Principles of Revision Surgery

How to Stay Safe

Early Career Fundamentals Workshop

IFSO Melbourne 2024

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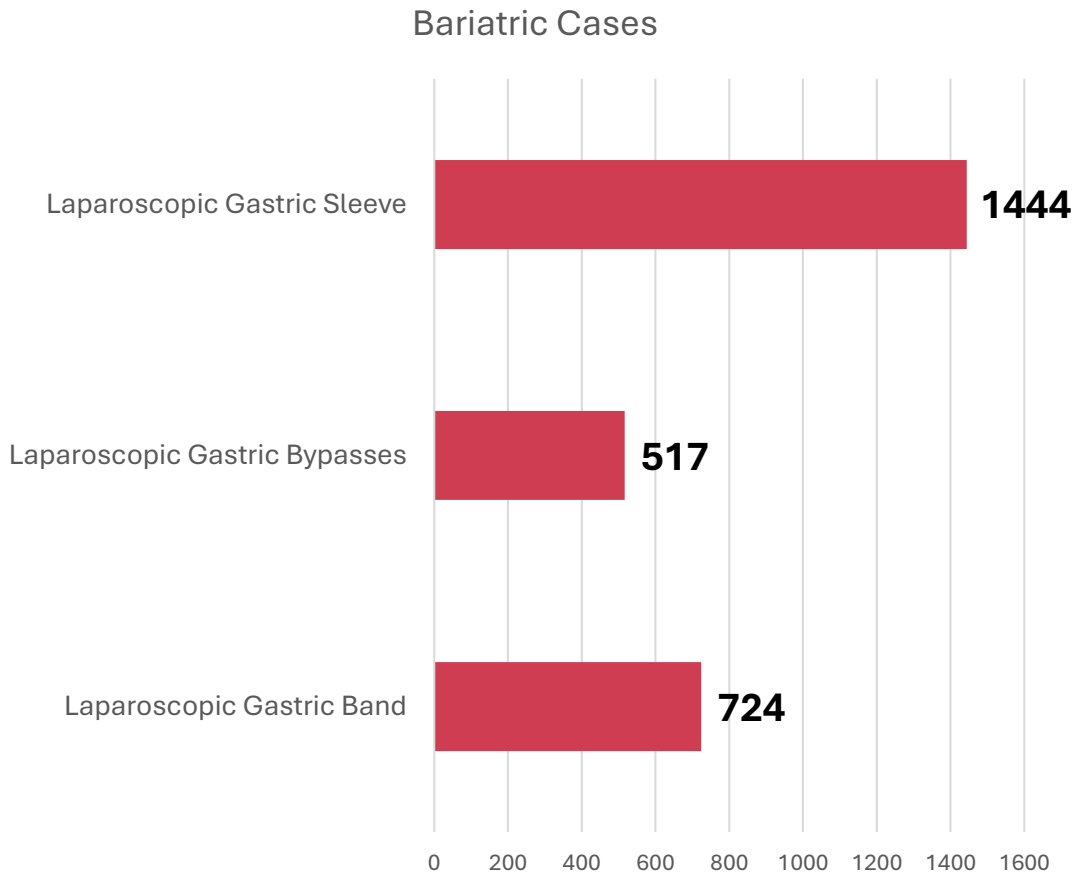
Disclosures

- No Conflicts of Interest
- Faculty for Ethicon Surgical
- 3000 Bariatric Cases
- 20% Revisional



How To Stay Safe

- Knowledge
- Skill Set / Experience
- Patient Selection & Work Up
- Set Up
- Technical Approach

Knowledge

- Reflux Disease & Oesophageal Physiology
- UGI
    - Fundal anatomy
    - Vascular anatomy
    - “History” – fundal retention, hour glass stomach
- Bariatric
    - Expected outcomes / expectation management
    - Utility of different procedures* (hammer / nail)

Skill Set

- Hiatus
  - Oesophageal mobilisation
  - Hernia reduction
  - Crural exposure
  - Crural repair
- Primary bariatric competence
  - Sleeve
  - Bypass
- Non bariatric revisional experience
  - Fundoplication / Hiatal Hernia

Patient Selection

- Relative to experience
- Lower BMI (actually - waist circumference)
- Female
- Minimal comorbidity
- NB – psych history / personality profile

- Primary Op
  - Sleeve
  - Band
  - Previous fundoplication
  - Gastric stapling

Increasing difficulty

- Avoid the red redo

Work Up

- Obesity History
  - Lifetime weight history
  - Post procedure trajectories
  - Family history
- Reflux History
  - pre and post primary procedure
- Indication
  - Weight regain only
  - Weight / symptoms?
  - Co-morbidites

Tailoring The Procedure To The Patient

Poor weight loss vs weight regain
Metabolic impact required
Lifestyle / Stage of life

Work Up - Patient

MDT Assessment

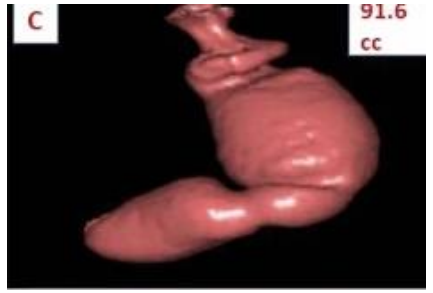
- Comprehensive dietary rehabilitation
- Medical therapy
- Psych assessment
  - Contributing factors
  - Expectation
  - Locus of control
  - Traumatic experience / failure

- Education
  - Procedure specific
  - Expectation management
  - Consent
    - Open surgery
    - Complication rate
    - Imperfect symptom control

Work Up - Physiology

- The Oesophagus
  - Does it function?
  - Scope
  - Manom / pH (selective)

- CT Fizz (sleeve)
  - Most studies show a relationship b/w sleeve volume and weight loss at 12 months
  - At 5 years this relationship is not so well preserved
  - Nonetheless volume > 300ml, shape, hiatus
  - Correlate with “distensibility” on scope
  - Anatomy - hiatus



(Pañella C. Correlation of Gastric Volume and Weight Loss 5 Years Following Sleeve Gastrectomy. Obes Surg. 2020 Jun;30(6):2199-2205.)

