PARTO: A Targeted Solution for Isolated Gastric Varices in Left-Sided Portal Hypertension

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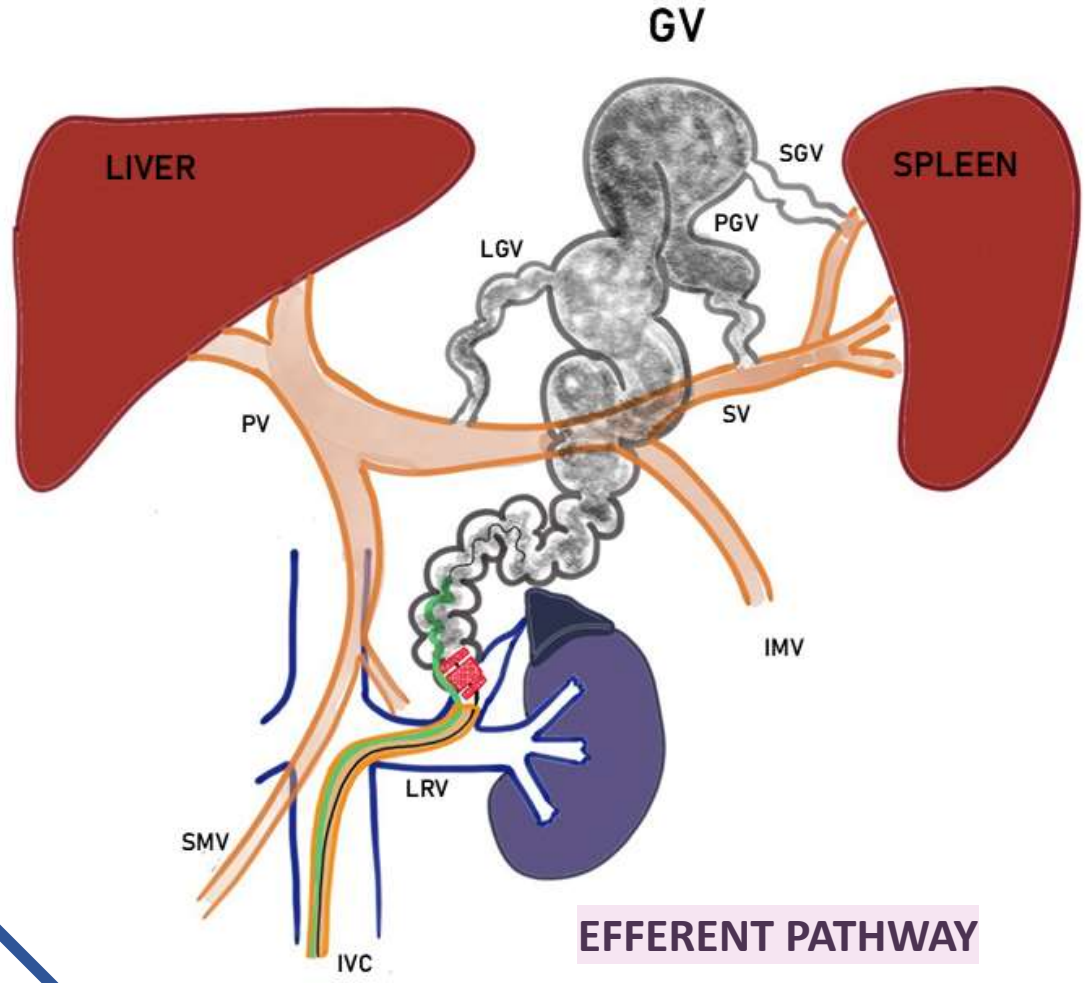
Introduction:

Left-sided portal hypertension (LSPH), also known as sinistral hypertension, is a condition which often leads to Gastric varices, upon rupture can lead to life threatening hemorrhage.



Left sided Portal hypertension
- **Splenic Vein thrombosis**
- **Cirrhosis**

AFFERENT PATHWAYS

Left gastric vein (LGV)

Posterior gastric vein (PGV)

Superior gastric vein (SGV)

Gastric varices

EFFERENT PATHWAY

GASTRO-RENAL SHUNT

LEFT RENAL VEIN

Indications:

- Active, uncontrolled Bleeding Gastric varices (GOV2 and IGV1)
- Recurrent gastric variceal bleed with failed medical and endoscopic treatment.
- Prophylaxis after primary endoscopic treatment.
- Contra indications to TIPS in patient with gastric varices.
- Management of recurrent HE secondary to porto-systemic shunting.

Contraindications:

- Severe uncontrolled coagulopathy.
- Portal Vein thrombosis if GRS is only outflow.
- Gross ascites.
- High risk esophageal varices.

