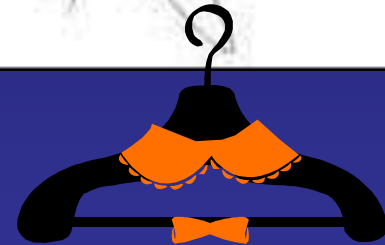
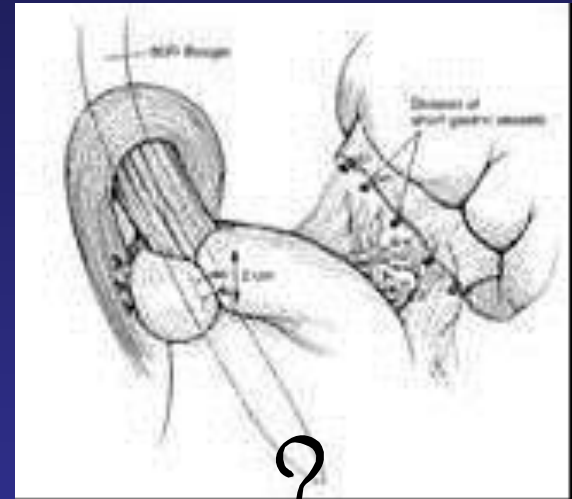


Laparoscopic Fundoplication

- Indications
- Ports / Instruments
- Procedure
- Complications



Prof. R. K. Mishra



GERD

- Gastro esophageal Reflux Disease (GERD) is defined as the failure of the antireflux barrier, allowing abnormal reflux of gastric contents into the esophagus.
- Exposure of the oesophageal mucosa to acid & enzymes leads to acute and chronic inflammation, with pain, and ulceration or stricture formation if untreated.



Epidemiology

- In U.S. & Europe 44% of population describe symptoms of GERD
- Symptoms characteristic to GERD is only present in 10 to 15%
- Men appear to have more complication secondary to GERD like Esophagitis & stricture
- 10 to 50 % patients require long-term treatment

Ref: Surgical Endoscopy; Vol 11: 5. 1997



Symptoms

- Heart burn (Retrosternal burning)
- Regurgitation
- Pain
- Respiratory symptoms



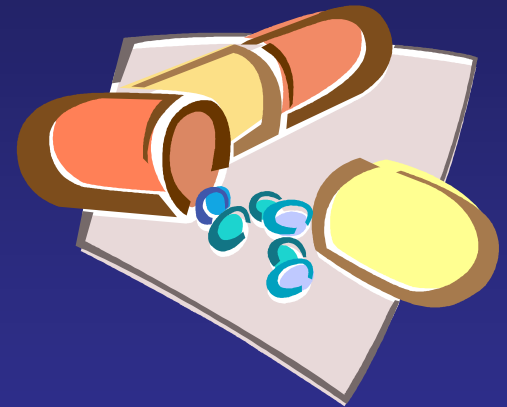
Diagnostic test

1. Endoscopy
2. Barium swallow
3. Oesophageal transit +/- Manometry
4. pH monitoring



Management of GERD

- Medical therapy is the first line of management.
- Esophagitis heals in approximately 90% of cases with intensive medical therapy.
- However, symptoms recur in more than 80% of cases within one year of drug withdrawal.

