

BY THE NAME OF ALLAH THE MOST GRACIOUS
THE MOST MERCIFUL

Upper GIT Bleeding

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إختصاصي الجراحة العامة و الجراحة الناظورية

To be read in

Bailey & Love's Short Practice of Surgery 26th Edition.

Ch 63 (1042 - 1044) and Ch 65 (1073- 1076)

Objectives

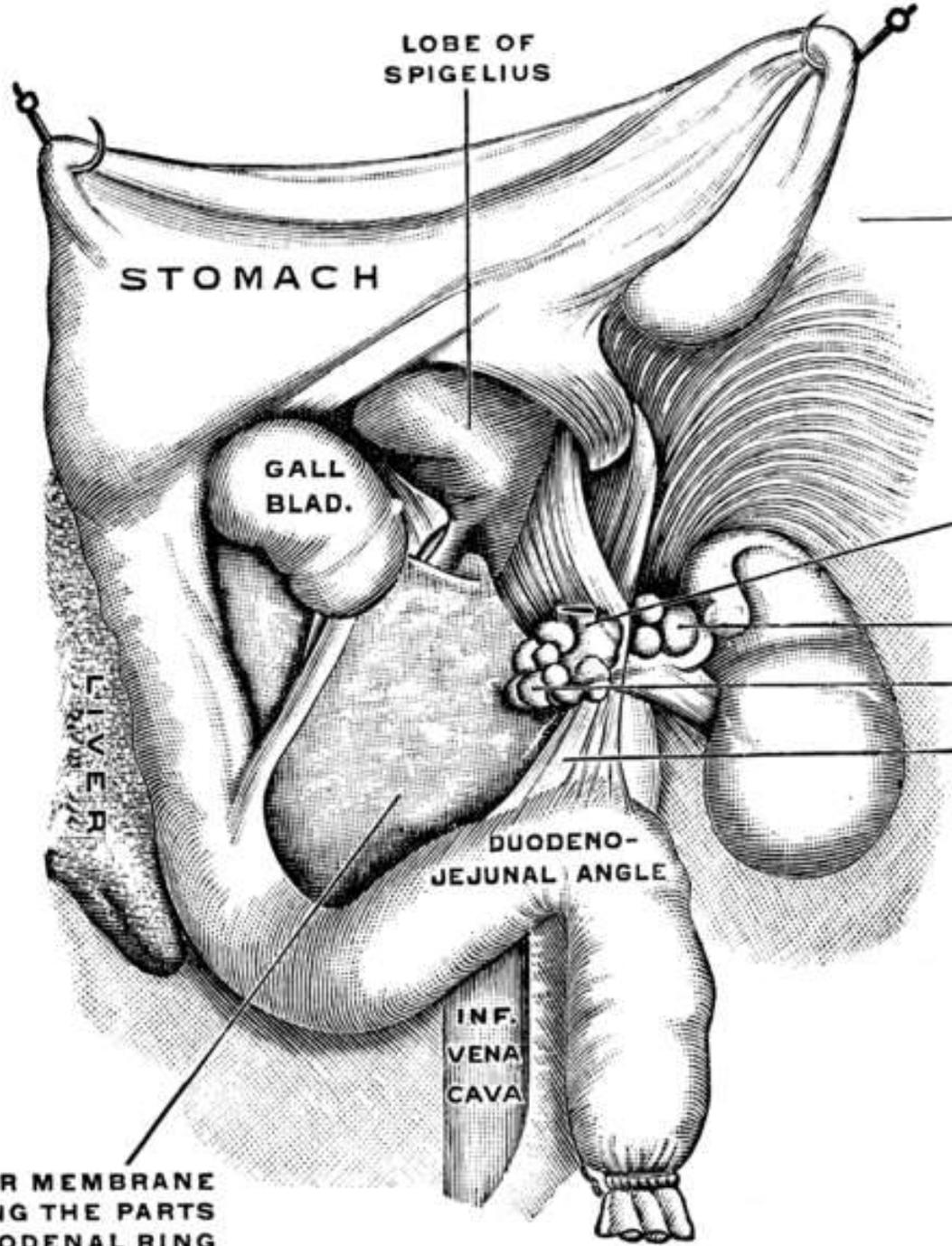
- AT THE END OF LECTURE
- YOU CAN DEFINE UPPER GIT BLEEDING.
- YOU KNOW THE PRINCIPLES OF UPPER GIT BLEEDING.
- YOU CAN ASSESS AND EVALUATE UPPER GIT BLEEDING.
- YOU CAN MANAGE UPPER GIT BLEEDING.
- CLINICAL SOLVED PROBLEMS.

Definition

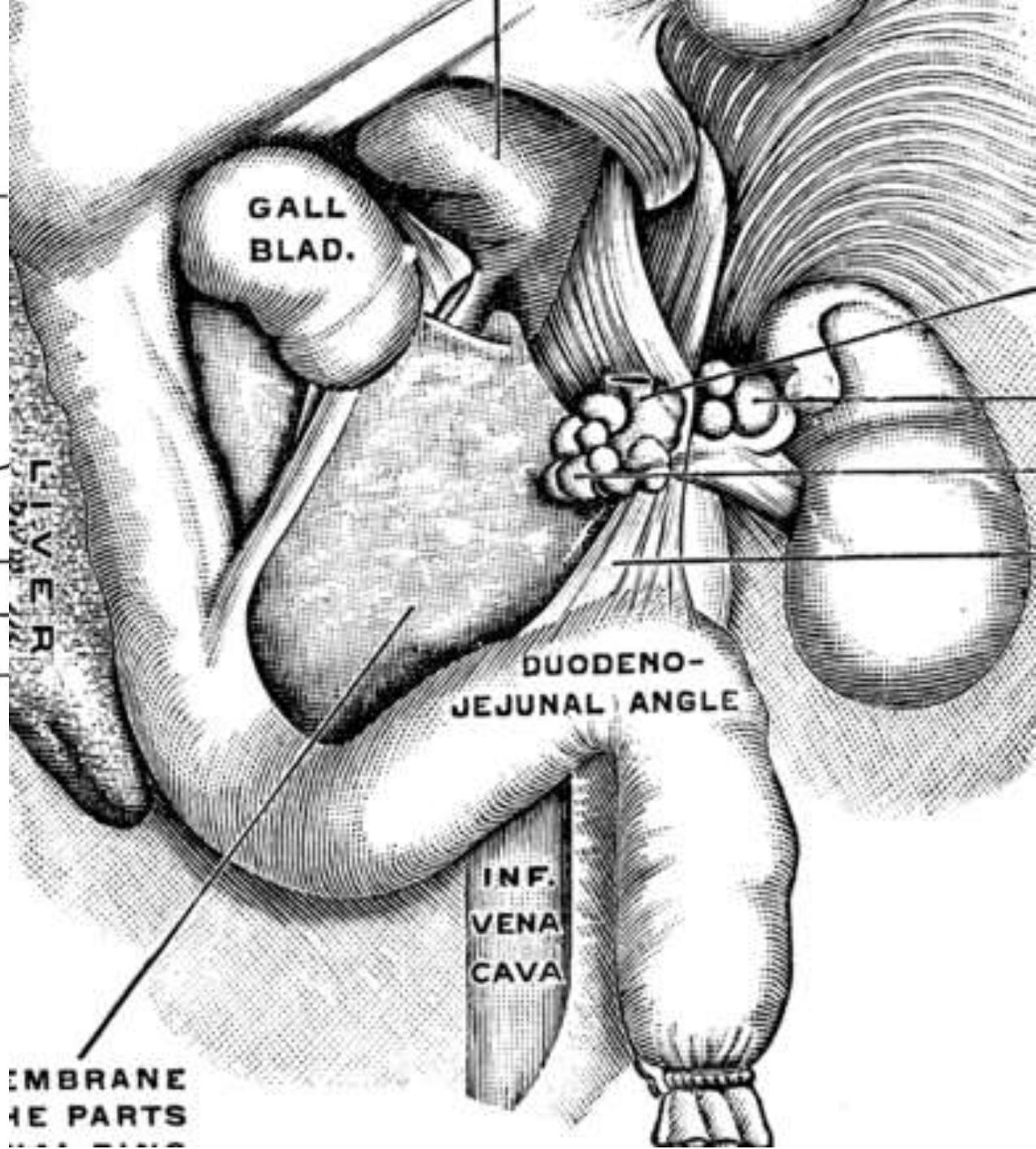
- **Upper GIT bleeding is defined as bleeding derived from a source proximal to the ligament of Treitz (Esophagus, Stomach & Duodenum).**
- **General Information About GIT Bleeding.**
- **Upper GI Bleed: proximal to Ligament of Treitz.**
- **Lower GI Bleed: distal to Ligament of Treitz.**
- **Terminology**
 - **Hematemesis:** bright red vomitus.
 - **Melena:** dark tarry stool due to digested blood.
 - **Hematochezia:** bright red blood per rectum (BRBPR) (+/- Clots).
 - **Occult GI bleed:** found on Lab exam but patient is without symptoms (Fecal Occult Blood Test)(Guaiac test).
- **Signs and symptoms of anemia or blood loss can present.**

ligament of Treitz

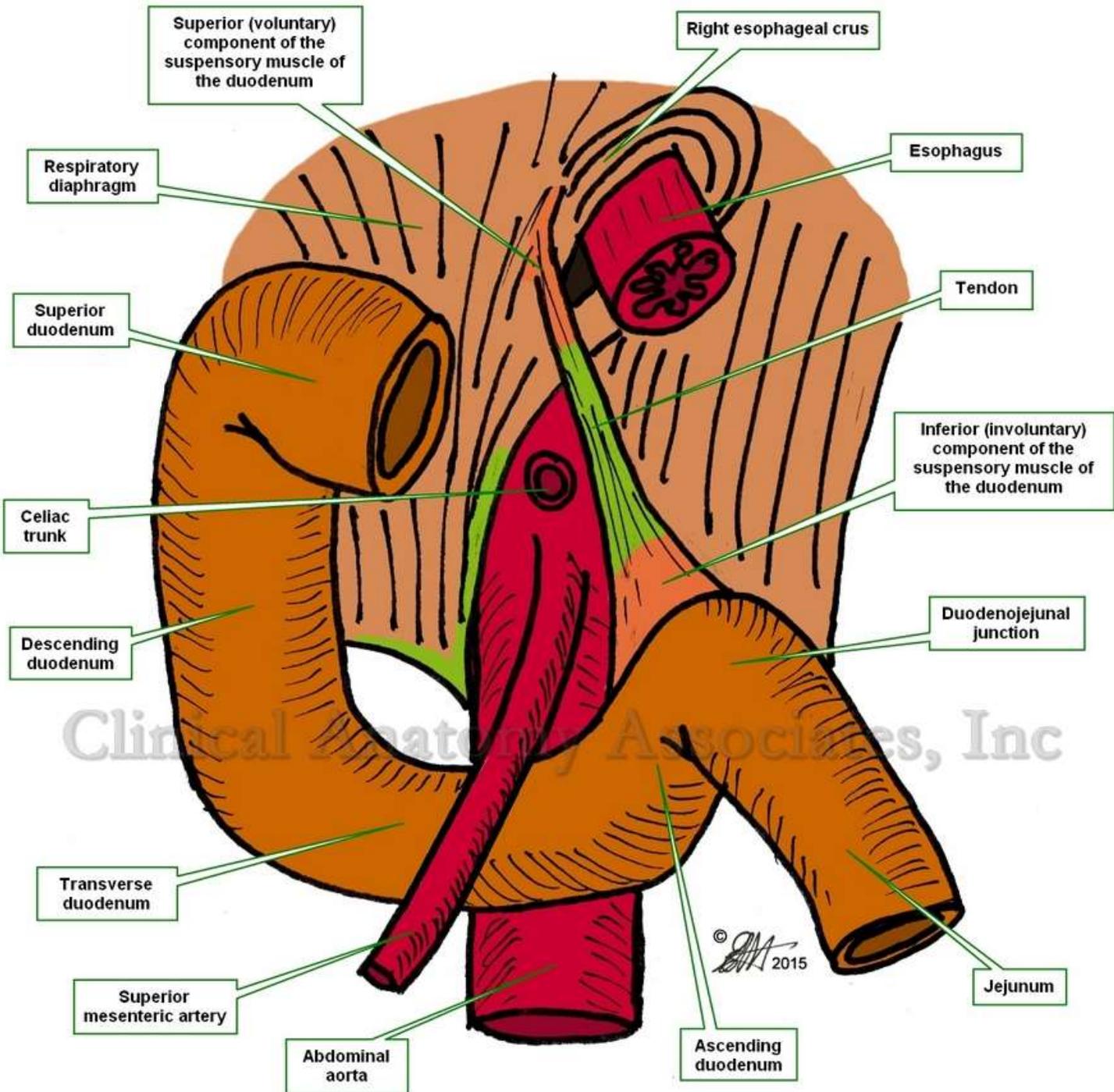
- The suspensory muscle of duodenum is a thin muscle connecting the junction between the duodenum, jejunum, and duodenojejunal flexure to connective tissue surrounding the superior mesenteric artery and coeliac artery.
- It plays a role in the embryological rotation of the gut, by offering a point of fixation for the rotating gut. It helps in digestion by widening the angle of the duodenojejunal flexure during contraction to regulate the outflow of intestinal content (Physiological Sphincter) .
- This ligament is an important anatomical landmark of the duodenojejunal flexure, separating the upper and lower gastrointestinal tracts. For example, bloody vomitus or melena, black tarry stools, usually indicate a gastrointestinal bleed from a location in the upper gastrointestinal tract. In contrast, hematochezia, bright red blood or clots in the stool, usually indicates gastrointestinal bleeding from the lower part of the gastrointestinal tract.

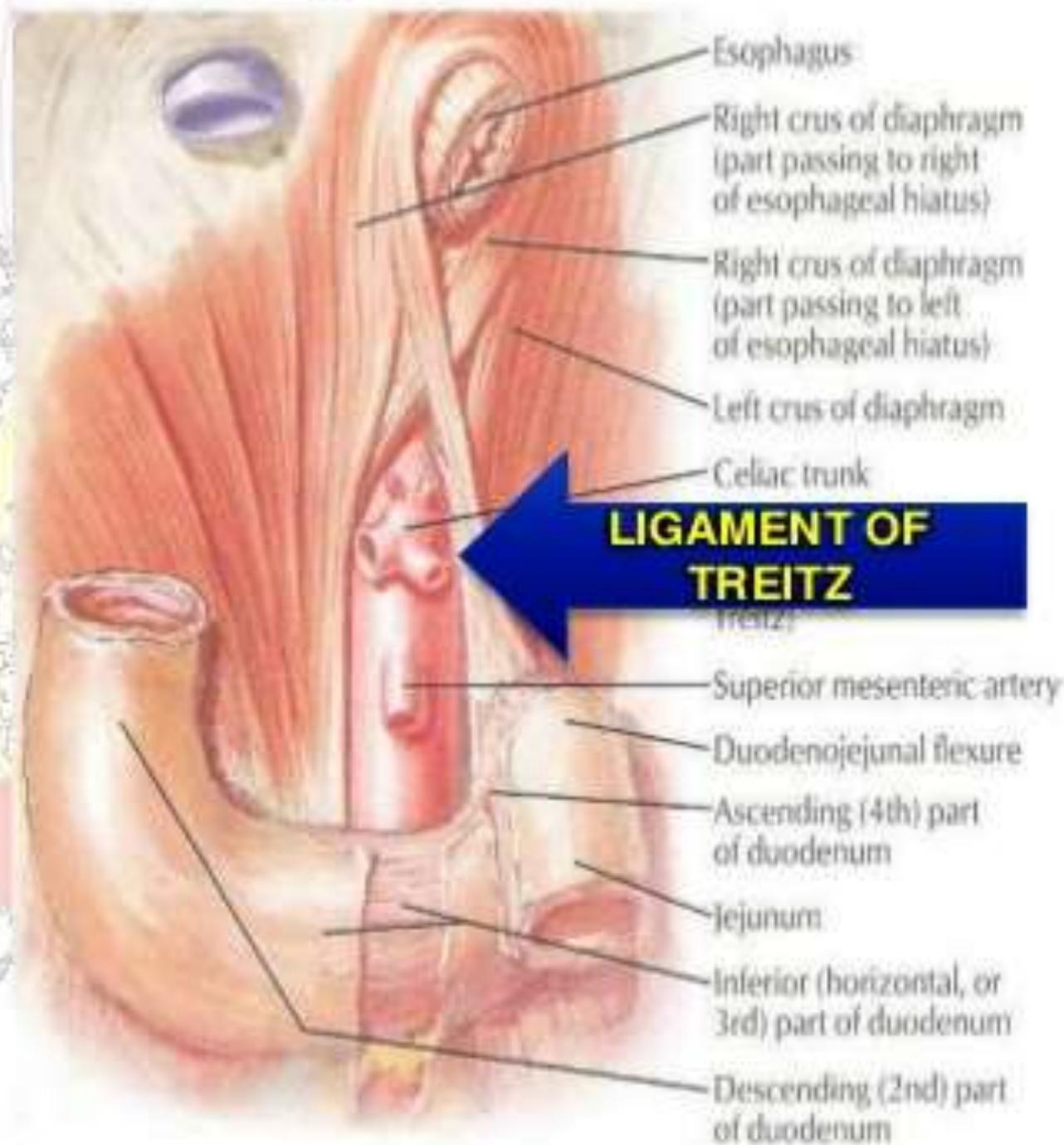


CELLULAR MEMBRANE CONNECTING THE PARTS OF THE DUODENAL RING BEHIND THE PANCREAS



MEMBRANE THE PARTS





Can be divided into 2 clinical syndromes:-

- upper GI bleed (pharynx to ligament of Treitz)
- lower GI bleed (ligament of Treitz to rectum)

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- Inner guaiac paper.
- Hydrogen peroxide
- Oxidizes Guaiaconic acid to a blue colored.
- Heme (Catalyst).