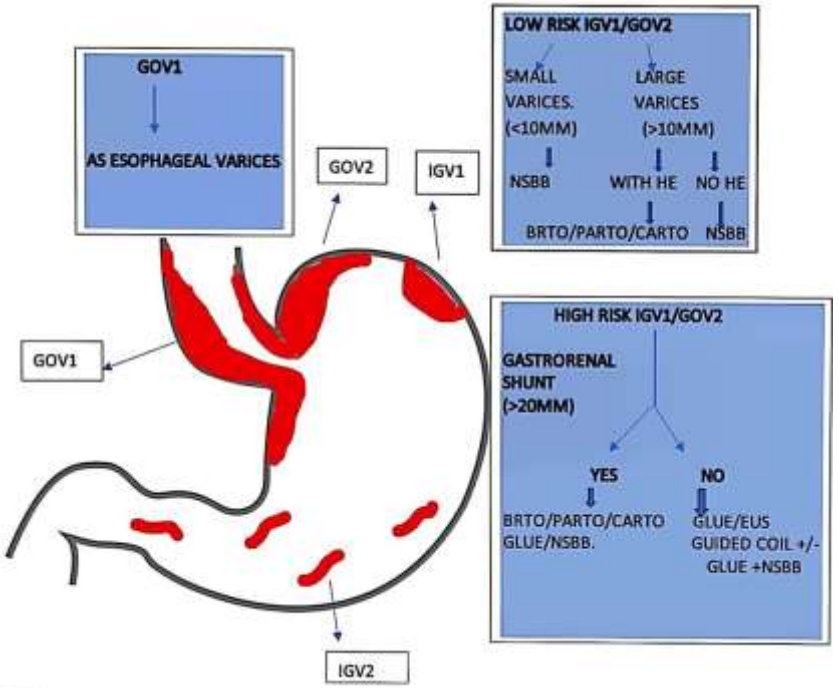
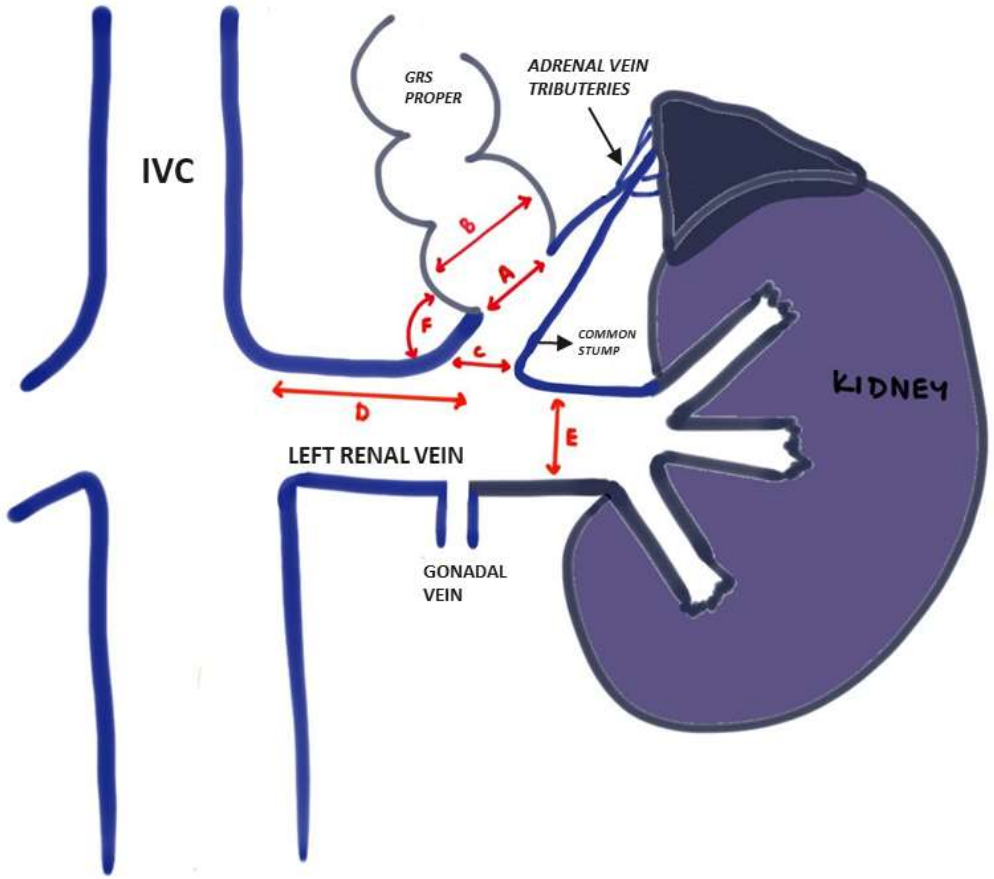