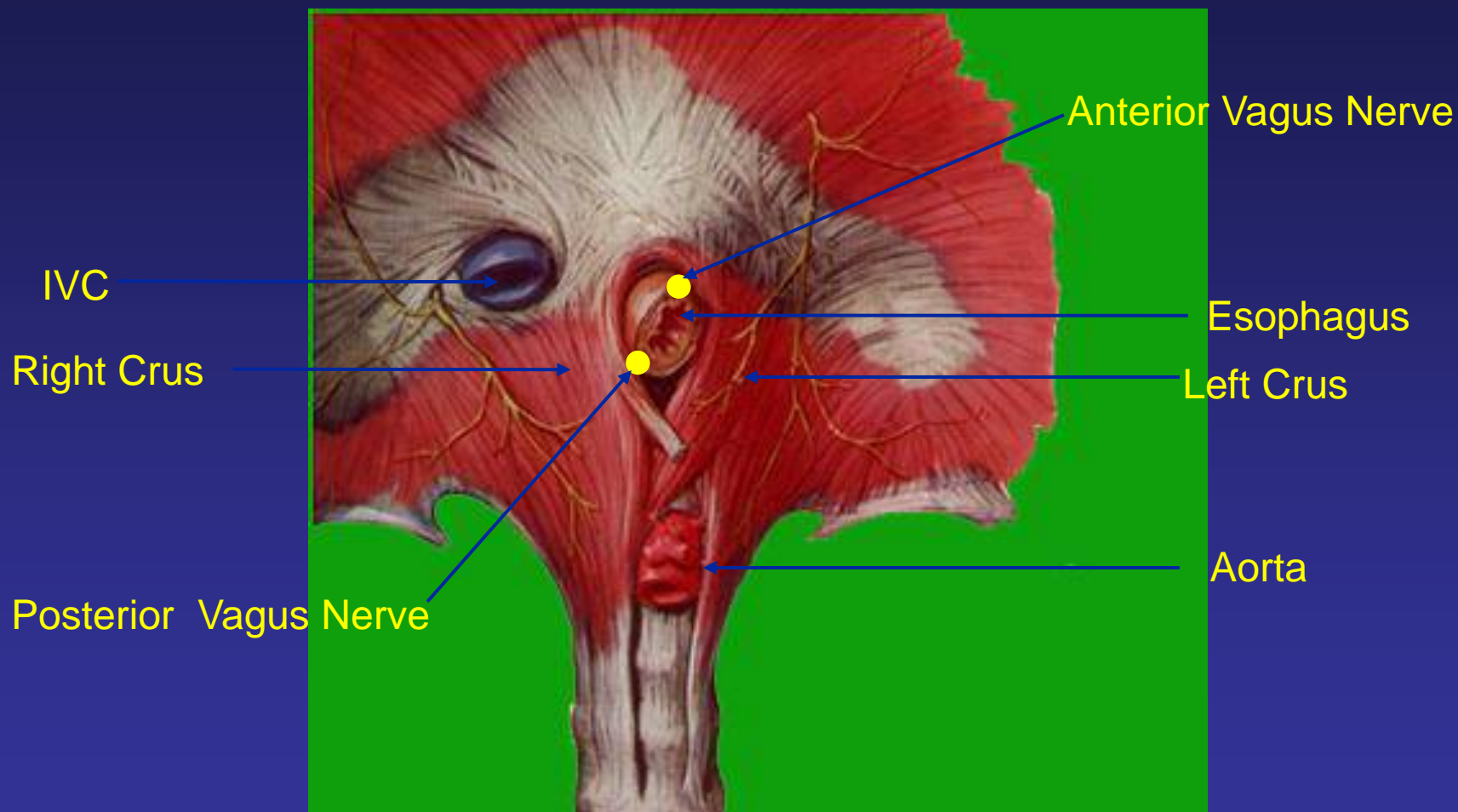


Indications for surgery

- Refractory to medical management
- Associated with hiatus hernia
- Intolerance to PPH or H2 receptors
- Study has shown that patient resistant to anti secretory treatment are not a good candidate for antireflux surgery



Surgical anatomy



Types

- The 360 degrees Nissen fundoplication (NF) has been the standard operation for Gastro Esophageal Reflux, but is associated with substantial rates of, "gas bloat," gagging & dysphagia
- Toupet fundoplication (TF), a 270 degrees posterior wrap, has fewer complications, and its outcome in compared with Nissen Fundoplication is favourable both in children as well as adults