Table 63.4 Causes of upper gastrointestinal bleeding.

Condition	%
Ulcers	60
Oesophageal	6
Gastric	21
Duodenal	33
Erosions	26
Oesophageal	13
Gastric	9
Duodenal	4
Mallory–Weiss tear	4
Oesophageal varices	4
Tumour	0.5
Vascular lesions, e.g. Dieulafoy's disease	0.5
Others	5

- **Ulcer**
- **Erosions.**
- **Mallory – Weiss tear.**
- **Oesophageal Varices.**
- **Tumour**
- **Vascular**
(**Dieulafoy's disease**).
- **Bleeding Disorders.**
- **Hemobilia.**
- **Aorto-Enteric Fistula.**
- **Others.**

WORK UP

- Assessment

(History, Examination and Investigation).

YOU HAVE TO REACH THE DIAGNOSIS.

Which type of obstruction and you have to define the cause.

- Resuscitation (Emergency).

- Evaluation

(Assessment with suitable Treatment considering anesthesia).

- A 67 y M with history of HTN and osteoarthritis who presents to the ED with 3 episodes of coffee –ground vomitus today.
- No abdominal pain, melena or hematochezia. No history of liver disease or coagulopathy.
- Medications include HCTZ, Lisinopril, and Ibuprofen for joint pain.
- VS on arrival: T 37, HR 102, BP 108/72, similar BP standing , Pox 99% RA
- Examination: No scleral icterus. Abdomen soft, non-tender, no HSM. P.R. with dark brown stool, guaic +.
- Labs: Hgb 9.8, Plt 245, INR 1, LFTs NI, BUN 28/Cr 1.4.

Interpritation

- Major causes
 - Peptic ulcer, esophagogastric varices, arteriovenous malformation, tumor, esophageal (Mallory-Weiss) tear
- Characteristics of bleeding
 - Hematemesis – coffee ground vs bright red blood
 - Melena
 - Hematochezia
- History
 - Liver disease, alcoholism, coagulopathy
 - NSAID, antiplatelet or anticoagulant use
 - Abdominal Surgeries

- Examination
 - Vitals
 - Tachycardia, hypotension
 - Abdominal examination
 - Significant tenderness, organomegaly, ascites
 - Rectal examination
 - Skin examination
 - NG lavage - if source of bleeding unclear
- Diagnostic Evaluation
 - Hgb/Hct, plt count, coag studies
 - LFTs, albumin, BUN and creatinine
 - Type and screen /type and cross

Emergent Management

- Closely monitor airway, clinical status, vital signs, cardiac rhythm
- two large bore IV lines (16 gauge or larger)
- bolus infusions of isotonic crystalloid
- Transfusion
 - pRBCs – Hgb <7, hemodynamic instability
 - FFP, platelets – coagulopathy, plt <50 or plt dysfunction
- Triage – ICU vs Wards
 - Hemodynamic instability or active bleeding > ICU
- Immediate GI consult

ENDOSCOPY

- o Early endoscopy within 24hrs and after resuscitation.
- o Urgent in patients with shock, liver disease, continued bleeding.
- o Cause of bleeding detected in $> 80\%$
- o Can detect more likely cases to rebleed.
- o Varices can be injected at first endoscopy
- o Bleeding ulcers may be injected or vessels coagulated.
- o Improve rebleed but do not significantly improve mortality rebleed .

Rockall Score for Upper GI Bleeding (Pre-Endoscopy)

Variable ^[2]	Score 0	Score 1	Score 2	Score 3
Age	<60	60- 79	>80	
Shock	No shock	Pulse >100 BP >100 Systolic	SBP <100	
Co-morbidity	Nil major		CHF, IHD, major morbidity	Renal failure, liver failure, metastatic cancer
Diagnosis	Mallory-Weiss	All other diagnoses	GI malignancy	
Evidence of bleeding	None		Blood, adherent clot, spurting vessel	

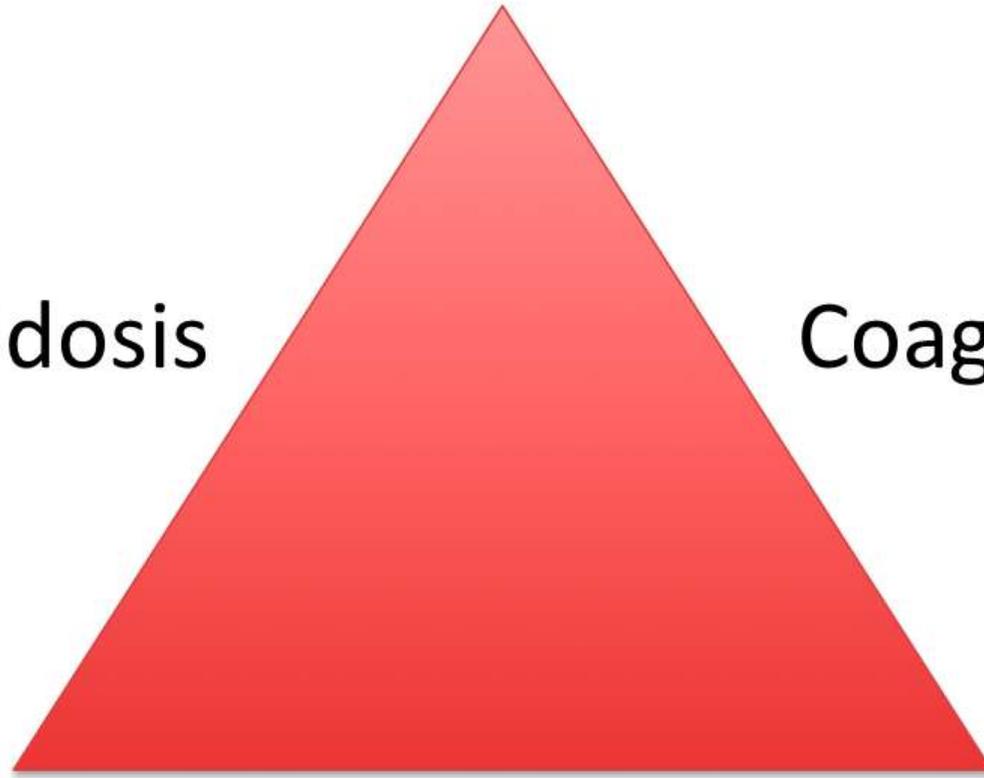
Rockall risk scoring system attempts to identify patients at risk of adverse outcome following acute upper gastrointestinal bleeding

Class of haemorrhagic shock

	I	II	III	IV
Blood loss (mL)	Up to 750	750–1500	1500–2000	> 2000
Blood loss (% blood volume)	Up to 15	15–30	30–40	> 40
Pulse rate (per minute)	< 100	100–120	120–140	> 140
Blood pressure	Normal	Normal	Decreased	Decreased
Pulse pressure (mm Hg)	Normal or increased	Decreased	Decreased	Decreased
Respiratory rate (per minute)	14–20	20–30	30–40	> 35
Urine output (mL/hour)	> 30	20–30	5–15	Negligible
Central nervous system/ mental status	Slightly anxious	Mildly anxious	Anxious, confused	Confused, lethargic

Acidosis

Coagulopathy

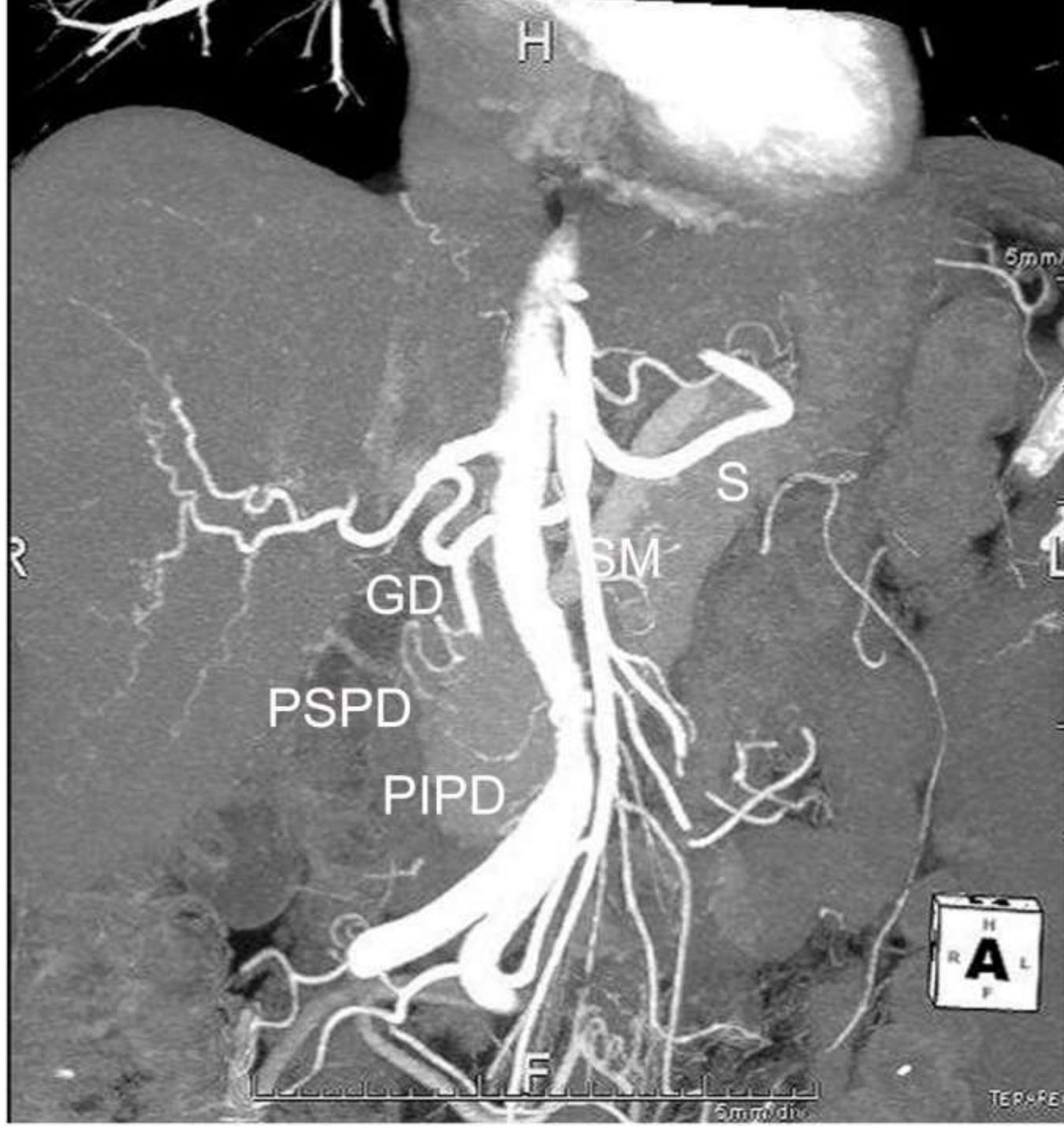


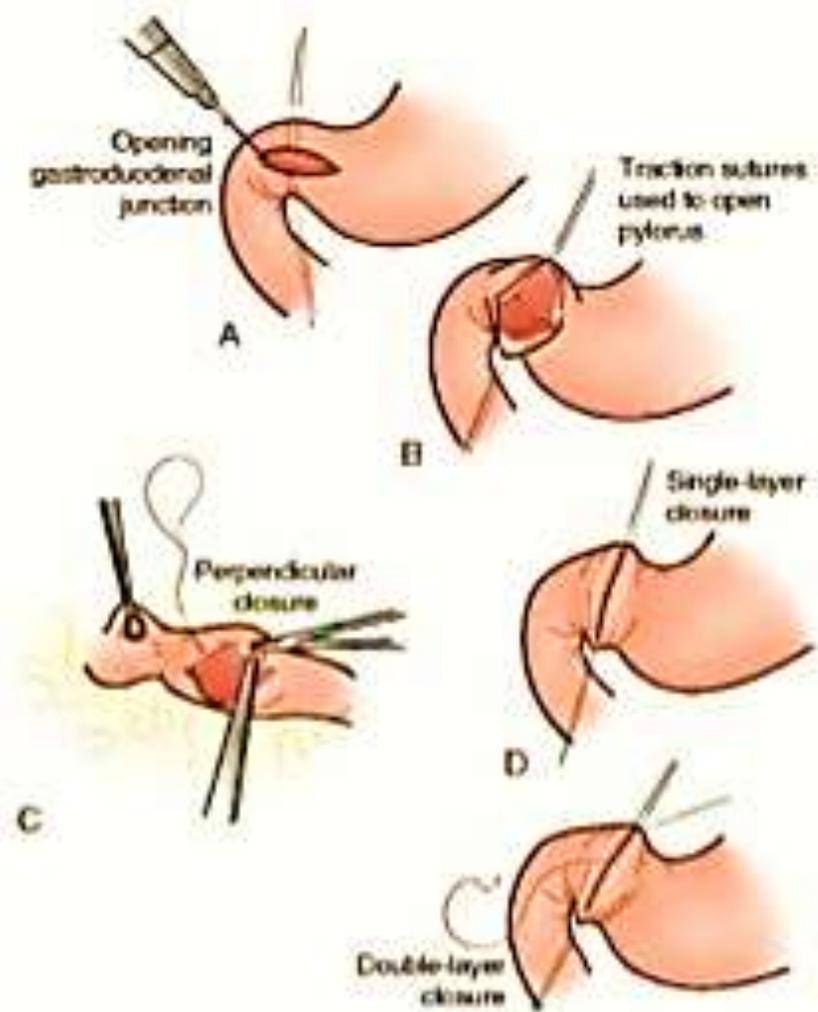
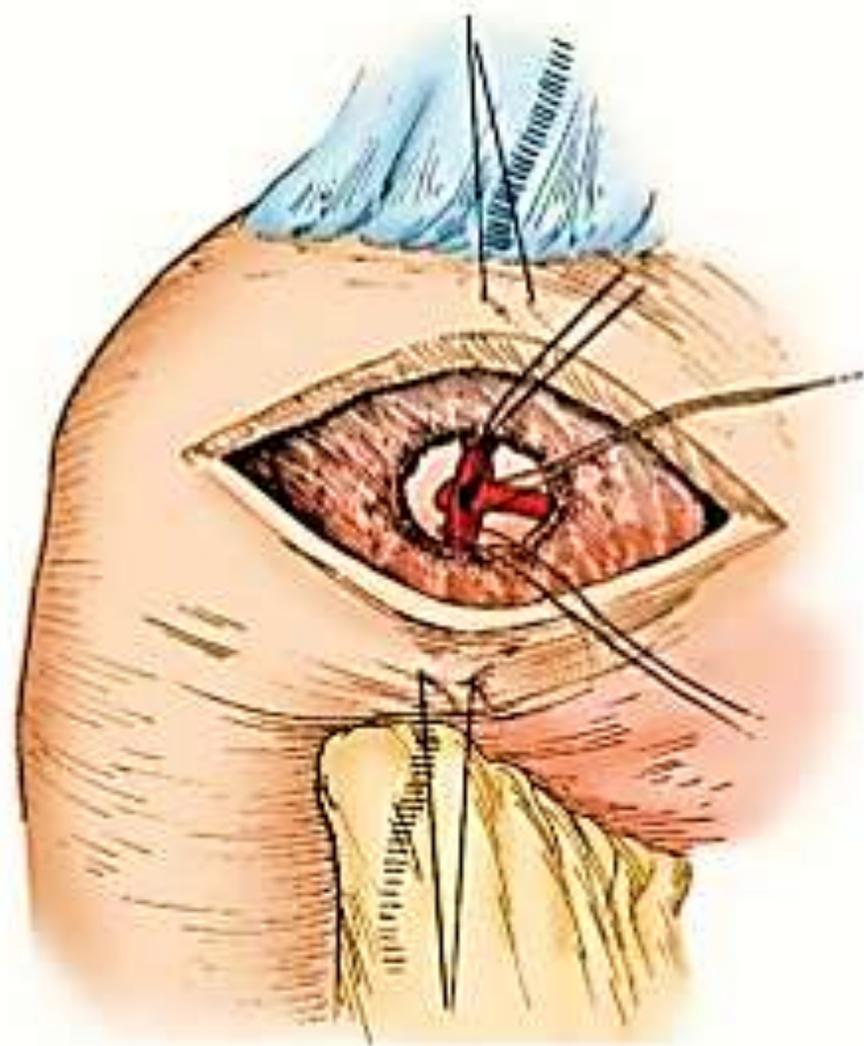
Hypothermia

Hypothermia and acidosis, together with coagulopathy form the 'Lethal Triad'

Management

- **Ressuscitation.**
- **PPI.**
- **Tranexamic acid (antifibrinolytic).**
- **Endoscopy (Dx, Th).**
- **Angiography with transcatheter Embolization (TAE).**
- **Surgery (under running suture to close the mucosa over the ulcer) with pyloroplasty.**
OR Subtotal Gastrectomy with Roux – EnY Reconstruction.





