

Endoscopic management of Liver Disease

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Endoscopic management of liver disease

- Esophageal varices
- Gastric varices
- Ectopic varices
- Portal gastropathy/GAVE
- EUS guided liver biopsy
- EUS evaluation post BRTO

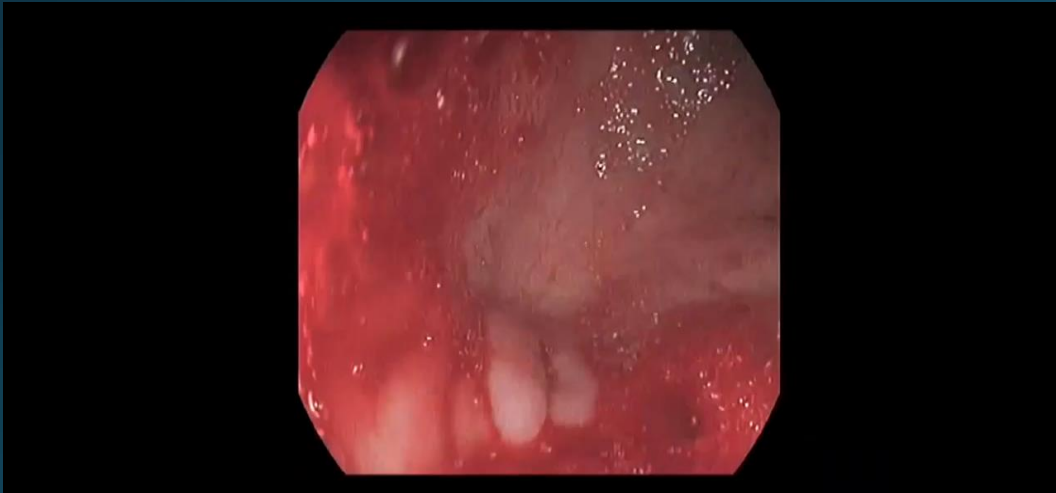
Esophageal variceal bleeding

- Endoscopic therapy is the treatment of choice for active variceal hemorrhage
- EVL and ES are initially successful in > 70% of patients
- complications with EVL are less than with ES (11 versus 25%)
- EVL for subsequent elective endoscopic treatment sessions
- EVL should be repeated every one to eight weeks until obliteration

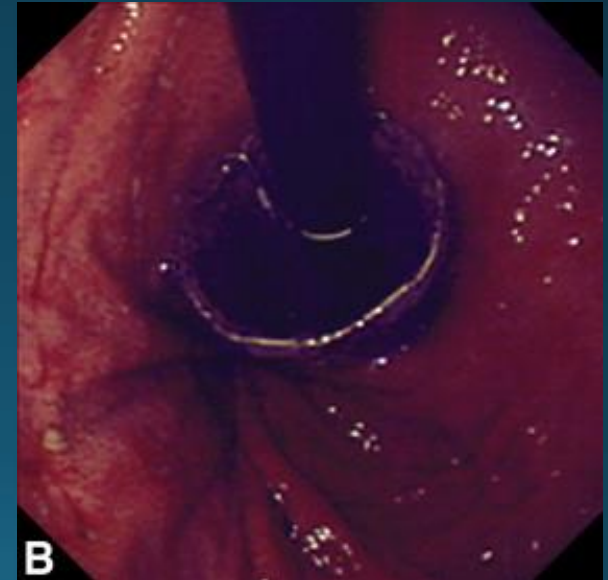
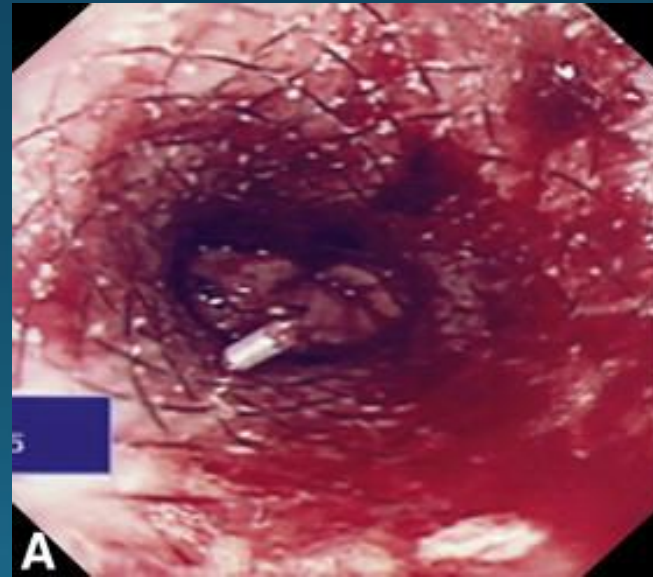


Esophageal varices: novel endoscopic approaches

- endoscopic application of hemostatic powder
- self-expanding metal stents (SEMS)

