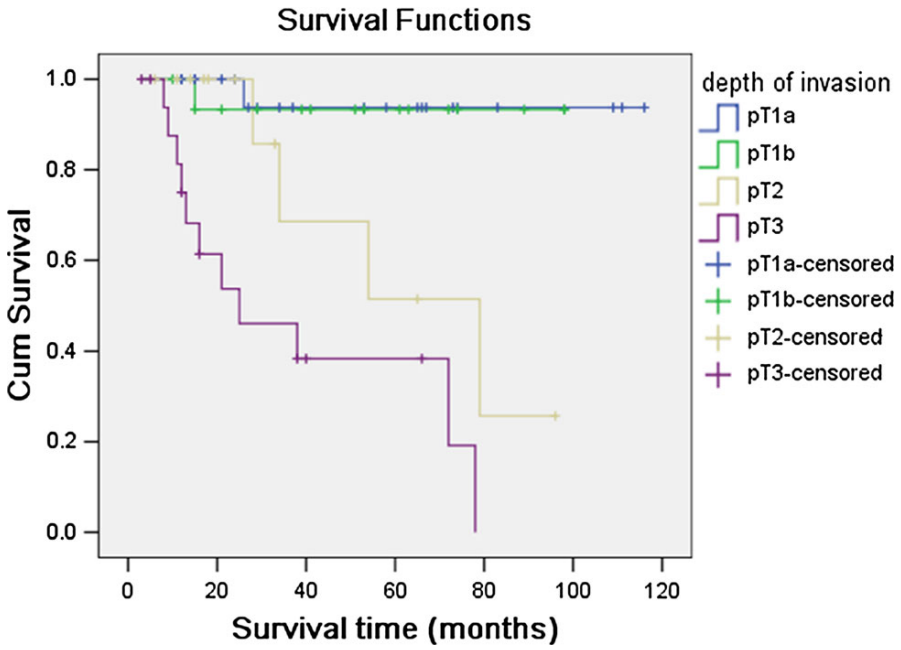
- MDM review of staging CT and MRI
- MDM review of pathology

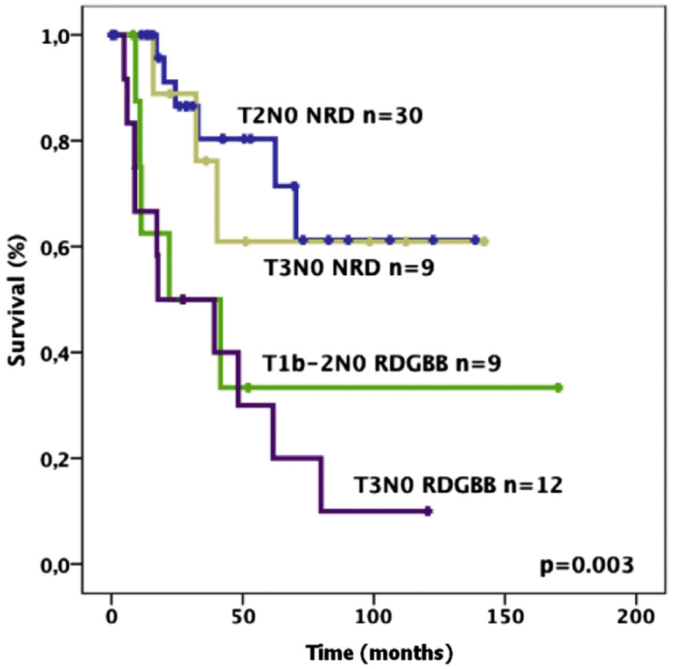




- Radiological staging $T_2/T_3N_XM_0$ gallbladder cancer
- Partial hepatectomy and portal lymph node dissection

Table 1. INFLUENCE OF PRIOR SURGICAL EXPLORATION ON SUBSEQUENT DEFINITIVE RESECTABILITY

	No Previous Exploration		Previous Exploration		Total	
	n	Curative Resection	n	Curative Resection	n	Curative Resection
T1			2	2 (100%)	2	2 (100%)
T2	8	5 (63%)	56	32 (57%)	64	37 (58%)
T3	41	5 (12%)	96	31 (32%)	137	36 (26%)
T4	113	12 (11%)	94	15 (16%)	207	27 (13%)
Total	162	22 (14%)	248	80 (32%)	410	102 (25%)