Set Up

- Procedure Selection
  - Stick to standard procedures
  - Minimise risk

- Site
  - HDU
  - Imaging / Intervention
  - Endoscopy
  - Physician

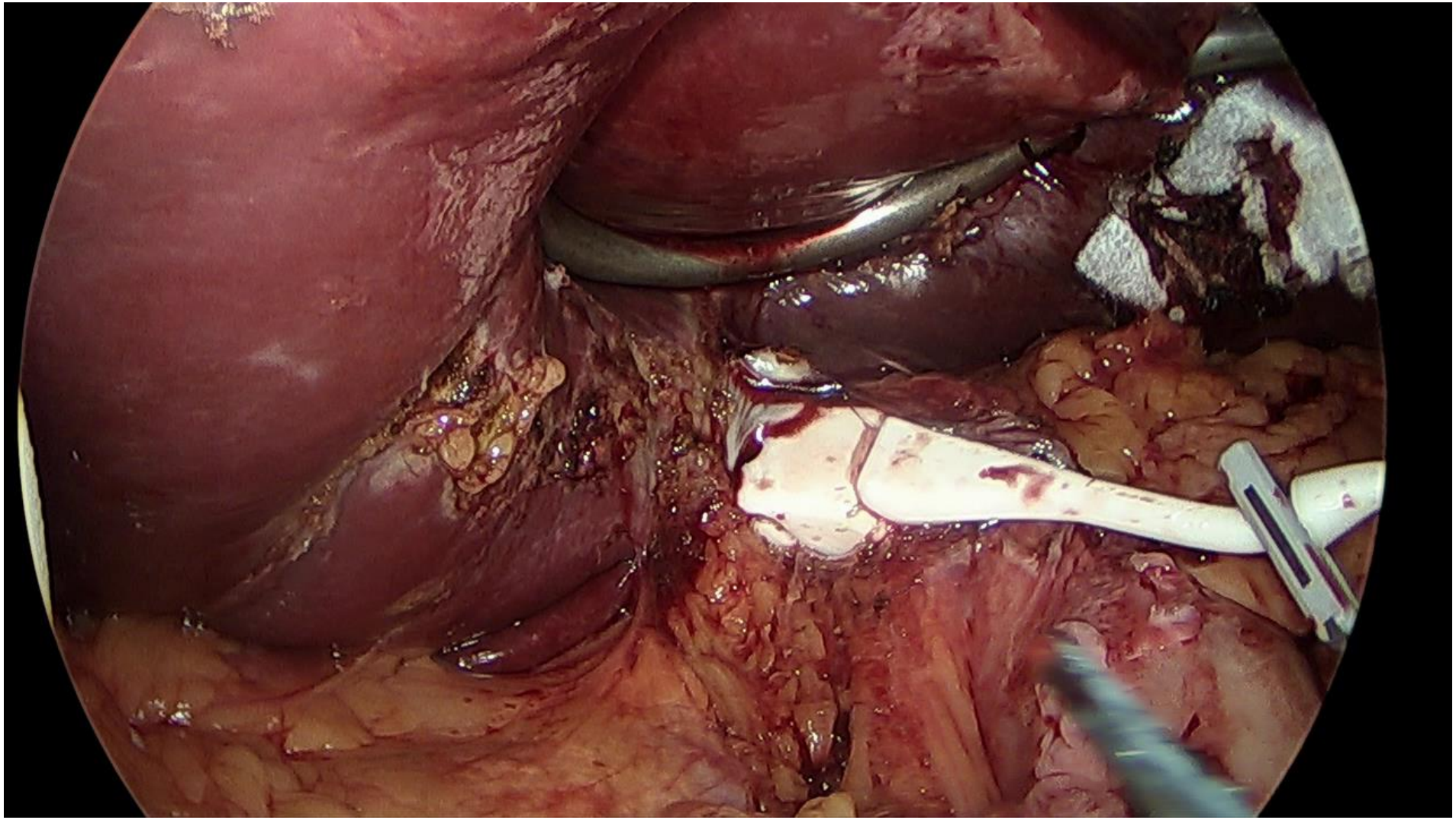
- Progression
  - Mentored cases
  - Mentor back up

Technical Principles

Technically
Demanding

Greater
Morbidity

Potentially
Lesser Outcome



Challenges Of Revisional Surgery

- Deformity of Upper Stomach
  - Embedded in liver
  - Gastro – gastric adhesions
  - Fundus is tethered posteriorly**
- Hiatal Hernia (often hidden)
- Posterior Gastric Adhesions

  → *Very easy to leave too much posterior stomach / fundus*
- Altered Blood Supply