Table 1. Sarin's Classification of Gastric Varices

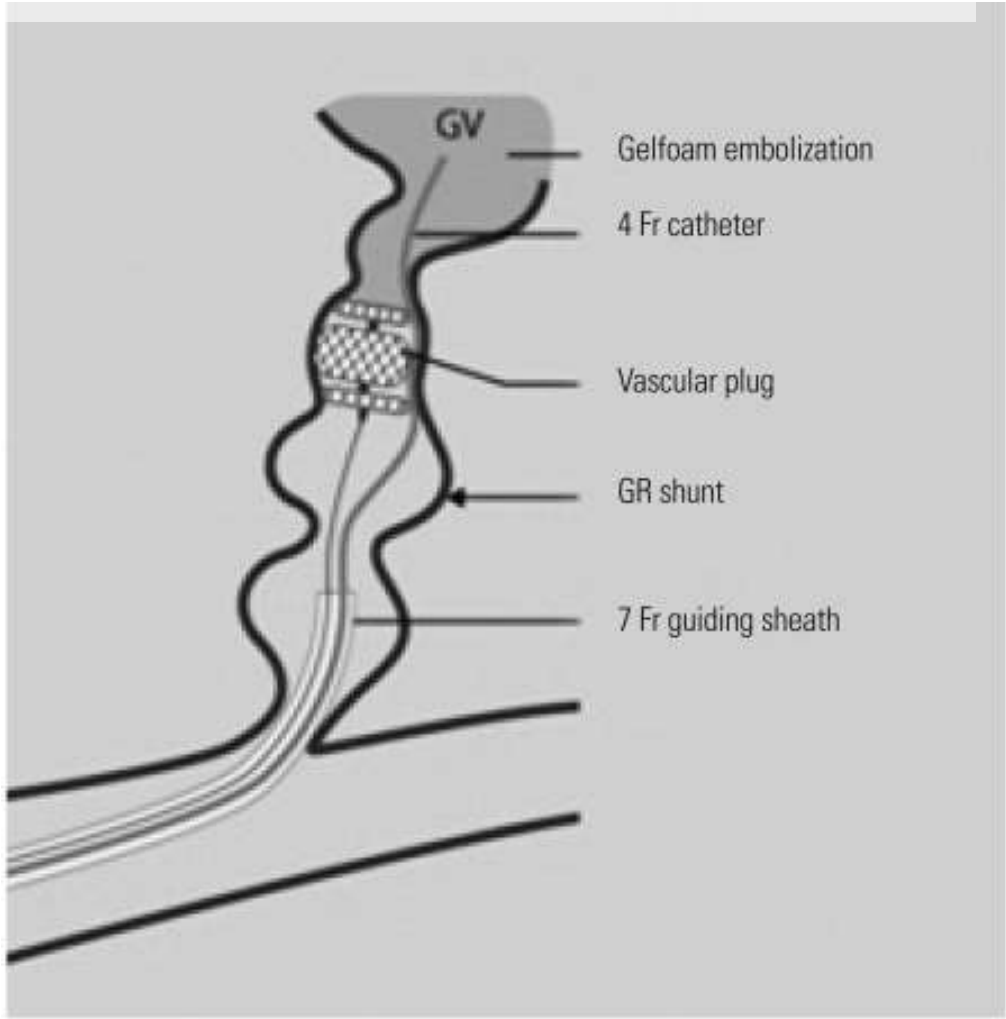
Group	Subgroup	Location	Characteristics
Esophageal	Type I (GOV 1)	Lesser curvature	Most frequent
Gastric	Type II (GOV 2)	Gastric Fundus	Largest and torturous
Isolated Gastric Varices (IGV)	Type I (IGV 1)	Gastric Fundus	Torturous and complex
	Type II (IGV 2)	Corpus, Antrum or Pre-pyloric region	Least frequent

Technique:

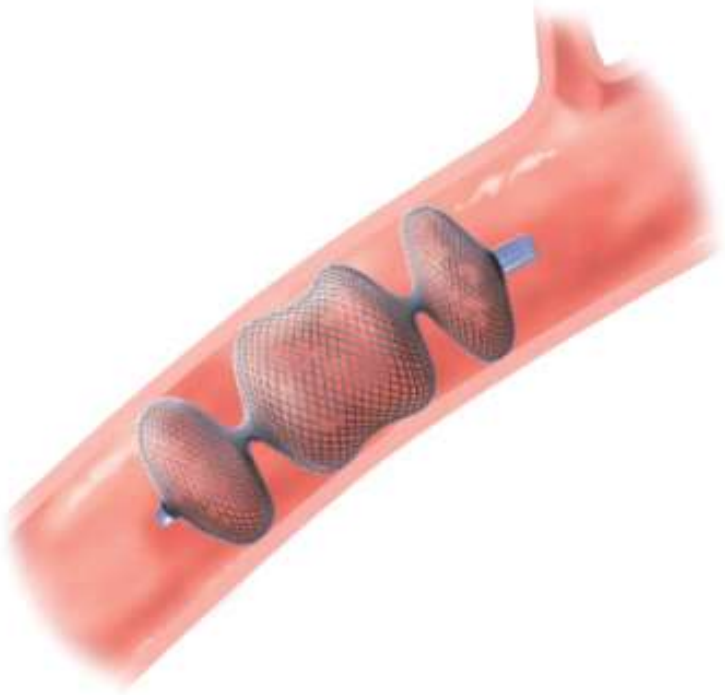
PREPROCEDURAL ANATOMICAL EVALUATION



PROCEDURE



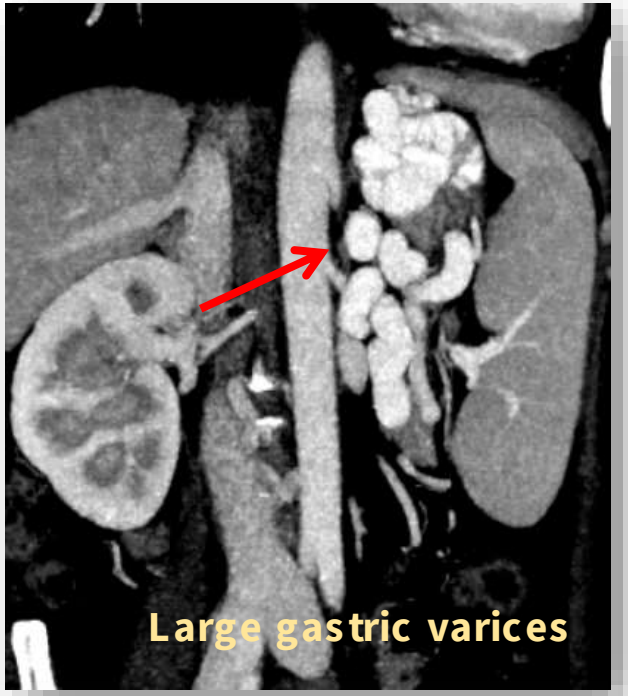
Amplatzer vascular plugs

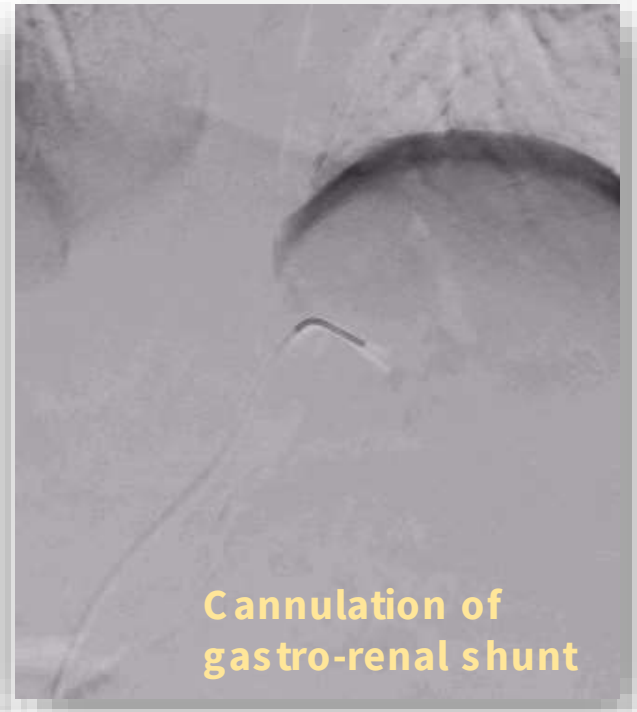


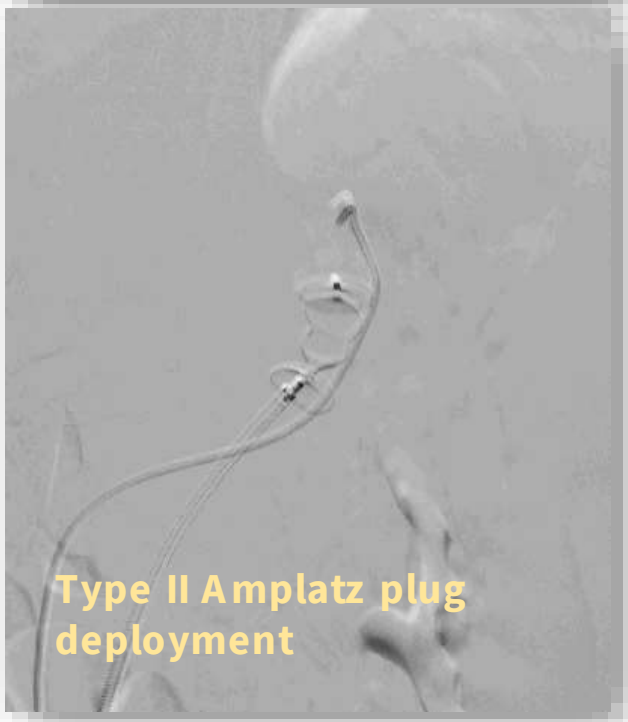
Case 1

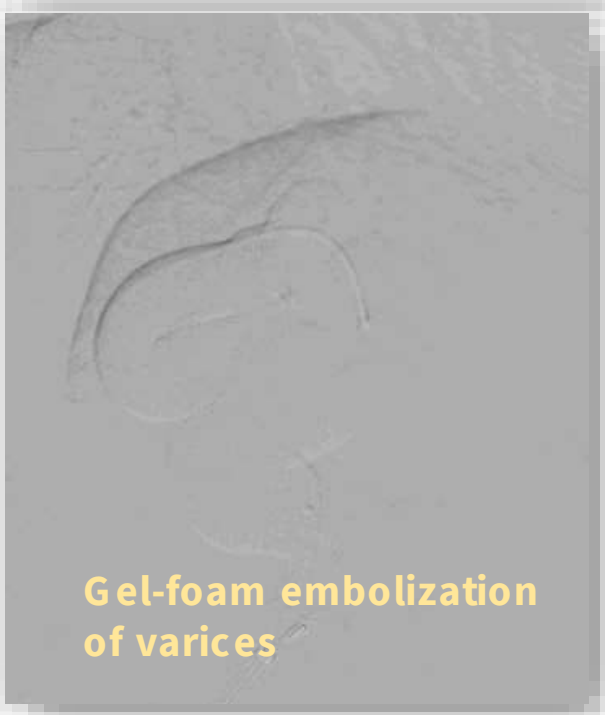
- 47yr/ F
- Hematemesis (Hb 6g%)
- Failed endoscopy