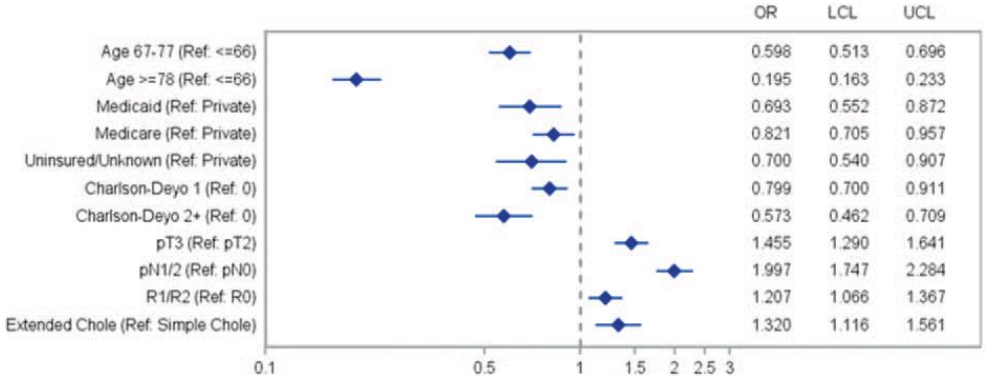


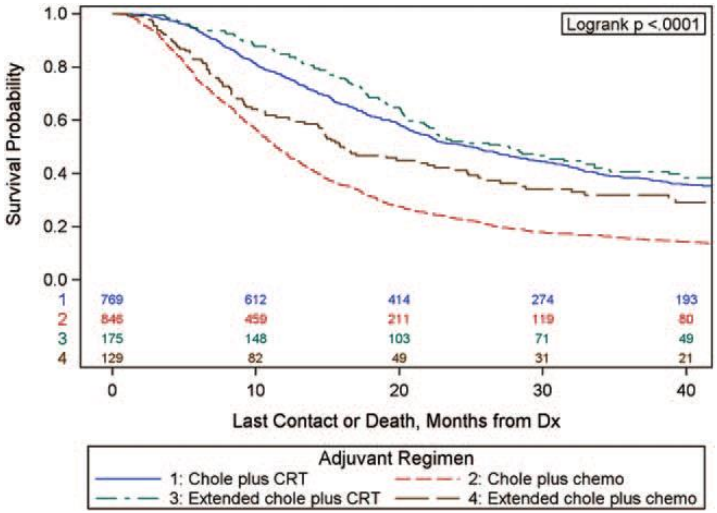


Ann Surg 2000;232(4):557, WJS 2015;39:746, JACS 2014;219:416

- Clinic review: Consent for major hepatectomy ± biliary reconstruction with portal lymph node dissection
  - » Significance of extrahepatic disease
  - » Significance of port site disease
  - » Possibility of “benign” histopathology
- Operative findings of palpable disease in the gallbladder fossa. Soft but enlarged nodes at the porta
- Right hepatic lobectomy and portal lymph node dissection

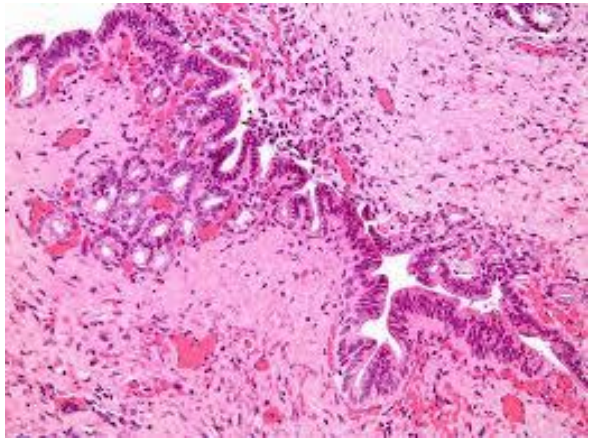
- Pathology: 32 x 22 x 25 mm mass within gallbladder fossa. Moderately differentiated adenocarcinoma. 0/11 lymph nodes involved by tumour
- Pathological staging $T_3N_0M_1$
- Currently 6 cycles of adjuvant XELOX