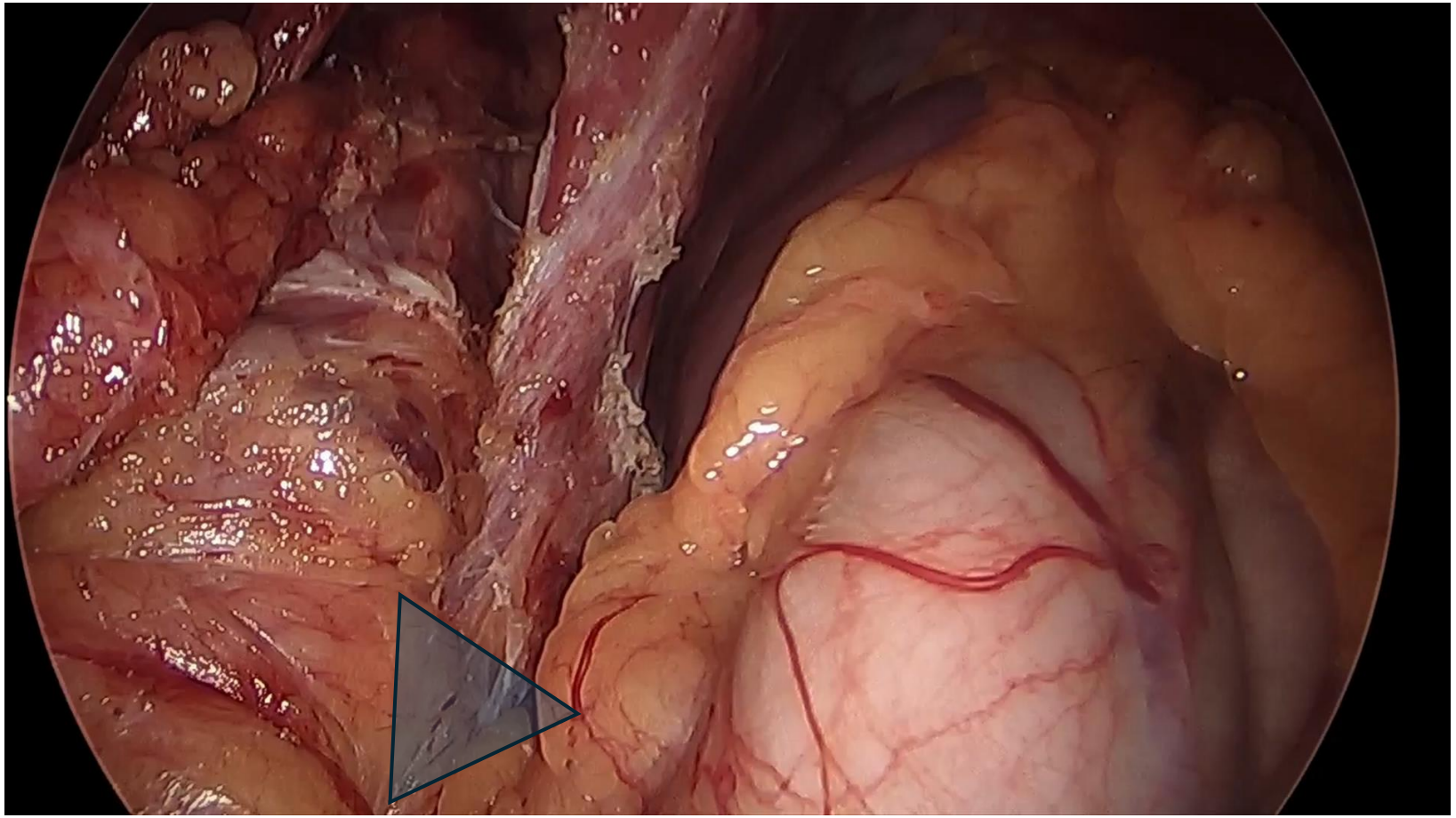
Challenges of Revisional Surgery

- Band – upper stomach deformity / hiatus
- VBG – lesser curve* & staple line
- Sleeve – hiatus / staple line

They all cause significant adhesions / deformity at the "Upper GI Triangle"

→ *"Tiger Country"*

Upper GI (Aly's ☺) Triangle



Tiger Country

- *The Upper GI Triangle Is The Danger Zone In Revisional Surgery*

- Confluence of….
  - Left Crus Base
  - Oesophagus / GOJ
  - Medial Fundus
  - Omental Adhesions
  - Gastro-Gastric Folds
  - Short Gastric Vessels
  - “Sac” from HH / Band Slippage
  - Liver

It’s Like A Vortex

…. everything gets sucked down onto this point.

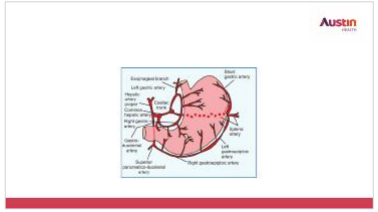
Non Negotiables Of Revision

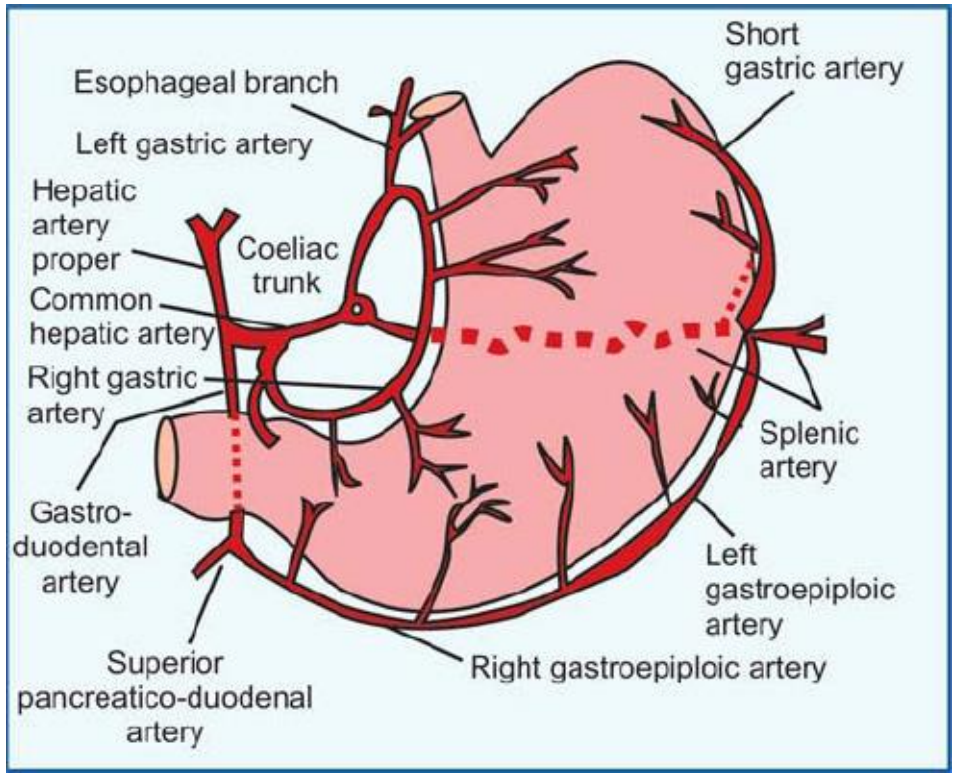
- *ALWAYS*

- Dissect the hiatus (at least the front and sides)
- Mobilise the oesophagus / GOJ
- Clearly Identify GOJ and Angle of His (circumferentially)
- Restore normal anatomy