PEPTIC ULCER

Symptoms

- **Pain.**
- **Hematemesis :**
 - **Coffee Ground Appearance.**
 - **Fresh Blood (+ / - Clots)**
- **Malena.**
- **Faint attack**
- **Dizziness.**
- **PMHx of Peptic Ulcer.**

Signs

- **Hematemesis :**
 - **Coffee Ground Appearance.**
 - **Fresh Blood (+ / - Bleeding)**
 - **Melena.**
- **Tachycardia**
- **Oliguria.**
- **Pallor.**
- **Hypotension.**
- **Cold extremities.**
- **Change of Mental Status.**



BLOOD IN STOOL?

WHAT TO DO!





CAUSES OF **"FALSE"** MELENA INCLUDE:

- Iron supplements, Pepto-Bismol, Maalox, and lead.
- Epistaxis.
- Blood ingested as part of the diet, as with consumption of black pudding (blood sausage).
- Beet, Chard and Spinach.

Forrest classification

It predicts the rate of rebleeding on Diagnostic Endoscopy.

Stage	Characteristics	Rebleeding
I a	Jet arterial bleeding	90 %
Ib	Oozing	50 %
IIa	Visible Vessel	25 - 30 %
IIb	Adherent clot	10 - 20%
IIc	Black spot in ulcer crater	7 - 10%
III	Clean base ulcer	3 - 5 %

- **Curling ulcer** is an acute gastric erosion resulting as a complication from severe burns when reduced plasma volume leads to ischemia and cell necrosis (sloughing) of the gastric mucosa.
- **Cushing ulcer** is a gastric ulcer associated with elevated intracranial pressure. It is also called von Rokitansky - Cushing syndrome, is thought to be due to direct stimulation of vagal nuclei as a result of increased intracranial pressure

EROSIONS

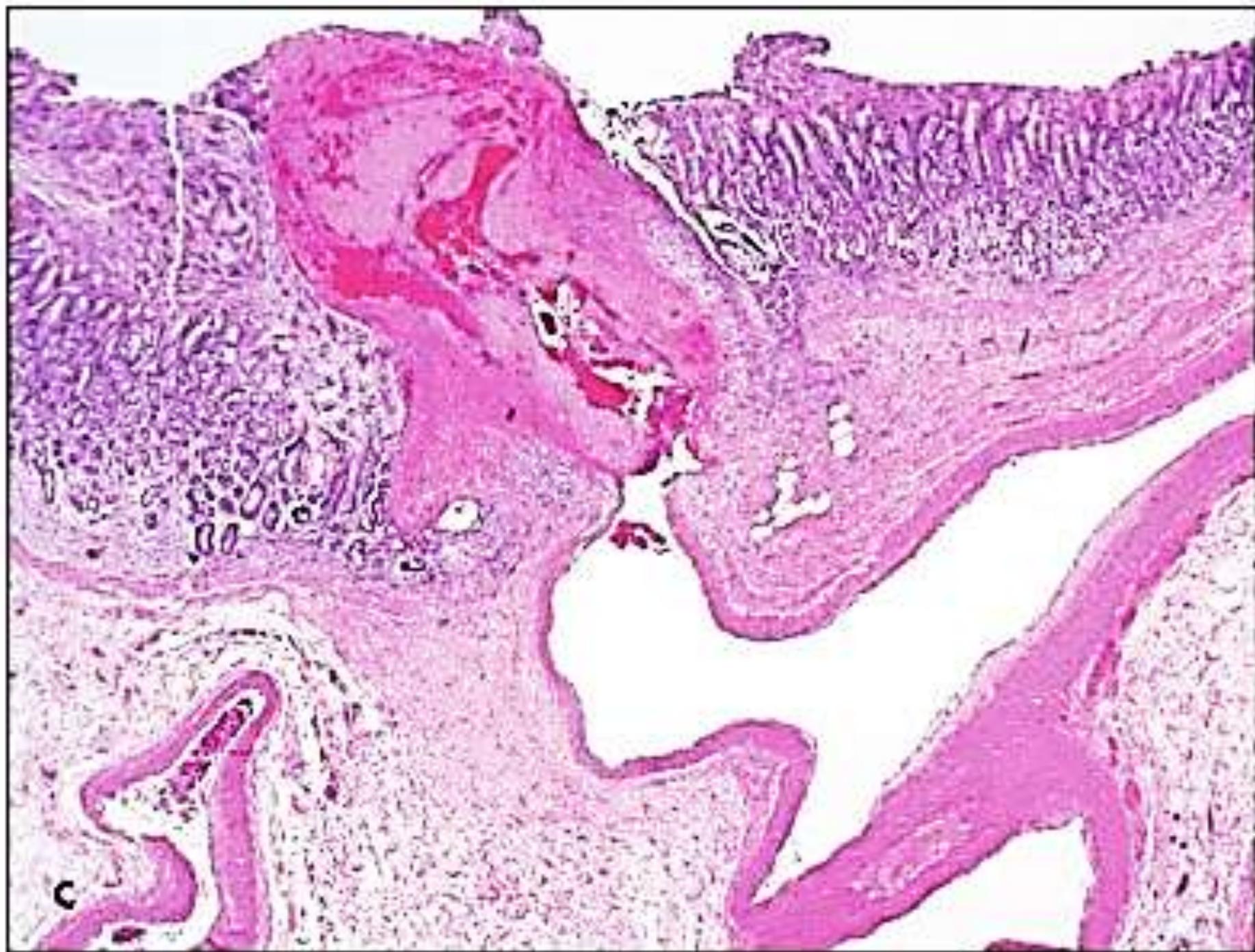
- Gastric erosions and ulcers:
- An erosion is a partial thickness deficit in an epithelial surface, as distinct from an ulcer which is a full thickness breach of an epithelial surface. It may be difficult to distinguish erosion from an ulcer solely on endoscopic appearances.
- Erosive gastritis.

Mallory Weiss Tear

- It is a longitudinal tear a long GO Junction.
- It is due to strenuous and repetitive vomiting.
- Associated (+ / -) hematemesis.
- Endoscopy.
- Upper Longitudinal gastrotomy looking for the tear doing under running suture.

Dieulafoy's Disease

- The symptoms are due to bleeding are hematemesis and/or melena.
- 75% of Dieulafoy's lesions occur in the upper part of the stomach within 6 cm of the gastroesophageal junction, most commonly in the lesser curvature.
- Extragastric lesions :The duodenum is the most common location (14%) followed by the colon (5%), surgical anastomoses (5%), the jejunum (1%) and the esophagus (1%).
- Dieulafoy's Lesions are characterized by a single large tortuous small artery in the submucosa which does not undergo normal branching or a branch with caliber of 1–5 mm (more than 10 times the normal diameter of mucosal capillaries). The lesion bleeds into the gastrointestinal tract through a minute defect in the mucosa which is not a primary ulcer of the mucosa but an erosion likely caused in the submucosal surface by protrusion of the pulsatile arteriole.



C

- The **diagnosis** is based on results of Endoscopy. Technetium-99m radionuclide scanning is used only to confirm the general area of bleeding. Endoscopic ultrasonography can identify the arterial flow and indicate the best site for sclerosing agents; however, it cannot be used during active bleeding.
- **Treatment** involves Endoscopic hemostasis and cauterization either with bipolar or heater probe coagulation or with epinephrine and an injection of a sclerosing agent or alcohol. Endoscopic band ligation, argon laser, injection of acrylic resins, and hemoclipping are less frequently used. For recurrent bleeding, repeated endoscopic hemostasis is effective; a combined endoscopic and laparoscopic approach has also been used. TA Embolization. Surgery :By local excision.

Tumours

- All types of gastric cancers.
- Could be remittent.
- GISToma (Break down of the mucosa over the tumour).

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D.O. Birth:

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Physician: GROVER.

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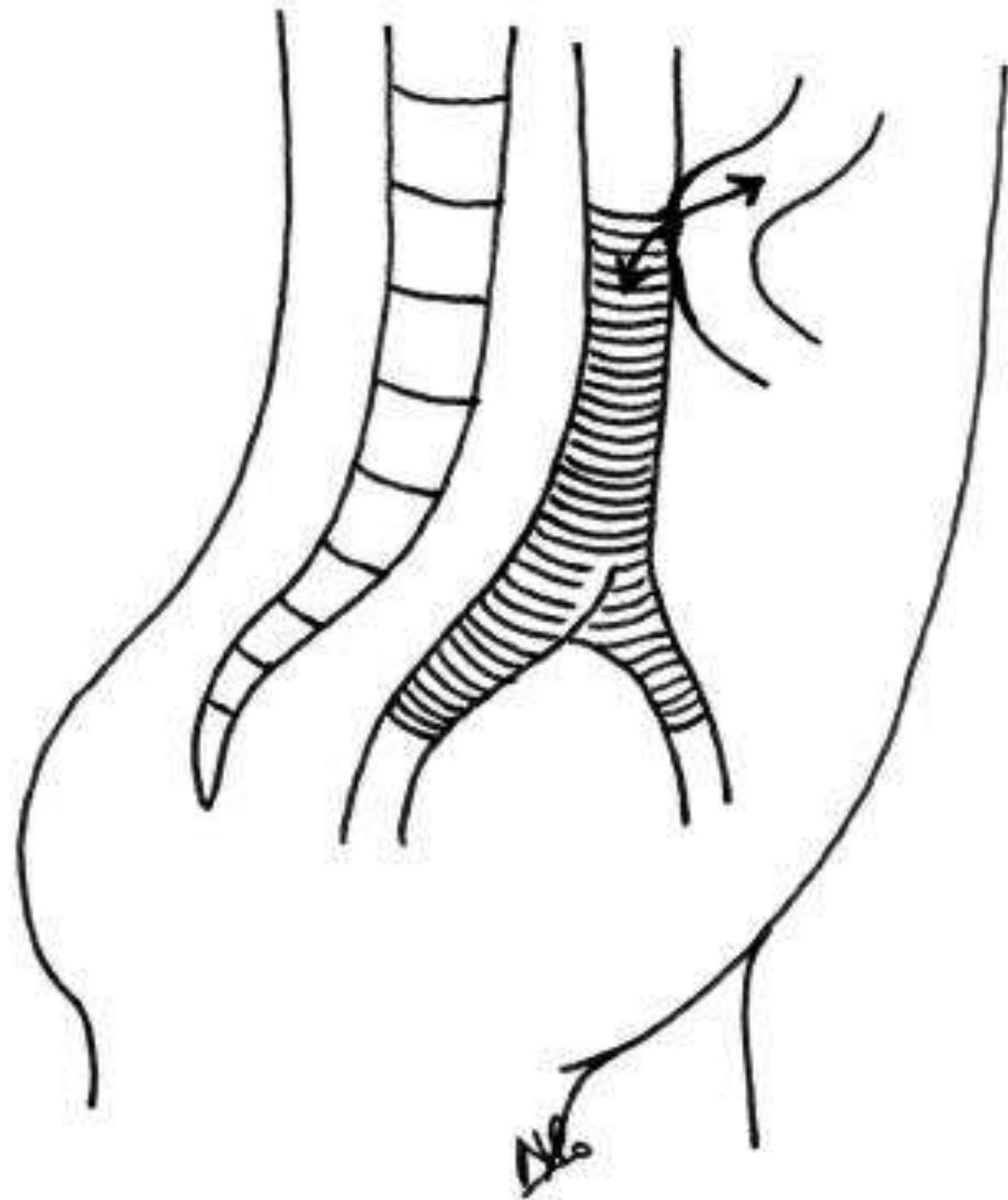
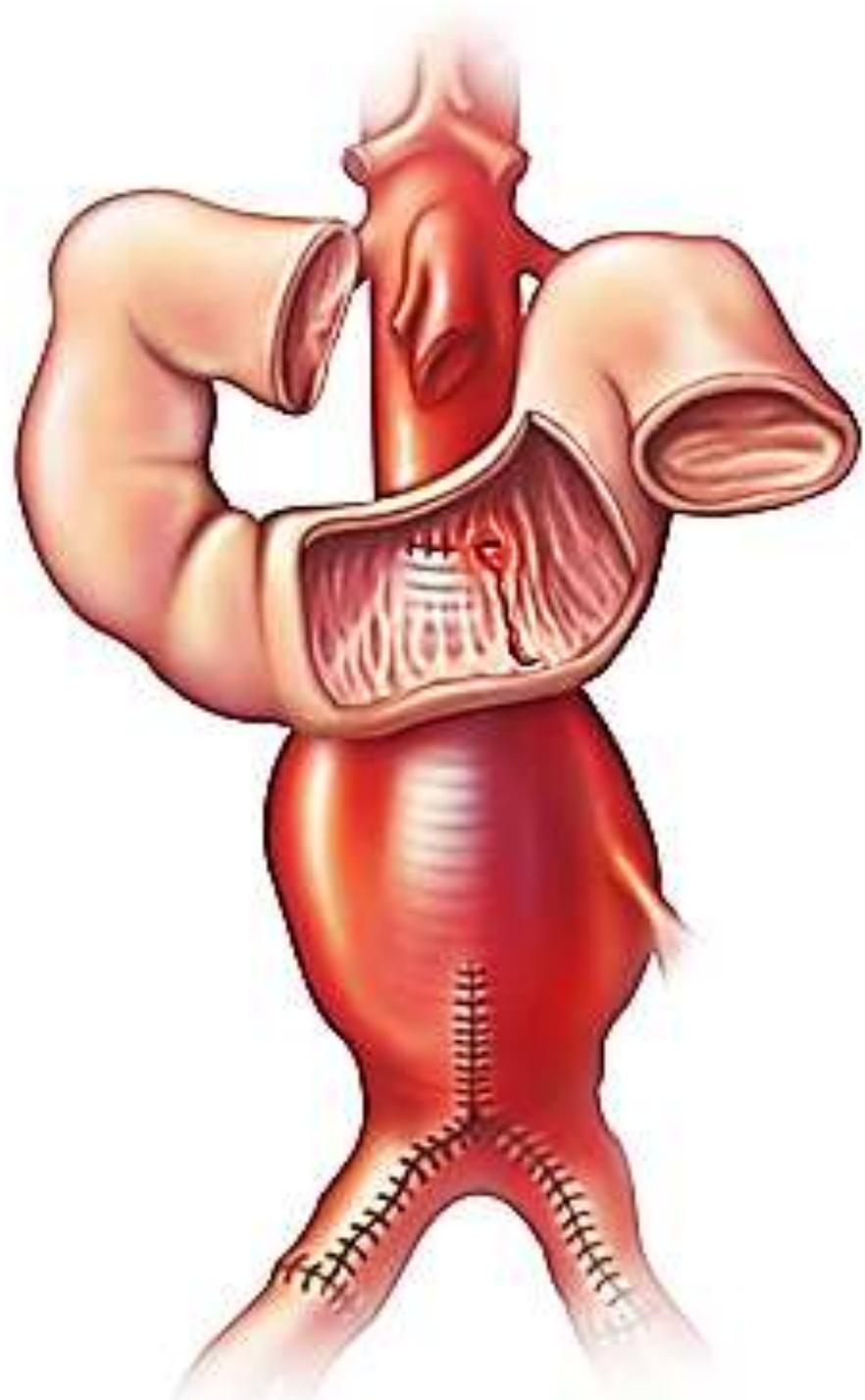
Malignant gastric ulcer.

