

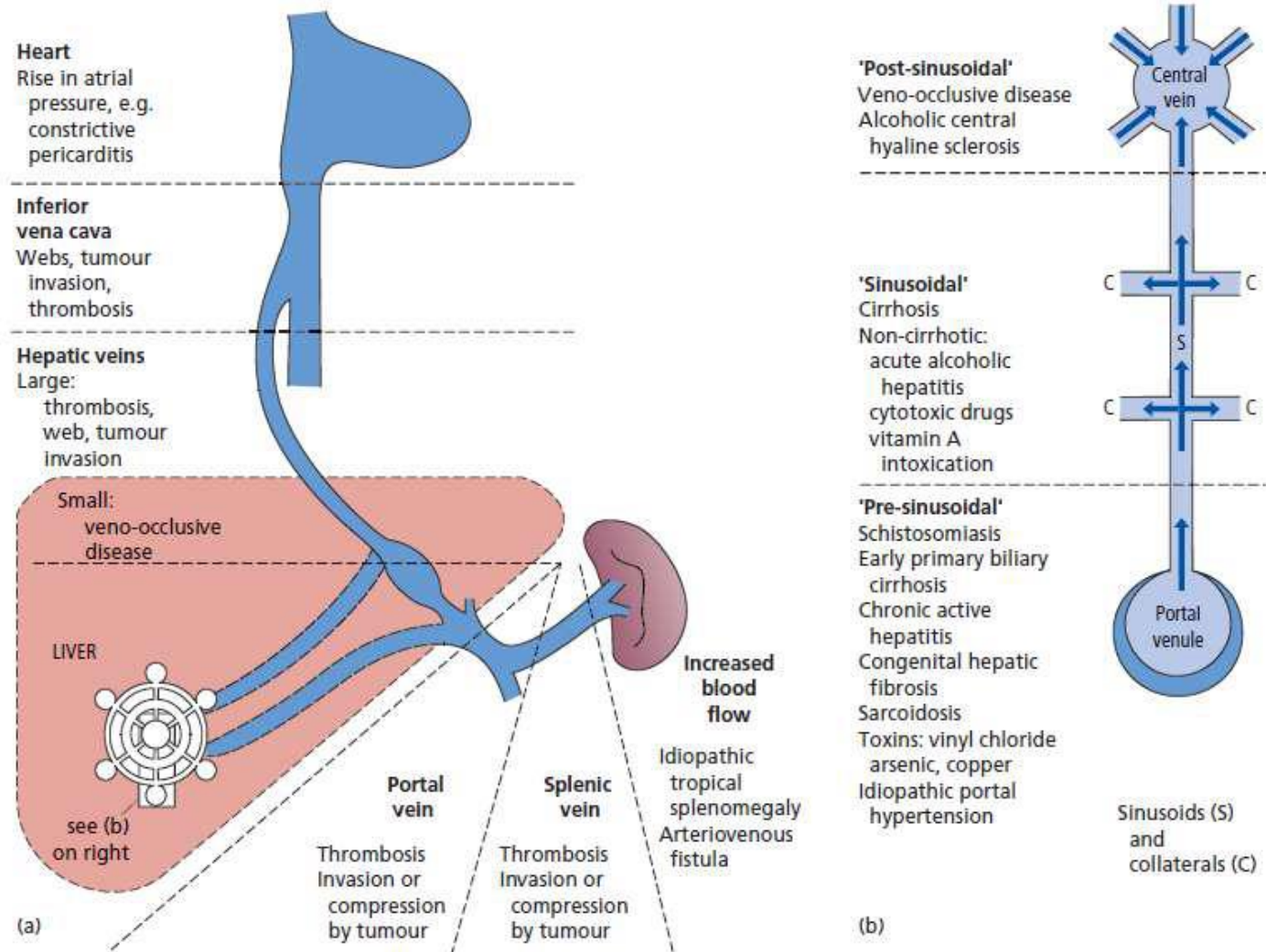
Treatment options for oesophageal and gastric varices



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Portal hypertension is defined as an increase in pressure in the portal venous system characterised by an increased hepatic venous pressure gradient



Clinically relevant portal hypertension develops when the hepatic venous pressure gradient is $>10\text{mmHg}$

- Variceal haemorrhage
- Portal hypertensive gastropathy
- Ascites & hepatorenal syndrome
- Hepatic pulmonary syndrome
- Portopulmonary hypertension
- Portal biliopathy

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Variceal bleeding is the most lethal complication of portal hypertension

- Mortality rates 12-20%
- Early rebleeding mortality 30-50%

Survival rates from acute variceal bleeding have improved due to

- Better endoscopy
- New treatment modalities
- Protocol based care
- Better treatment of
 - Associated conditions
 - Underlying liver disease

Goals

- **Resuscitation (avoiding hypervolemia)**
- **Control of bleeding**
 - Endoscopy
 - Tamponade
- **Prevention of early rebleeding**
 - Pharmacotherapy
 - Early TIPS
- **Treat associated problems**
 - Encephalopathy
 - Infection
 - Ascites
- **Plan salvage therapy**
 - TIPS
 - Devascularisation
 - (Surgical shunt)
- **Evaluate & Treat underlying liver disease**

Immediate

6-12 hours

Before discharge

Guidelines

AASLD - HEPATOLOGY, VOL. 65, NO. 1, 2017

UK -Gut 2015;0:1–25. doi:10.1136

Step 1: Haemodynamic stabilisation & resuscitation

- Low threshold for intubation
- Good IV access
- Avoid hypothermia
- Haemoglobin >8
- Correct coagulopathy
 - Thromboelastogram may be helpful
 - Clotting factors and platelets may be required but must avoid over transfusion