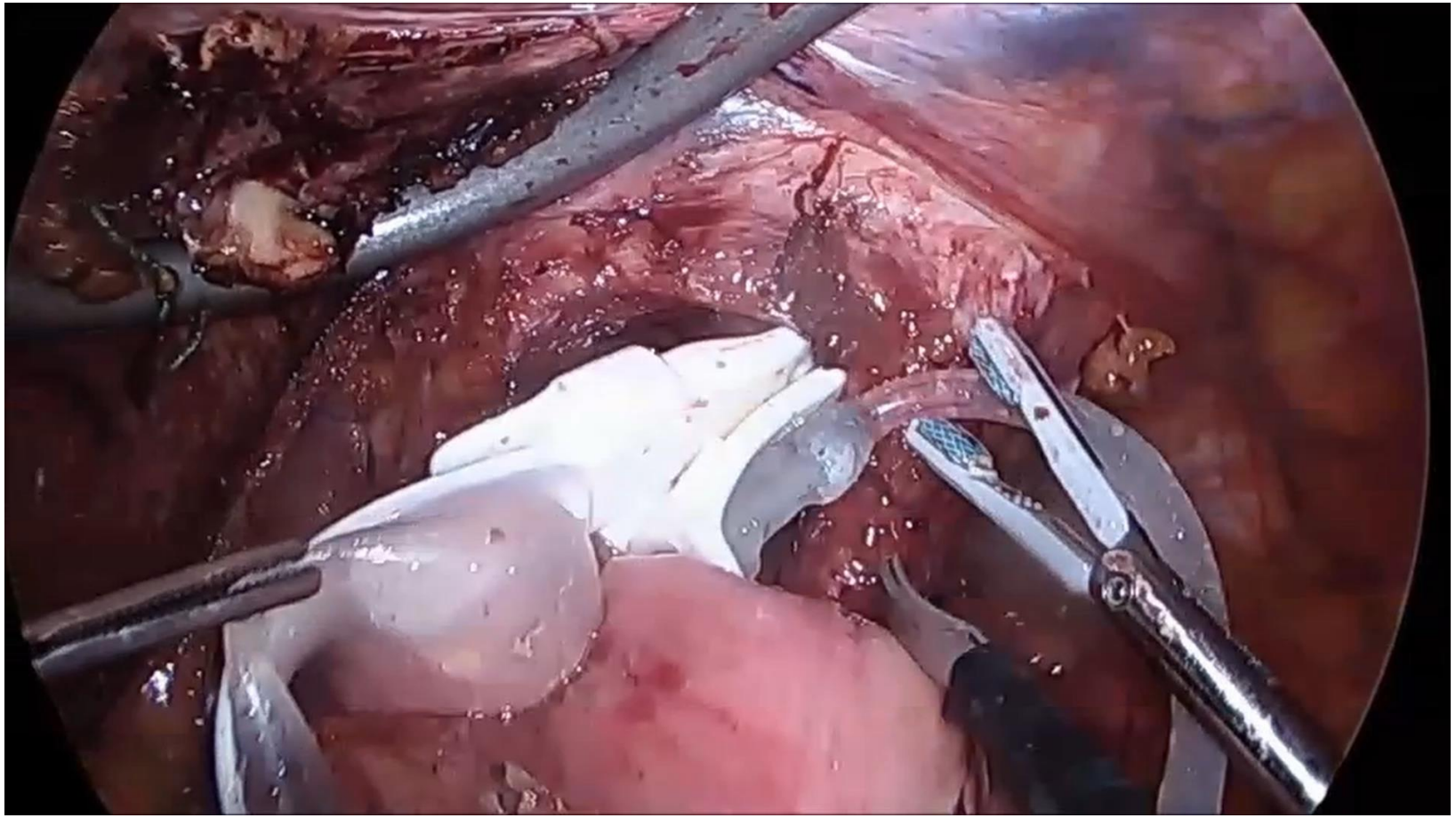
Non Negotiables Of Revision

- Avoid crossing staple lines
  - For VBG or Sleeve you need to fashion your pouch INSIDE the existing staple lines
  - This may dictate your pouch size
  - In VBG, ALWAYS excise the staple line and stoma from the remnant
- Take down any gastro-gastric folds & band eschars
- Clear posterior adhesions
- Preserve the lesser curve arcade
  - Peri-gastric dissection for pouch

