

General Surgery Cases

Universe Leung

General and Hepatopancreatobiliary Surgeon

Waitemata DHB

Greenlane Medical Specialists

GLMS CME 17/6/26

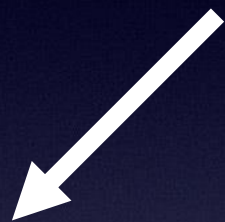
Case 1

- Patient with acute cholecystitis
- Physiologically too unwell and/or frail - not surgical candidate
- Failed medical management... what next?

Acute calculous cholecystitis

Not surgical candidate

1



Percutaneous
cholecystostomy



Lithotripsy



Cystic duct
stenting

2



EUS gallbladder
drainage (AXIOS)

3



ERCP cystic
duct stent

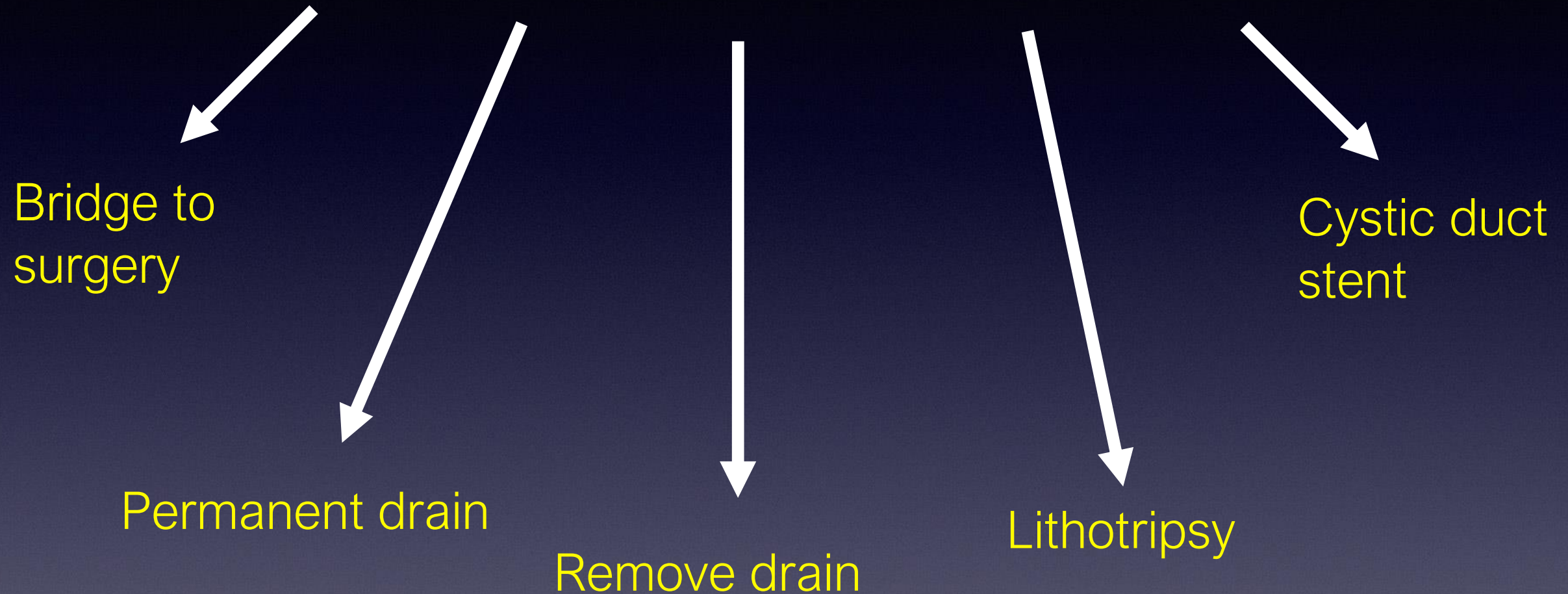
Percutaneous cholecystostomy

Technical success 82-100%

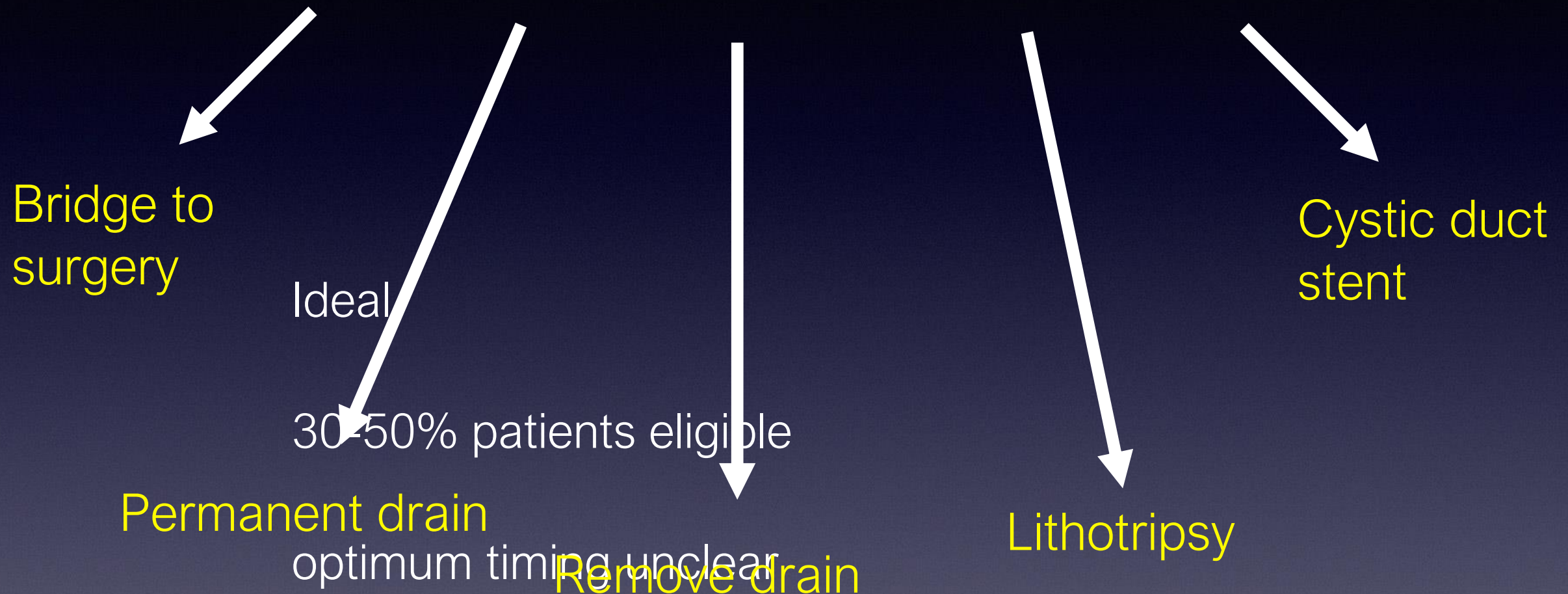
Clinical success 85%

- Advantages
 - Technically simple
 - can be done under sedation or even just local
- Disadvantages
 - bleeding
 - bile leak
 - tube blockage/dislodgement/pain
 - failure to resolve inflammation or recurrence
 - not a good definitive treatment