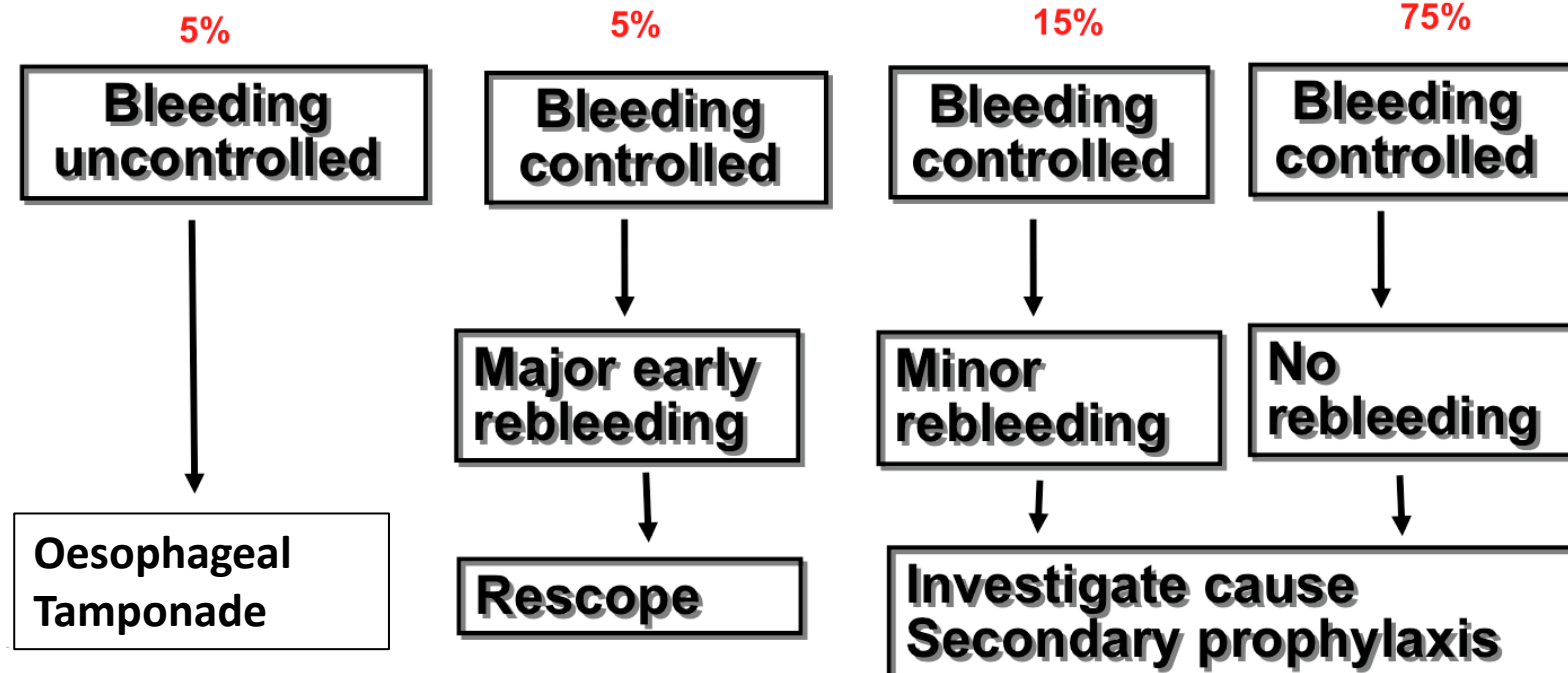
Step 2 – Endoscopic Therapy

- Band ligation has become the method of choice
- Injection sclerotherapy reserved for gastric varices
- During endoscopy for the index bleed
 - Band applied first to the bleeding varix
 - Subsequent bands placed proximally in a helical fashion
- Subsequent EVL sessions performed two weekly until varices eradicated
- Once the varices are eradicated surveillance endoscopy 3-6 monthly
- Banding performed if recurrence

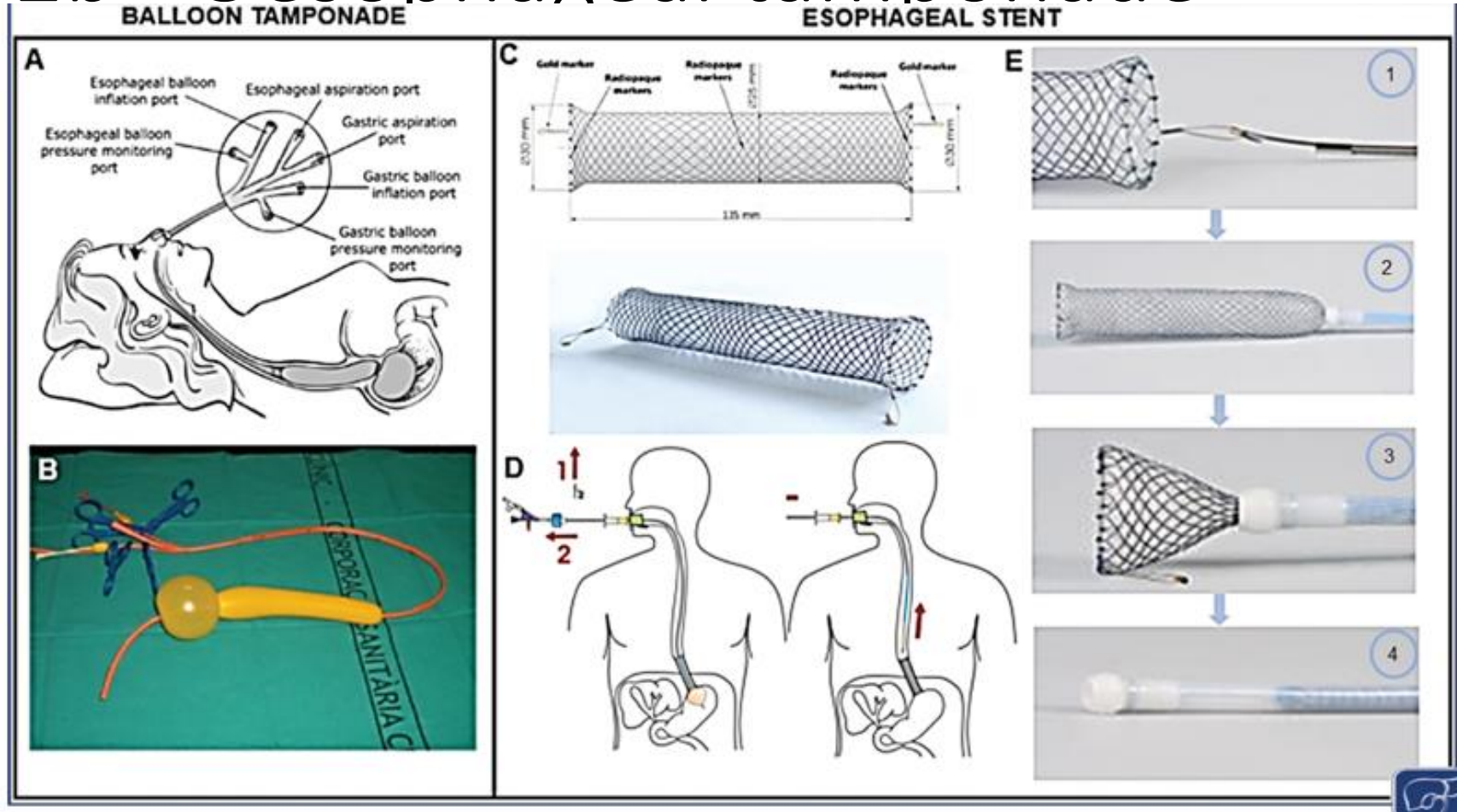


Initial management

Endoscopic intervention



Step 2b - Oesophageal tamponade



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Step 3 -Prevention of Early Rebleeding (Pharmacotherapy)

- Octreotide
 - 100ug bolus
 - Infusion 50ug per hour
- Terlipressin
 - Intermittent intravenous bolus
 - 2mg 4 hourly for 48h then 1mg 4 hourly
 - Risk of ischemia

Drugs available to treat portal hypertension

Intravenous drugs

- Vasopressin
 - Terlipressin
 - Somatostatin
 - Octreotide
 - Vapreotide
- Marked splanchnic vasoconstriction and increase in arterial pressure
- Cause vasoconstriction due to glucagon inhibition and facilitation adrenergic vasoconstriction

Oral drugs

- Propranalol
 - Nadalol
 - Carvedilol
- Decrease cardiac output
- Splanchnic vasoconstriction
- Intrahepatic vasodilation