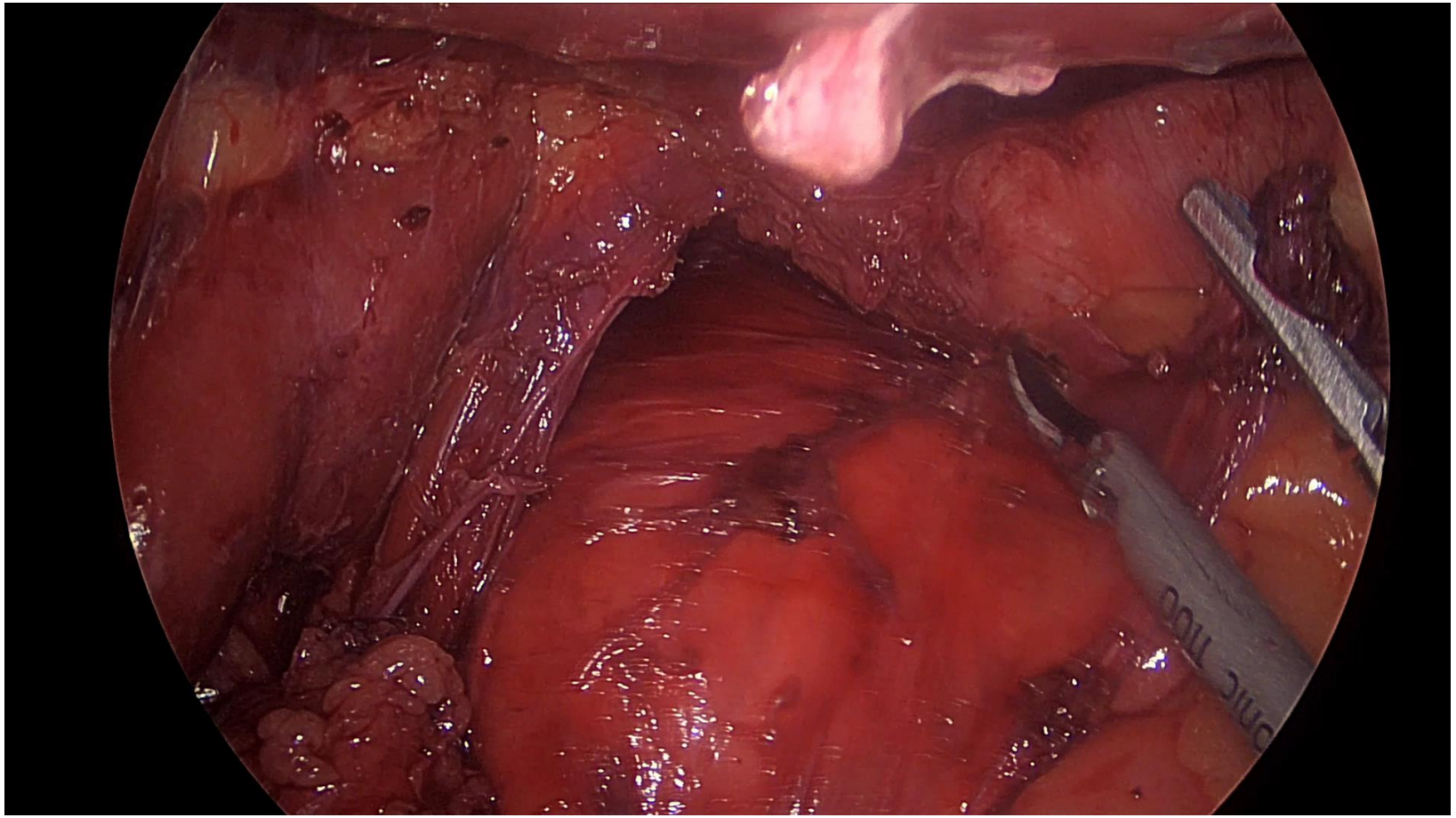



Short gastric artery
Esophageal branch
Left gastric artery
Hepatic artery proper
Coeliac trunk
Common hepatic artery
Right gastric artery
Splenic artery
Gastro-duodental artery
Left gastroepiploic artery
Superior pancreatico-duodenal artery
Right gastroepiploic artery

Band Eschar / Fundal Tethering



Gastro-Gastric Adhesions



The Hiatus

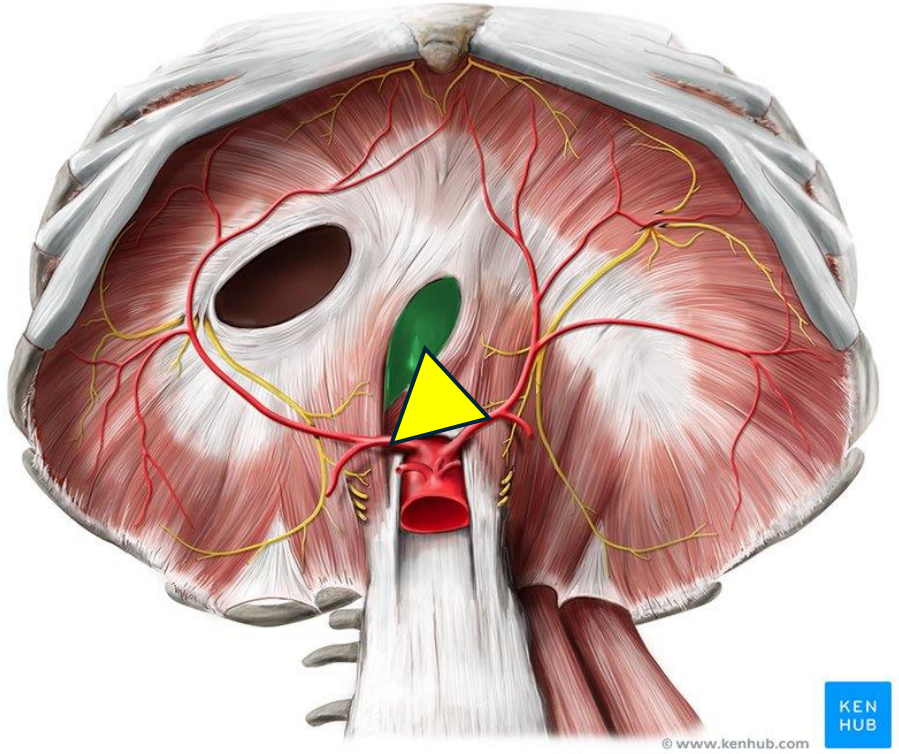
- CRUCIAL
- Provides sequential landmarks for all upper gastric anatomy
- It leads to everything else

Secrets To Revisional Surgery

- The KEY to all Revisional Surgery Is ….