Percutaneous cholecystostomy



Percutaneous cholecystostomy



- some studies recommend early
- some studies recommend late (>8wks)

Percutaneous cholecystostomy



Permanent drain

Poor quality of life

May require multiple exchanges

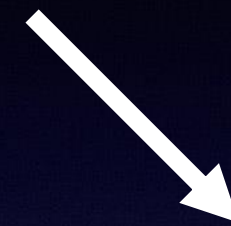
Percutaneous cholecystostomy



Lithotripsy

- technical success 93%
- recurrent stones 5%
- complication 17%

Percutaneous cholecystostomy



Cystic duct
stent

- success rates 85-90%
- Specialised IR skills not widely available

Percutaneous cholecystostomy



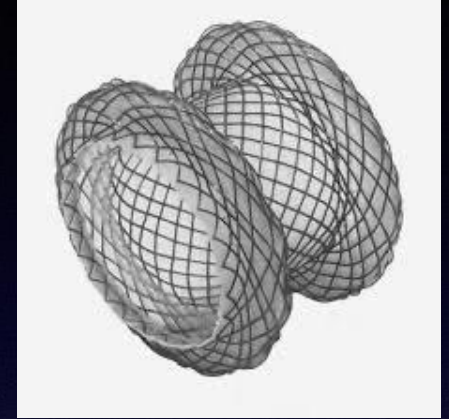
Remove drain

High chance of recurrence

20% in 1 year

not recommended unless stones cleared and cystic duct patent

EUS Gallbladder Drainage (AXIOS)



- Technical success 90-95%
- Advantages
 - Avoids external drains
 - option of converting AXIOS to plastic stents longterm, if cystic duct patency cannot be established
- Disadvantages
 - many patients require propofol or GA
 - difficult in contracted GB or if packed with stones
 - adverse event rates not low - 15-30%
 - perforation, bleeding, recurrent cholecystitis
 - not meant to stay in indefinitely (FDA approved for 60 days)
 - May make cholecystectomy more difficult (...?)

EUS Gallbladder Drainage (AXIOS)

- DRAC1 RCT (Teoh et al, *Gut* 2020, Hong Kong)
 - n=80, acute calculous cholecystitis
 - AXIOS vs Perc Cholecystostomy
 - Similar clinical success (92%) and 30d mortality (7 vs 10%)

EUS Gallbladder Drainage (AXIOS)

- DRAC1 RCT (Teoh et al, *Gut* 2020, Hong Kong)
 - AXIOS superior for adverse events, unplanned reinterventions, readmissions, recurrence of cholecystitis
 - 1 year adverse event 25.6% for AXIOS and 77.5% for perc cholecystostomy
 - Mostly tube dislodgment in PC group

EUS Gallbladder Drainage (AXIOS)

- DRAC1 RCT (Teoh et al, *Gut* 2020, Hong Kong)
 - AXIOS group had additional endoscopy to treat stones (most patients had 2)
 - PC group patients did not have a definitive treatment for their stones and drains were left indefinitely if cystic duct not patent on tubogram

Endoscopic Transpapillary GB Drainage

- ERCP placement of stent through cystic duct
 - high volume centres report technical success 76-94%
 - limited by ability of cannulating small or tortuous cystic duct

Conclusions

- If patients may become surgical candidate prefer PC as bridge to surgery, over AXIOS
- For never surgical candidates - prefer EUS AXIOS
 - If PC performed should try lithotripsy or cystic duct stenting
- Never surgical candidates with ascites or contracted GB consider ERCP transpapillary drainage
- Local expertise and resources dictate real-world decisions...

Case 2

- 56 year old man, BMI 50, hypertension, diabetes
- Presented after 3 days of RUQ pain
- Acute cholecystitis clinically and on USS
- CRP 300



CT - large gallstone, acute cholecystitis

III defined GB neck suspicious for gangrene

III defined inflammatory change between gallbladder and porta hepatis

Difficult acute cholecystectomy

- Bailout options
 - Conversion to open
 - Drain then refer
 - Laparoscopic subtotal cholecystectomy

Difficult acute cholecystectomy

- Conversion to open
 - Traditional approach
 - Not widely practiced now so many newer surgeons have little experience
 - Difficult in acute cholecystitis and in obese patients
 - Not necessarily “safer” if the surgeon is not familiar with open chole