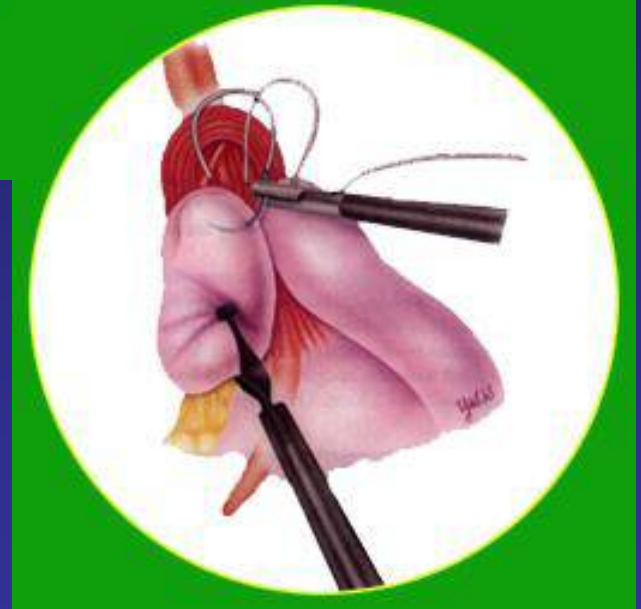




Dissect Post.to
Right Vagus



Avoid injury to ant.
Vagus Nerve



Avoid excessive traction
on Short Gastric



Which fundoplication for whom

FUNDOPLICATION : INDICATIONS

Symptomatic GERD

endoscopy - barium swallow - esophageal manometry - (ph monitoring)

hypotonic - normotonic LES
normal esophageal length
normal esophageal motility



Nissen fundoplication

hypotonic LES
normal esophageal length
poor esophageal motility



partial fundoplication

hypotonic LES
short esophagus



Collis gastroplasty
partial fundoplication
Nissen fundoplication
Thoracic approach (Belsey -Nissen)

B.Dallemagne



Task analysis

- Preparation of the patient.
- Creation of pneumoperitoneum. Insertion of port.
- Diagnostic laparoscopy & Dissection of visceral peritoneum.
- Mobilisation of 5 cm. intra-abdominal oesophagus.
- Mobilisation of Fundus of stomach
- Fundus pulls from below the oesophagus.
- Insertion of posterior sutures to tighten the crural opening.
- Fixation of Fundus to the left crura.
- Fixation of the fundus with the right crura.
- Fixation of the fundus with oesophagus. Inspection of tightness of fundoplication.
- Final Diagnostic laparoscopy for any bowel Injury or haemorrhage.
- Removal of the instrument with complete exit of CO2. Closure of wound.



Patient position

- The patient is placed on the operating table with the legs in stirrups, the knees slightly bent and the hips flexed approximately 10° .



Position of surgical team

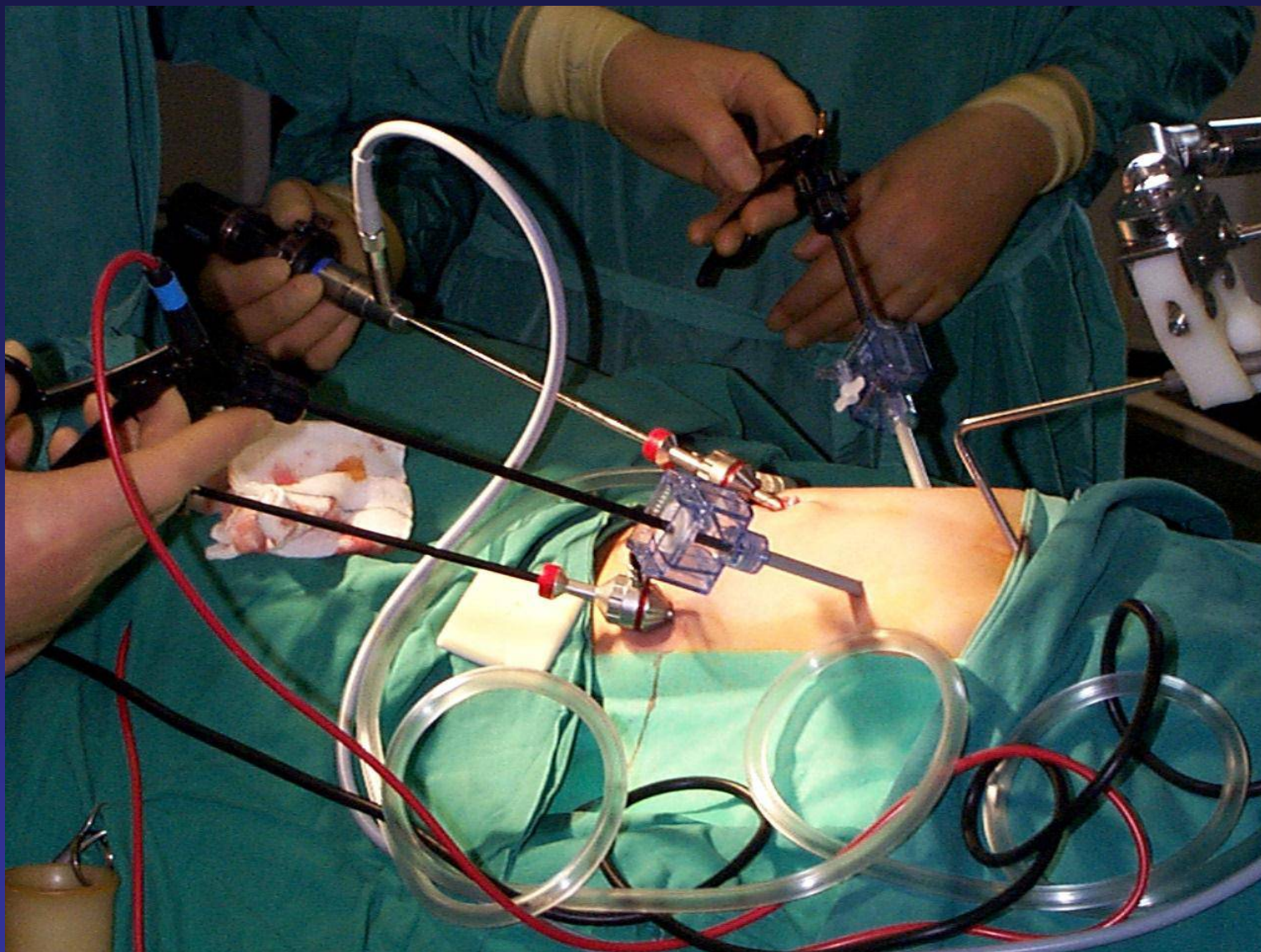
- The operating table is tilted head up by approximately 15 degree.
- The surgeon stands between the patient's legs.
- The first assistant on the patient's left side.
- The instrument trolley is placed on the patient's right allowing the scrub nurse to assist with placing the appropriate instruments in the operating ports.
- Television monitors are positioned on either side.