….. The Right Crus

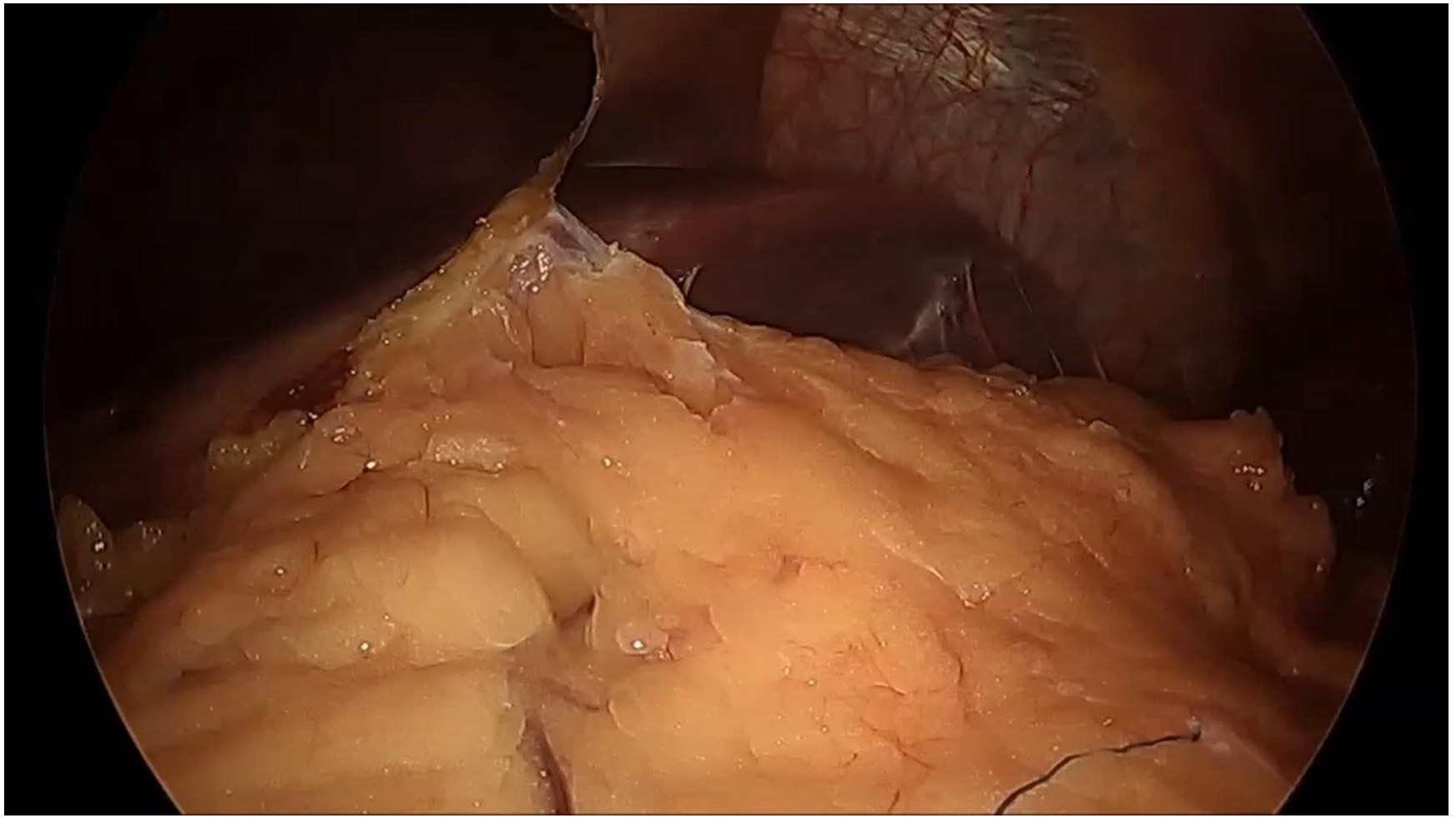
- Avoids the “tiger country” of left crus / angle of His



Technical Tips – Dissecting The Hiatus

- Mediastinal Dissection Of The Crura
  - Provides landmarks for subsequent adhesional dissection
- “Lateralised” Oesophageal Mobilisation
- ROM (Retro-Oesophageal Manoeuvre)
  - Lifts posterior vagus
  - Negotiates difficult left crual adhesions