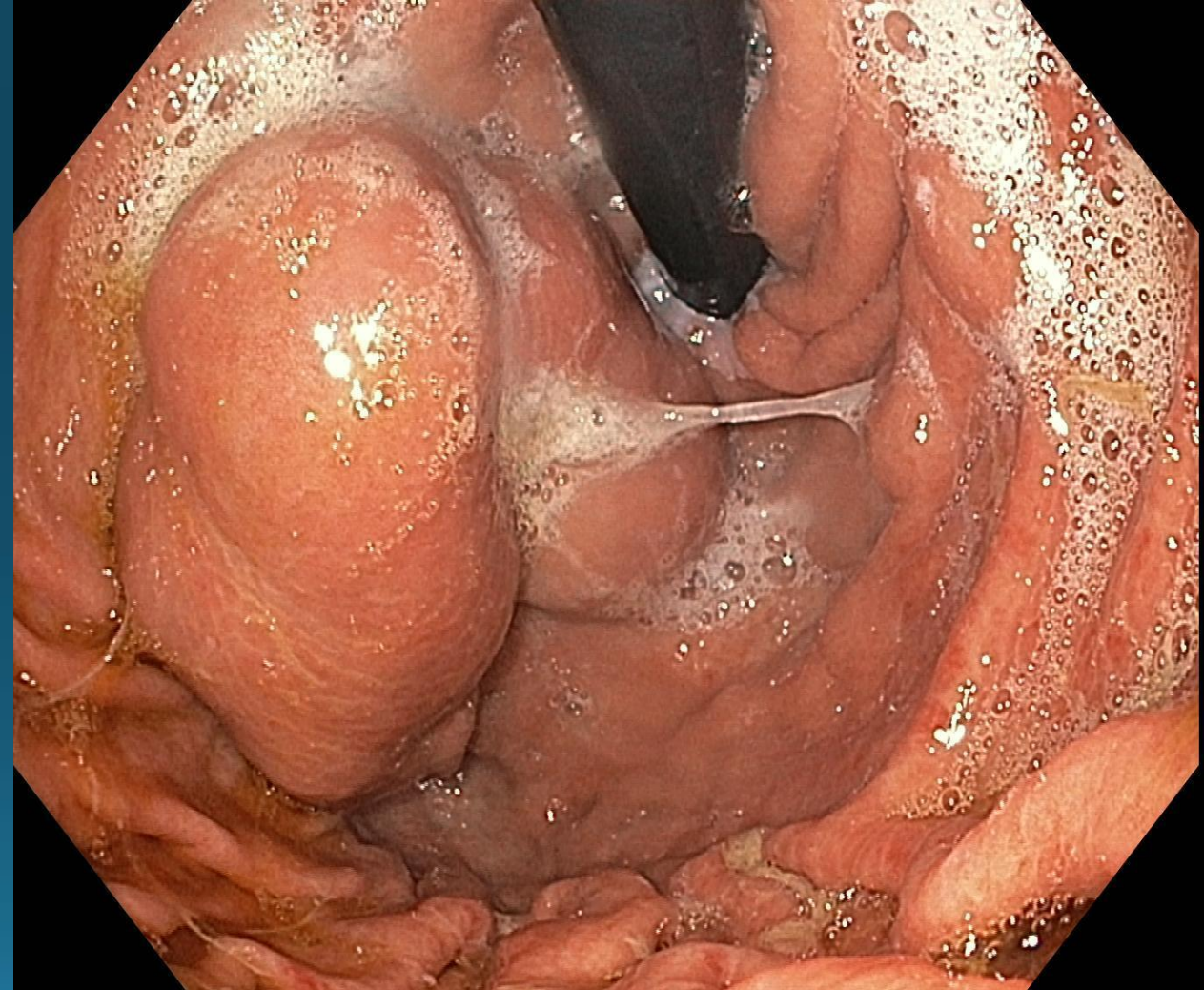
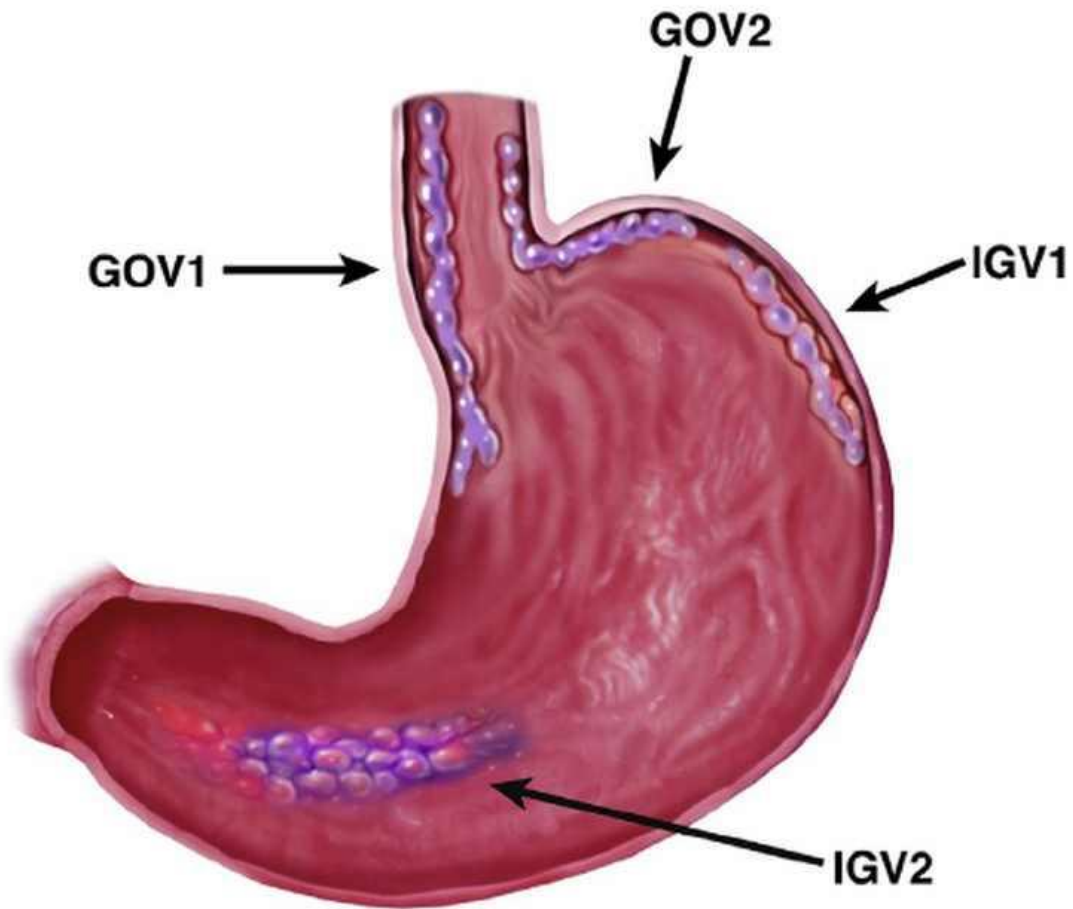


Gastrointest Endosc. 2013 Nov;78(5):769-73;