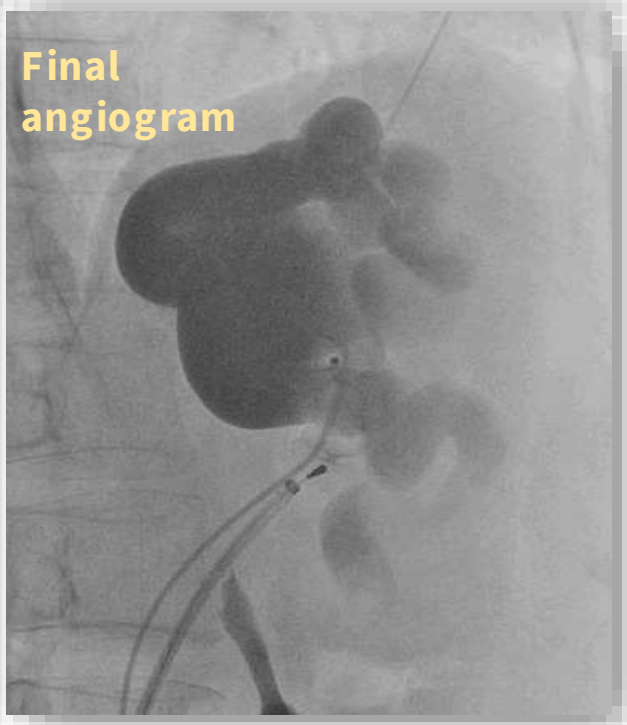
- Gastro-renal shunt size: **9.2 +/- 0.5 mm**
- **14mm** Amplatzer plug
- Gel-foam embolization of gastric varices