Difficult acute cholecystectomy

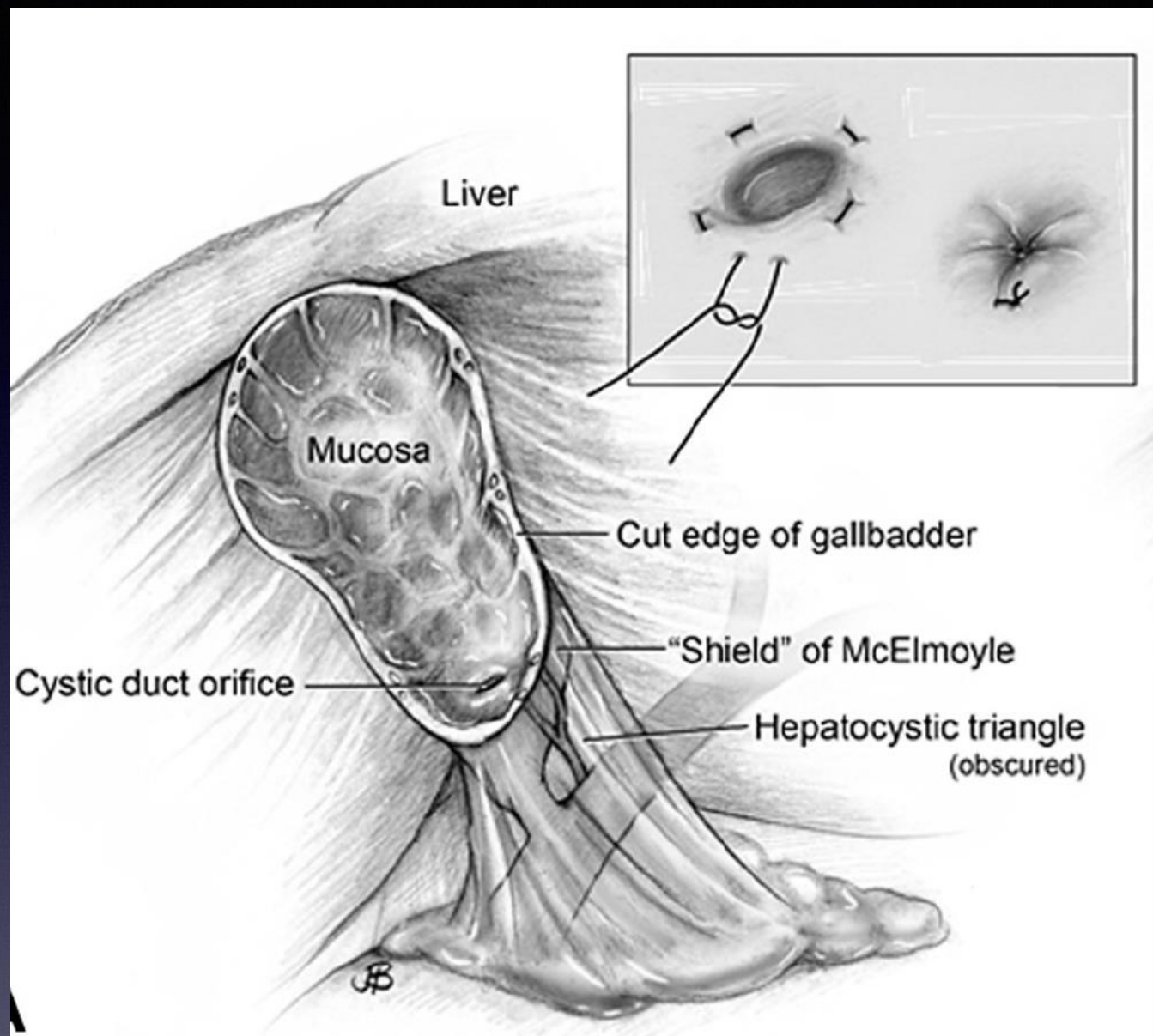
- Surgical cholecystostomy “drain and refer”
 - Suitable for surgeons in centres with no expert HPB help
 - Subsequent re-operation may be more challenging after cholecystostomy

Difficult acute cholecystectomy

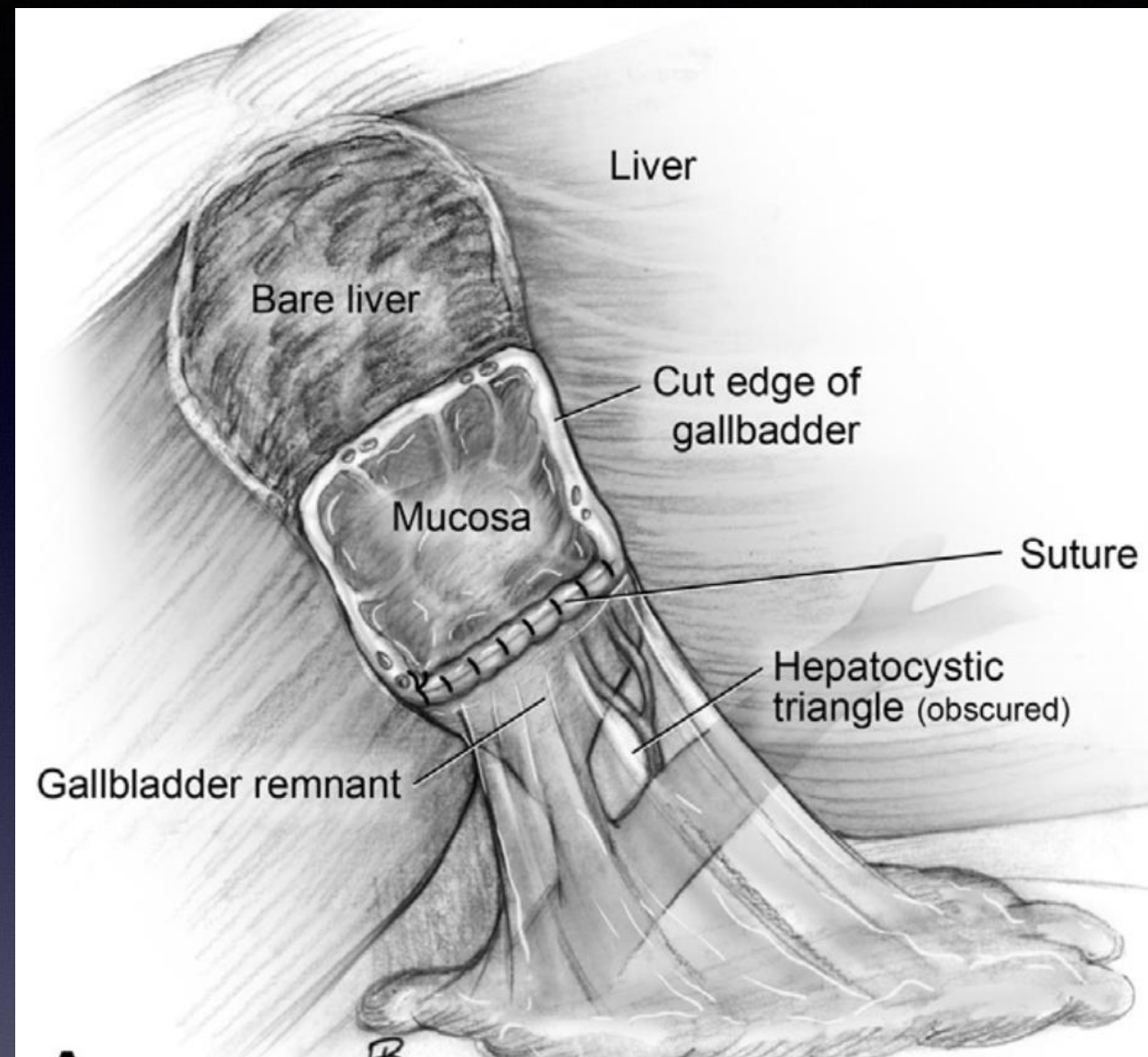
- Laparoscopic subtotal cholecystectomy
- No dissection of Calot's triangle
- Removal of most of gallbladder, evacuate stones
- Leave drain
- 2 types depending on whether the opening in the GB is closed