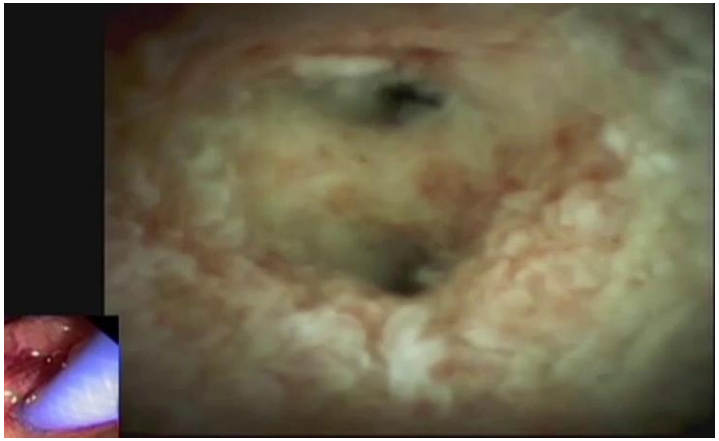




Ann Surg 2017;266(4):625

Dysplasia at Cystic Duct Margin





- Low grade dysplasia is common but should be reviewed
- High grade dysplasia is rare (<1% cholecystectomies)
- 10% biliary malignancies are multifocal
- MDM review of imaging and pathology
- MRI / MRCP staging
- Consider spyglass

Gastro-Oesophageal Reflux

Table 1: Preoperative and postoperative characteristics of study patients

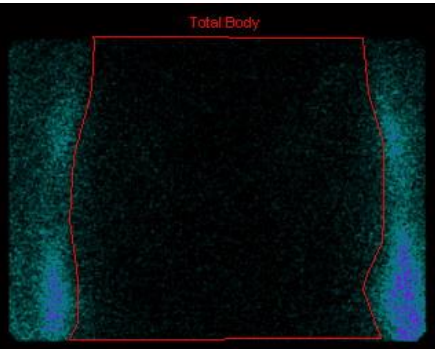
Variables	Mean pre op values ± SD	Mean post op values ± SD	p value
LES characterstics			
• Basal LES pressure (mm Hg)	21.12 ± 7.33	20.25 ± 7.27	0.015
• Percent LES relaxation	78.86 ±13.20	82.58 ± 13.54	0.152
Acid reflux characterstics			
• Acid exposure time (mintues)	6.05 ± 4.07	5.68 ± 3.89	0.693
• Acid reflux episodes	16.25 ±8.36	16.37 ± 9.25	0.805
Non acid reflux characterstics			
• Non-acid exposure time (minutes)	4.58 ±2.91	4.13 ±3.07	0.157
• Non-acid reflux episodes	18.11 ± 2.91	15.75 ± 6.36	0.225
Total reflux episodes			
• Total acid and non-acid reflux episodes	34.37 ± 11.95	32.11±10.60	0.141
Physical characterstics of reflux episodes			
• Liquid and mixed reflux episodes	29.94±10.29	28.40 ± 9.12	0.228
• Gaseous reflux episodes	4.33 ± 1.69	4.02 ± 1.51	0.303
Proximally extending reflux episodes			
• Proximal acid reflux episodes	10.27 ± 6.57	8.01 ± 7.92	0.003
• Proximal non-acid reflux episodes	8.10 ± 5.20	8.81 ±4.50	0.256
• Total proximal episodes	18.37 ±8.11	16.68 ± 8.53	0.294
Composite score			
• Demeester's score	4.93 ± 4.67	6.12 ± 4.44	0.041

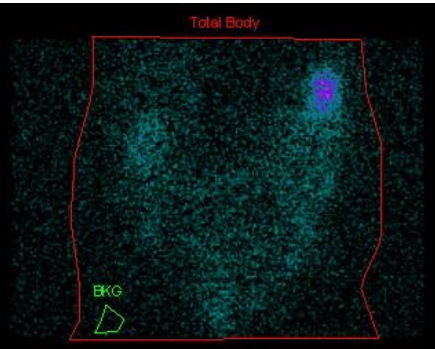
Trop Gastroenterology 2014;35(4):222

A 41 year old scaffolder presented with cholangitis due to choledocholithiasis. Urgent ERCP was performed with sphincterotomy and clearance of 3 stones. Post procedure he developed severe pancreatitis. Treated with nasojejunal feeding for 9 days.