Ports / Instruments

1. A 10mm camera port 5cm above the umbilicus.
2. A 5mm port in the right upper quadrant.
3. A port, with a variable 5-10 mm is in the left upper quadrant - a mirror image of the one on the patient's right.
4. Nathanson liver retractor is inserted through a 5 mm incision in the midline, extending from skin to the peritoneal cavity,
5. An another 5 mm port is positioned in the left mid clavicular line immediately below the costal margin. This port is mainly used for a forceps which will hold the tape encircling the oesophagus.





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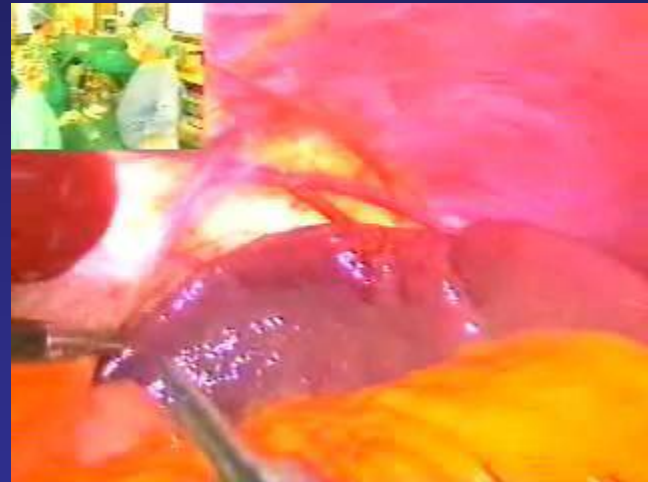