A 70-year-old male presented with abdominal pain and weight loss. Endoscopy revealed an ulcerating lesion with a raised edge highly suggestive of malignancy. Biopsies confirmed the presence of a moderately well differentiated carcinoma.

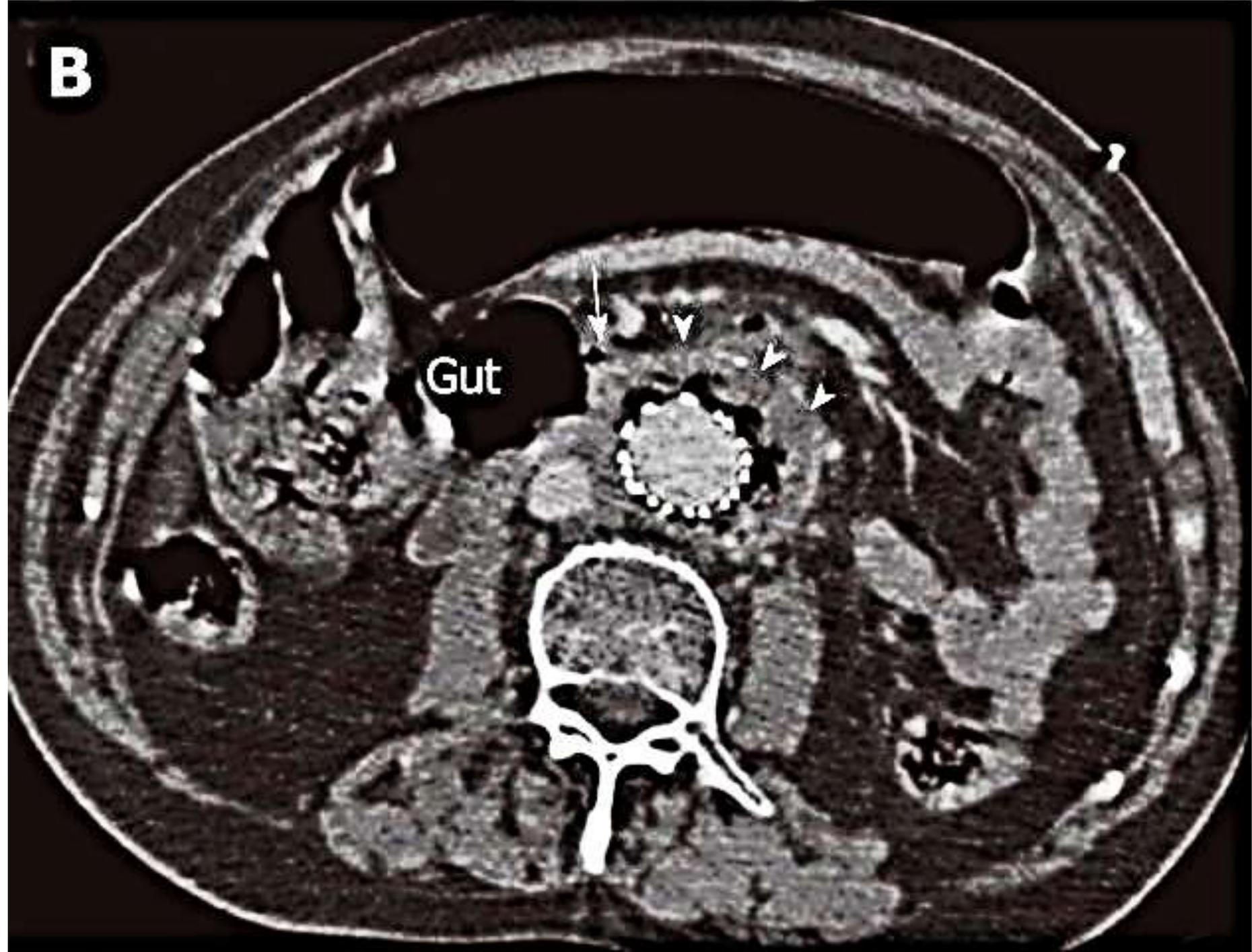
Aorto-Enteric Fistula

- Aortoenteric fistulae are a rare cause of upper gastrointestinal bleeding.
- Type I graft enteric fistulae 75%, and typically form between bowel and the proximal aspect of the aortic suture line.
- Type II fistulae are erosions that present with 25% , are a result of mechanical pulsatility of the aortic graft with bleeding around the edge of eroded bowel.

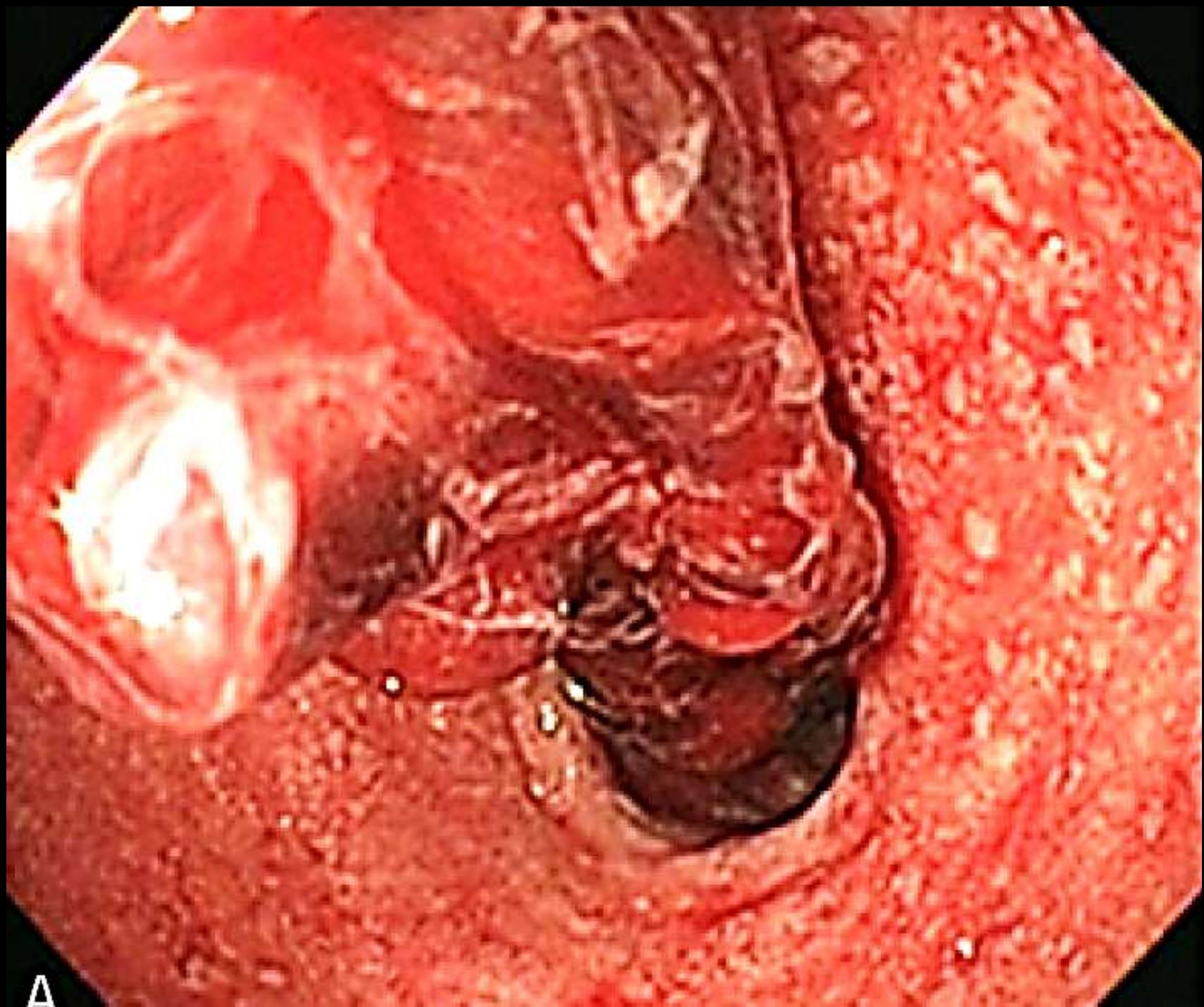
- Unexplained hematemesis and melena.
- Not always massive.
- History of Aortic graft surgery or Untreated aortic aneurysm.
- Examination :
- Ix : CT scan Angiography..
- Tx : Endovascular stent-graft or open repair



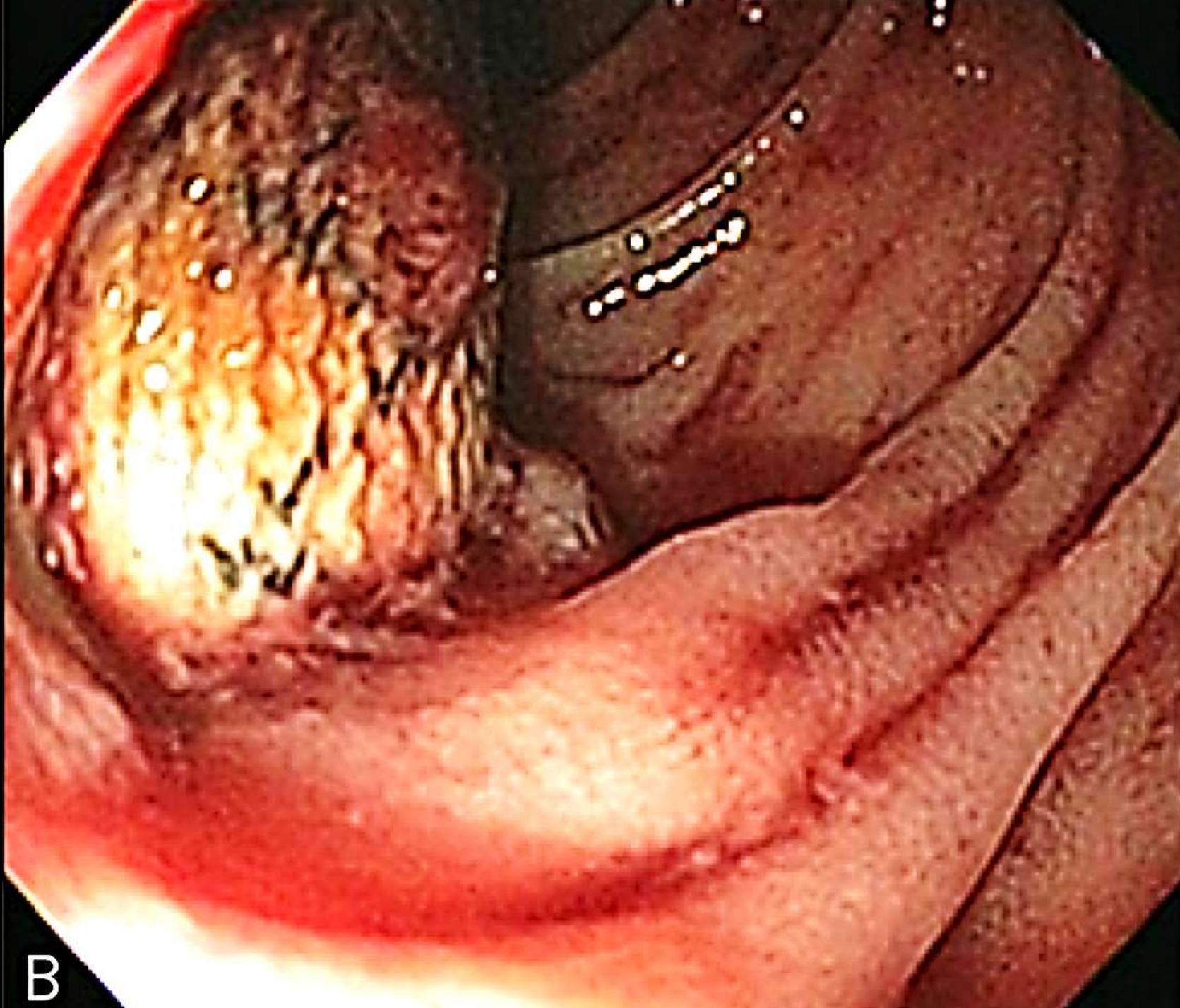
B



- A 66-year-old man with hypertension, hyperlipidemia and aortoiliac bypass graft placed 6 years ago for peripheral vascular disease, presented with melena and syncopal events 3 days ago. The patient reported having coffee ground emesis.
- Physical exam showed bright red blood per rectum . Baseline hemoglobin was 14.5 g/dL, dropping to 7.1 g/dL at admission. He subsequently became hypotensive despite receiving 2 units of packed red blood cells and aggressive intravenous fluid hydration. Emergent (OGD) showed blood throughout the esophagus, pale stomach mucosae, and an exposed aortic graft with bright blood in the third part of the duodenum . He underwent emergent laparotomy for takedown of aortoduodenal fistula with repair of duodenal erosion and ligation of the distal aorta.



A



Aortic graft
eroding into
duodenum.

B

Portal Hypertention

1074

- Is defined as a hepatic venous pressure gradient equal to or greater than 6 mmHg.
- **Hepatic venous pressure gradient** (HVPG) is a clinical measurement of the pressure gradient between the WHVP and the free hepatic venous pressures.
- **Wedged hepatic venous pressure** (WHVP) : reflects not the actual hepatic portal vein pressure but the hepatic sinusoidal pressure.
- HVPG > 12 mmHg ► Variceal Haemorrhage.
- It is a medical emergency .
- Types : - Cirrhotic
 - Non-cirrhotic portal hypertension

Causes

- **Pre-hepatic** causes : Portal vein thrombosis
- **Hepatic** causes : Cirrhosis
- **Post-hepatic** causes : Budd–Chiari syndrome (Hepatic vein thrombosis).