Terlipressin for the treatment of acute variceal bleeding

A systematic review and meta-analysis of randomized controlled trials

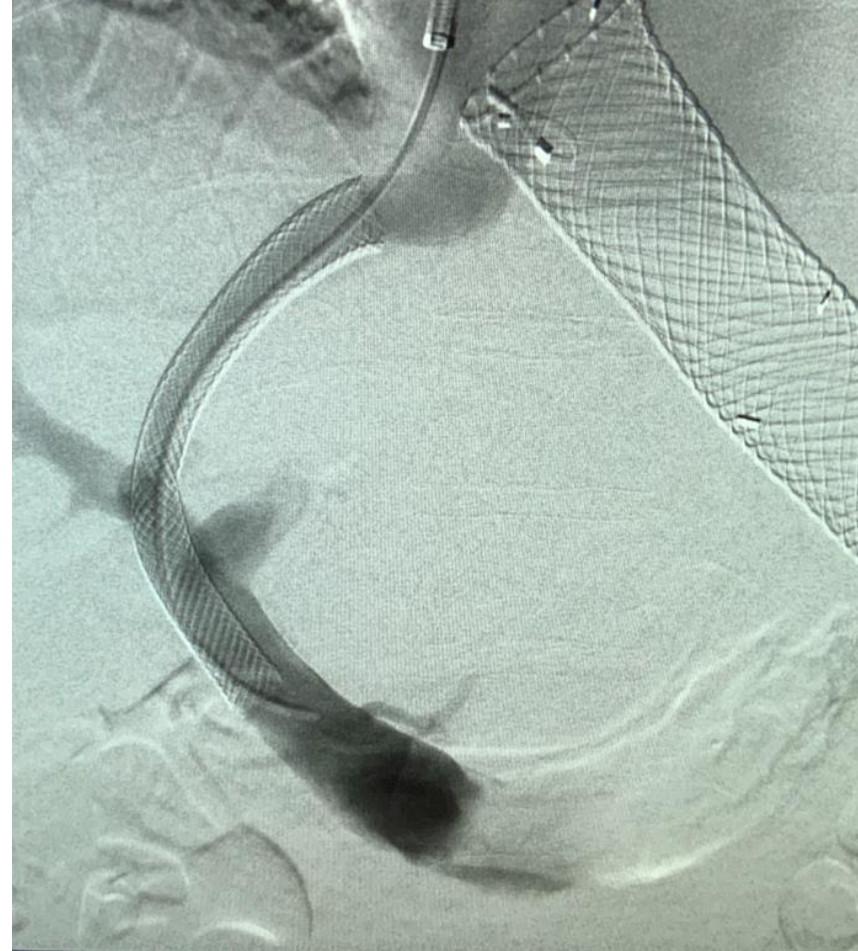
Terlipressin	Bleeding/ treatment failure	Mortality	Adverse events
v.s. no vasoactive drug	↓	↓	—
v.s. somatostatin	—	—	↑
v.s. octreotide	↑	—	—
v.s. terlipressin combined with EVL	↑	—	—
v.s. balloon tamponade	↓	—	—

Conclusions:

- Vasoactive drugs should be initiated as soon a variceal bleed is suspected
- Terlipressin may not be the best first line treatment
- Vasoactive drugs should be used in addition to endoscopic treatment

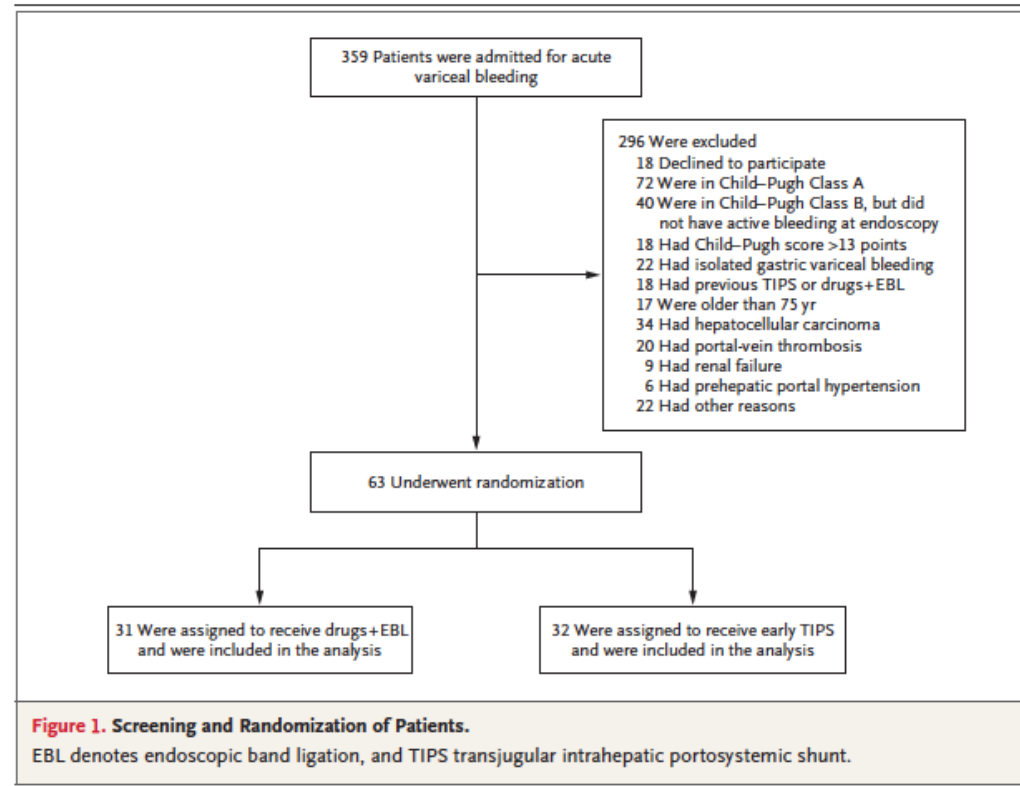
TIPS

- No role in primary prophylaxis
- Salvage therapy
- Early TIPS (within 72h) to prevent rebleeding in high risk patients
 - HVPG >20
 - Child-Pugh B
 - Child Pugh C < 13



Early Use of TIPS in Patients with Cirrhosis and Variceal Bleeding

Juan Carlos García-Pagán, M.D., Karel Caca, M.D., Christophe Bureau, M.D.,



12 month Rebleeding Risk:
3% vs. 50%

6 week survival rate:
97% vs. 67%

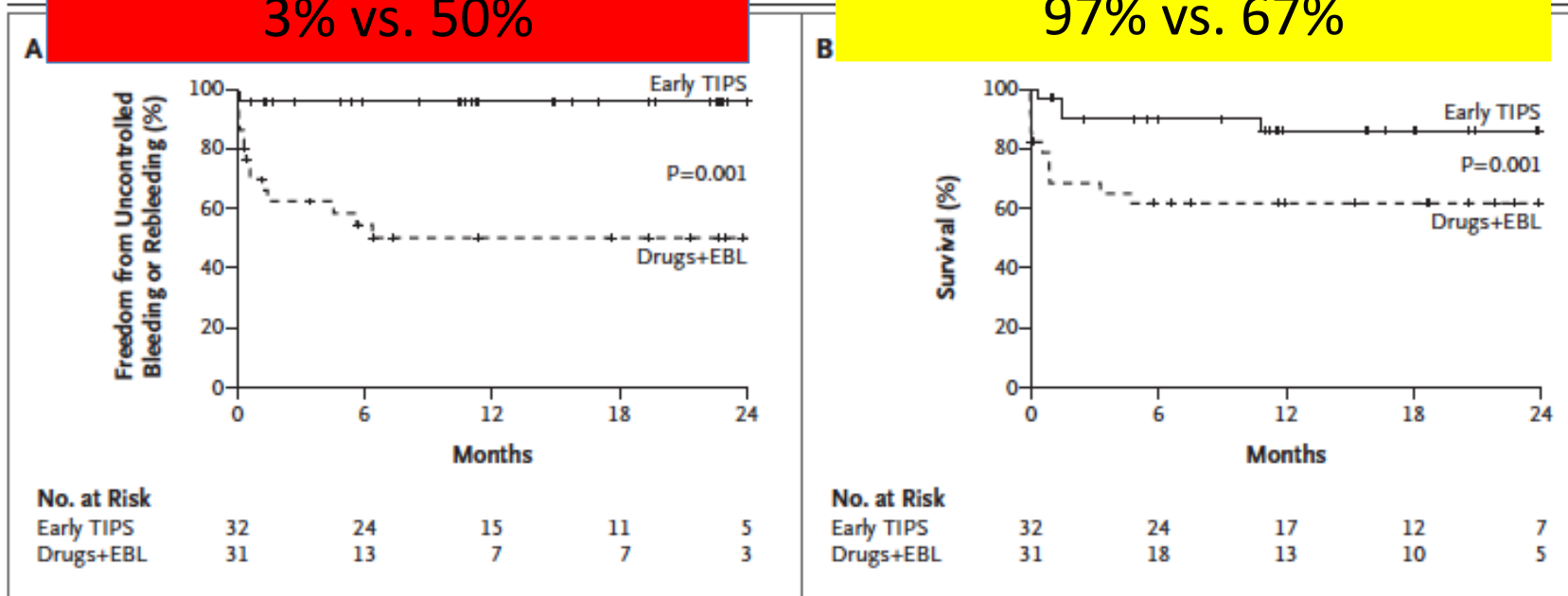


Figure 2. Actuarial Probability of the Primary Composite End Point and of Survival, According to Treatment Group.