Fenestrating vs reconstituting subtotal

- Pros
 - No suturing
 - less recurrent cholecystitis
- Cons
 - More bile leaks



Fenestrating subtotal



Reconstituting subtotal

Difficult acute cholecystectomy

- Laparoscopic subtotal cholecystectomy (fenestrating type)
- No drain in bile post-op
- Drain removed day 3, patient discharge day 4.

Cholecystectomies at NSH Mar 1, 2025 to February 28, 2026

	All Choles	All choles - acute	All choles - acute arranged	All choles - elective	Subtotal	Open chole - all
n	1044	547	191	306	31	9
Operating time (median, mins)	69	83	53	59	116	124
Length of stay (median, hours)	57	114	7	10	154	228

About 50% choles are acute

3% subtotals

0.8% open

0.6% conversion from lap to open

Cholecystectomies at NSH Mar 1, 2025 to February 28, 2026

	Subtotal - all	Subtotal - fenestrating	Subtotal - reconstituting	Lap converted to open
n	31	18	13	7
Bile leak, n (%)	4 (12.9%)	3 (16.7%)	1 (7.7%)	1 (14.3%)
Post-op ERCP	4	3	1	0
Any complication, n (%)	9 (29%)	7 (39%)	2 (15%)	5 (71%)
CD grade >3 complication, n (%)	6 (19%)	5 (28%)	1 (7.8%)	2 (29%)

Fenestrating = leave GB open

Reconstituting = close GB

Difficult acute cholecystectomy

- Difficult acute cholecystectomies are increasingly common
 - Obesity and fatty liver
 - General expectation of index acute cholecystectomy
 - Long wait for acute operations
- Insistence in performing a “total” cholecystectomy can be dangerous and can lead to bile duct injuries

Take home message

- Bile duct injury (incidence 1-2/1000) is THE dreaded complication with cholecystectomies
- Severe cases can lead to significant morbidity and mortality
- Survivors may have longterm sequelae
- Re-interventions, reduction in quality of life, reduction in life expectancy

Difficult acute cholecystectomy

- Surgeons doing acute cholecystectomies must have a “bail out” strategy
 - Conversion to open - not as straight forward as it sounds
 - Laparoscopic subtotal
 - In experienced hands outcomes are similar or better than open
 - ?now preferred

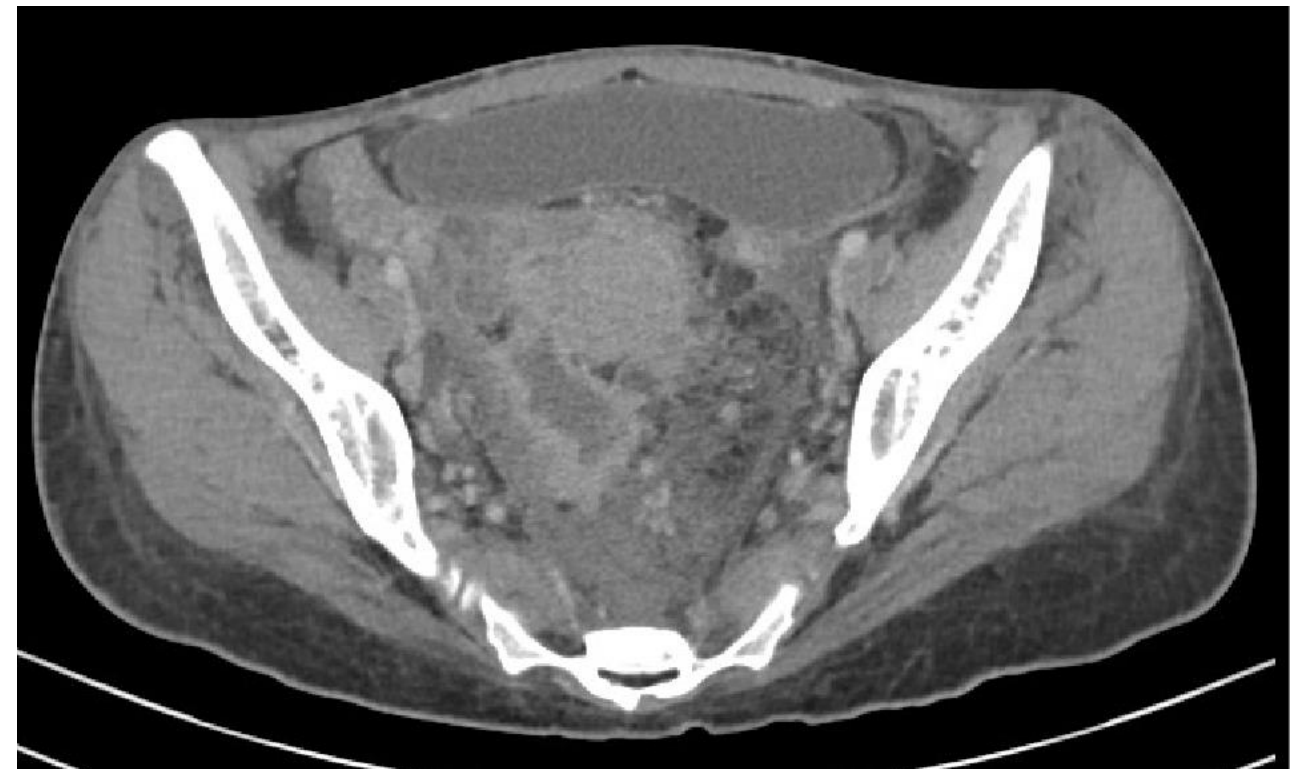
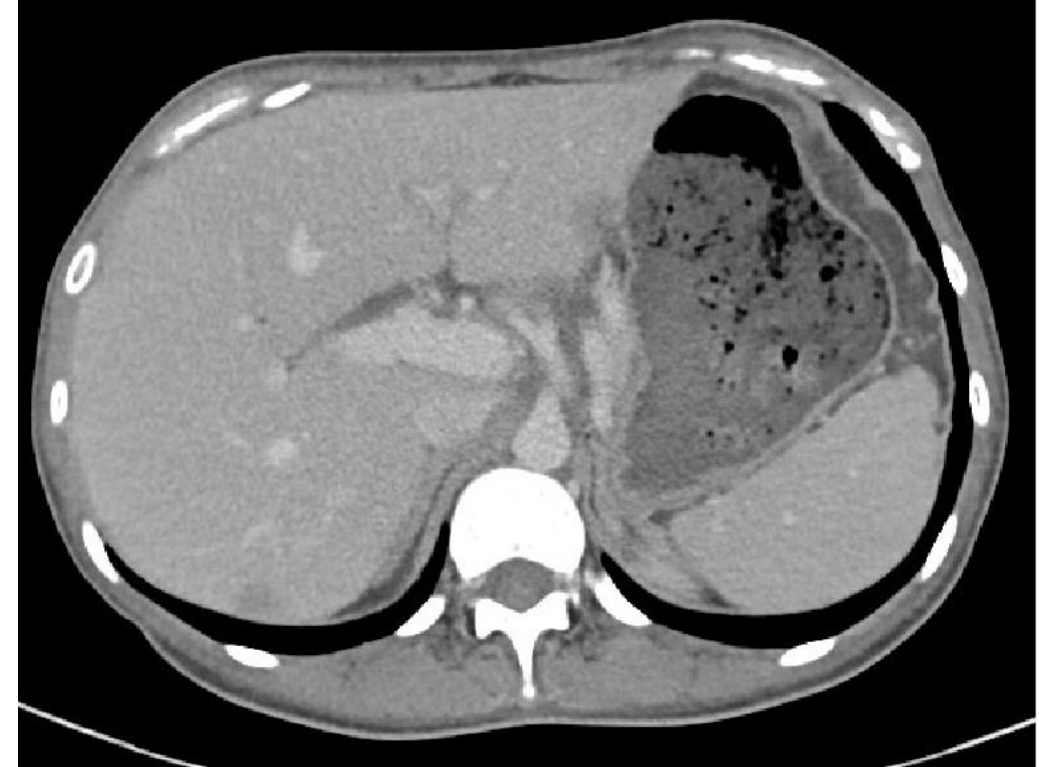
Case 3