Port position



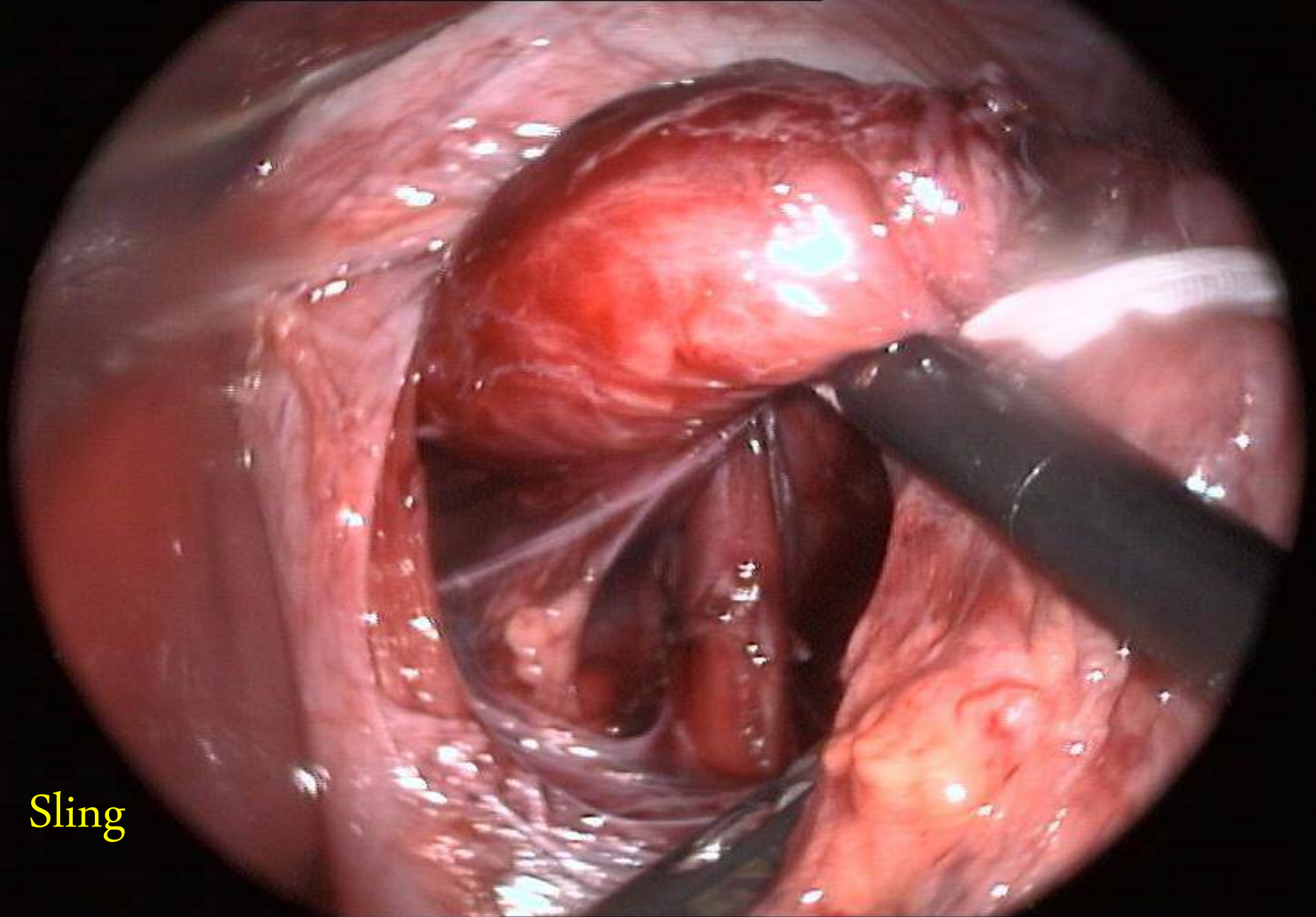
Procedure: Tissue dissection and mobilisation

- Opening is created in the lesser omentum below the hepatic branch of vagus
- Dissect to identify right and left crus.
- Mobilise the oesophagus
- Mobilise stomach sufficient enough to have a good floppy fundus for wrap