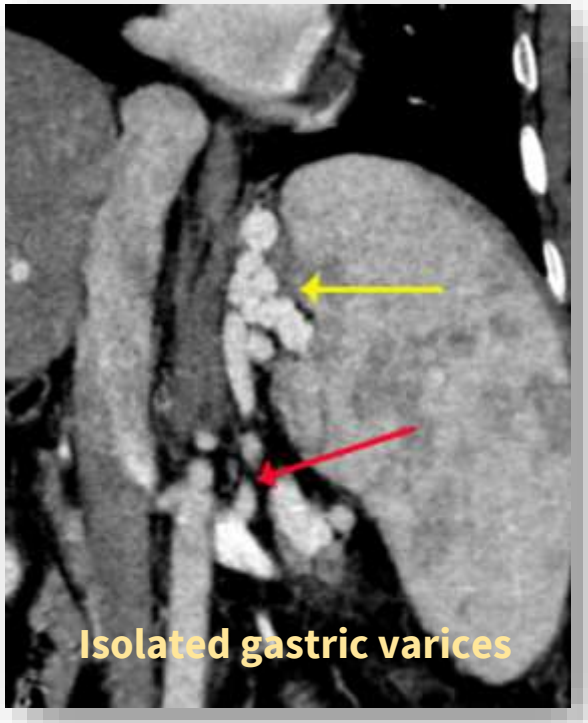


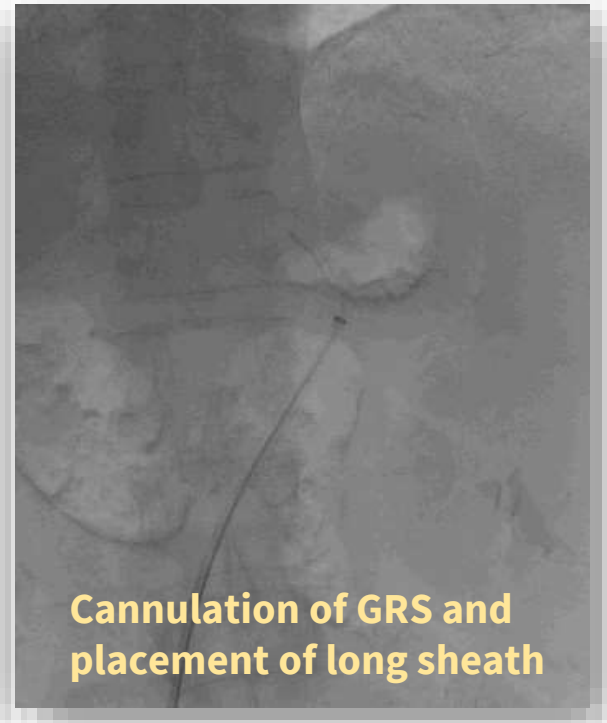


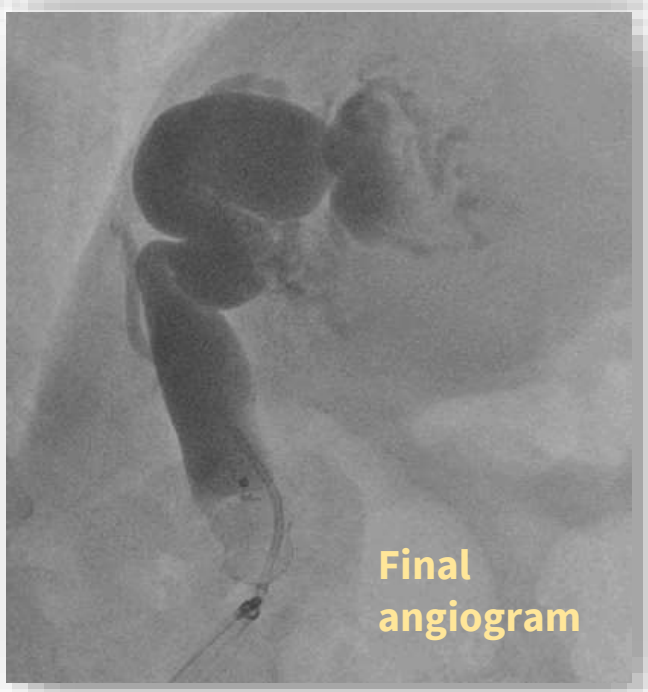
Case 2

- 45yr/ M
- DCLD with recurrent intermittent hematemesis (Hb 8.9%)

- Failed endoscopic glue embolization twice in 3 months
- GRS: **8.6 +/- 0.5mm**
- **12mm** sized Amplatzer plug used
- Gel-foam embolization done



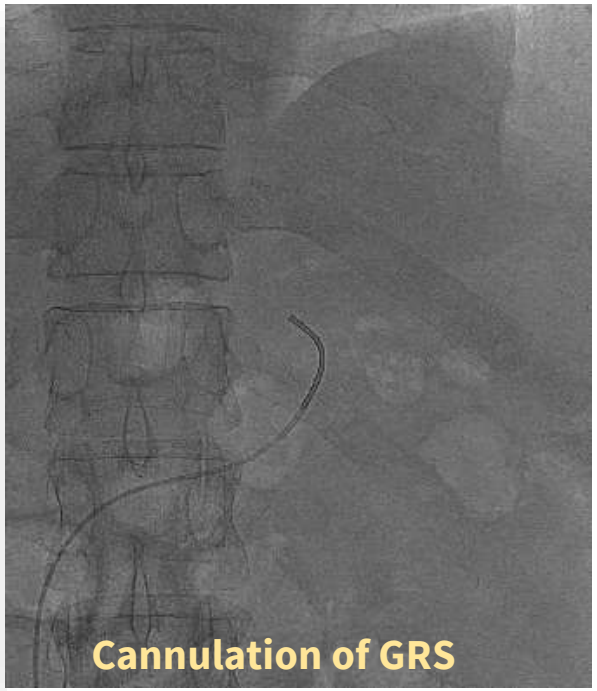


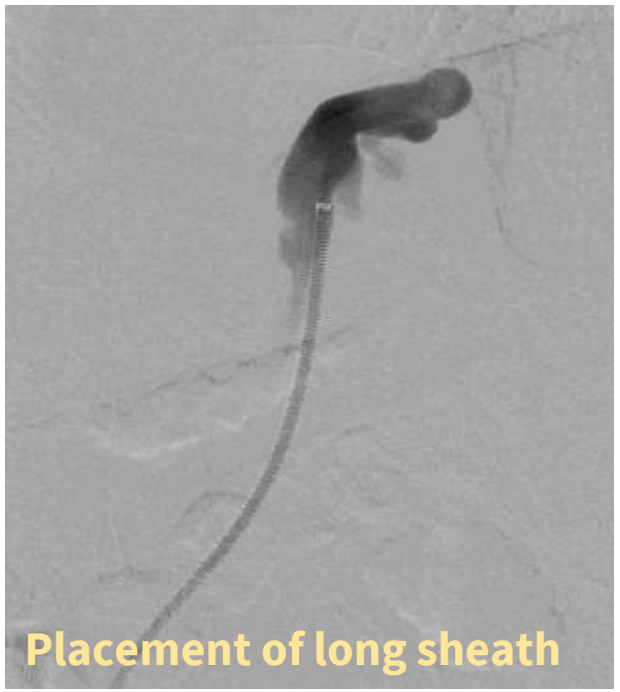


Case 3

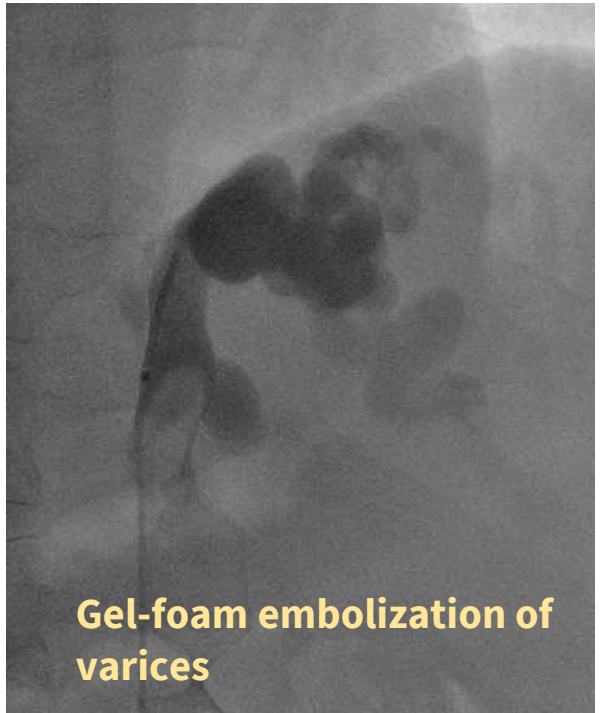
- 56yr/ M
- CLD with gastro-esophageal varices (GOV 2)
- Hematemesis & melena
- Failed endoscopy
- GRS waist size: **10 +/- 0.5mm**
- **14mm** sized Amplatzer plug used
- Gel-foam embolization done