- 35y woman presented in Oct 2020 with rectal cancer and multiple liver mets

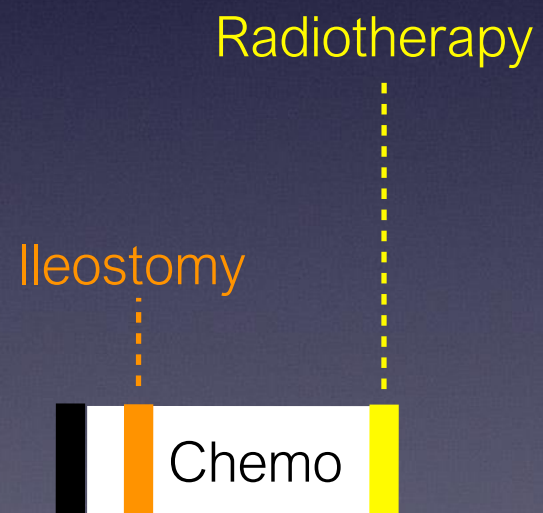
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Oct 2020

Initial presentation

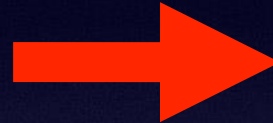


- Defunctioning ileostomy
- Chemotherapy to downstage liver mets
- Chemoradiotherapy to rectum