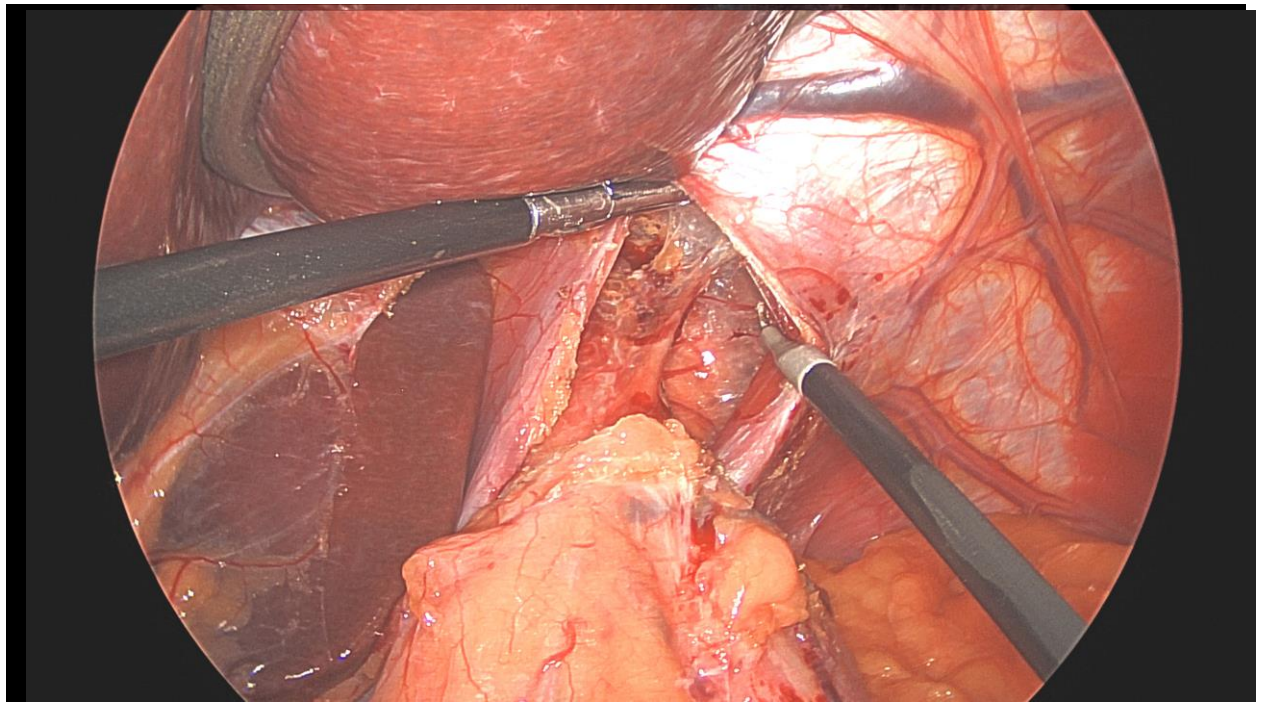
Technical Tips - The Right Crus



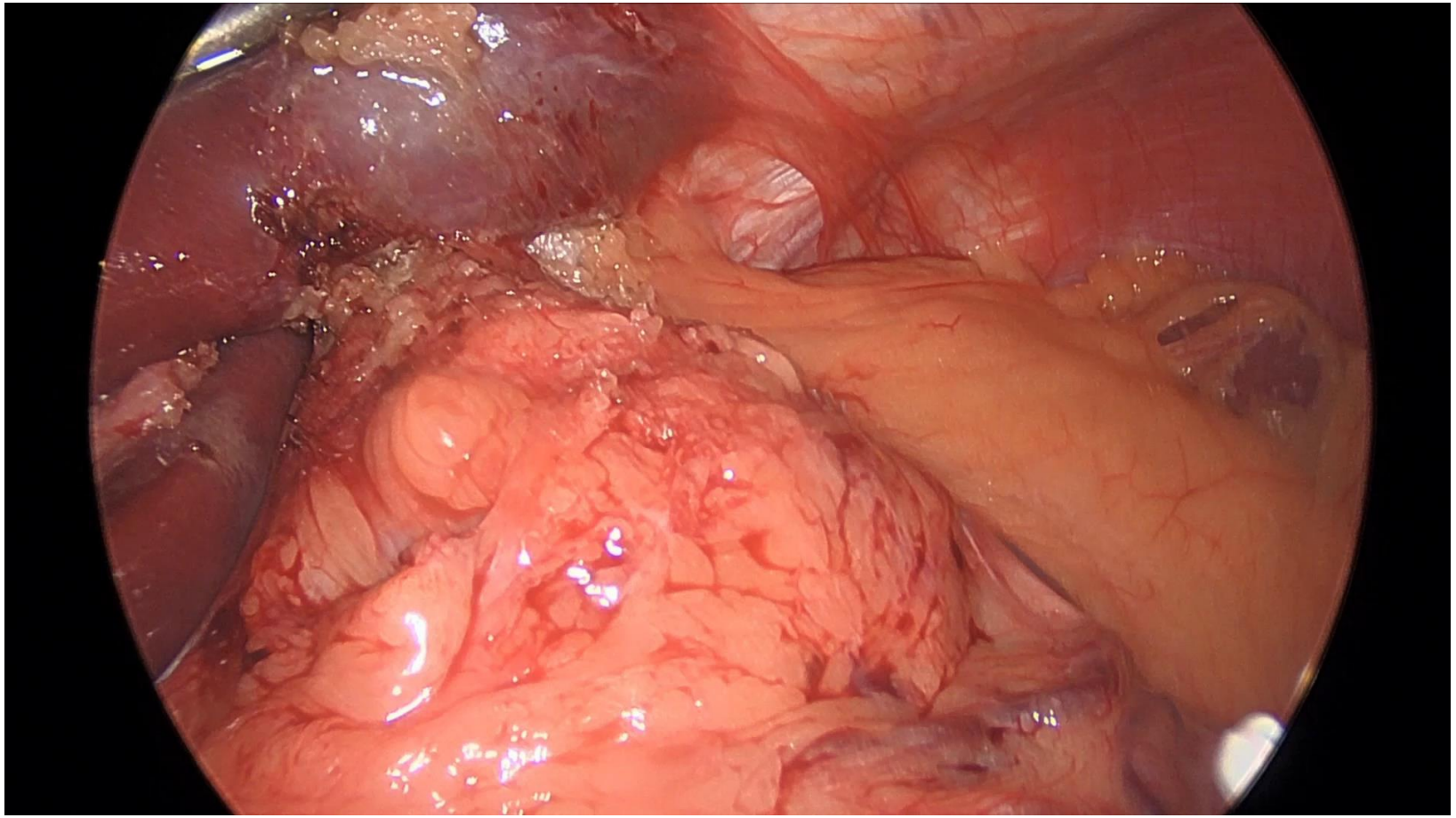
Technical Tips – Lateralised Mediastinal Mobilisation

Avoiding The Vagus & Oesophageal Injury

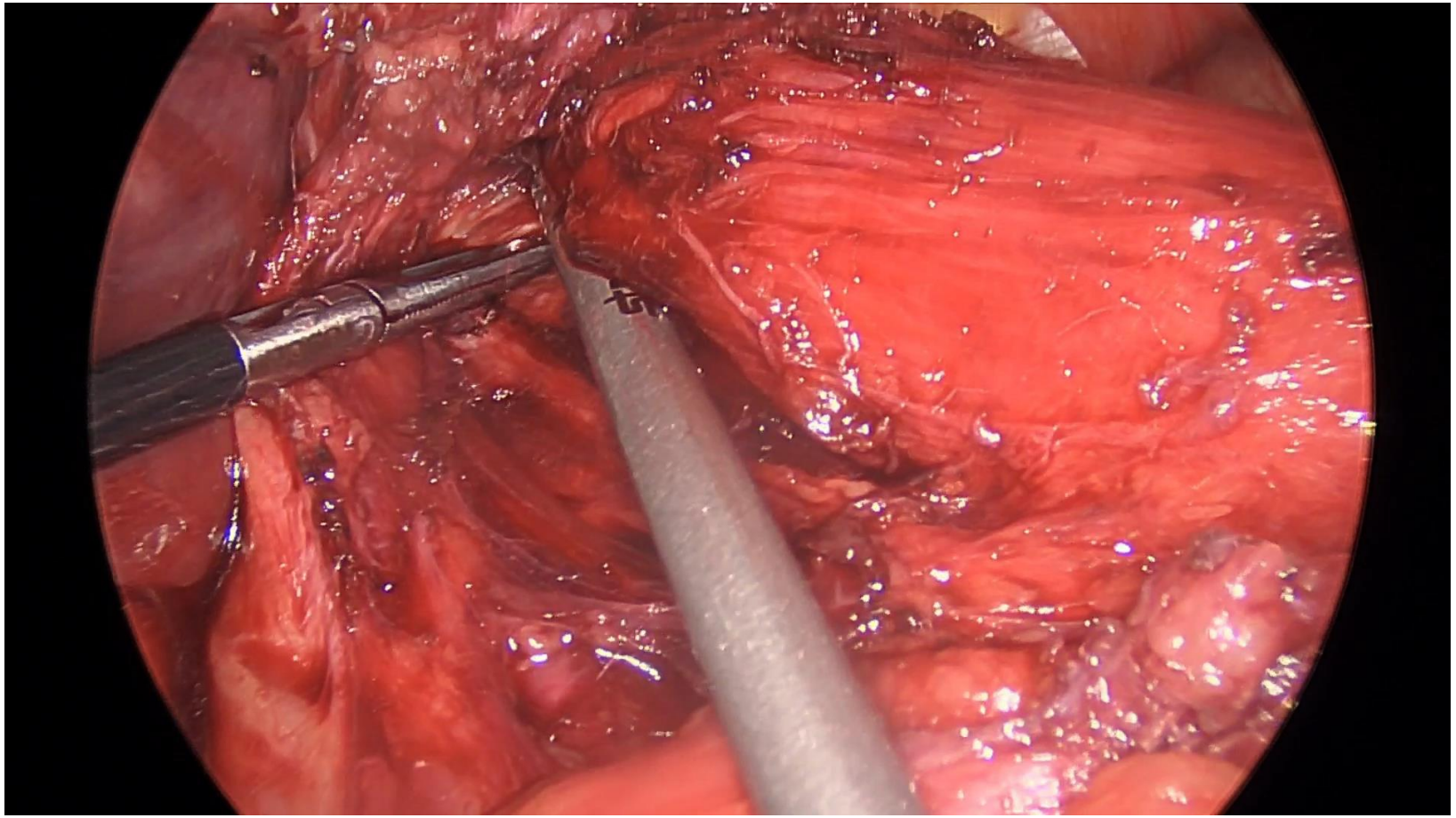
- Stay in the pericardial fat at apex of hiatus
- Stay on the internal aspect of the left crus
- Stay on the aorta (posterior vagus)