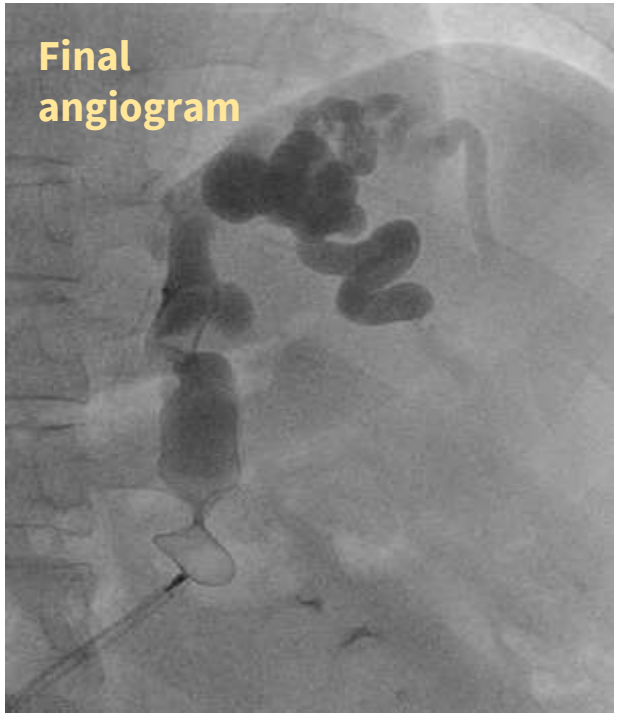

Large gastric varices


Cannulation of GRS

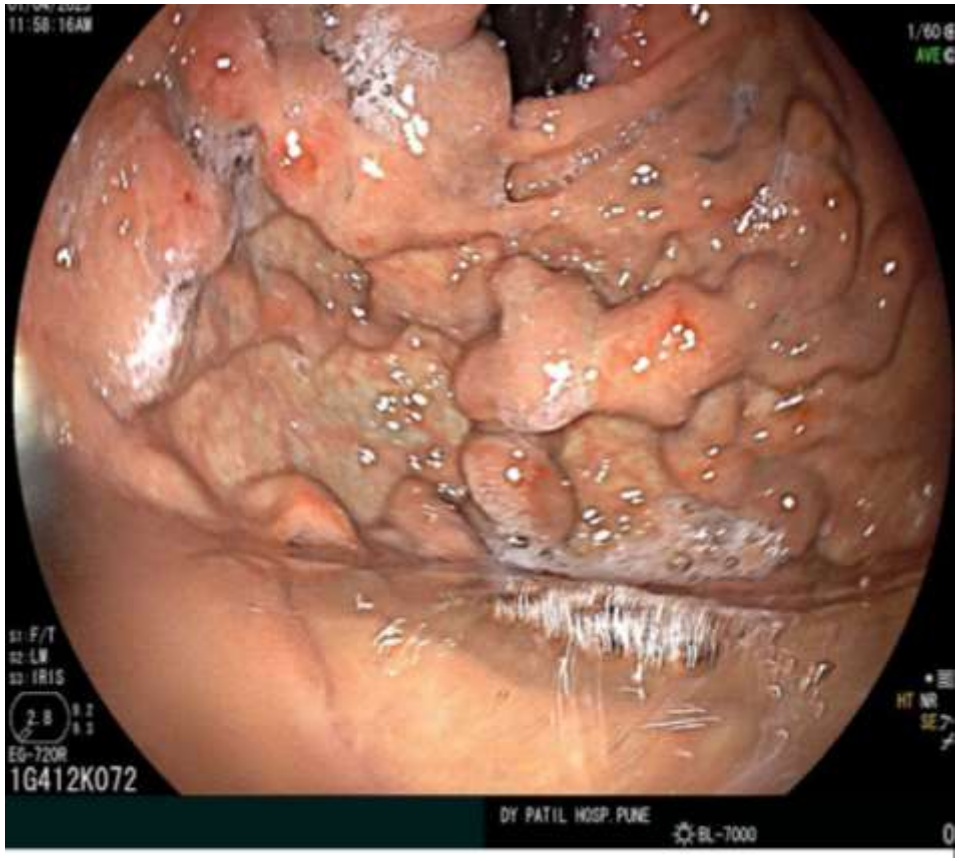

Placement of long sheath

Type II Amplatz plug deployment

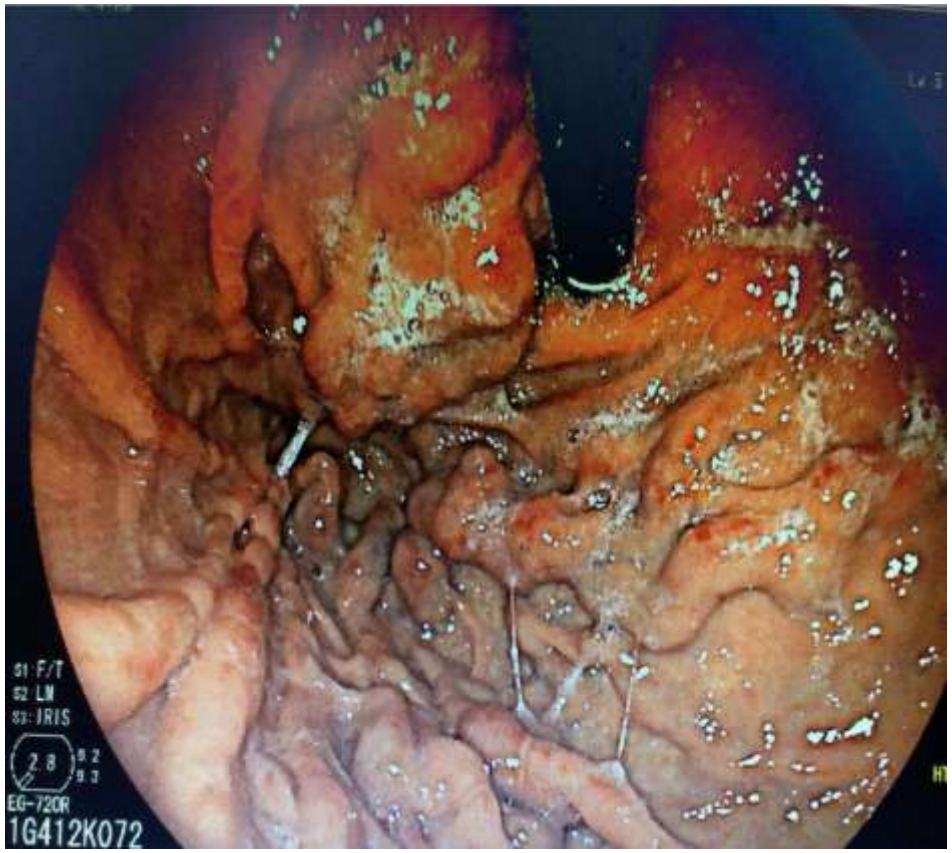

Gel-foam embolization of varices


Final angiogram

Endoscopic representative images:



Pre-procedure



Post-procedure
1 month follow up

Results:

- Technical success : - defined by successful catheterization of the Gastro-Renal Shunt and deployment of optimal sized Amplatzer Vascular Plug in the gastro-renal shunt and subsequent embolization of gastric varices with gel-foam till visualization of the afferent veins.

- Clinical success : - defined as immediate cessation of bleeding with stabilization of hemodynamics, without recurrence or need for further re-intervention for a period of 1 month.

Vascular Plug–Assisted Retrograde Transvenous Obliteration for the Treatment of Gastric Varices and Hepatic Encephalopathy: A Prospective Multicenter Study

Dong Il Gwon, MD, Young Hwan Kim, MD, Gi-Young Ko, MD, Jong Woo Kim, MD, Heung Kyu Ko, MD, Jin Hyoung Kim, MD, Ji Hoon Shin, MD, Hyun-Ki Yoon, MD, and Kyu-Bo Sung, MD

- 73 patients who had undergone PARTO were evaluated in a prospective multicenter study.
- 57 patients with GVs - 28 had GVs at risk of rupture, 23 had experienced recent bleeding, and 6 had active variceal bleeding.