Procedure: Insertion of sling around the oesophagus



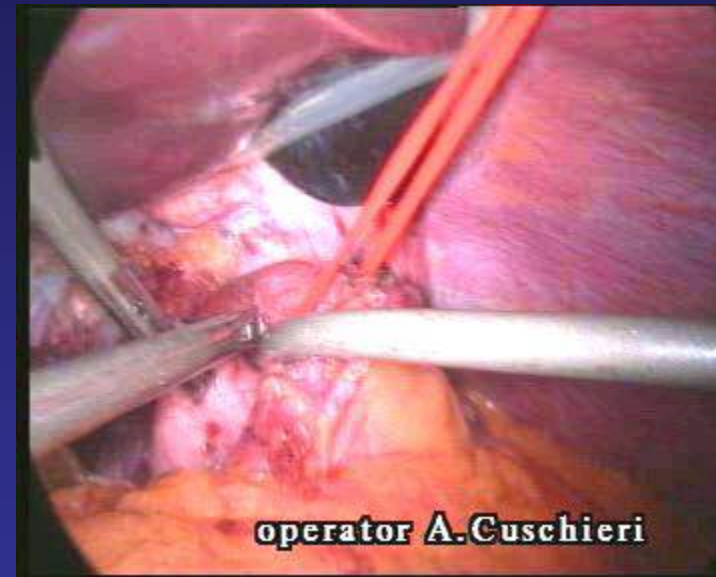


Sling

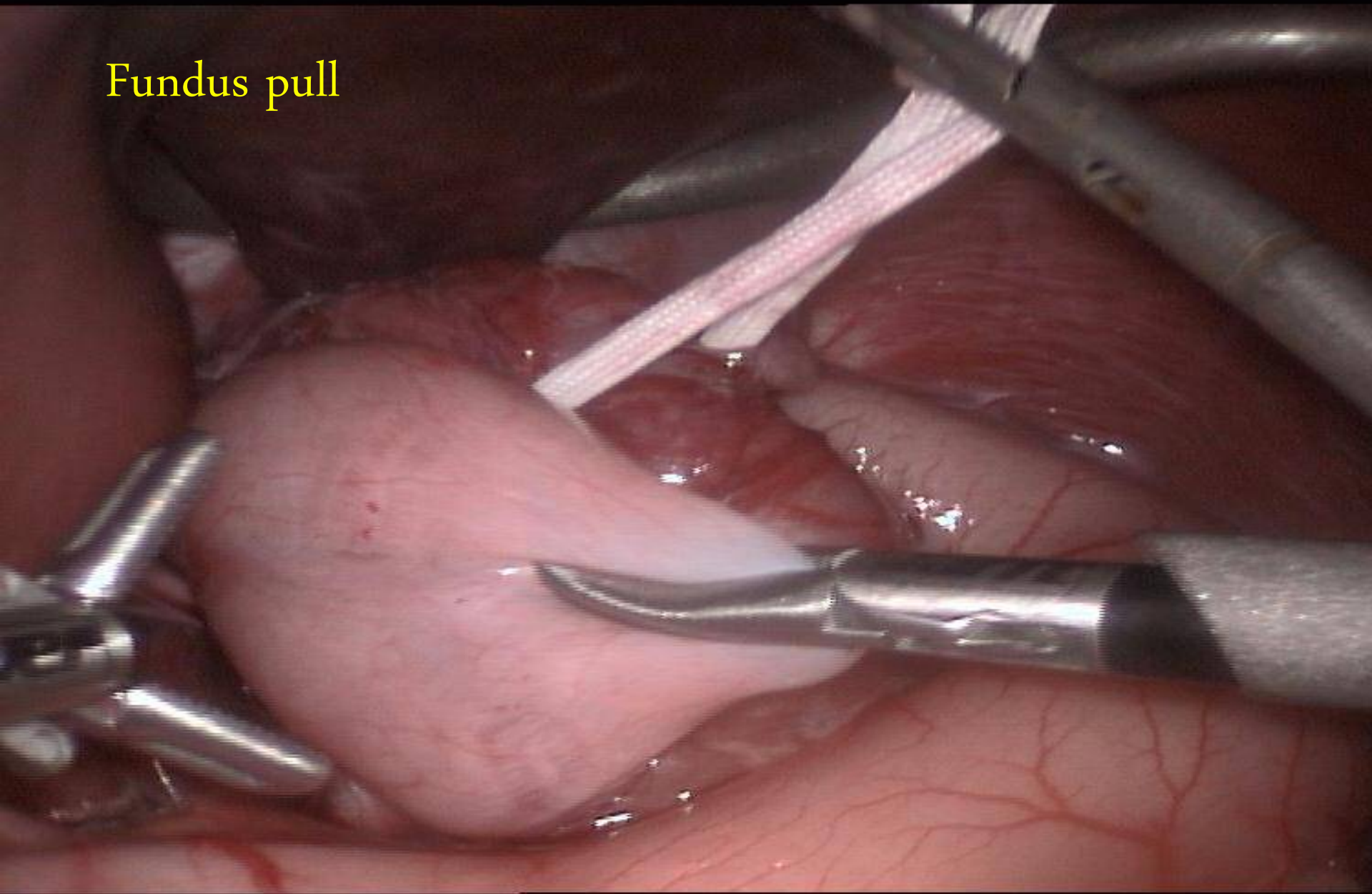


Procedure: Fundus pull

- After mobilising the fundus, the tip of the fundus is pulled to the right side from behind the oesophagus
- One stay suture may be applied to the fundus to hold it in place



Fundus pull



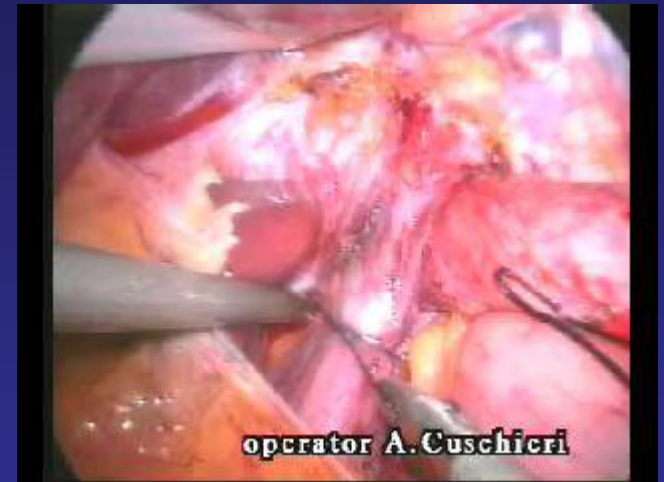
Approximation of crura

Right and left
crura are
approximated
with non
absorbable
suture



Procedure: Fixation of fundus

- 1st suture involves gastric fundus, with anterior aspect of the left crus.
