

Next Case: Upper Gastrointestinal Bleed

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Attending: Dr. Anish Patel

Panel: Dr. Michael Ma, Dr. Ellen Stein, Dr. Arvind Trindade

Disclosures

- No relevant disclosures for this talk

Learning Objectives

- Discuss differential diagnoses for upper GI bleeding in cirrhosis
- Review the classification and etiologies of portal hypertension and its vascular complications
- Outline management options for acute upper GI hemorrhage in a patient with cirrhosis, including resuscitation, endoscopic, and endovascular therapy

Patient Case

PATIENT PROFILE:

- 55-year-old female with recent diagnosis of cirrhosis due to autoimmune hepatitis with possible PBC overlap
- Presented to the hospital with sudden onset nausea with hematemesis

Patient Case: History

- ▶ **Past Medical History:** Cirrhosis, Vitiligo, HLD
- ▶ **Family History:** no known FH of liver disease
- ▶ **Medications:** Ursodiol 300mg three times daily
- ▶ **Social History:** Rare alcohol use, former smoker, no drug use

Patient Case: Physical Exam

- ▶ Vitals: BP 90/52 HR 85 RR 18 SpO2 100%
- ▶ Physical Exam
 - ▶ Gen: Awake, alert. Retching into emesis bag.
 - ▶ HEENT: + scleral icterus, no conjunctival pallor, MMM
 - ▶ CVS: Regular rate
 - ▶ Resp: nonlabored
 - ▶ Abd: Soft, ND, NTTP. No rebound or guarding
 - ▶ Ext: No C/C/E
 - ▶ Neuro: AAO x3, no gross motor deficits.
 - ▶ Skin: + jaundice. Vitiligo of skin.

Patient Case: Labs

CBC

- ▶ WBC 9.14
- ▶ HGB 10.4
- ▶ Plt 190

PT/INR: 18.2/1.60

CMP

- ▶ Na 132
- ▶ BUN 20
- ▶ Cr 0.6
- ▶ CO2 20.6
- ▶ Albumin 2.6
- ▶ AST 167
- ▶ ALT 115
- ▶ AP 210
- ▶ T bili 12.6

MELD 3.0: 26

Discussion

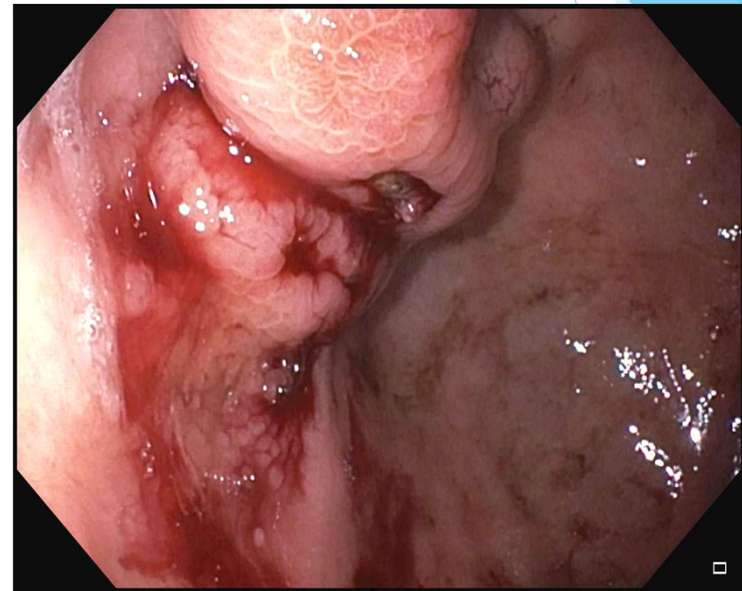
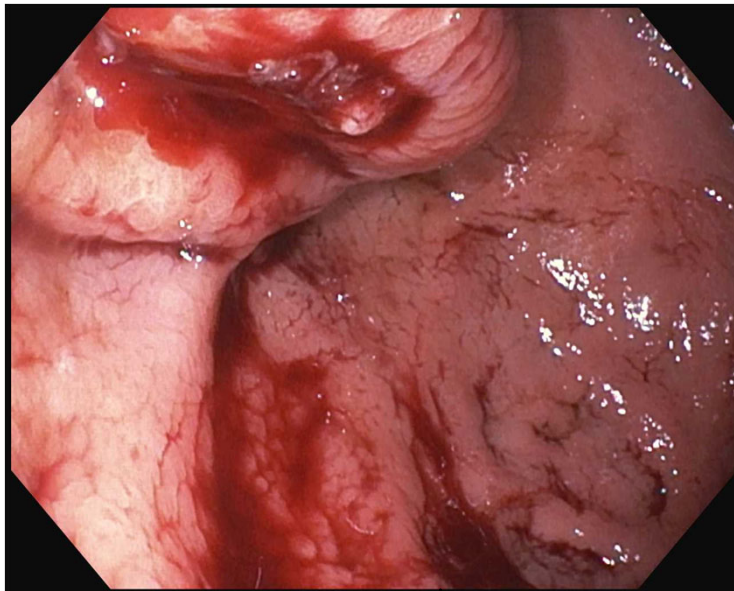
- ▶ What is our differential diagnosis for this patient?
- ▶ What would be your approach to management for this patient?
 - Imaging
 - Medication therapy
 - Procedure planning