- Mostly esophageal bleeding. Hx of liver cirrhosis .It is is a medical emergency
- Dx : Endoscopy .Liver colour dopplex.
- Tx :
- Ressuscitation.
- Endoscopy : Sclerotherapy
 - Band ligation
 - Clipping
 - Argon plasma coagulation
 - Tissue adhesives injection, forming a solid cast of the injected vessel.
- Balloon tamponad (Sangstaken – Blackmore tube).
- Drug : Octreotide → ▼ Portal presuure.
 - Vasopressin, B-blocker
- Acute Shunt : (TIPS): (Transjugular Intrahepatic Portosystemic Shunt)

Management of bleeding oesophageal varices

- Blood transfusion
- Correct coagulopathy
- Oesophageal balloon tamponade (Sengstaken–Blakemore tube)
- Drug therapy (vasopressin/octreotide)
- Endoscopic sclerotherapy or banding
- Assess portal vein patency (Doppler ultrasound or CT)
- Transjugular intrahepatic portosystemic stent shunts (TIPSS)
- Surgery
 - Portosystemic shunts
 - Oesophageal transection
 - Splenectomy and gastric devascularisation



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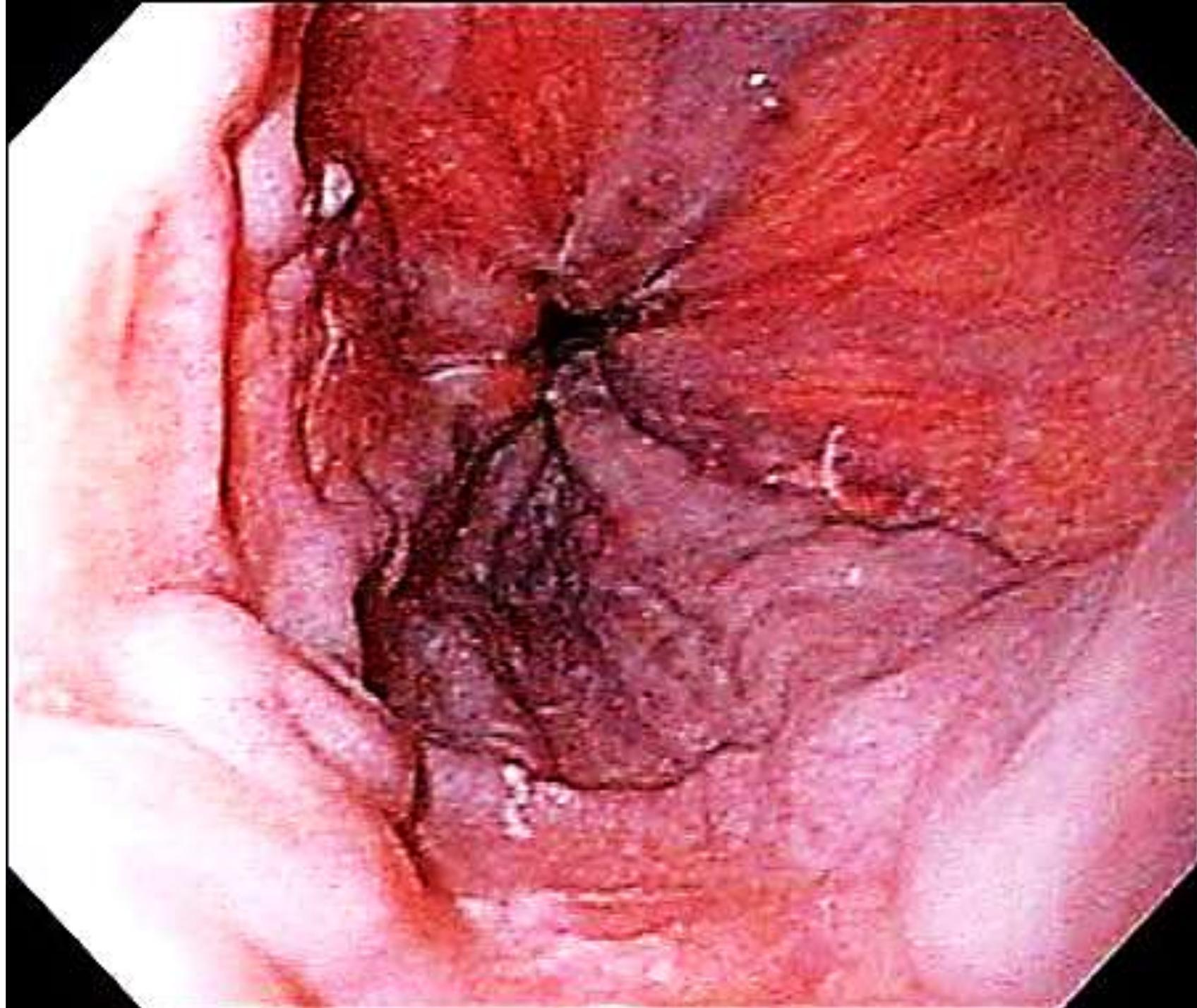
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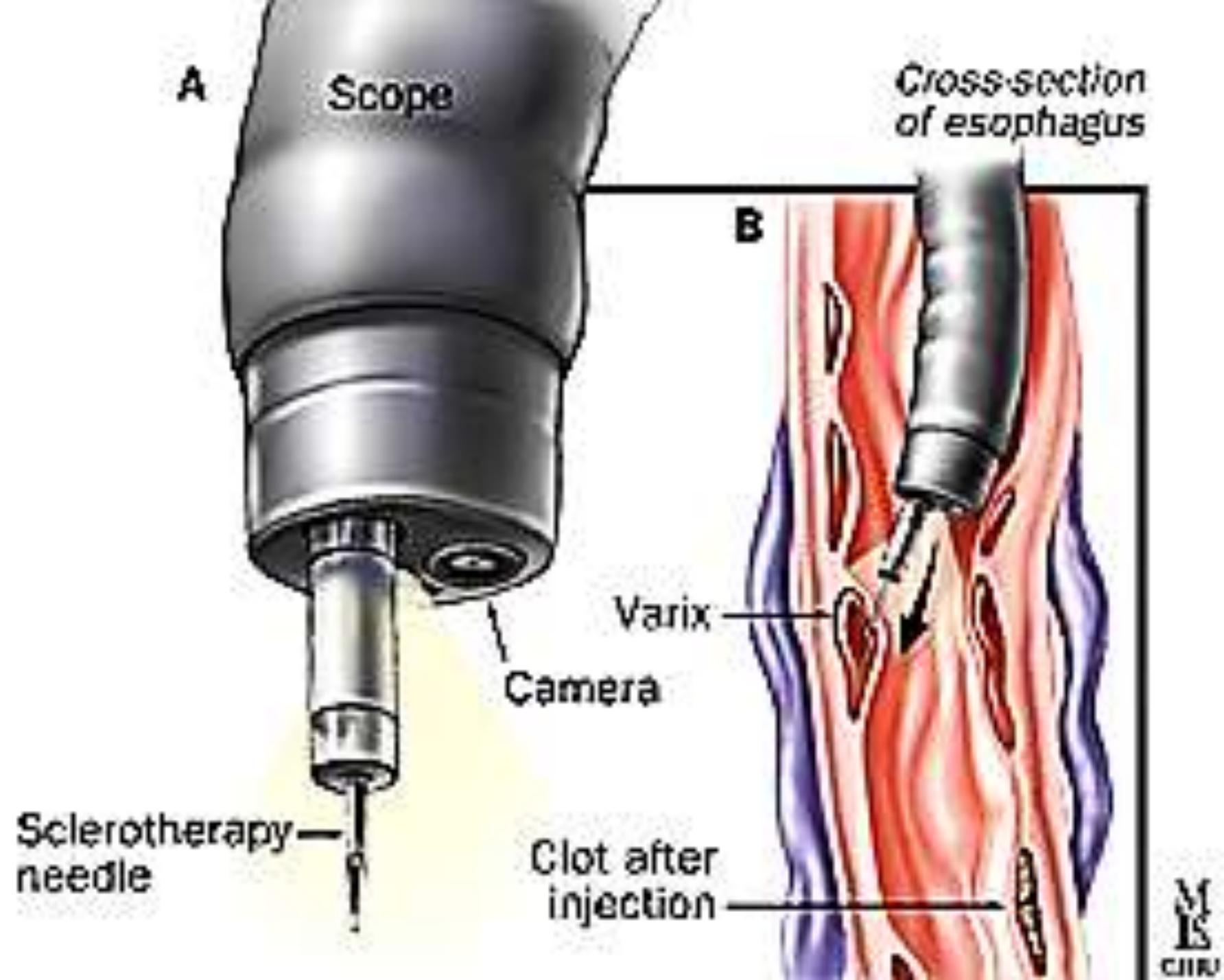
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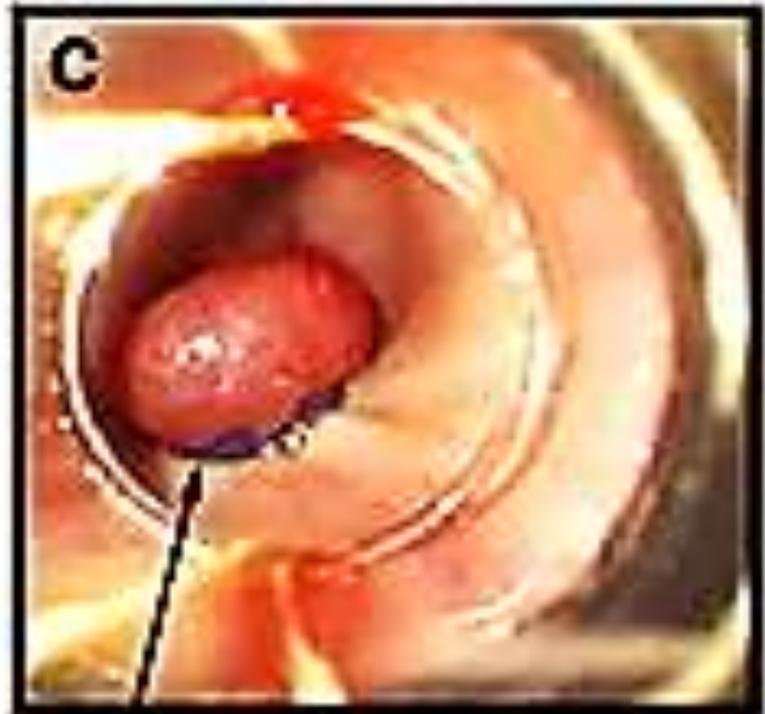
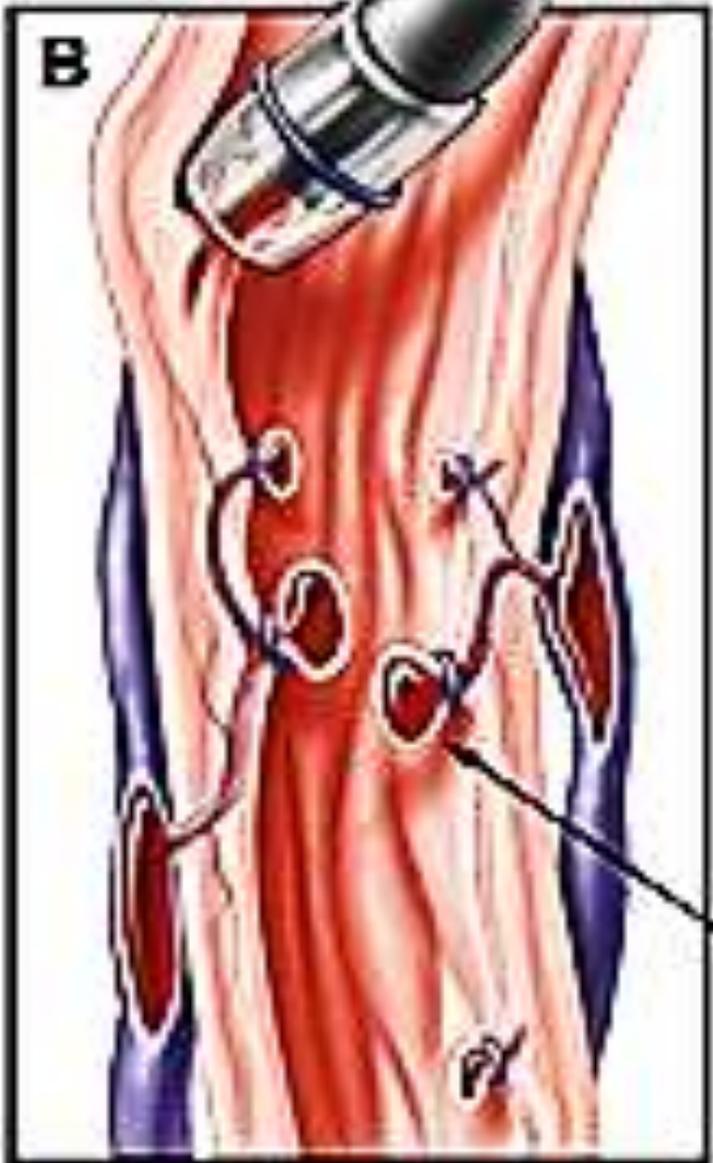
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Scope

A Rubber Band Ligation System[®]