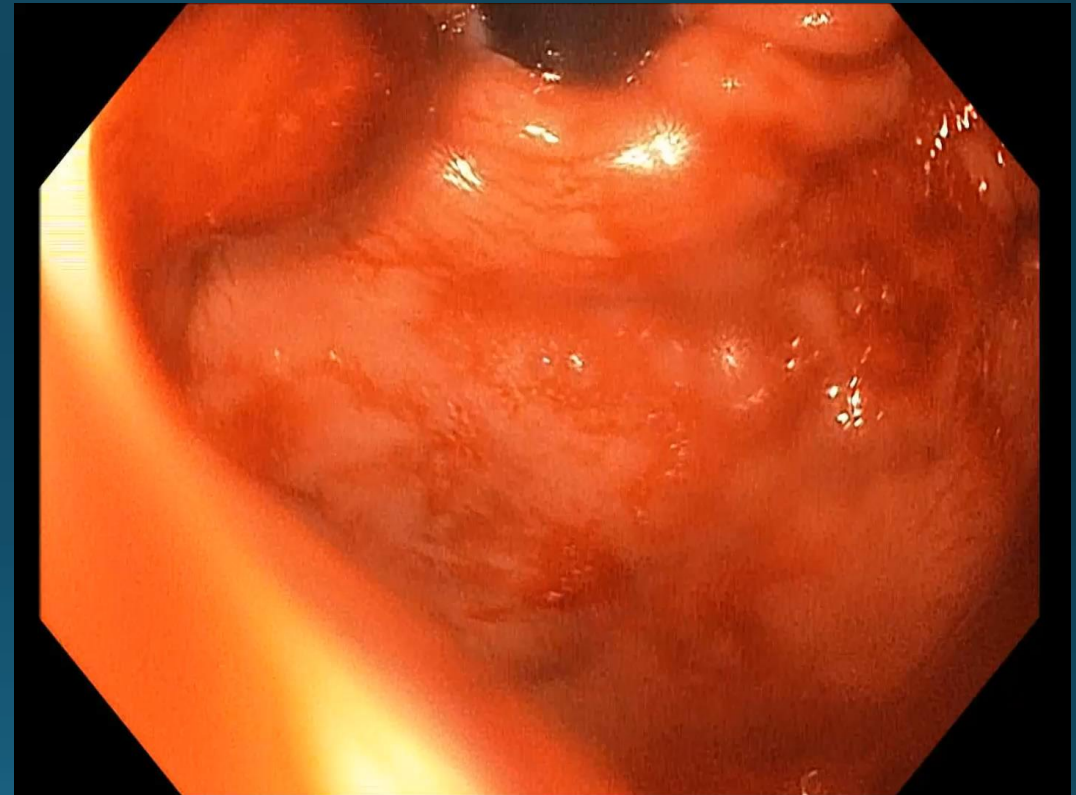
Gastrointest Endosc. 2010;71(1):71

Classification of gastric varices



Endoscopic management of gastric varices:

- Cyanoacrylate (CYA) injection is preferred approach
- EVL an option for GOV₁
- EUS guided coil application
- Combined coil and glue injection
- Fibrin sealant/thrombin injection

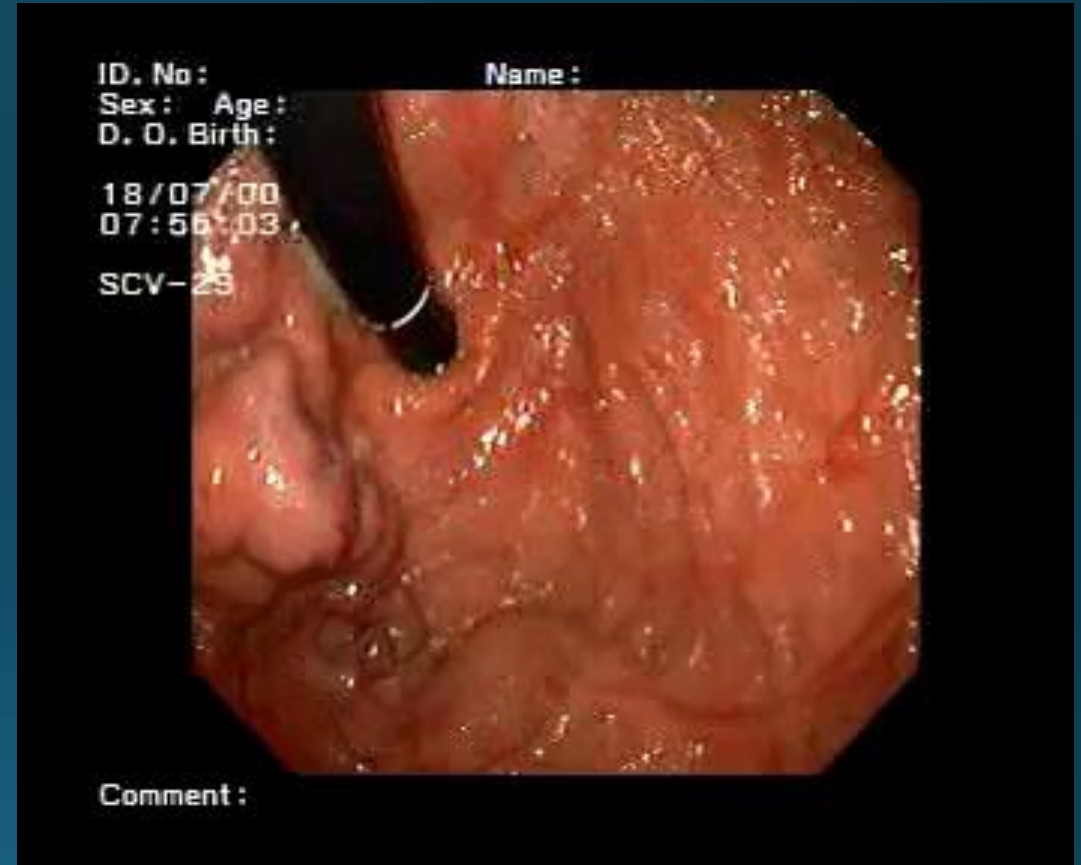


Cyanoacrylate preparations available for medical use

Trade name	Manufacturer	Active component	Sold as	Polymerization rate	Requires lipiodol
Indermil	Covidien	N-Butyl-2 cyanoacrylate	0.5 ml/ampule	Fast	Yes
Histoacryl	TissueSeal	N-Butyl-2 cyanoacrylate	0.5 ml/ampule	Fast	Yes
Dermabond	Ethicon	2-Octyl-cyanoacrylate	0.5 ml/ampule	Slow	No
SurgiSeal	Pfizer	2-Octyl-cyanoacrylate	0.5 ml/ampule	Slow	No

Cyanoacrylate (CYA) injection for gastric varices:

- Exact approach is not standardized
- Dilution of N-butyl-2-CYA with Lipiodol (~1:1)
- limiting the volume to 1.0 mL per injection to minimize the risk of embolism
- repeating intravariceal injections of 1.0 mL each until hemostasis was achieved
- initial hemostasis of bleeding gastric varices in 80% to 90%
- more effective than BL or sclerotherapy
- Equivalent to TIPS
- superior to BL and b-blocker therapy for secondary prophylaxis against rebleeding



EUS guided CYA injection for gastric varices

- enables precise delivery of glue into the varix lumen confirmation of vessel obliteration with Doppler examination
- GV obliteration > 90%
- EUS-guided procedures can be safely performed in cases of active bleeding
- No comparison of EUS-guided glue injection with glue injection without EUS guidance is available



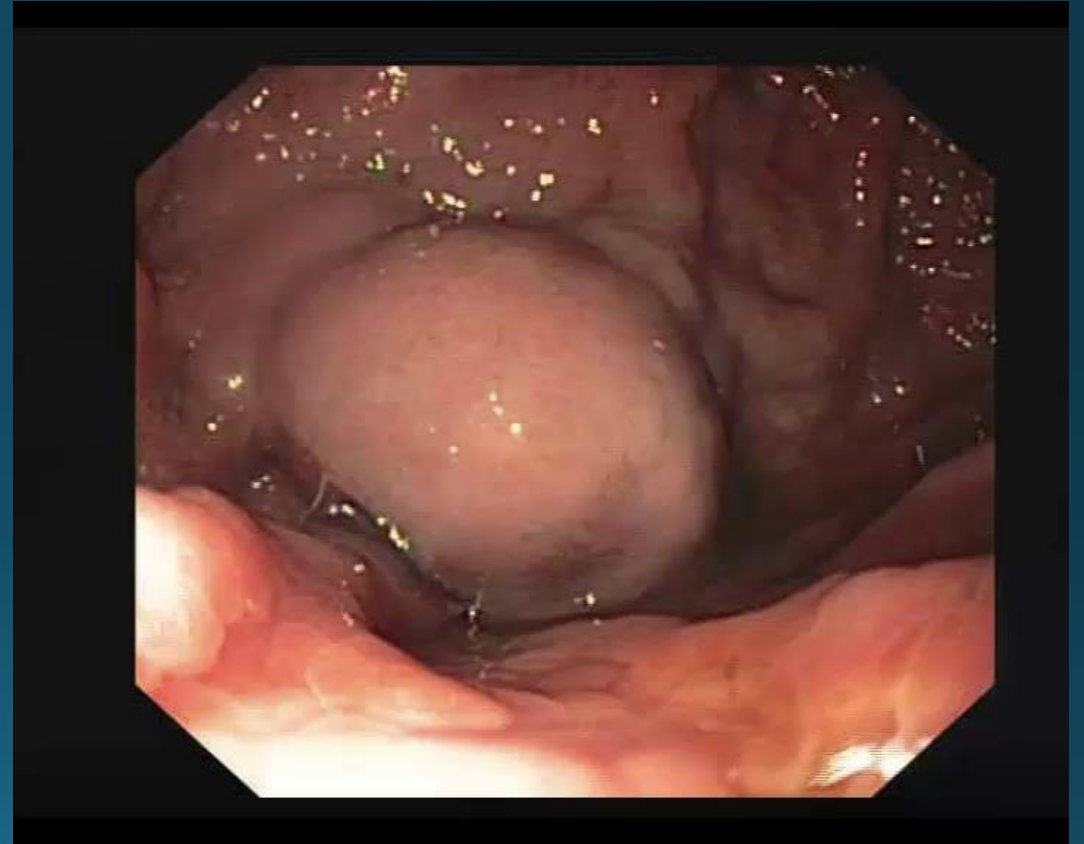
Complications of CYA injection



- Rebleeding < 5%
- Ulcer formation < 1%
- Distant emboli < 1%
 - Exact incidence uncertain
 - Often asymptomatic
 - Relative contraindication in the presence of PSS and/or PVO

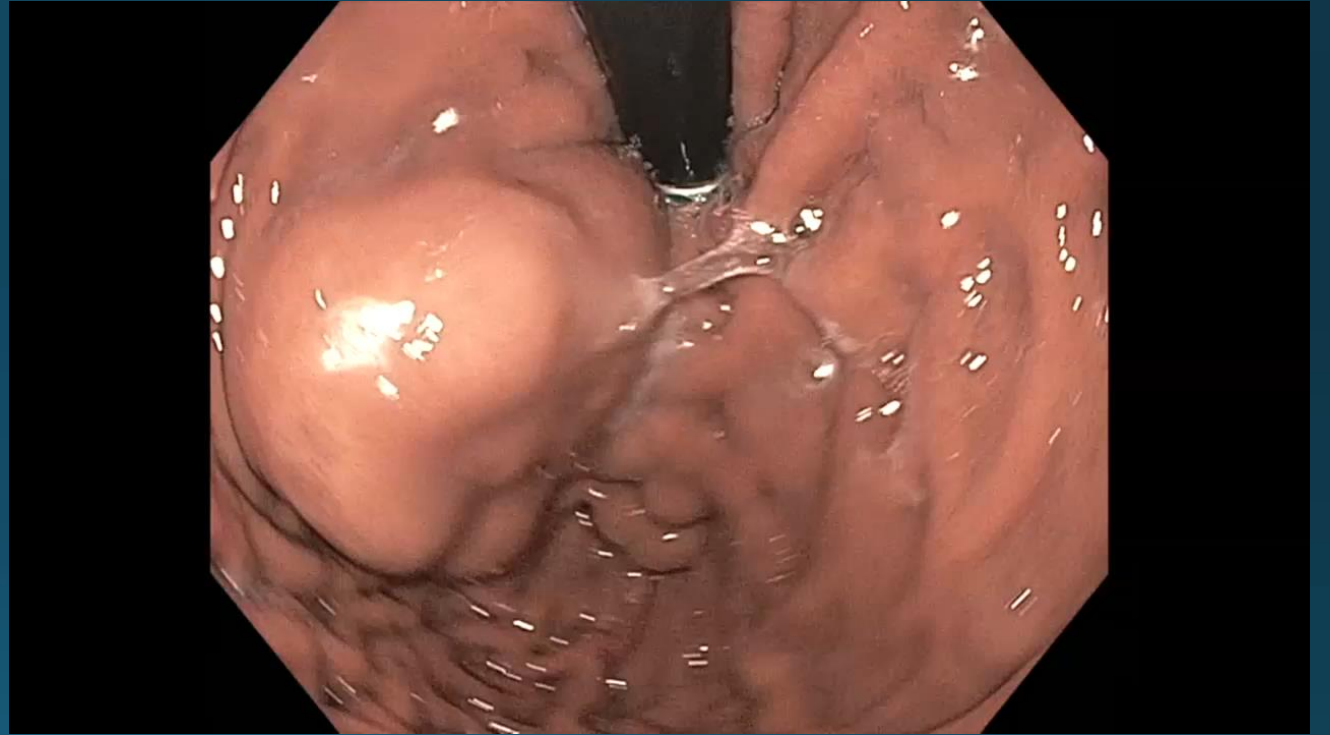
EUS guided coil injection into gastric varices