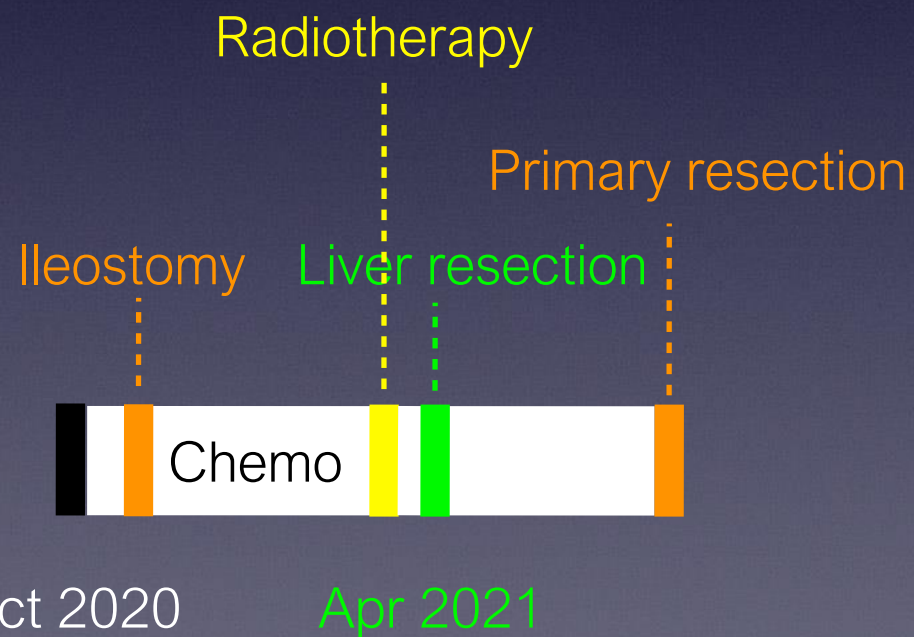


Oct 2020

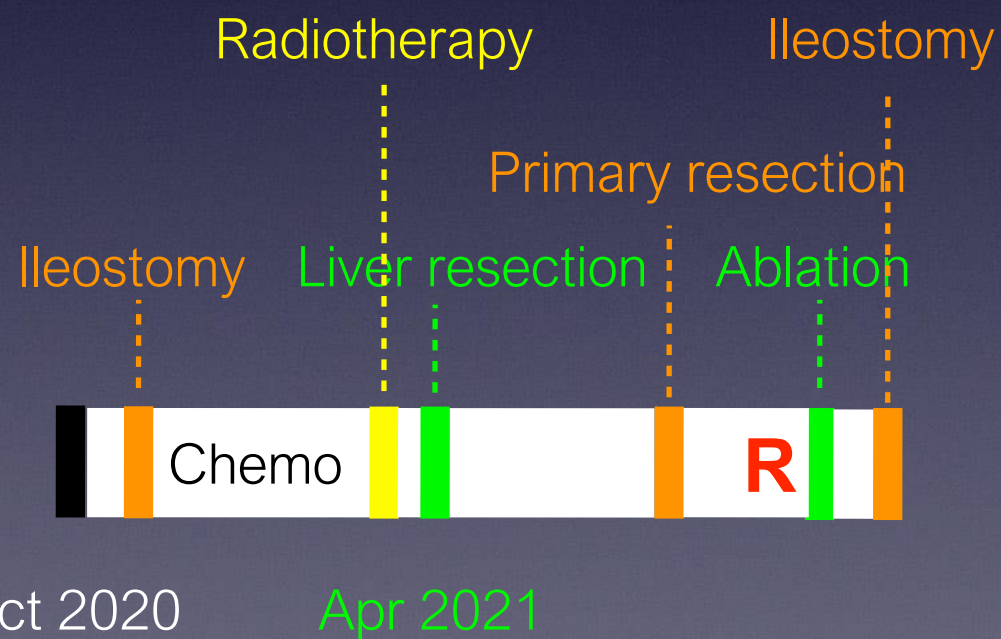
Post chemotherapy



- Liver resection April 2021
- Anterior resection for primary tumour Sep 2021

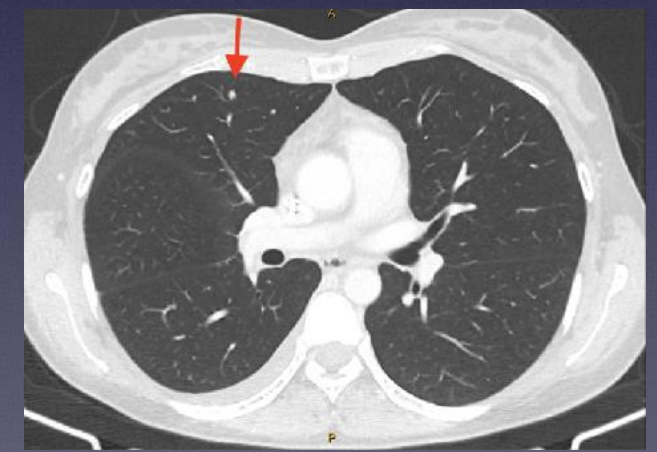
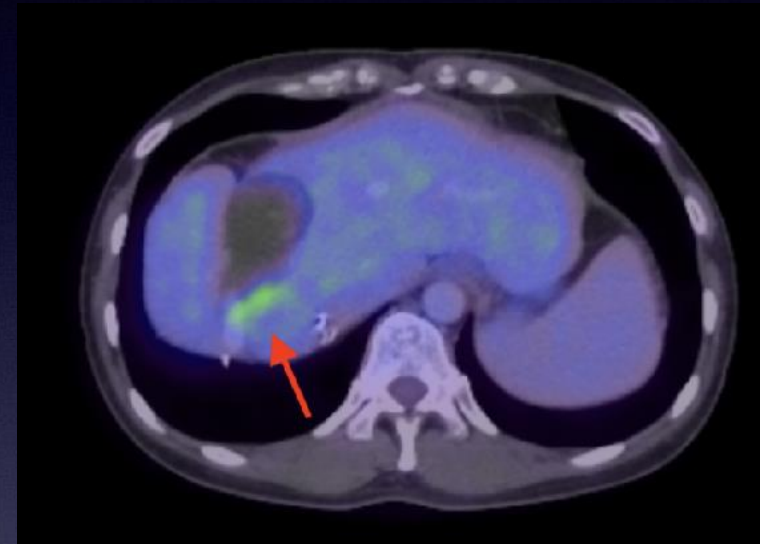
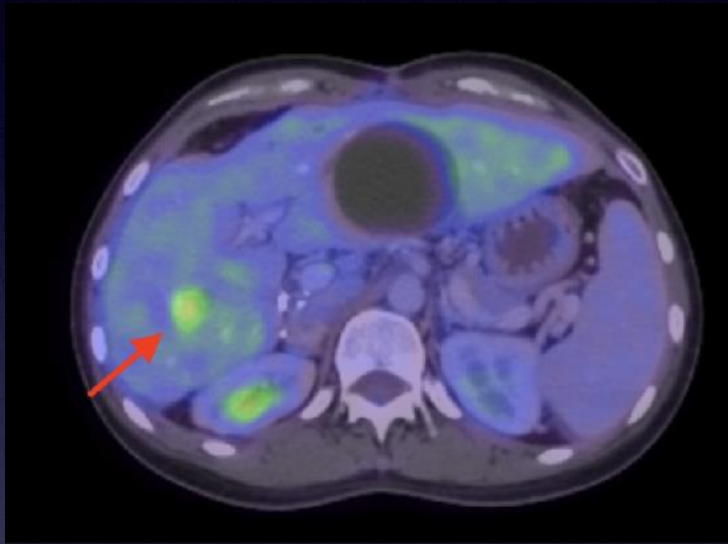


- Liver recurrence Feb 2022
- Open liver ablation Apr 2022
- Chronic rectal anastomotic leak defunctioned with ileostomy May 2022