Banded varices

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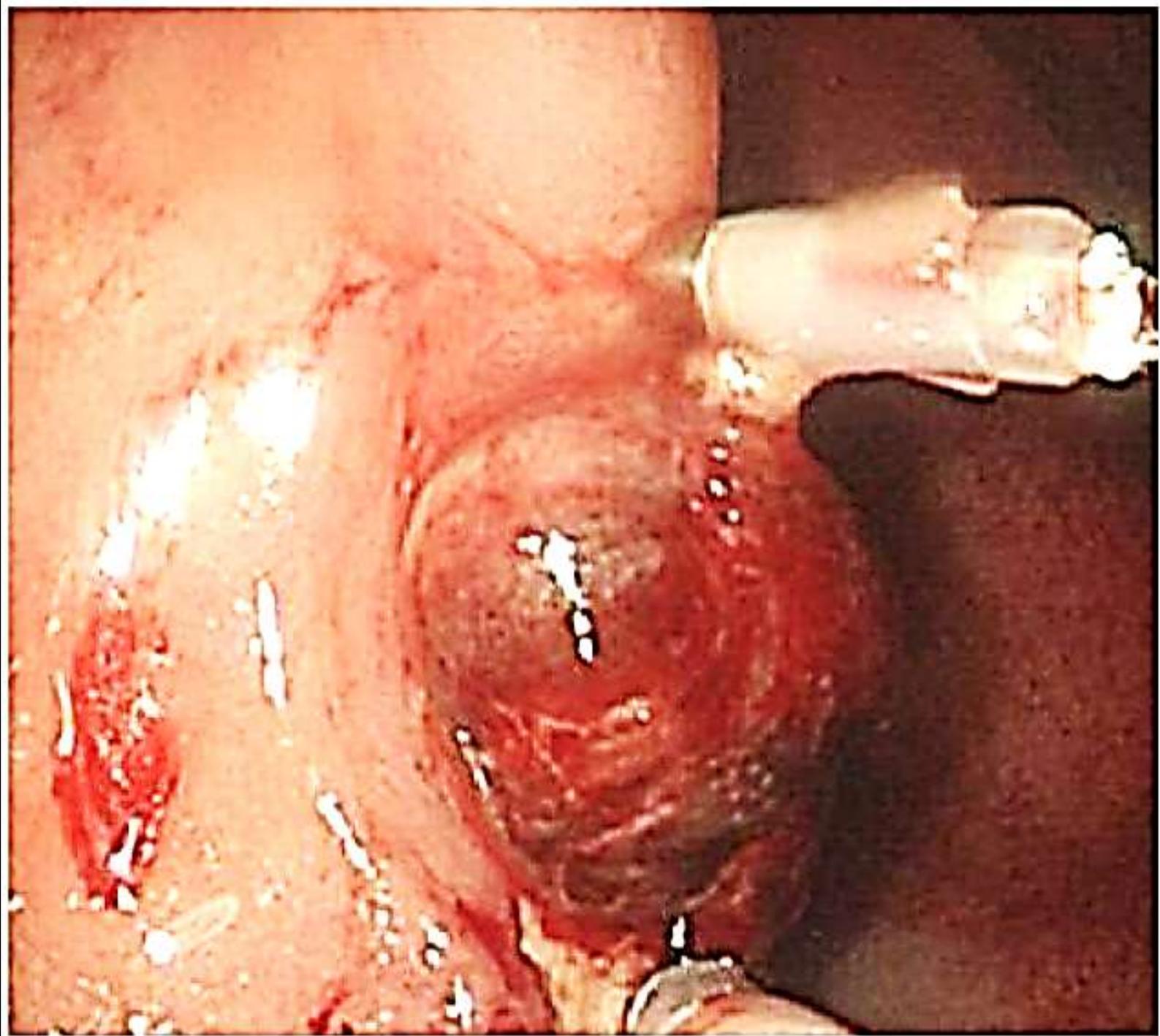
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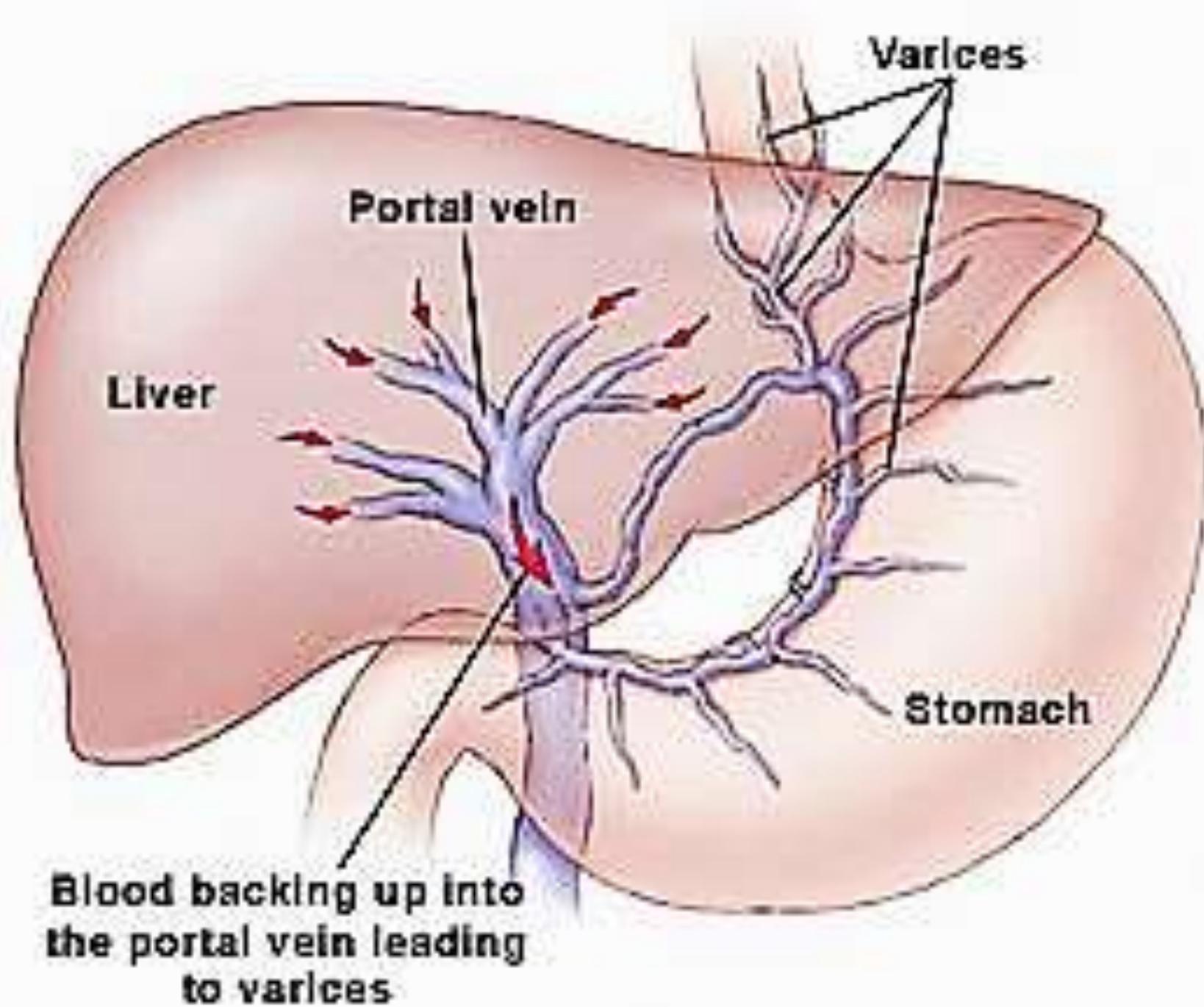
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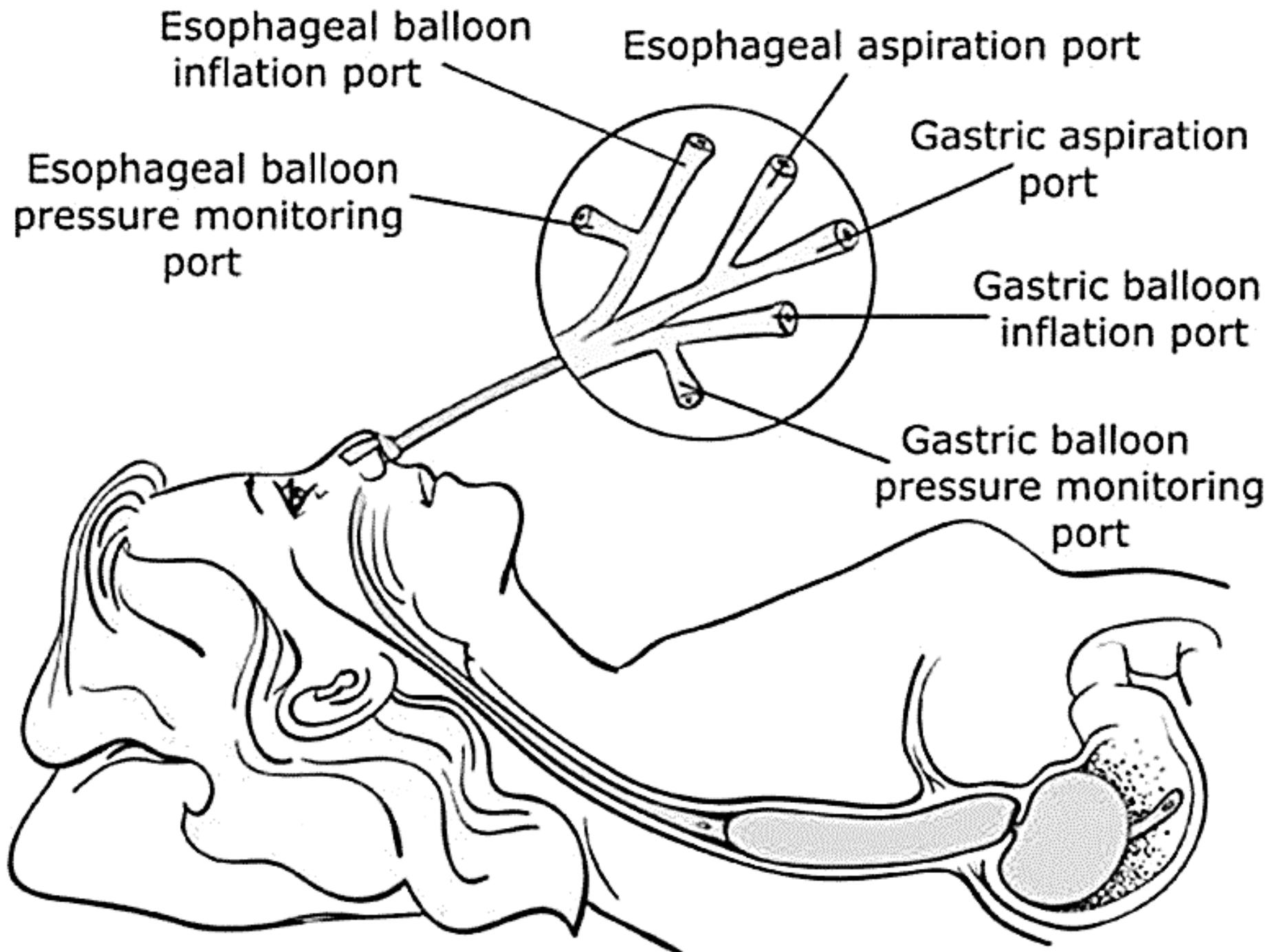
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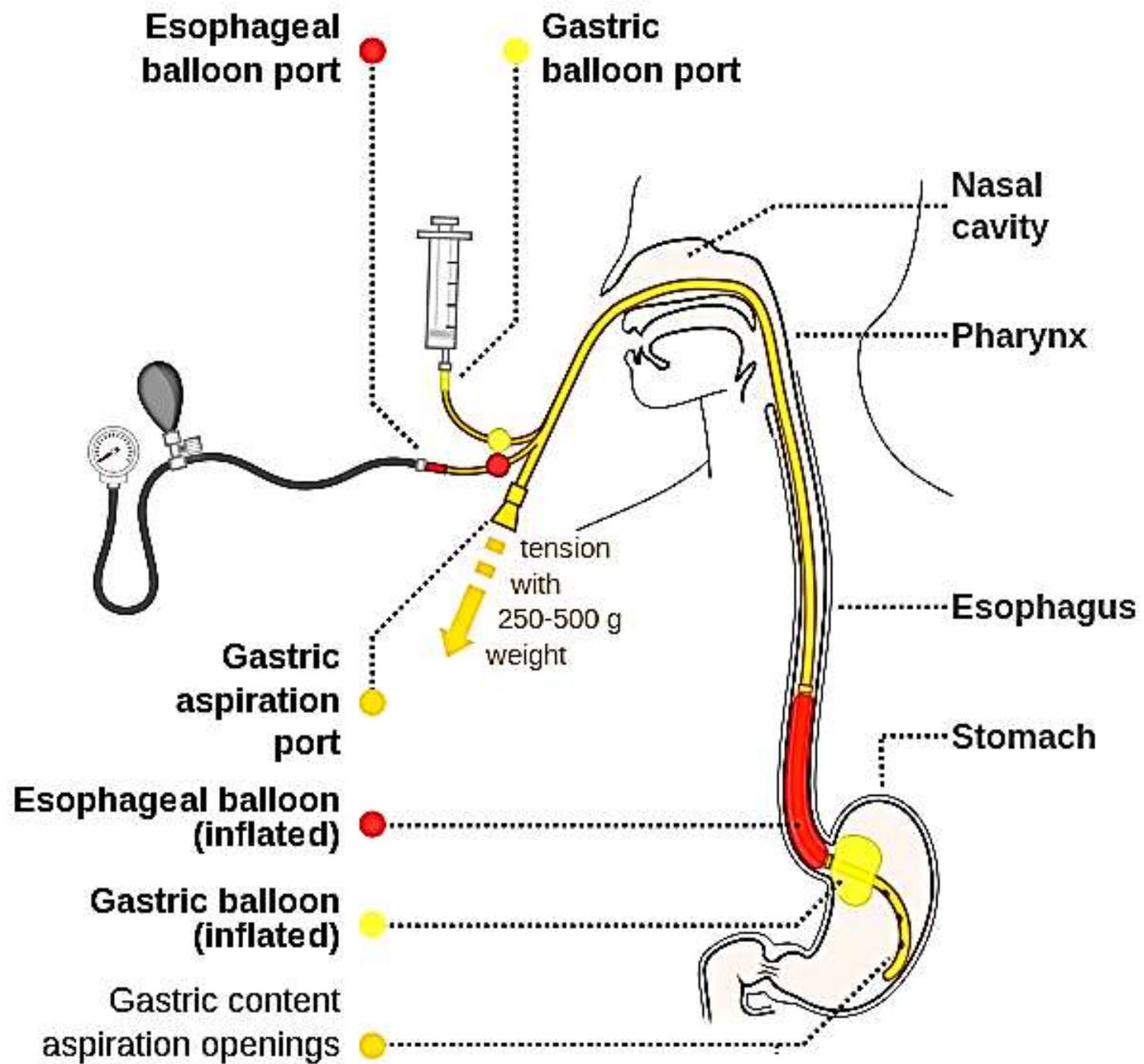


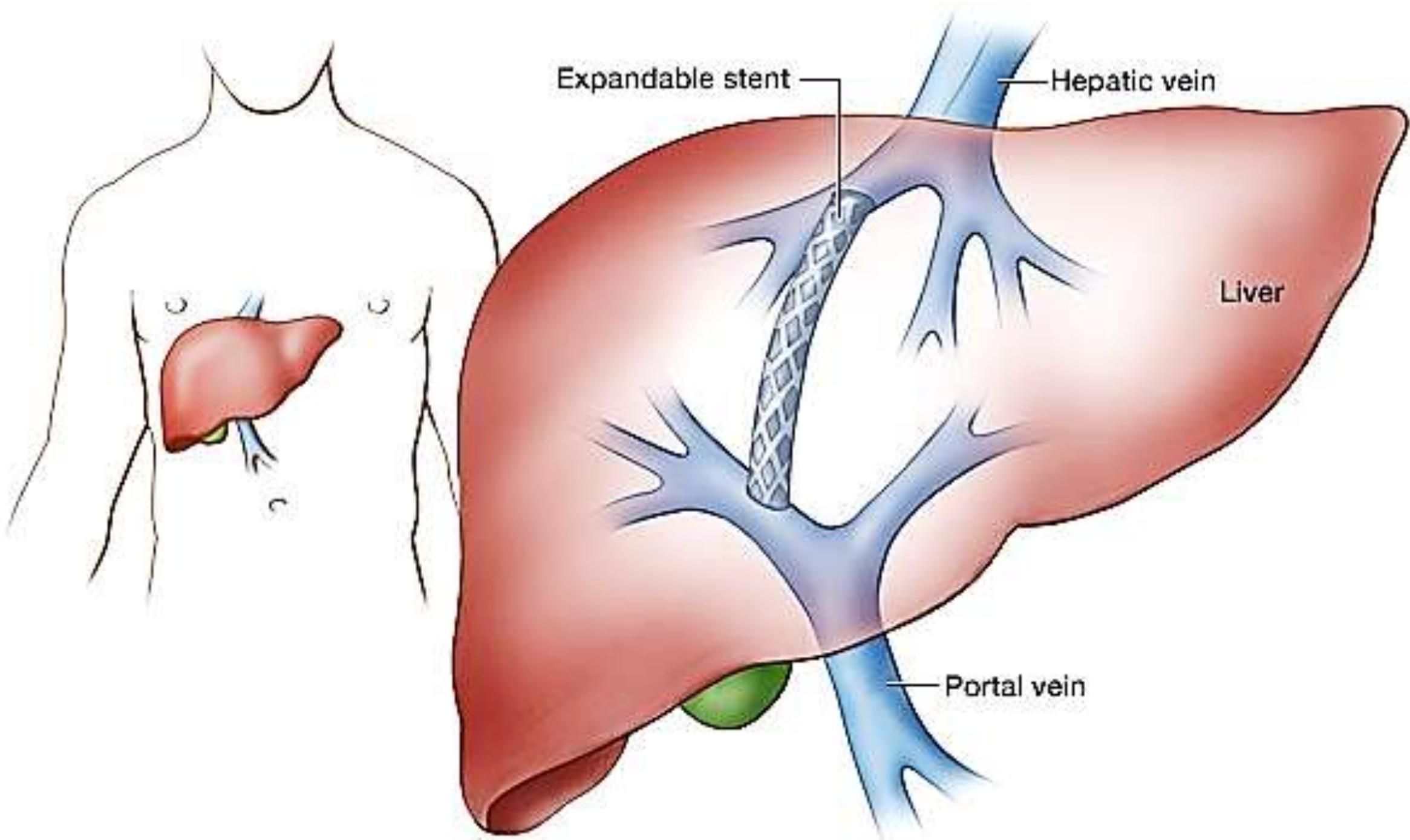
DR. MURRA SACA.