Hidden Hernia



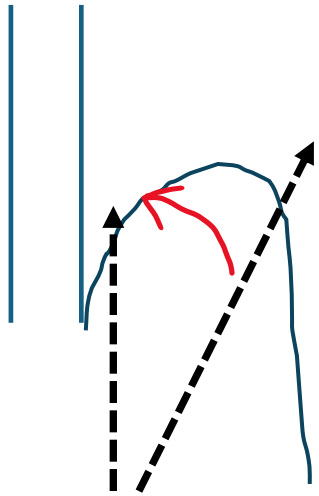
Technical Tips - ROM



Technical Tips - “Sleeve” Approach

Difficult Fundus

- Severe posterior tethering at Upper GI Triangle
- Take stapler laterally
- Then reflect fundus and mobilise from lateral side



Beware / Tips

Beware The Left Gastric Artery

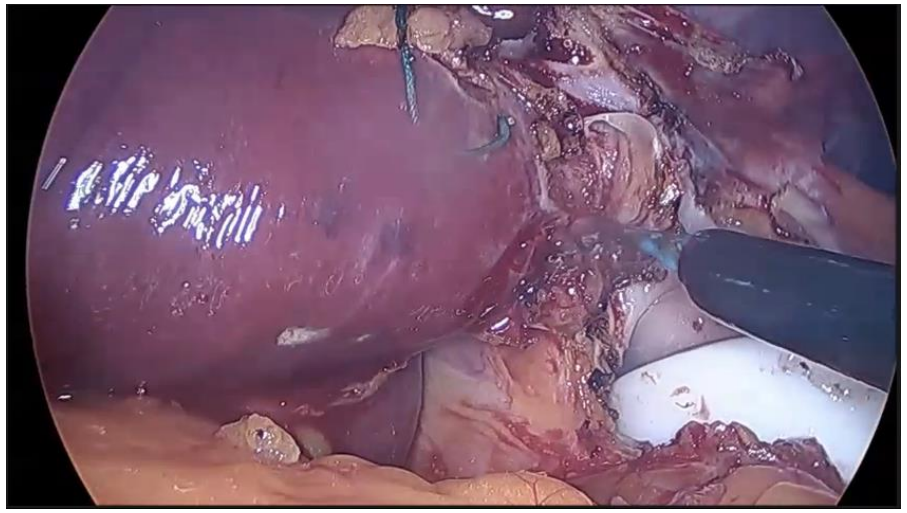
- Can be pulled out of position
- Can lie on the left crus

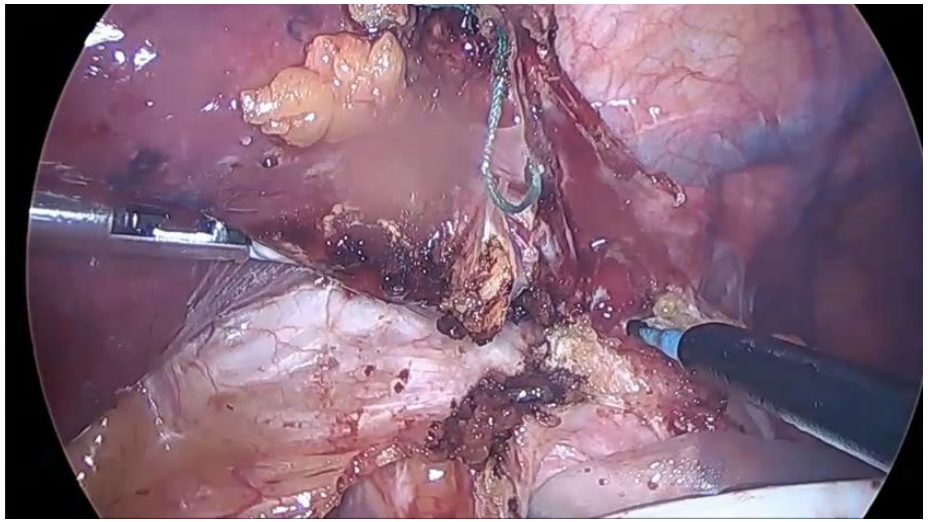
Beware / Tips

Beware The Accessory Left Hepatic

- Often pulled up by adhesions toward diaphragm
- Hidden between caudate and left lobe

➢ *Follow the right crus*





Beware / Tips – Hybrid Procedure

*Beware Small Bowel Adhesions**

- Bowel injury risk
- Laparoscopic adhesiolysis is difficult
- May produce distal obstruction → Leak

- Have low threshold to open

- *HOWEVER…… do the gastric pouch first*
  - Can almost always do this lap
  - "Hybrid Procedure"
  - Smaller abdominal incision / away from epigastrium / avoid need for rib retraction

Summary

- Plan Carefully
- Get Support
- Progress Complexity
- Always Dissect The Hiatus
- The Right Crus Is Your Friend
- Mediastinal dissection and progressive landmarks
- Don’t rush
- Stay safe out there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