- 2nd suture between the fundus & left anterior aspect of hiatus.
- 3rd suture between fundus and the right anterior aspect of the hiatus.
- Further three sutures at 1 cm intervals to the posterior fundus & right crus.

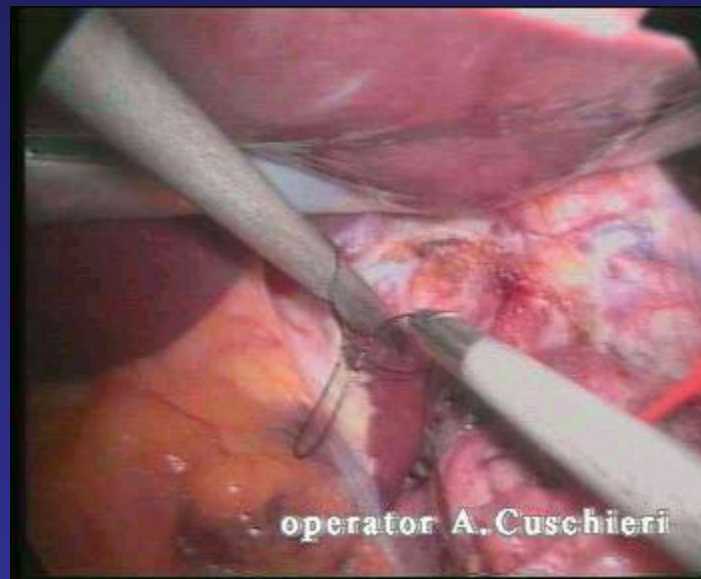


Procedure: suture on oesophagus

- One or two suture may be placed to fix the side of the oesophagus with the wrapped portion of the stomach.
- Always remember the wrap is not in place due to these suture. The suture of Fundus with crura actually hold the wrap in position.
- Never take a full thickness bite on the oesophagus.