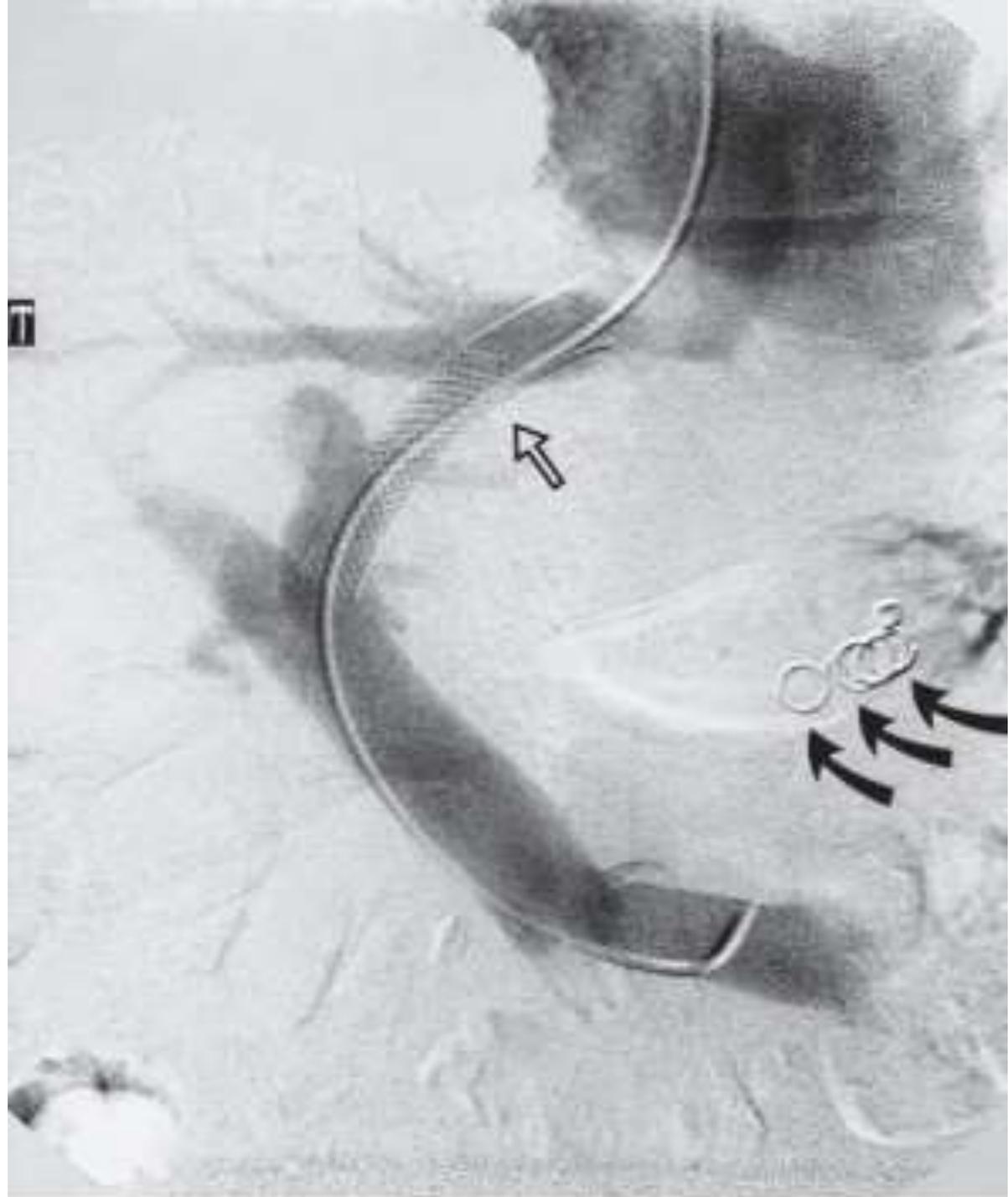












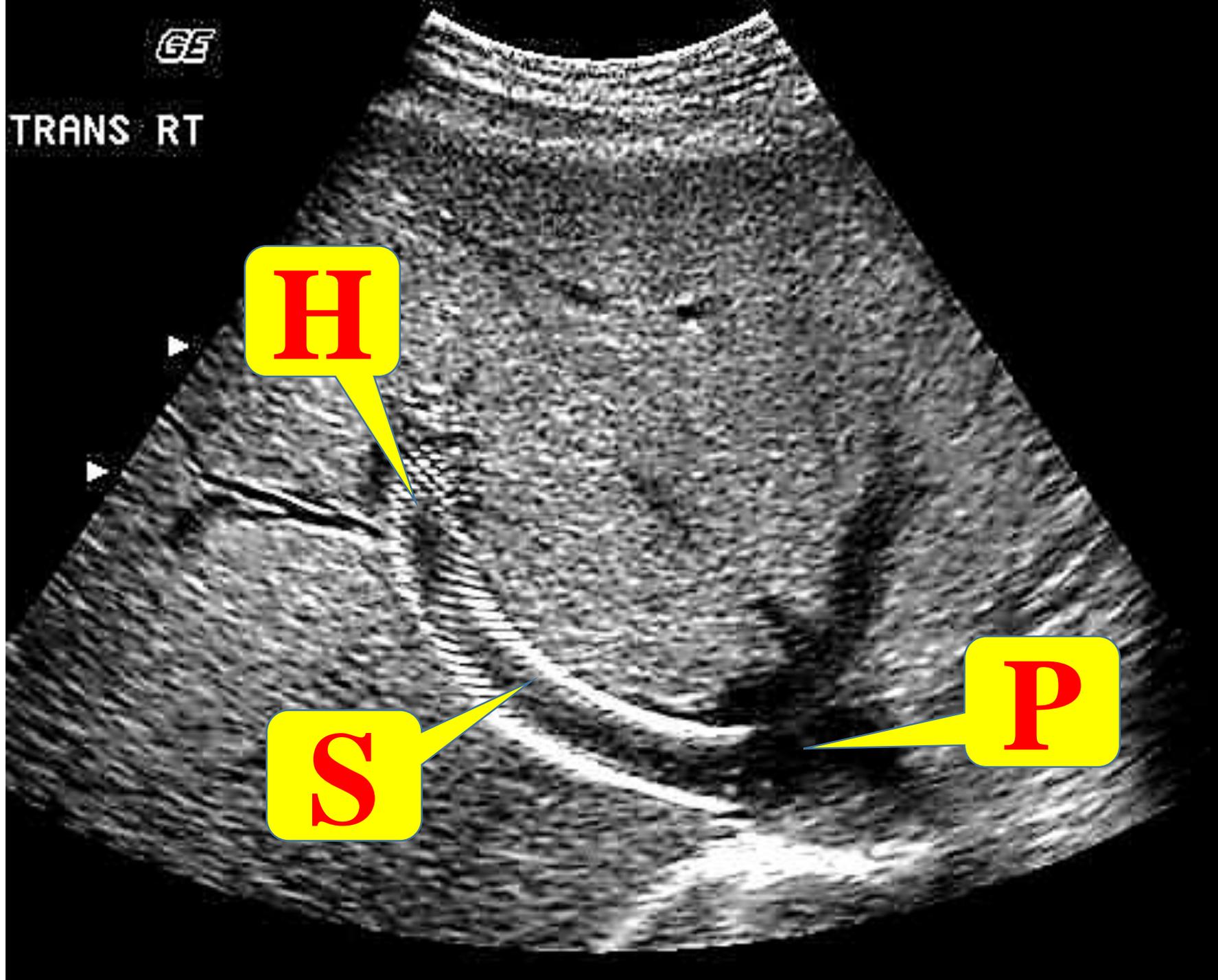
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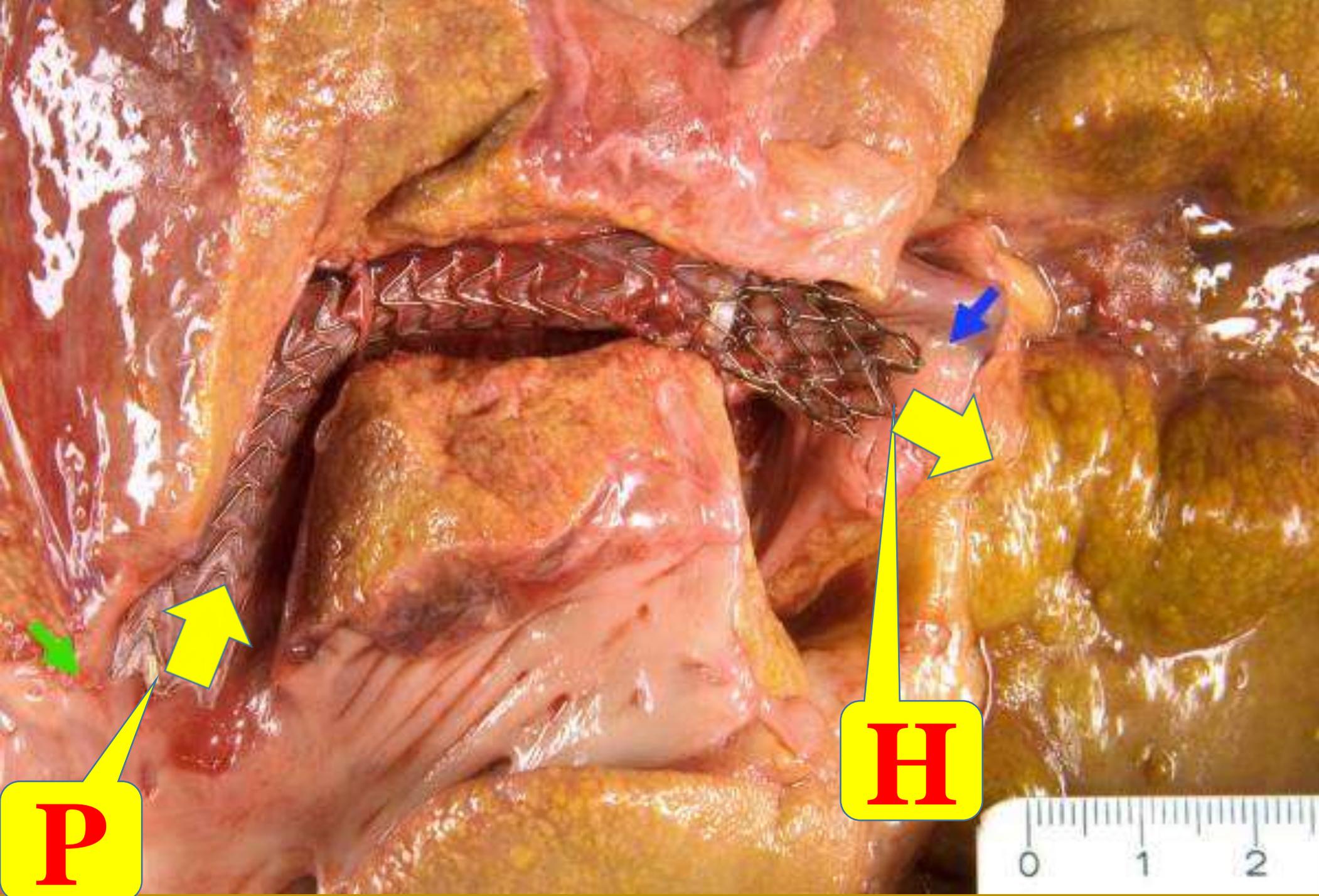
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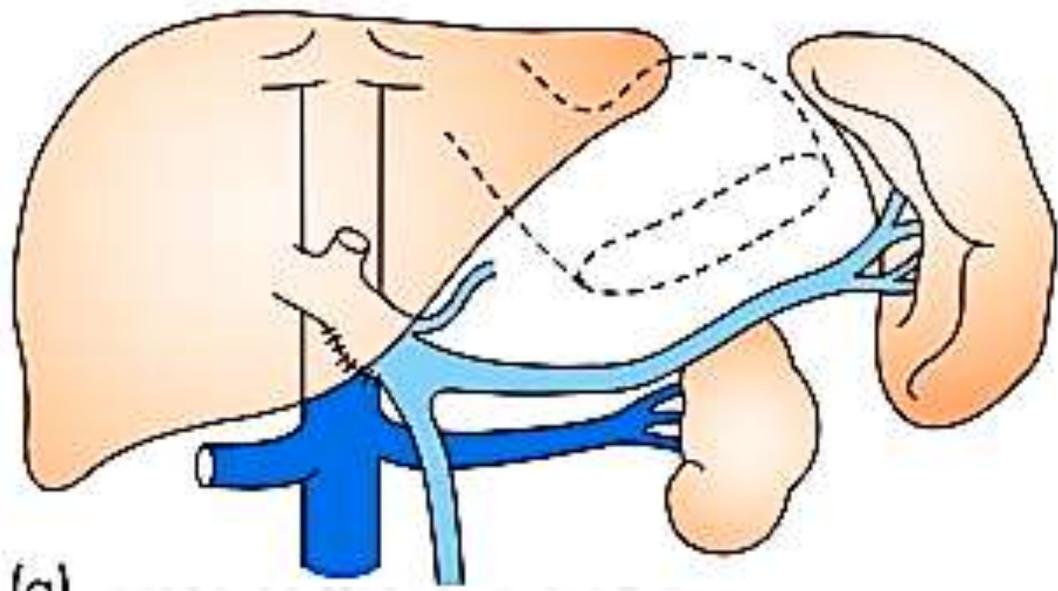
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Elective Surgery

- Porto-Systemic Shunt.
- Esophageal Transection (obsolete).
- Splenectomy and gastro-oesophageal devascularisation.
- Orthotopic liver transplantation.

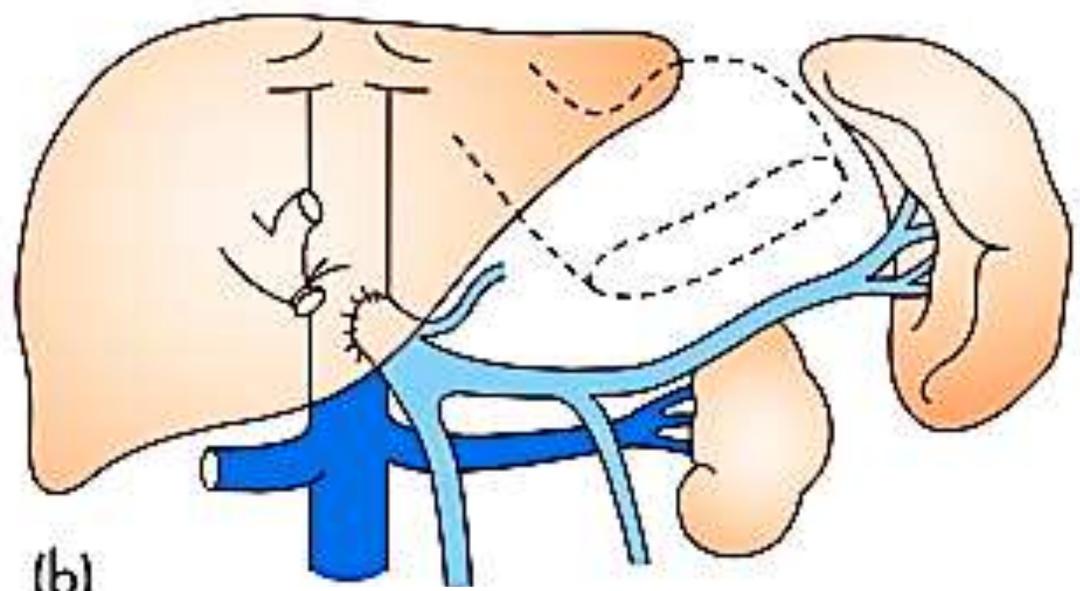
Porto-Systemic Shunt.

- Surgical shunts are an effective method of preventing rebleeding from oesophageal or gastric varices, as they reduce the pressure in the portal circulation by diverting the blood into the low-pressure systemic circulation.
- Shunts may be divided into
- selective (e.g. splenorenal) and non-selective (e.g. portocaval).



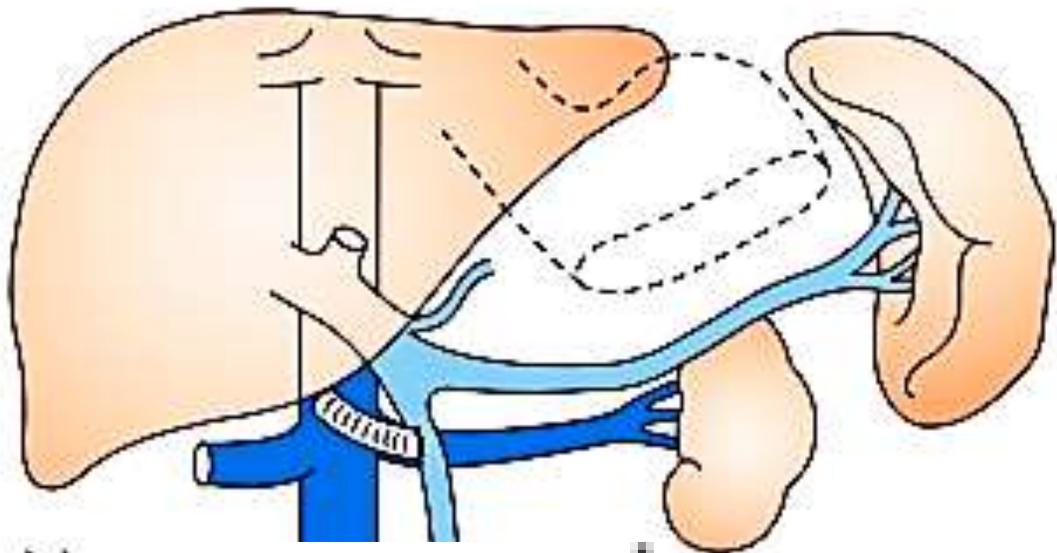
(a)

side-to-side



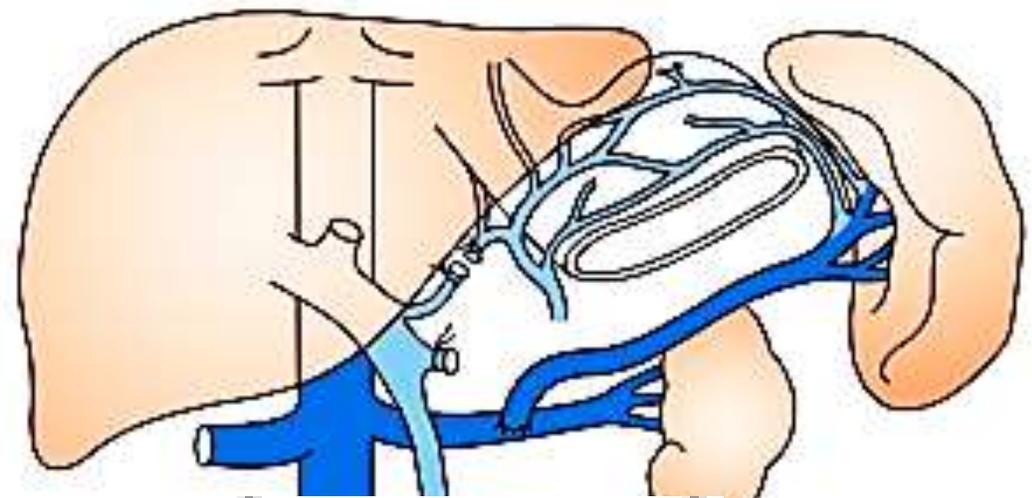
(b)