- 19 G needle
- coils for intravascular use
- coil deployment is effective (varix obliteration > 90%) in small series
- Coil deployment tends to have a lower adverse event rate



Combined EUS guided coil and CYA injection

- highly effective for hemostasis in active bleeding
- Effective in primary and secondary re-bleeding prophylaxis
- safe and may reduce the risk of CYA embolization



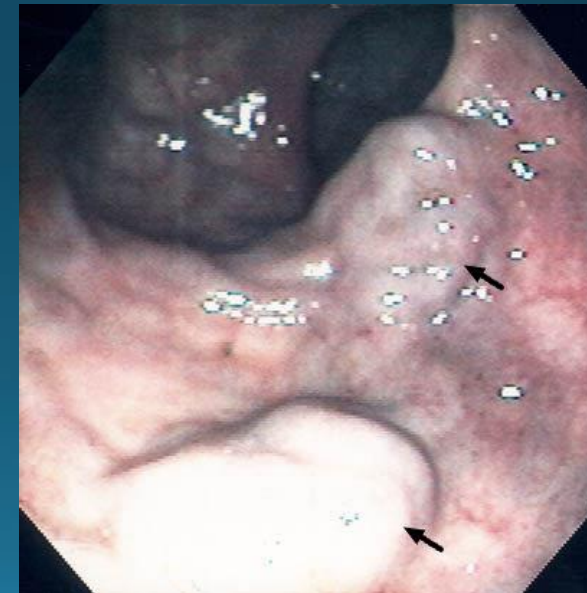
Fibrin sealant/thrombin

- injected for arrest of variceal bleeding in small series
- achieved hemostasis in bleeding gastric varices in 75% to 94%
- have not been adequately evaluated compared with standard therapy used today
- product labeling in the United States does not endorse intravascular injection



Ectopic varices

- Duodenal, rectal, peri-stomal varices
- optimal treatment for bleeding ectopic varices is uncertain
- Endoscopic treatment is often unsuccessful
- Portal decompression recommended:
 - TIPS



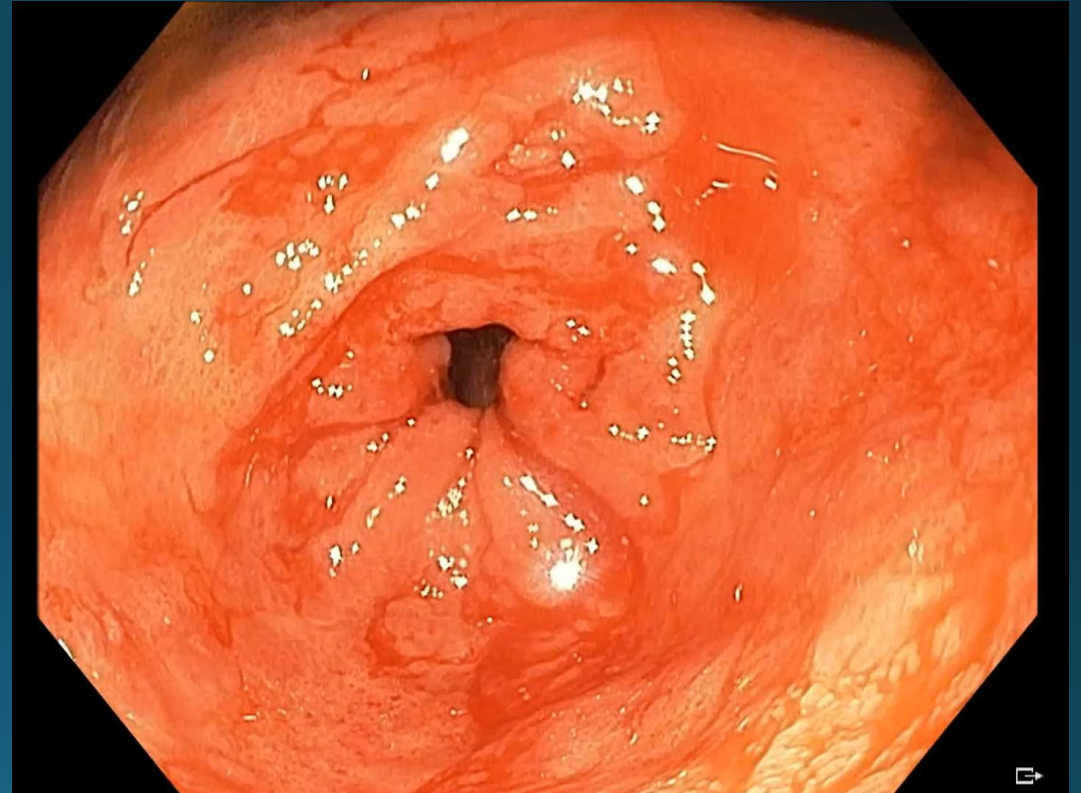
Portal hypertensive gastropathy (PHG)

- chronic bleeding from PHG occurs in up to 60%
- occult blood positivity and/or iron deficiency anemia
- Refractory bleeding due to PHG is treated with portal decompression
- Efficacy of TIPS placement for PHG is uncertain
 - TIPS associate with an improvement in endoscopic findings and a decrease in transfusion requirement 75%