The probability of remaining free from uncontrolled variceal bleeding or variceal rebleeding is shown in Panel A, and the probability of survival is shown in Panel B. EBL denotes endoscopic band ligation, and TIPS transjugular intrahepatic portosystemic shunt.



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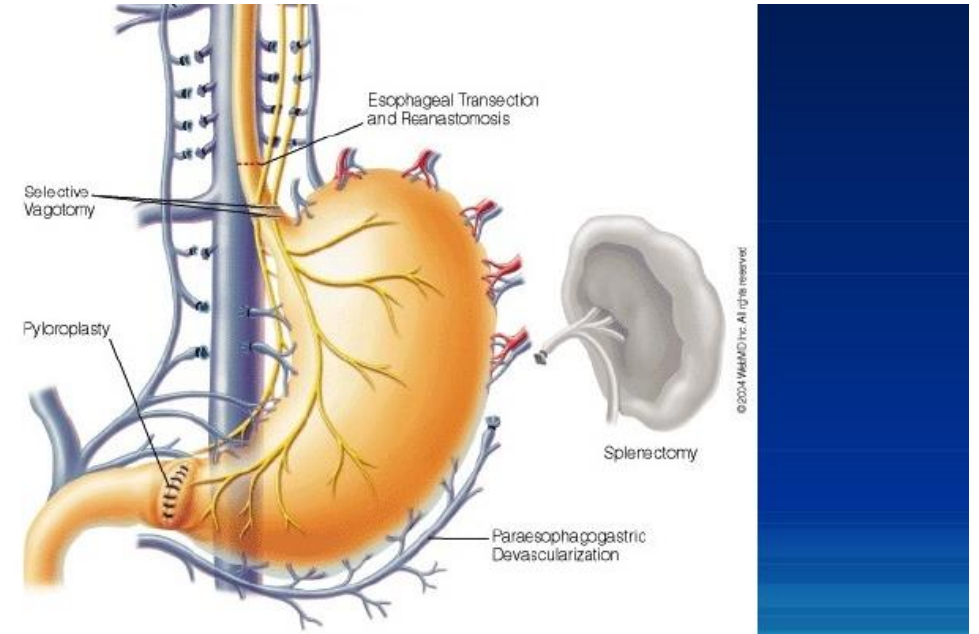
Step 4 -Treatment of associated problems

- Infection/antibiotic prophylaxis
 - 22% of patients have evidence of sepsis within 48 hours
 - Spontaneous bacterial peritonitis
 - Pneumonia
 - UTI
 - Survival benefit with at least 5 days of antibiotics
 - Ceftriaxone & ampicillin
- Encephalopathy
 - Lactulose
 - Monitor ammonia
- Ascites/Hepatorenal syndrome
 - Diagnostic tap
 - Culture (20mls blood culture bottle)
 - Cell count
 - Start diuretics
 - Furosemide & spironolactone
 - Avoid dehydration
 - Albumin to maintain intravascular volume
 - Terlipressin/octreotide
 - Tap ascites intermittently under albumin cover
 - Do not leave an indwelling peritoneal drain

Step 5 Salvage procedures

- Cirrhosis → TIPS
- Portal vein thrombosis →
- Segmental/left sided portal hypertension →
- Bilharzia → Surgical shunt
- Portal vein thrombosis →

Devascularisation



Operative shunts

Non-selective shunts

Decompress the entire portal system

Total

Divert all flow:

- Portocaval
- Mesocaval
- Proximal splenorenal

Partial

Divert a portion of the flow

- Small diameter portocaval

Selective shunt

Decompress the gastrosplenic compartment, maintaining portal flow

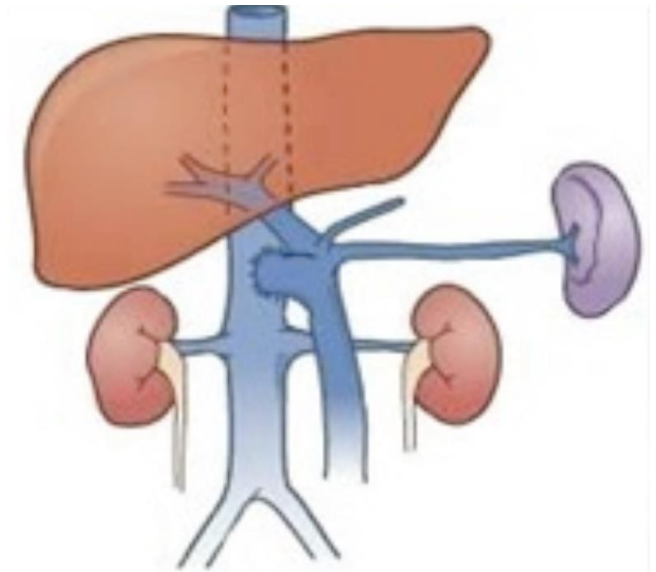
- Distal splenorenal

Interventional

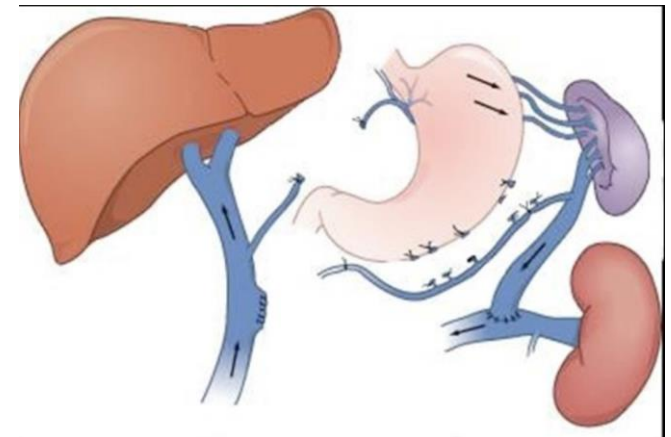
Partial

- TIPS

Portocaval



Distal Splenorenal



Case

66y

Cirrhosis due to MAFLD

Pulmonary embolism in in November 2022 following spinal surgery

Two life threatening variceal bleeds

MELD 8; Child-Pugh score A(6)



Image size: 601 x 512
View size: 1770 x 1507

A

QP-1277721 (66 y , 66 y)

Gi Bleed(Adult)

Gi Bleed

14

R



L

Uncompressed
Position: HFS



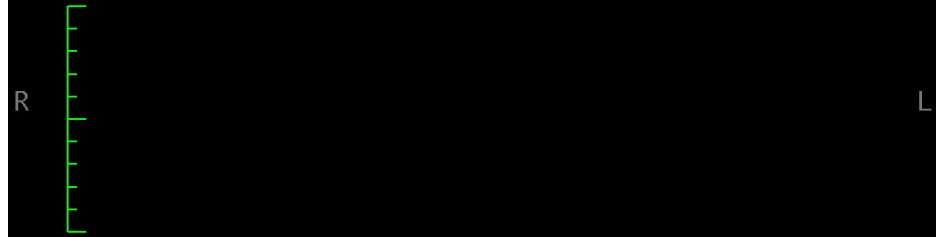
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Made In Horos