end-to-side



(c)

mesocaval

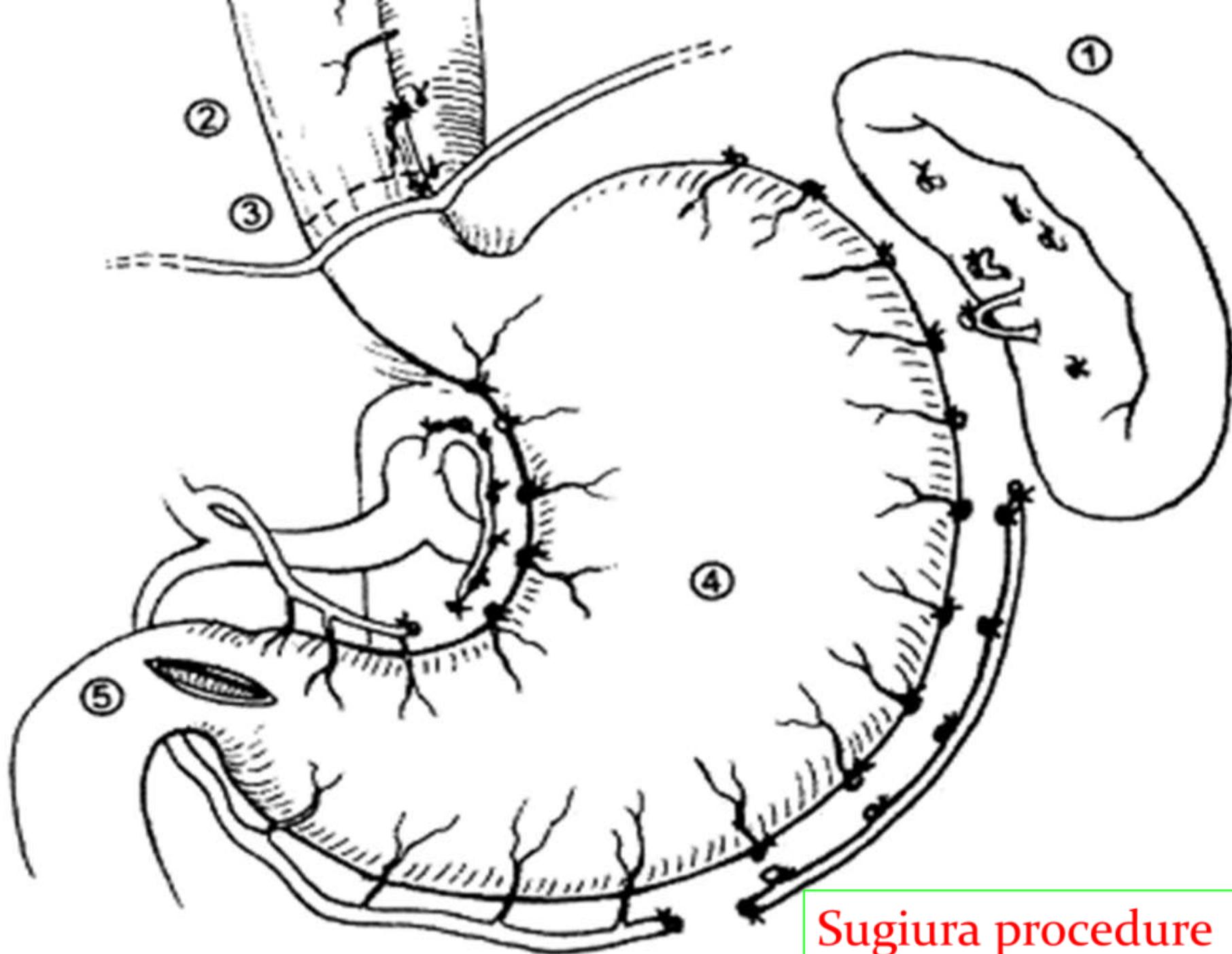


(d)

splenorenal

Splenectomy and gastro-oesophageal devascularisation.

- **Sugiura's Operation.**
- **Splenic vein thrombosis may be seen secondary to chronic pancreatitis,**
- **and portal vein thrombosis is a common late complication of**
- **liver cirrhosis.**
- **It consists of a splenectomy, devascularization of the abdominal esophagus and cardia, and a selective vagotomy with pyloroplasty**

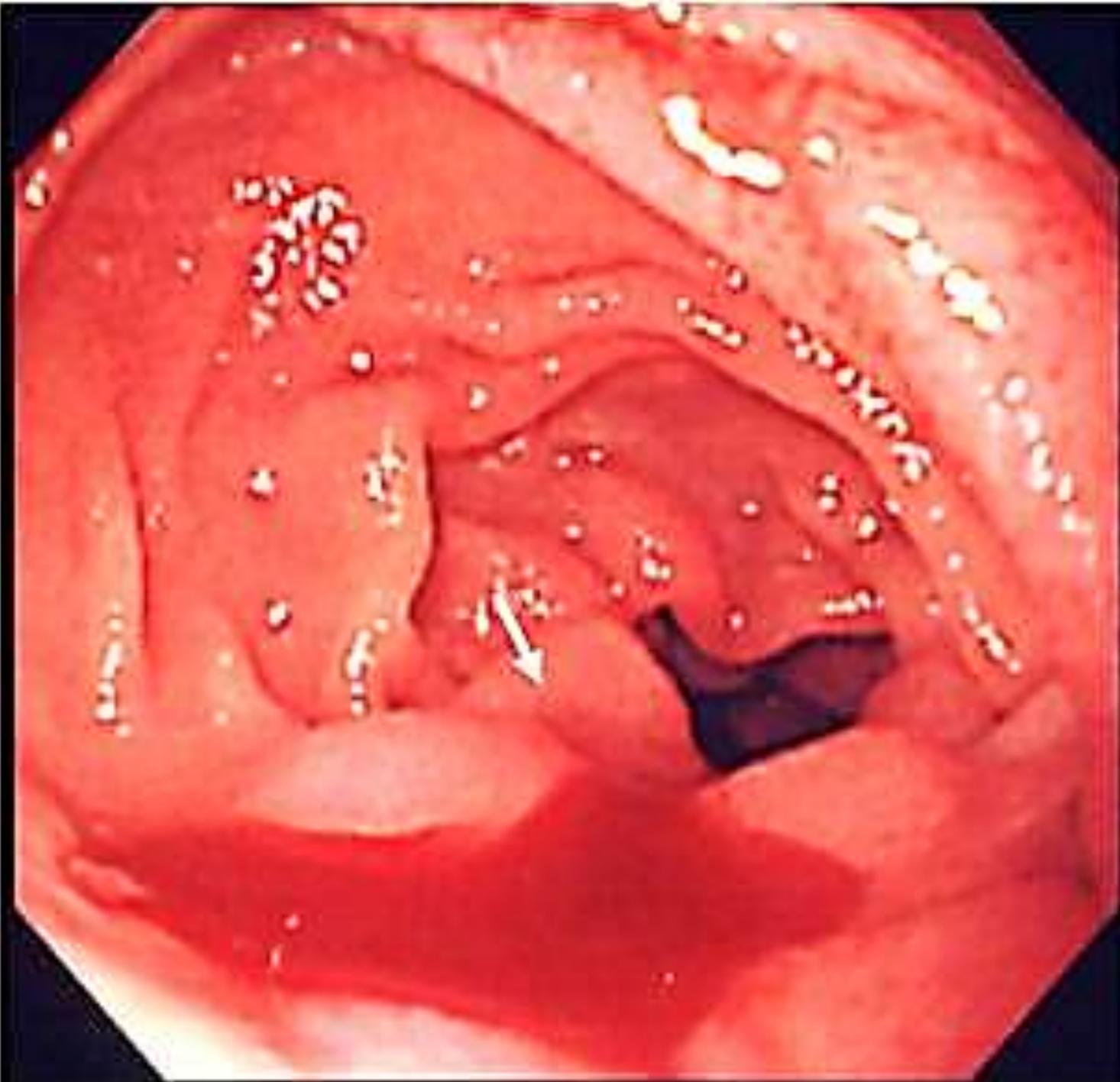


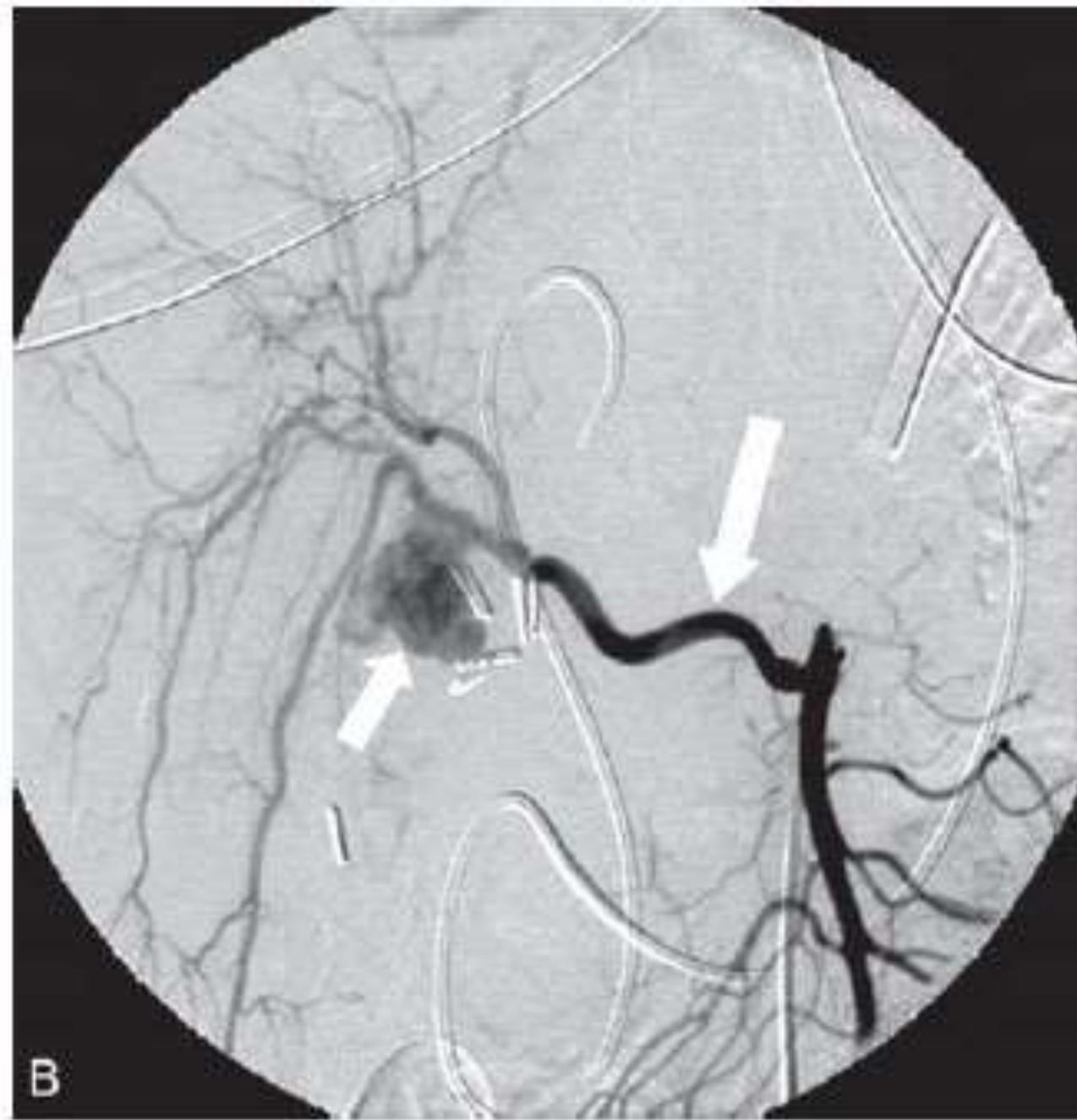
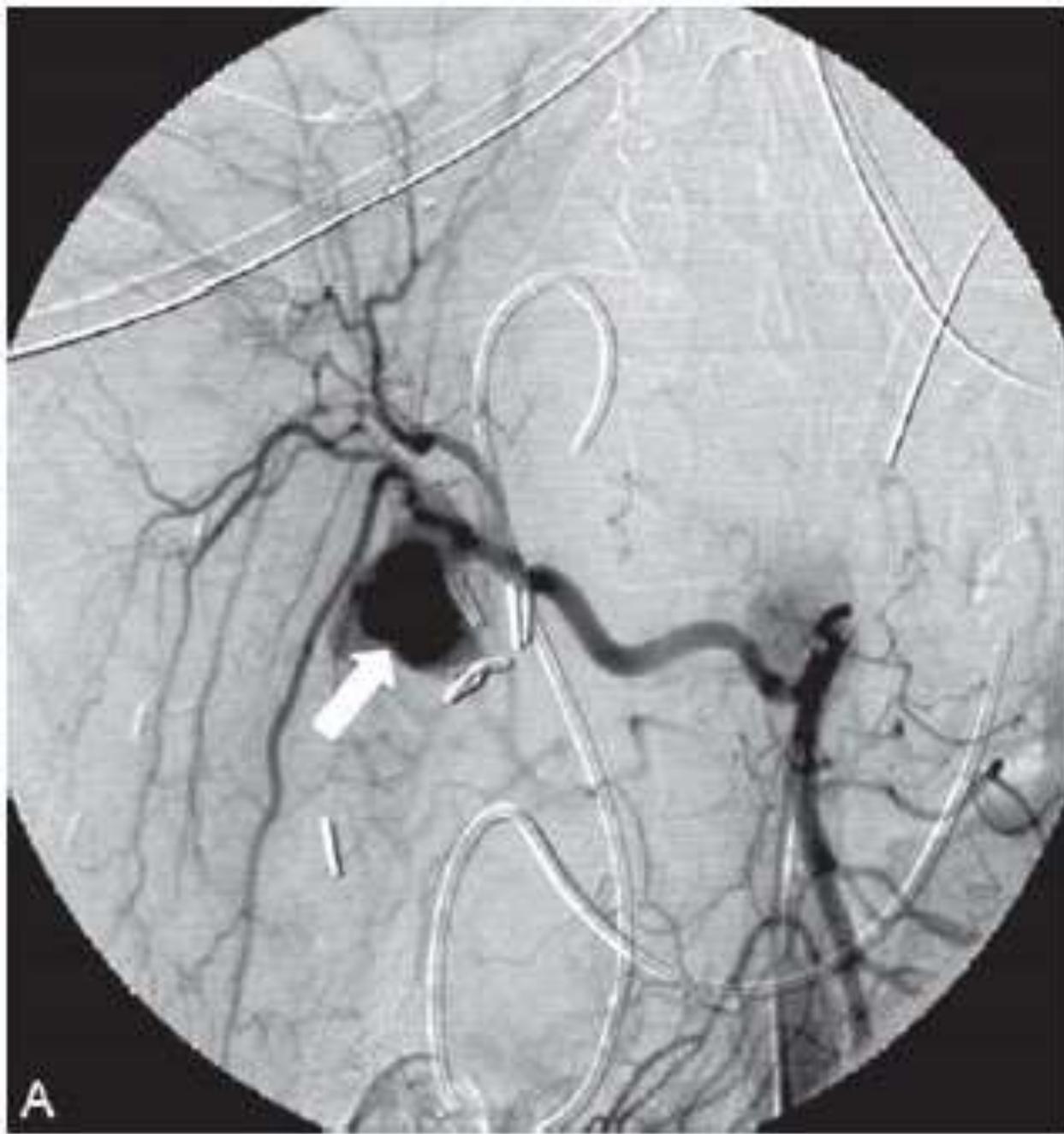
Sugiura procedure

Hemobilia

1073

- It is a Late vascular complications in post-traumatic Liver injury.
- It is called also arteriobiliary fistulae .
- The patient may be presented with :
 - a) Abdominal pain.
 - b) Jaundice.
 - c) Paler.
 - d) Melena +/- hematemesis.
- It is best treated nonsurgically by a specialist hepatobiliary interventional radiologist, where the feeding vessel can be embolised transarterially (T.A.E).





Severe Hemobilia from Hepatic Artery Pseudoaneurysm after Laparoscopic Cholecystectomy

تَعْرِيفُ حَمْدِ اللَّهِ