Patient Case: Continued

- ▶ Patient was begun on Pantoprazole 40mg IV BID + IV Octreotide infusion
- ▶ Ceftriaxone IV for prophylaxis
- ▶ Plan for urgent EGD same day as presentation

EGD Reveals the Source

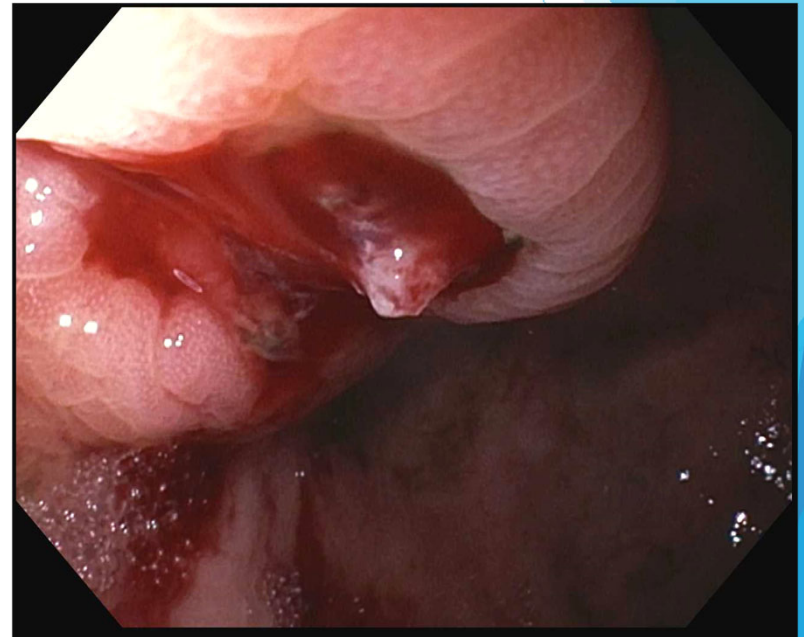
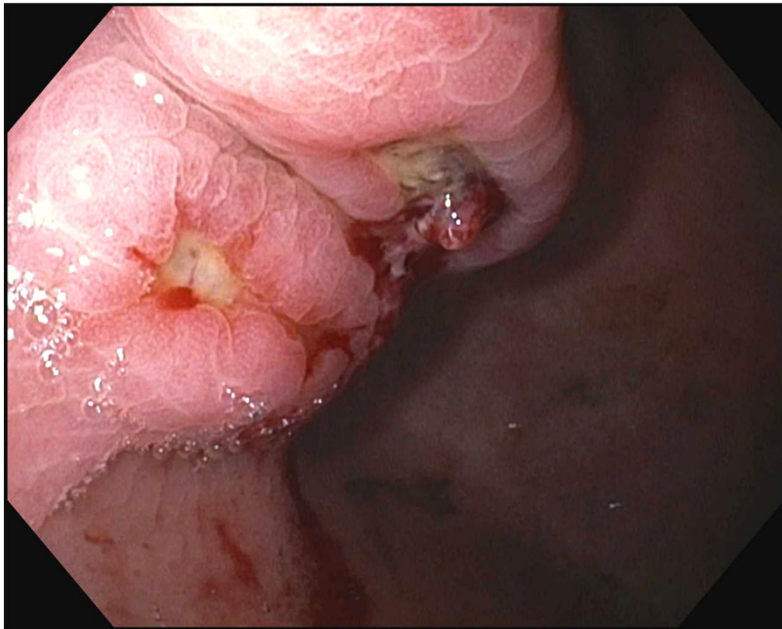
- Grade I varices were found in the lower third of the esophagus.