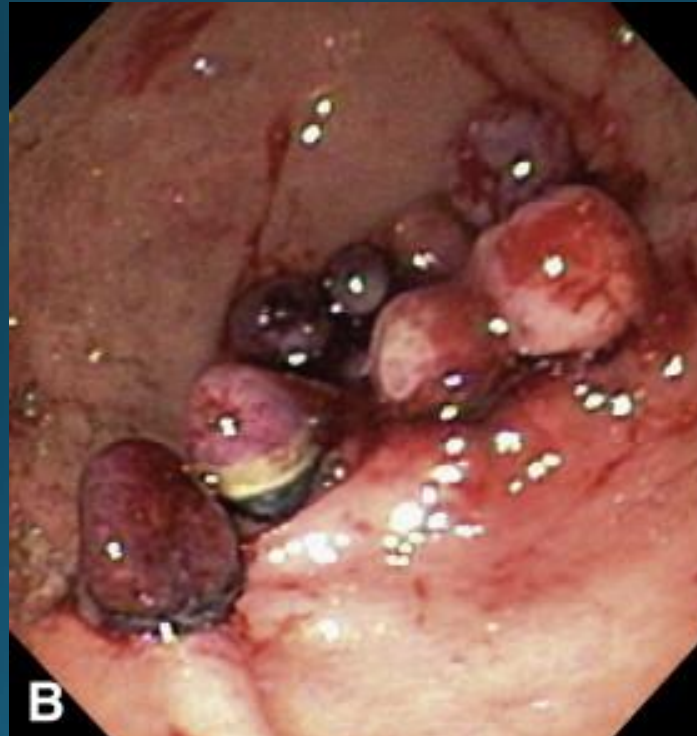
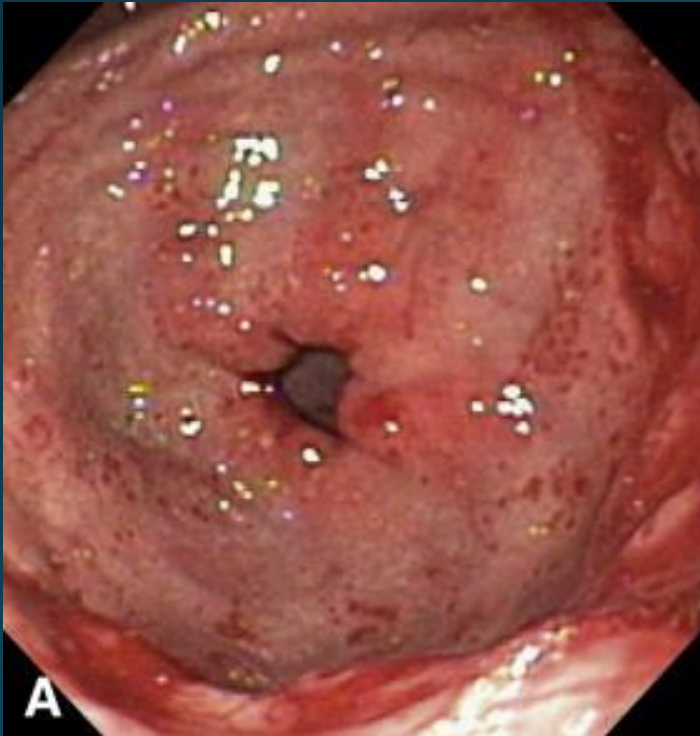


Gastric antral vascular ectasias (GAVE)

- 30% of patients with GAVE may also have cirrhosis
- may be difficult to differentiate from PHG
- GAVE is pathologically different from PHG :
- GAVE can occur in locations other than the gastric antrum
- GAVE is treated with thermoablative endoscopic therapy: APC, band ligation, RFA, cryotherapy, Nd:YAG laser