- 16 patients with HE - treated unsuccessfully with medical therapies.
- Technically successful in all 73 patients.
- No procedure-related complications.
- Follow-up CT within 1 wk after PARTO - complete thrombosis of GVs and portosystemic shunts in 72 of 73 patients (98.6%).
- Improvement in Child–Pugh score was observed in 24 patients (40%) at 1-mo follow-up.

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Plug-Assisted Retrograde Transvenous Obliteration for the Treatment of Gastric Variceal Hemorrhage

Min-Yung Chang, MD[1], Man-Deuk Kim, MD, PhD[1], Taehwan Kim, MD[2], Wonseon Shin, MD[1], Minwoo Shin, MD[1], Gyoung Min Kim, MD[1], Jong Yun Won, MD[1], Sung Il Park, MD[1], Do Yun Lee, MD[1]

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❖ 19 patients who underwent PARTO using a vascular plug and gelfoam (17 with history of gastric variceal hemorrhage; 2 with active bleeding)

❖Technical and clinical success was achieved in 18 of 19 (94.7%) patients. The embolic materials could not reach the GV in 1 patient (who had endoscopic glue injection before the procedure) and he had recurrent bleed.

❖Acute complications included fever (n = 2), fever and hypotension (n = 2; one diagnosed adrenal insufficiency.

❖Ten patients underwent follow-up endoscopy; 8 exhibited GV improvement; 2 without endoscopic change.

❖Five patients exhibited aggravated EV, and 2 of them had a bleeding event.


Thank you