Interval cholecystectomy performed 4 weeks following discharge. Operative findings were of a thick walled gallbladder. A critical view was obtained. No IOC performed due to previous duct clearance and pancreatitis.

- Developed diarrhoea on day 2 post procedure up to 15 times daily
- Investigations include normal tTG, TSH, full blood count and inflammatory markers
  - Normal endocrine pancreatic function (HbA1c 37)
  - Stool samples negative for infection, C. Difficile, no faecal fat and moderate faecal elastase levels (380)
  - Colonoscopy with normal biopsy series
  - SeHCAT scan

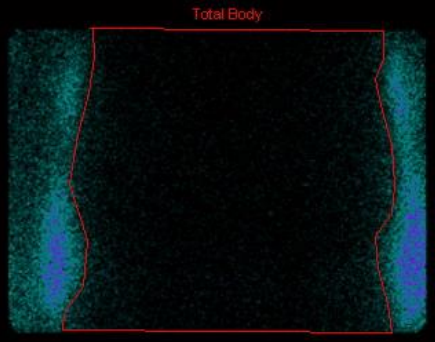


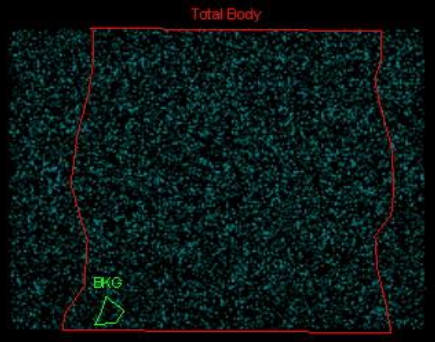


Frame Name	Statistic	Frame	Total Body	BKG
Anterior Day 1	Avg	0.39	0.85	0.29

Average counts at 3hrs = Total Body cts - BKG cts

= 0.56





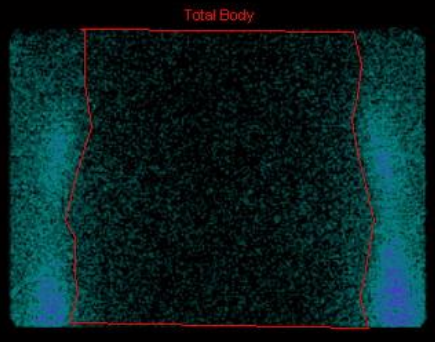
Frame Name	Statistic	Frame	Total Body	BKG
Anterior Day 3	Avg	0.18	0.34	0.22

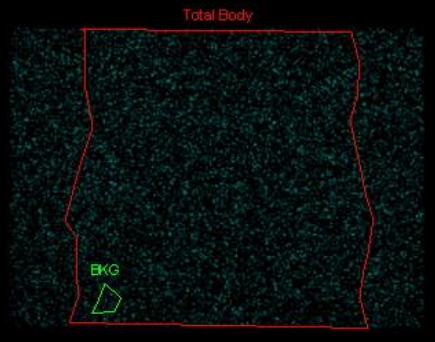
Average counts at 3 days = Total Body cts - BKG cts

= 0.12

Activity retained at 3 days = Average cts 3 days \
Average cts 3 hrs * 100

= 21.5%





Frame Name	Statistic	Frame	Total Body	BKG
Anterior Day 7	Avg	0.18	0.34	0.29

Average counts at 7 days = Total Body cts - BKG cts

= 0.05

Activity retained at 7 days = Average cts 7 days \
Average cts 3 hrs * 100

= 8.9%

Management Options

- Cholestid at dose of up to 30g daily (4-6 sachets)
- Loperamide 2mg PRN to 8 times daily
- Creon 25,000 units before meals

- Diarrhoea improved (7-8 times per day) but unable to return to work as scaffolder. Treated for depression.

Aliment Pharmacol 2014;39(9):923

FELLOWSHIP 101

1. Adulation is a soporific.
2. Thinking is not usually painful.
3. Growing is more important than succeeding.
4. Biology beats technique every time.
5. Beware of Harvard answers.
6. A mentor helps: bring one or find one.
7. Risks are inevitable, select them carefully.
8. Never be satisfied.
9. Taking care of a cancer patient is not a part-time job.
10. You are a surgeon, do something.