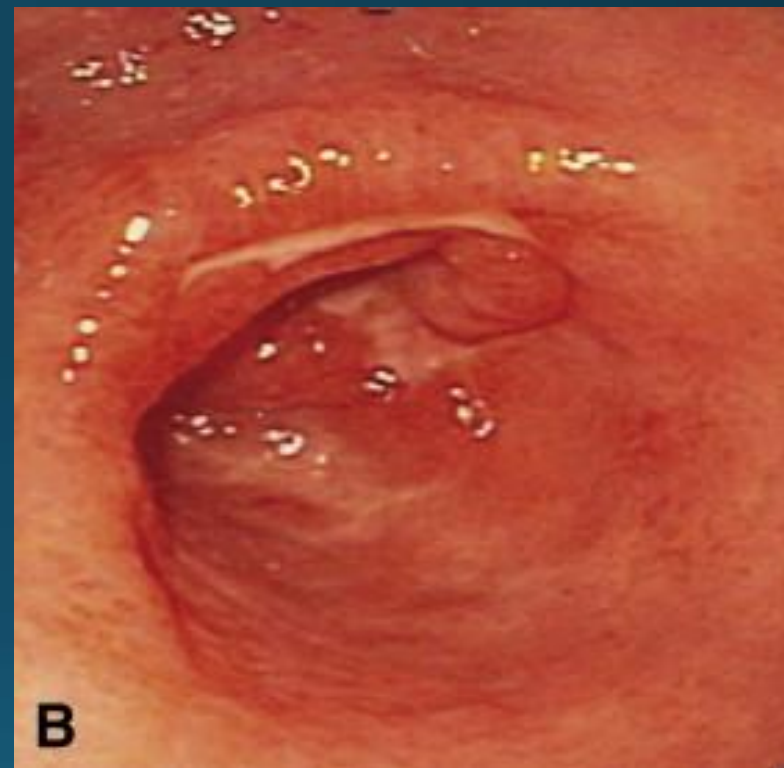
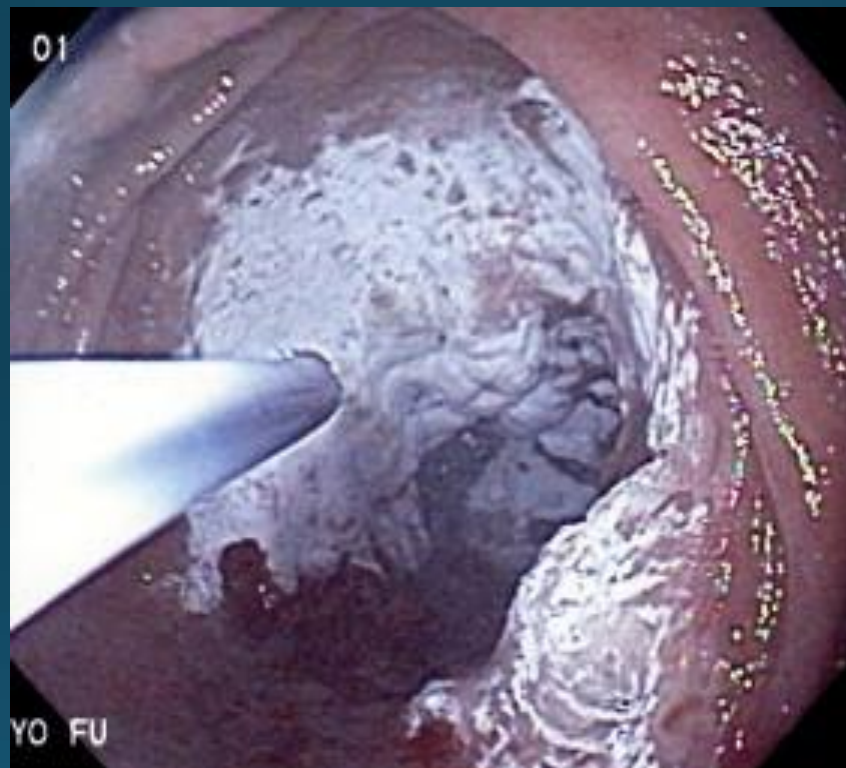
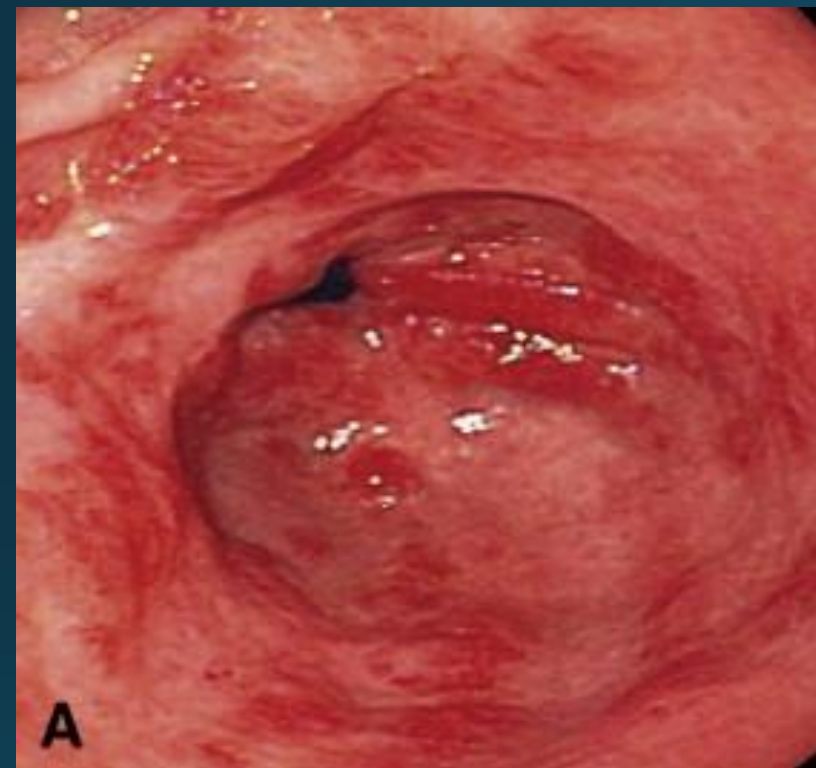
Band ligation for GAVE



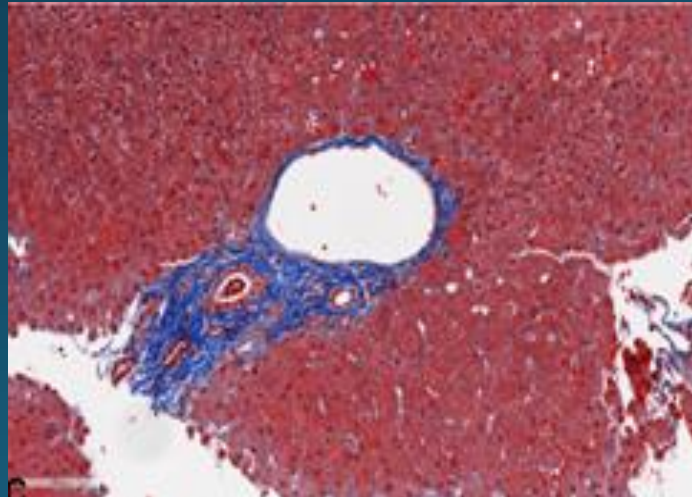
Radiofrequency ablation for refractory gastric antral vascular ectasia



Cryotherapy for GAVE



EUS guided liver biopsy (EUS-LB)



- High yield of EUS-LB by 19-gauge FNA needle
- EUS guided LB comparable to percutaneous or transvenous
- Widely separated lesions can be easily sampled
- Role of EUS-LB will increase