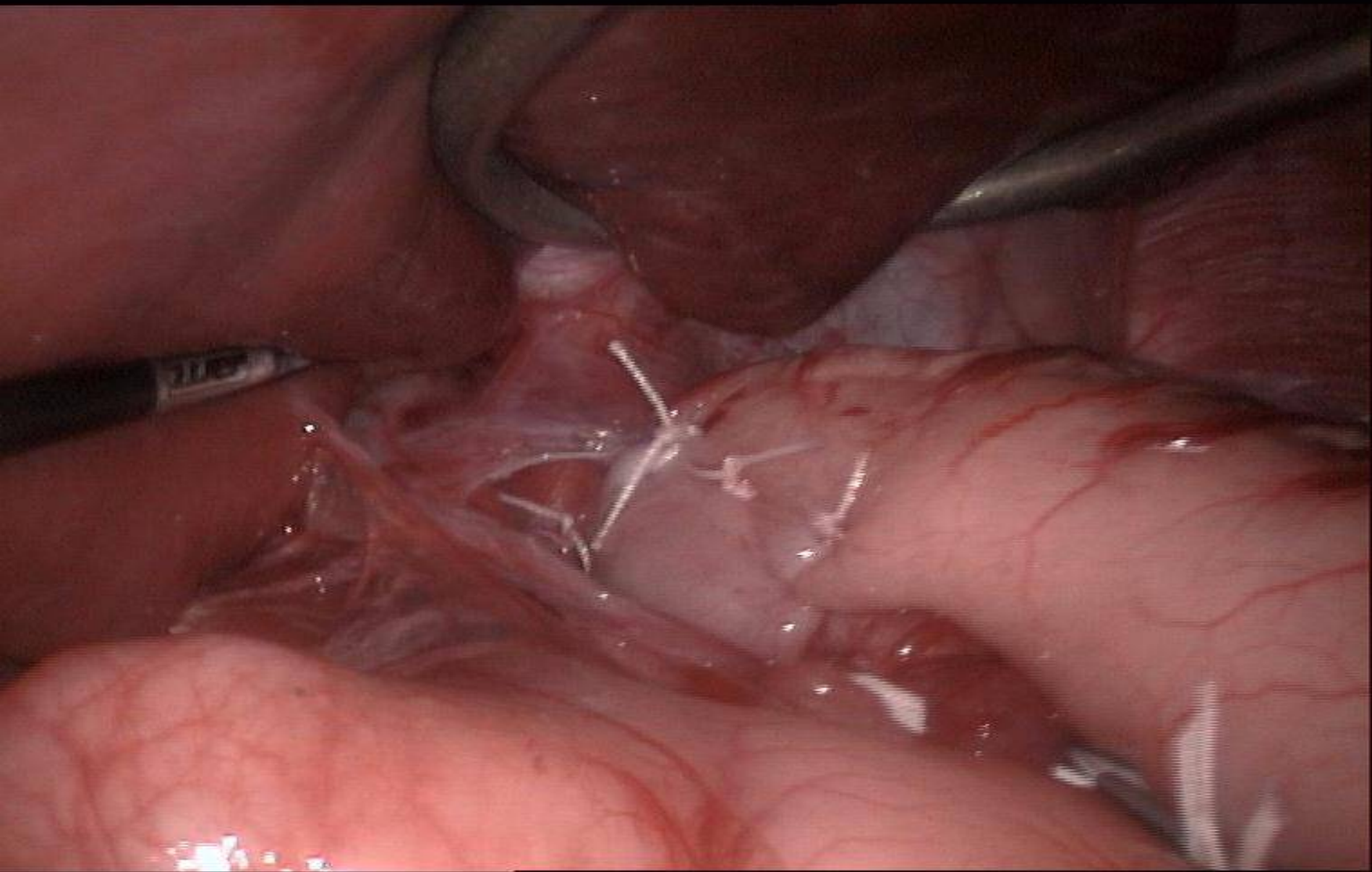


Fixation of fundus & suture on oesophagus



Nissen Fundoplication





Complications

- Bleeding
- Visceral injury
- Wound infection
- Tight wrap
- Intra-abdominal abscess
- Hernia
- Failure of plication



Advantages

- Reduced postoperative pain
- Reduced length of hospitalisation
- Surgery associated complication (pneumonia, Thromboembolism)
- Less wound infection
- Less chance of adhesions



Disadvantages

- More expensive
- More operative time
- Potential for major complications in inexperienced hands
- Loss of tactile feedback
- Difficult in case of repeat





Prof. Mishra and his students with defense minister Mr. George Fernandes

Thank you



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