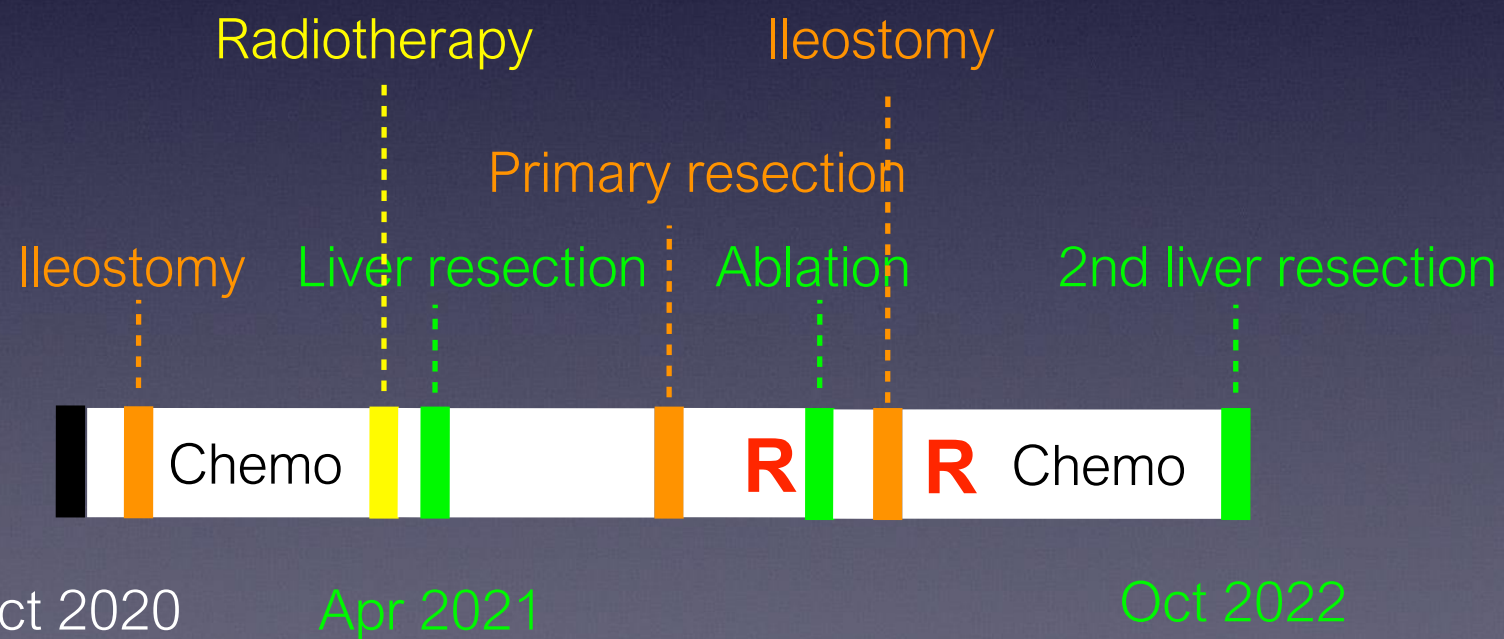
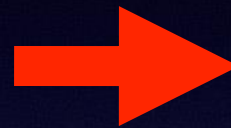