- Type 2 gastroesophageal varices (GOV2, esophageal varices which extend along the fundus) with oozing blood were found in the gastric fundus.

EGD Reveals the Source

- There were two areas of ulcerations: one on each gastric varix + one with oozing of blood.

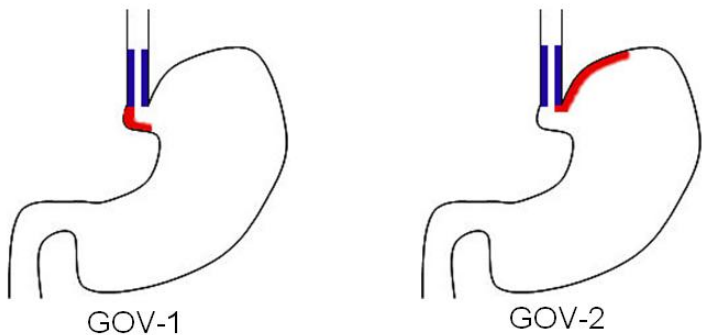


Discussion: Gastric Varices

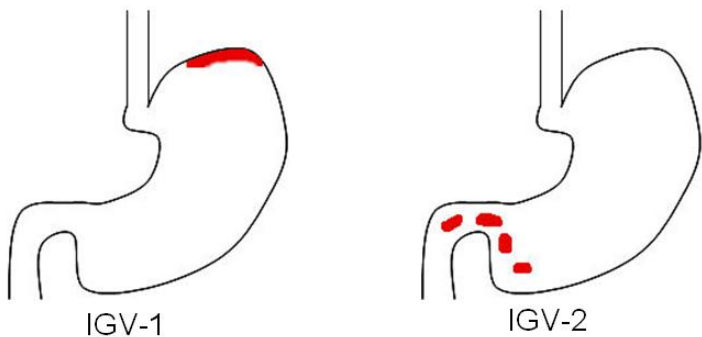
- ▶ What is the classification of gastric varices?
- ▶ What are etiologies of gastric varices?

Gastric Varices: Sarin Classification System

Gastro-esophageal varices (GOV)