Image size: 512 x 775
View size: 996 x 1508

S QP-1277721 (66 y , 66 y)
GI Bleed(Adult)
GI Bleed
16



Uncompressed Thickness: 3.00 mm Location: -341178 mm 2023/01/13, 08:59:38
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Gastric varices

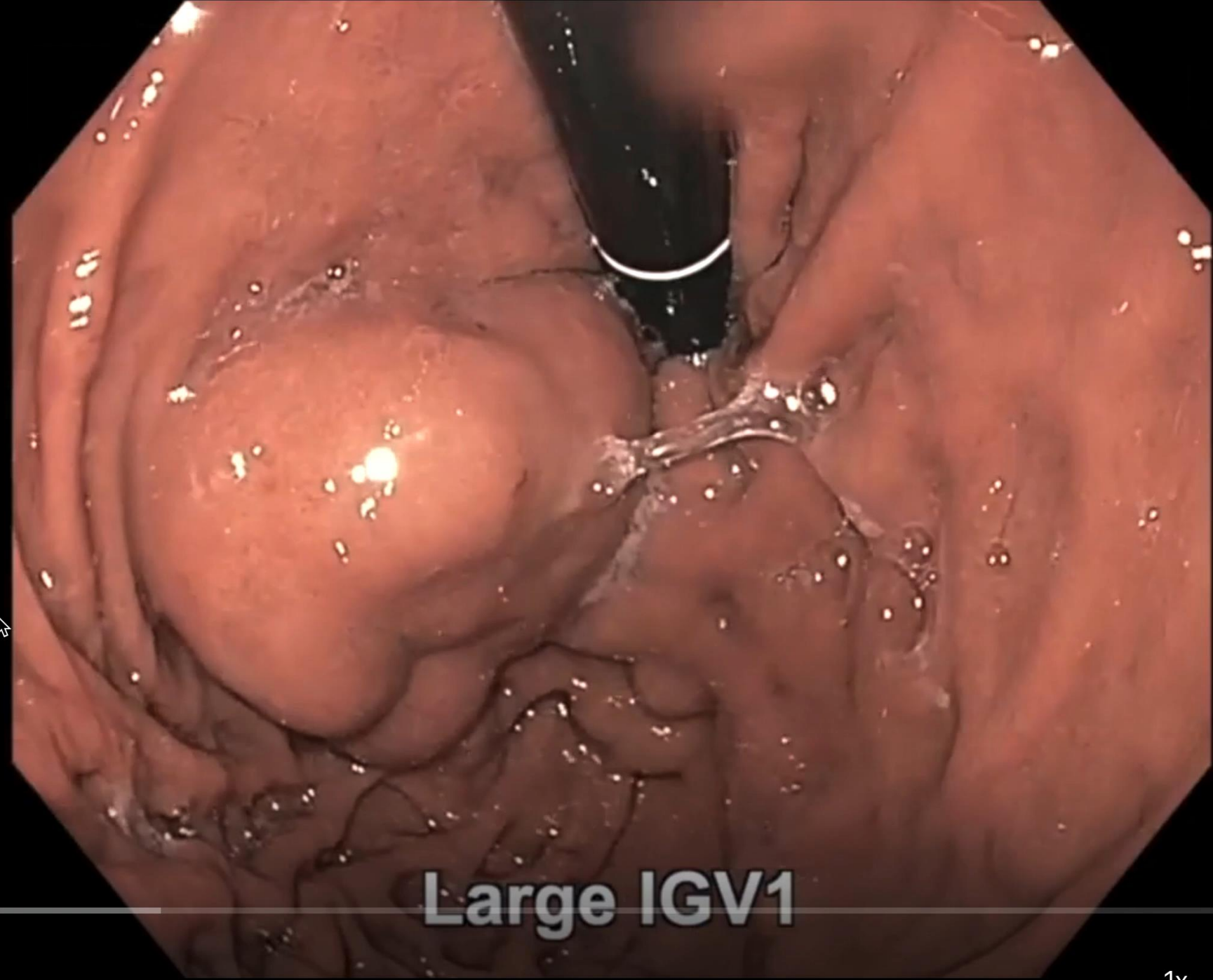
The management of oesophageal varices is straight forward with a good evidence base

Gastric varices are less common than oesophageal varices. As they are supported by gastric mucosa they are less likely to bleed

Bleeding from gastric varices has a higher mortality than oesophageal varices.

Management of gastric varices is more complex with a greater variety of treatment options and less evidence than gastric varices

- The mainstay of treatment has been endoscopic sclerotherapy
 - Glue (cyanoacrylate) flushed with distilled water or 5% dextrose
- Endoscopic ultrasound guided treatment
 - Coiling & glue
- Endovascular techniques
 - TIPS
 - BRTO



Large IGV1

1x auto

TIPS – for gastric varices

Shunt between right portal and right hepatic vein

Oesophageal varices tend only bleed once the HVPG >12; Gastric varices bleed at lower pressures

15-50% of patients bleed after successful TIPS placement

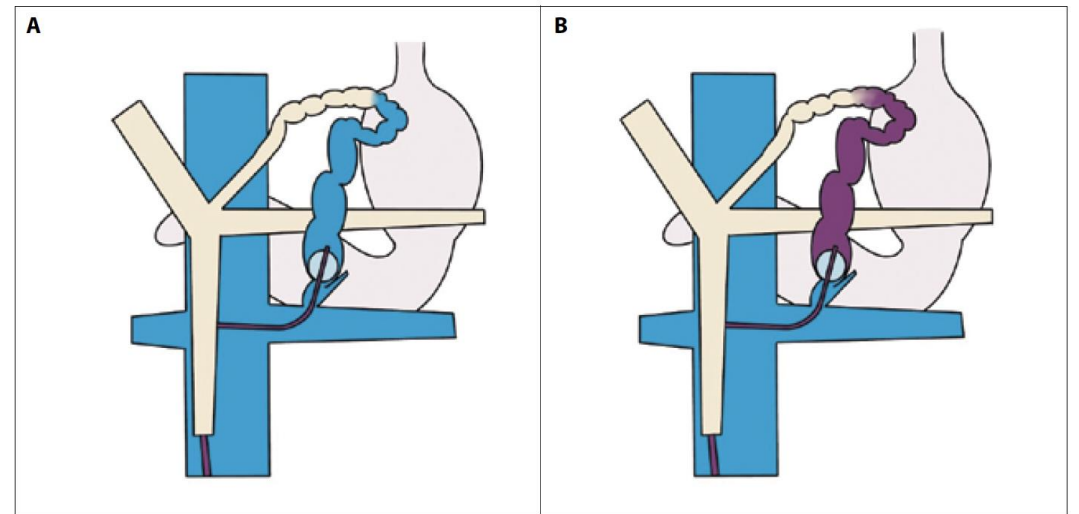
Competing shunts may maintain flow in gastric varices