R = Recurrence

- May 2022 - recurrence of liver mets in segment 4, lung mets

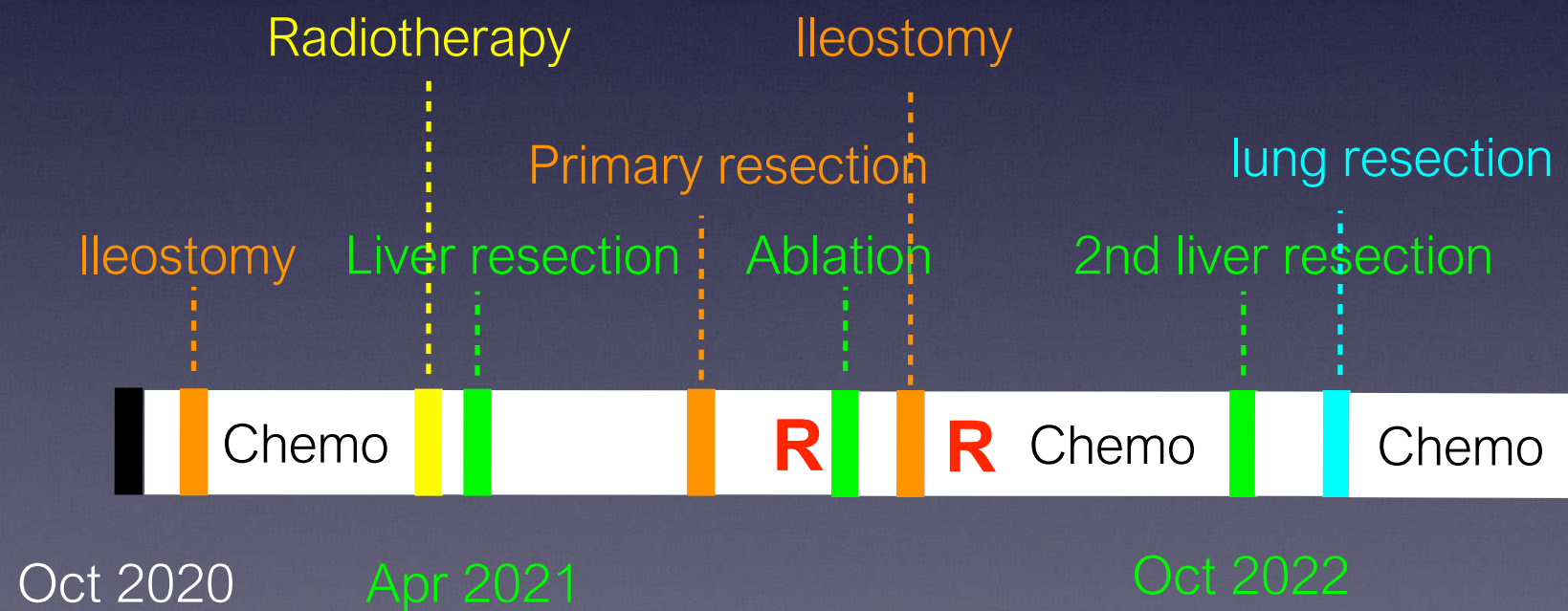


- Further chemo
- 2nd liver resection Oct 2022



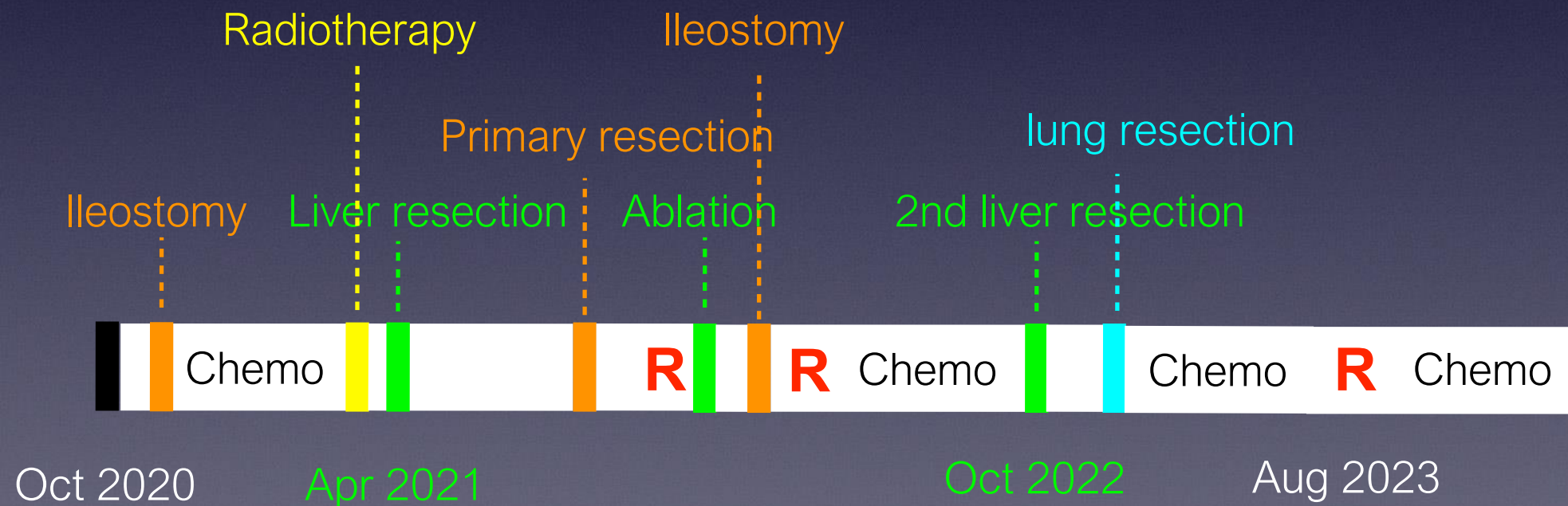
R = Recurrence

- Dec 2022 - R thoracotomy resection multiple lung mets
- Feb 2023 - back on FOLFOX



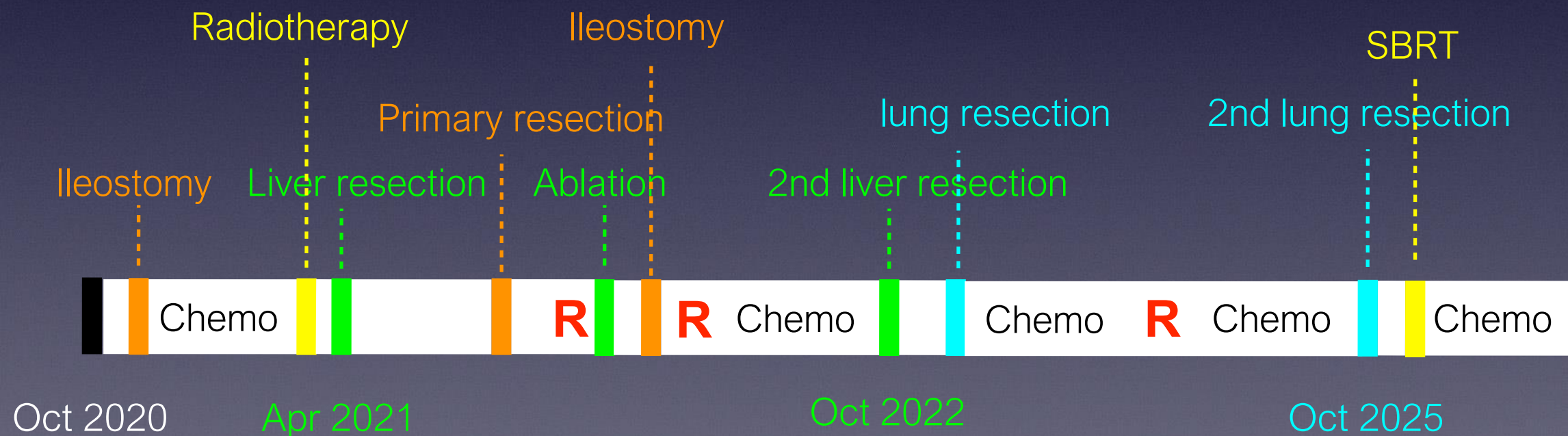
R = Recurrence

- Aug 2023 - lung recurrence - 8 new mets - change of systemic therapy to cetuximab
- Nov 2024 - increase in size of lung mets - added FOLFIRI



R = Recurrence

- Oct 2025 - further lung resection - L thoracotomy, 7x lung wedge resections
- Nov 2025 - SBRT to 3 lung mets
- Dec 2025 - back on FOLFOX



R = Recurrence

Metastatic colorectal cancer

- Management of colorectal liver metastases as a chronic disease
- Multiple rounds of multimodal treatment prolongs life
 - Surgery
 - Chemotherapy
 - Targeted therapy
 - Radiotherapy
 - (immunotherapy)
- ... maybe even eventual cure??

What's next?

- Patient exploring further experimental treatments...

ctDNA

- circulating tumour DNA
 - highly sensitive blood test
 - may have a role in picking patients with low risk of recurrence
 - may help decide on adjuvant/pseudo-adjuvant treatment (avoid unnecessary chemo)
 - not widely available; currently sent to USA

ctDNA

- circulating tumour DNA
 - needs initial tumour sample to look for DNA signature
cost 4k
 - subsequent 1.5k per blood test
 - serial negative blood tests correlate with longterm remission/cure
 - not useful for all cancers but promising for breast, colorectal

Cancer Vaccine

- takes sample of patient's tumour to create a personalized vaccine (similar to CAR-T Cell Therapy)
- re-engineer immune system to “mop up” small volume microscopic disease
- may have a role in adjuvant/pseudoadjuvant setting
- still very much experimental overseas