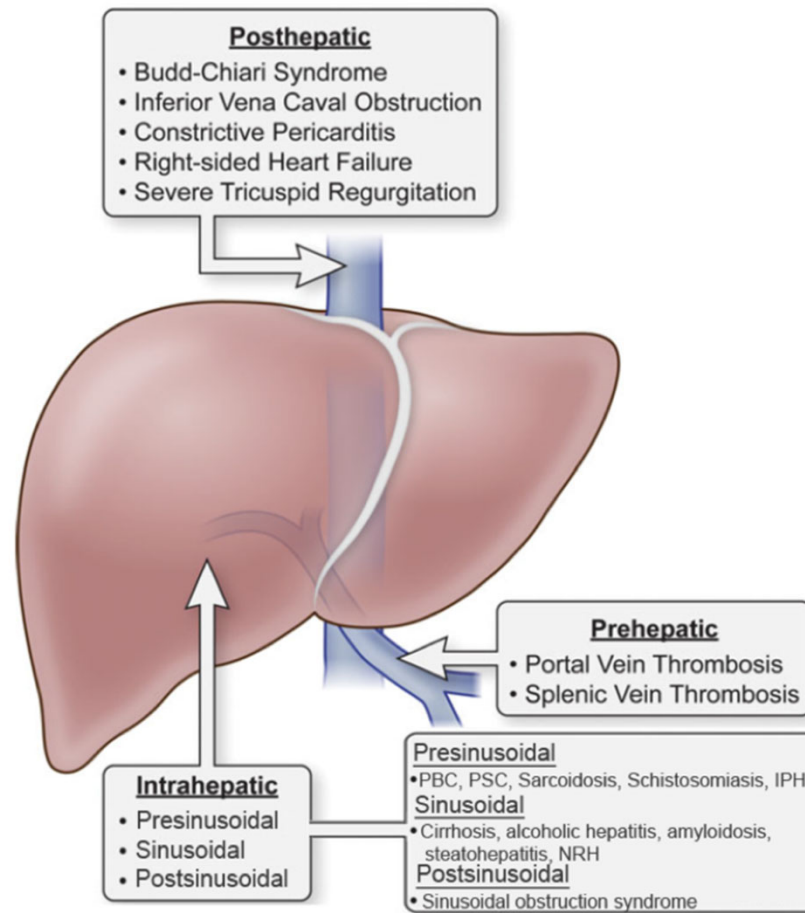


Isolated gastric varices (IGV)



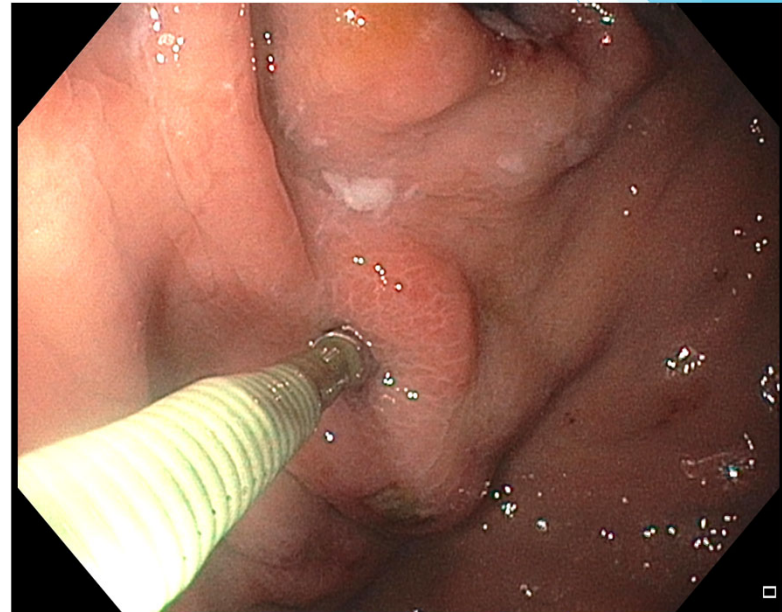
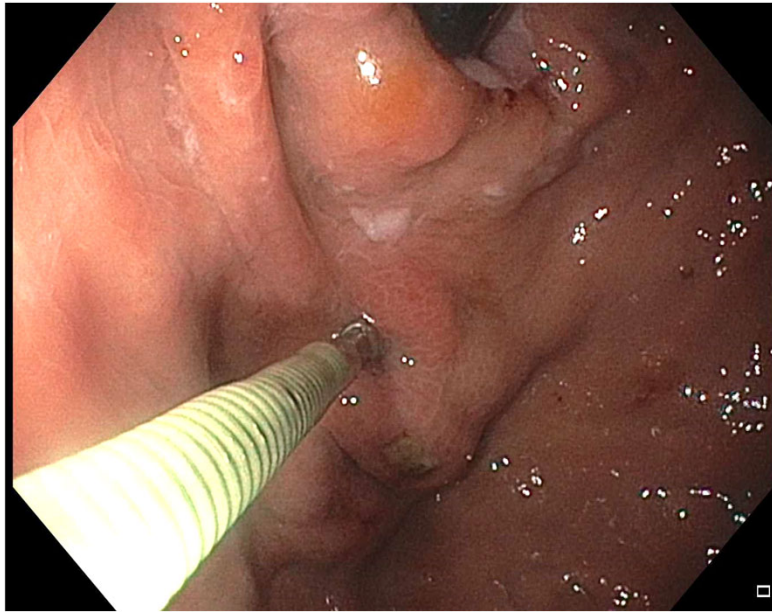
- ▶ GOV1: EV extending along the lesser curvature
- ▶ GOV2: EV extending into the fundus
- ▶ IGV1: Isolated fundal varices
- ▶ IGV2: Isolated ectopic varices elsewhere in the stomach or duodenal bulb

Gastric Varices: Etiologies



Case Presentation: Continued

- ▶ Injected with 2 mL cyanoacrylate for eradication of varices.