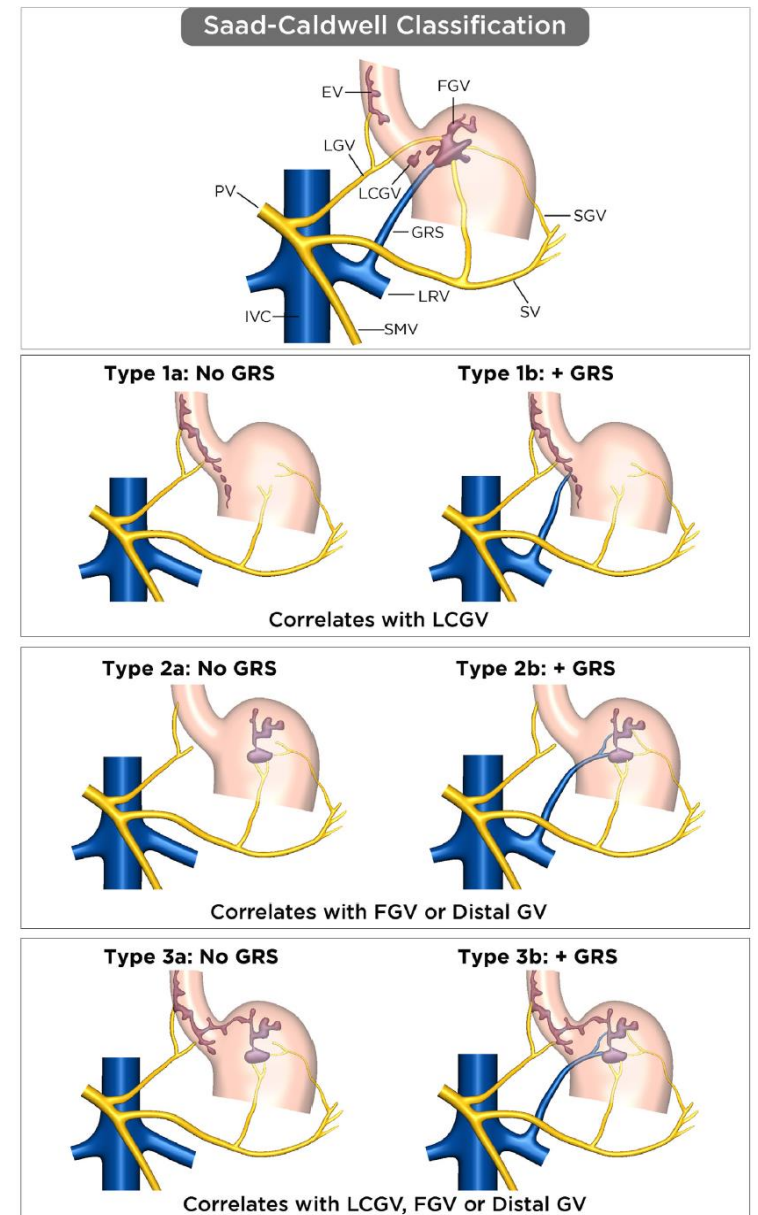
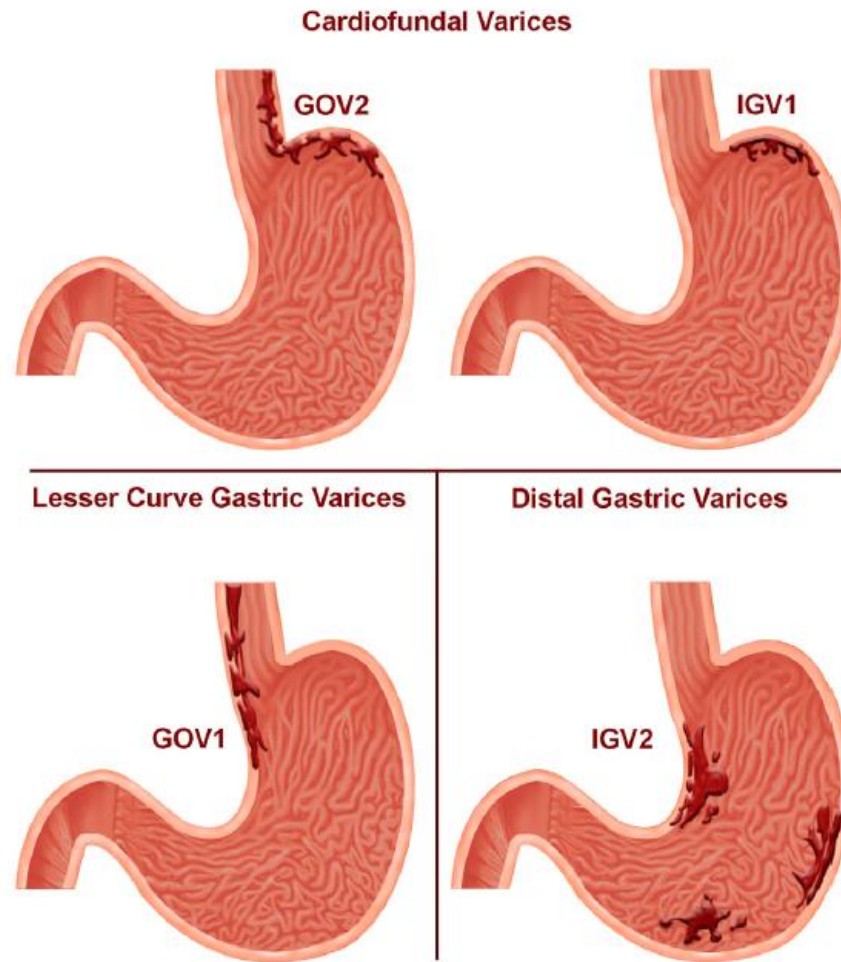
BRTO

Retrograde obliteration of the varices via the Gastro-renal collateral

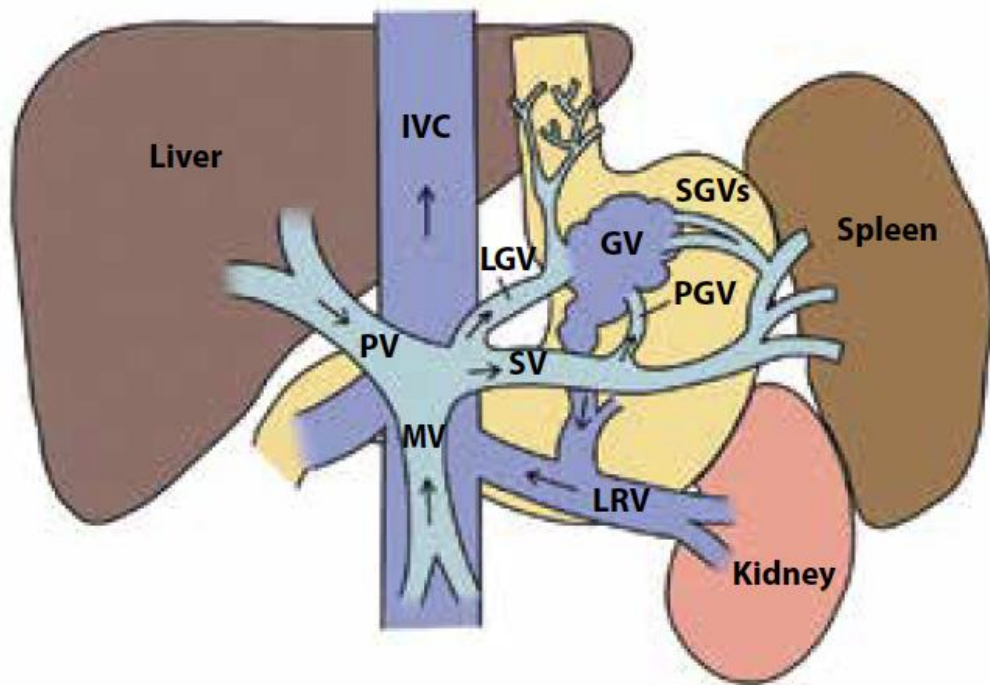
Associated with increase in portal pressure – may be worsening of oesophageal varices



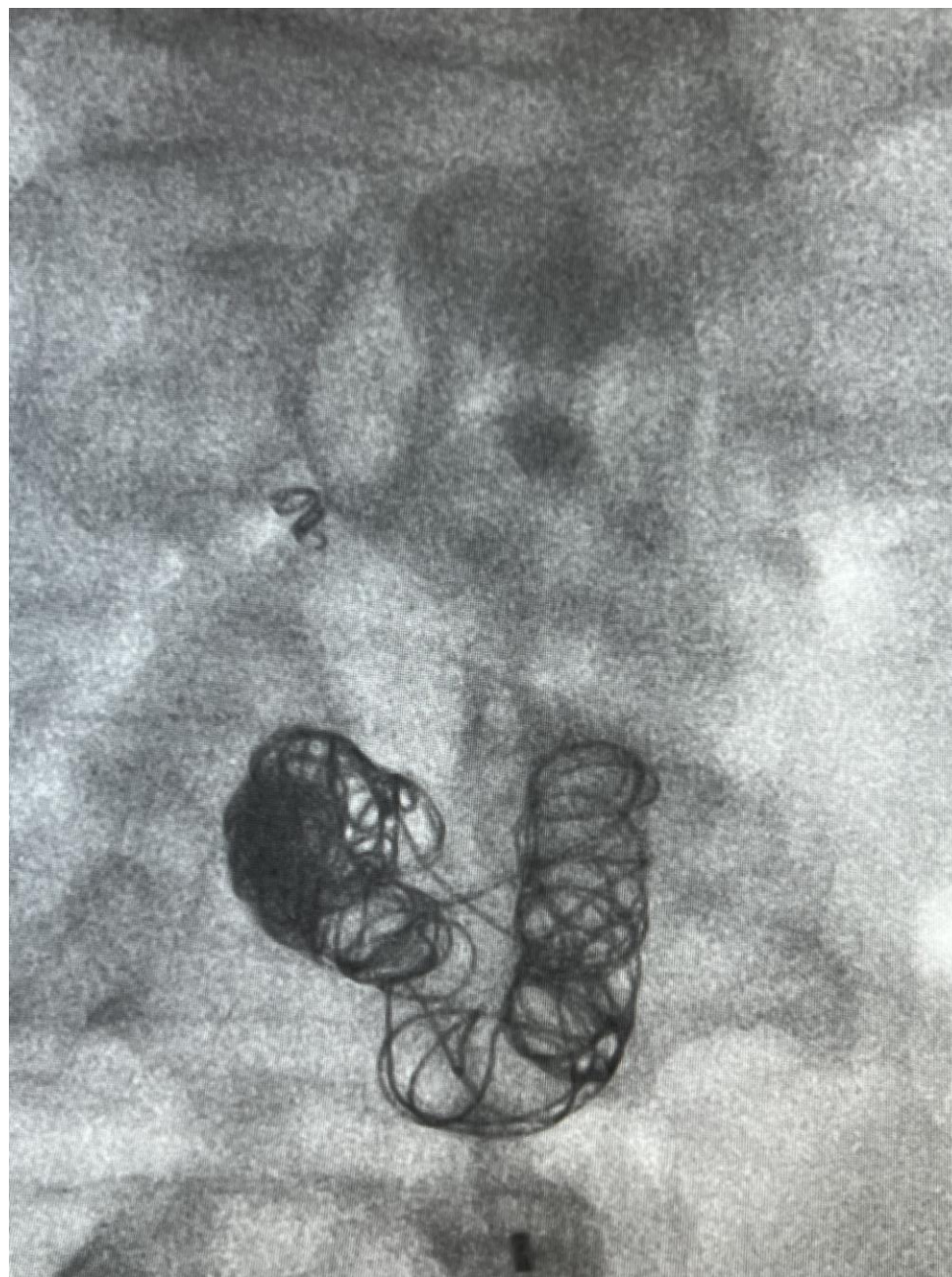
Classification of gastric varices

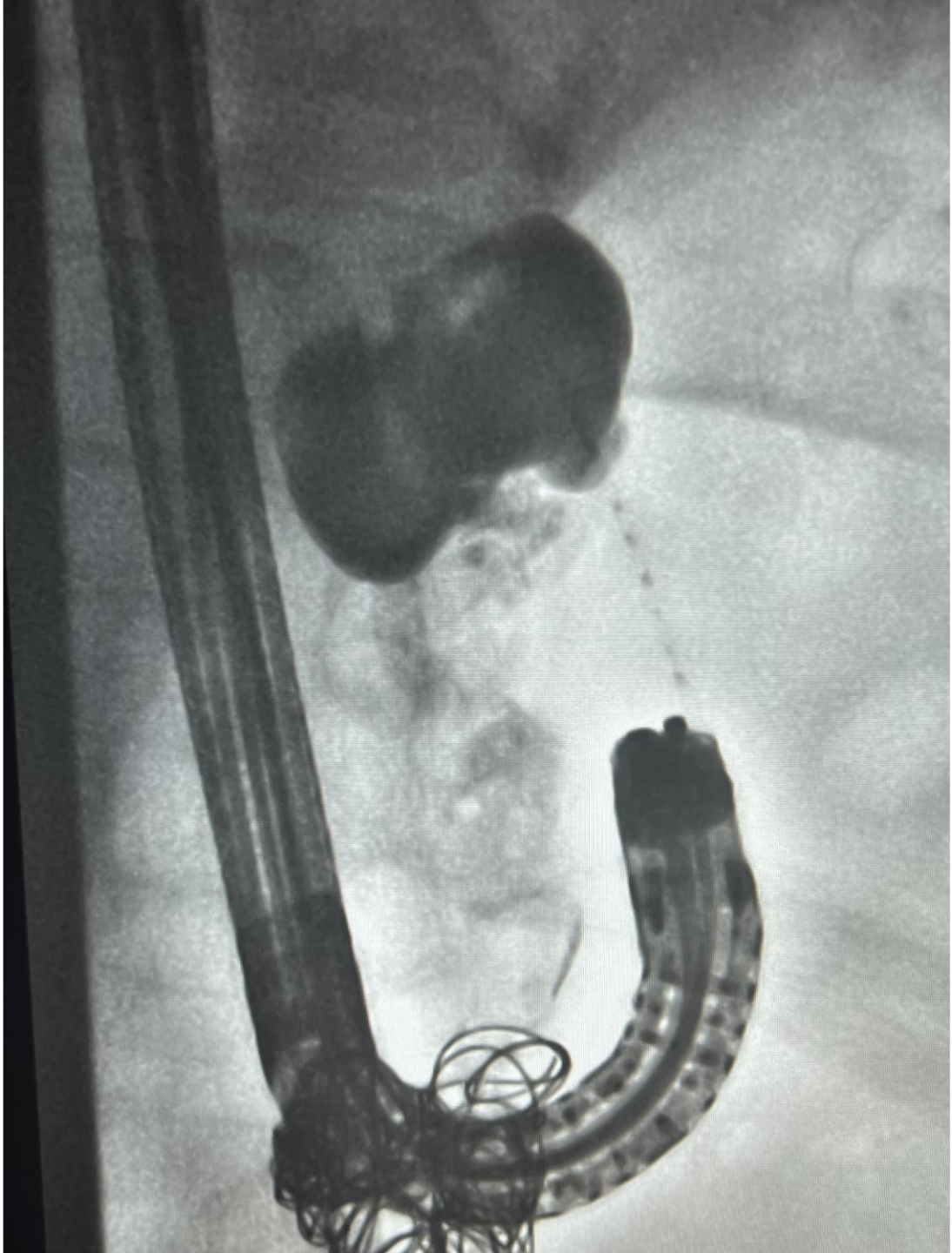


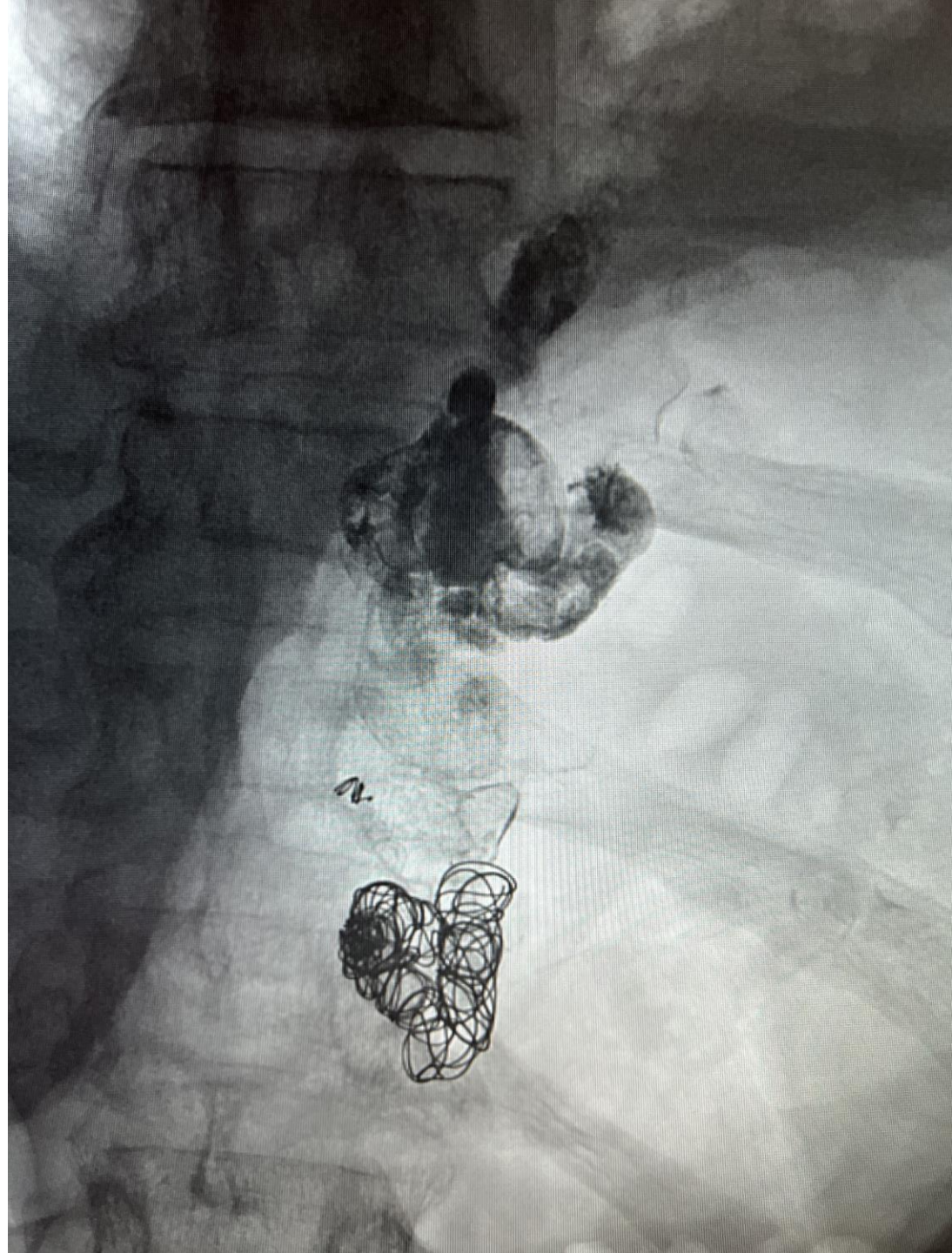
Anatomy of gastric varices



Saad-Caldwell Type	Feeding Vessels	Gastrorenal Shunt	Endoscopic Correlate	Treatment
Type 1a	LGV	Absent	GOV1s	EVL ± TIPS (with or without trans-TIPS embolization) ^a
Type 1b	LGV	Present	GOV1s	EVL ± TIPS (with or without trans-TIPS embolization) ^a
Type 2a	PGVs, SGVs	Absent	IGV1s > GOV2s	ECl, ATO
Type 2b	PGVs, SGVs	Present	IGV1s > GOV2s	RTO ± ATO
Type 3a	LGV, PGVs, SGVs	Absent	GOV2s > IGV1s	TIPS with embolization, ECl, ATO