Discussion

- ▶ Injection of cyanoacrylate was used in this case. What are other endoscopic options available for management of gastric varices?

Discussion: Endoscopic Managements

Depends on the type of gastric varices

Band ligation

- ▶ Best for GOV1

Cyanoacrylate injection

- ▶ Polymerizes instantly upon contact with moisture
- ▶ Risk of systemic embolization
- ▶ Utilized for GOV2 and IGV1

EUS-guided Coil +/- glue injection

Case Presentation - Rebleeding!!

Following day:

- ▶ Hb decline from 10.4 ----> 8.7
- ▶ Vital signs: BP 105/58, HR 72, Temp 97.8
- ▶ Melena noted

What are next steps/options in the management??

Case Presentation: Continued

FURTHER IMAGING:

CTA Abdomen/Pelvis:

- Cirrhotic liver with sequela of portal hypertension, peri-gastric and peri-splenic varices.
- 2 splenorenal shunts originating from the L renal vein.

IR CONSULTATION:

- MELD 3.0 was 24 at this time
- Underwent CARTO of gastric varices from the left splenorenal shunts

Discussion

- ▶ This patient underwent CARTO. What other endovascular options are available for management of gastric varices? What helps IR determine what type of endovascular procedure to perform?

Patient Case: Continued

- Following procedure, patient was transferred to Newark for transplant evaluation.
- Ultimately, patient underwent OLT 2/2025

AASLD 2024 Guidance for Gastric Variceal Bleeding

1. Manage like esophageal variceal bleeding: vasoactive therapy, antibiotics, conservative transfusion, endoscopy within 12 hours
2. Obtain contrast-enhanced cross-sectional imaging to define portosystemic collaterals and venous thrombosis
3. For acute GOV2/IGV1 bleeding cyanoacrylate, TIPS, or retrograde obliteration are first-line options; retrograde obliteration preferred when TIPS is contraindicated
4. After use of cyanoacrylate as main therapy: add NSBB, repeat endoscopy every 2-4 weeks until obliteration, then surveillance
5. Isolated splenic vein thrombosis: evaluate for splenectomy, splenic vein stenting, or splenic artery embolization

Questions?

References

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High Yield Takeaways

1. GASTRIC VARICES $\neq$ Always CIRRHOSIS

- IGV should prompt evaluation of splenic vein

2. GOV2/IGV1

- Managed differently from GOV1

3. CT/MRI IMAGING

- To understand anatomy/shunts prior to definitive therapy to determine what options are available

4. ACUTE BLEEDING VS DEFINITIVE TREATMENT

- First stop the bleeding (cyanoacrylate/EVL/Blakemore)
- Then eliminate variceal circulation (TIPS/BRTO/CARTO)

Discussion: Endovascular Options

TIPS:

- Creates a shunt from a hepatic vein to the portal vein, lowering the portosystemic gradient and diverting away from the varices

BRTO (Balloon-Occluded Retrograde Transvenous Obliteration):

- Occlusion of balloon in shunt to stop the outflow
- Typically sclerosant is injected after and stays in the varix
- Balloon is inflated in the gastroduodenal shunt to block outflow and stays inflated for a dwell period which the sclerosant damages the endothelium and the stagnant blood thromboses. Traditionally left in place, and removed at next procedure (4-24 hours later) and patient required to remain inpatient

CARTO (Coil-Assisted Retrograde Transvenous Obliteration):

- Use of coils rather than balloon to occlude shunt to stop outflow

Discussion: TIPS vs BRTO/CARTO

Factor	Favors TIPS	Favors BRTO / CARTO
MELD-Na	Preserved (MELDNa <20)	MELDNa >20 or FIPS >0.92
Hepatic encephalopathy	Absent	Present
Ascites / esophageal varices	Significant ascites, large EV	Significant HE
Anatomy	No shunt required	Requires gastroduodenal shunt

The AASLD IR guidance states CARTO or PARTO have lower complication profiles than traditional BRTO and may be preferred at experienced institutions (as it is a single session, no indwelling balloon, no risk of balloon rupture, and coils adapt to shunt size) and advises close surveillance for portal hypertensive complications after these procedures.