Type 3b	LGV, PGVs, SGVs	Present	GOV2s > IGV1s	RTO ± ATO, EVL ± TIPS ^a

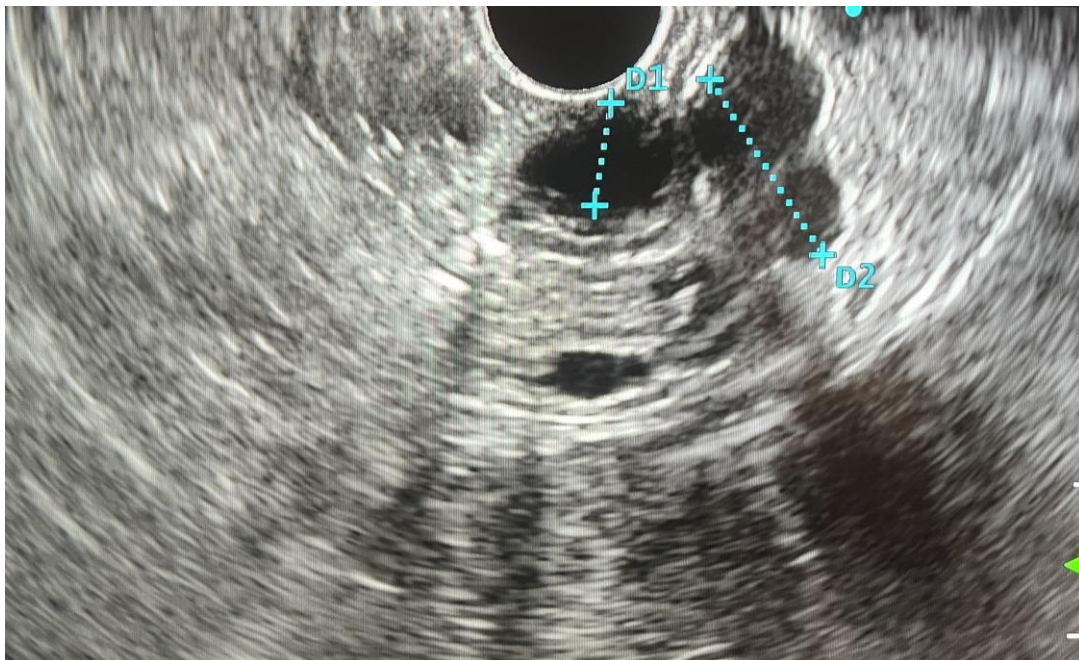






Case 2

- 65 y old female
- Cirrhosis due to MAFLD
- Three major bleeds from Gastric varices
- Large gastro-renal shunt



Conclusion

Treatment algorithms for oesophageal varices are clearly defined with a good evidence base

Treatment of associated conditions is important

Early TIPS for high-risk patients with oesophageal varices decreases rebleeding and improves mortality

Management of gastric varices should be based on the underlying anatomy

EUS is useful in treating gastric varices