Gastrointest Endosc 2016; 83:360

Gastrointest Endosc 2016; 83:347

ERCP/EUS evaluation post liver transplant

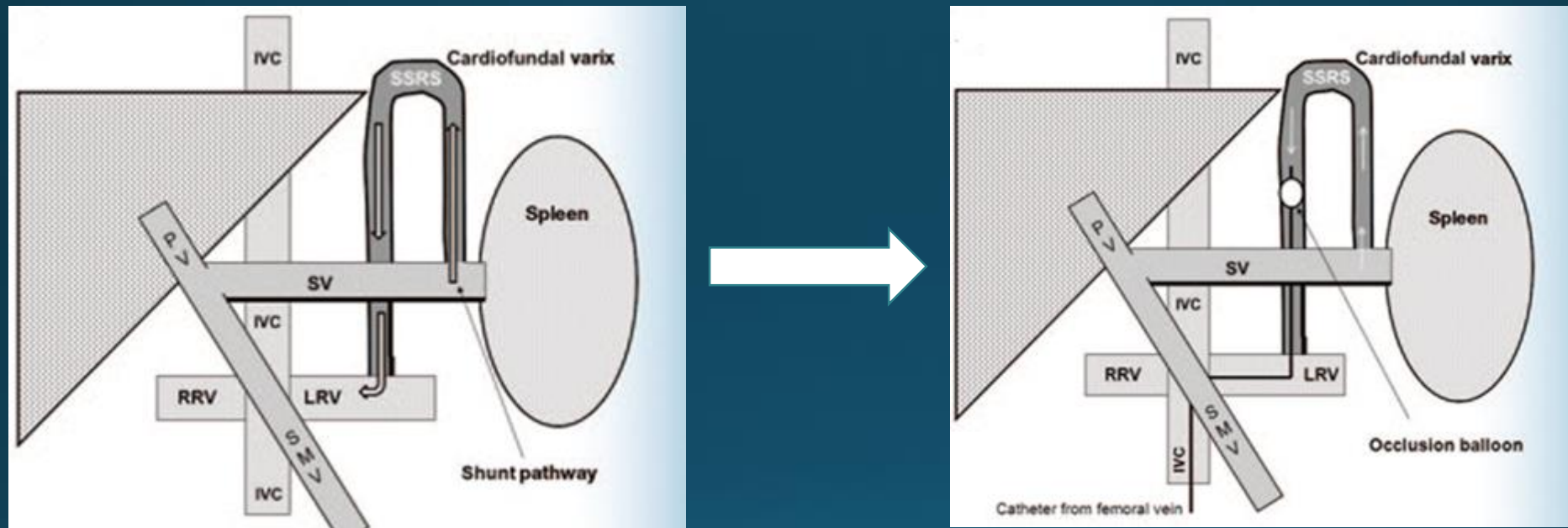


Portal decompression



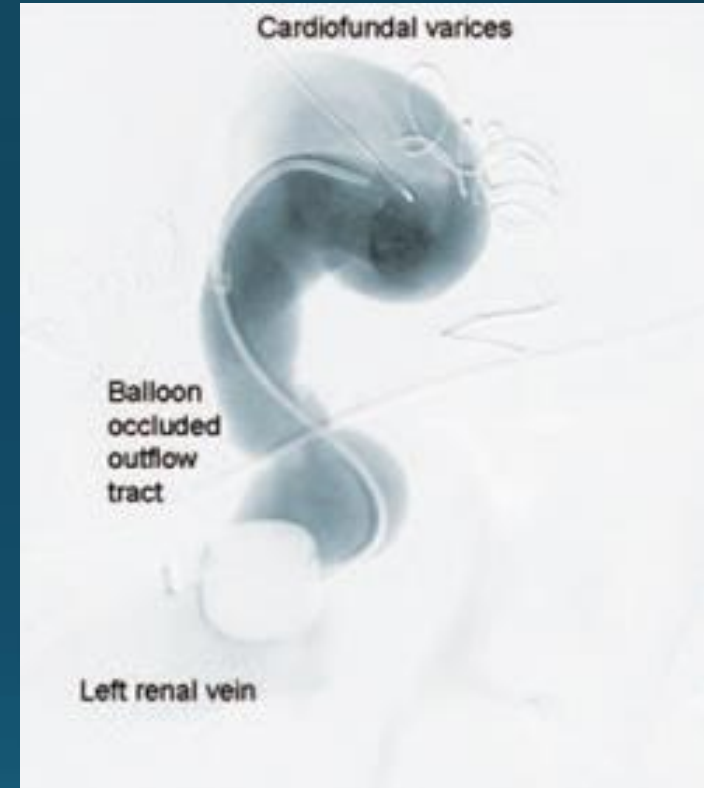
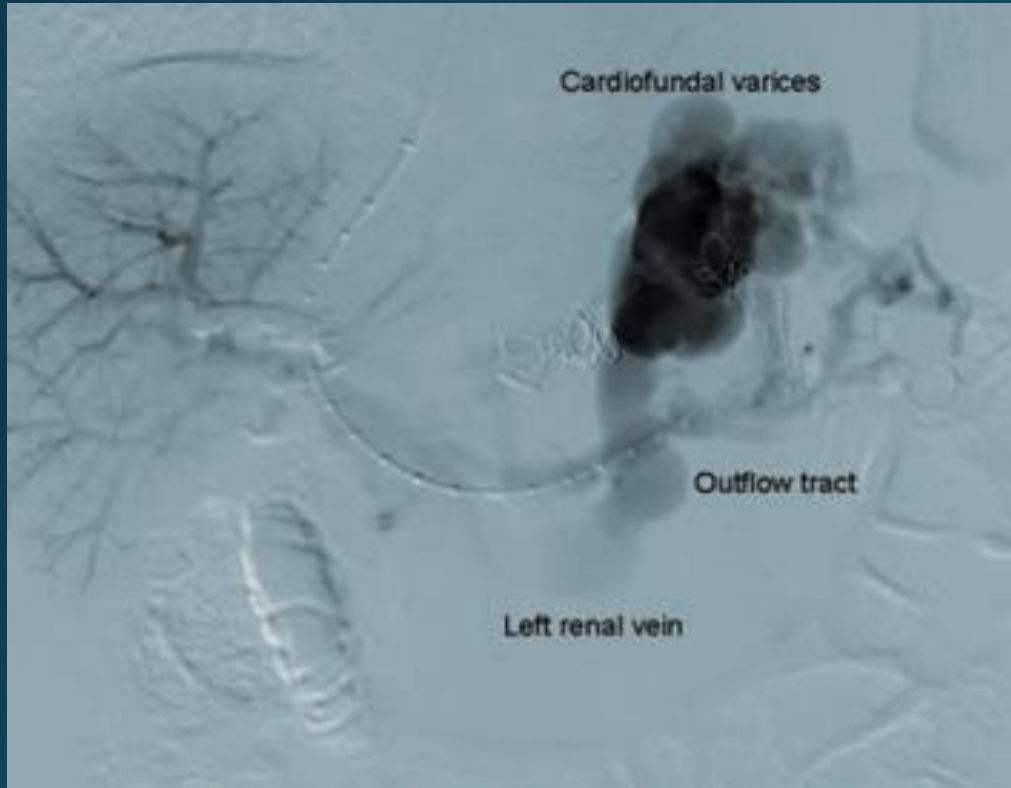
- Transplantation
- TIPS
- BRTO
- Shunt surgery
- Splenectomy/splenic artery embolization (for sinistral hypertension)

Balloon-occluded retrograde transvenous obliteration (BRTO)



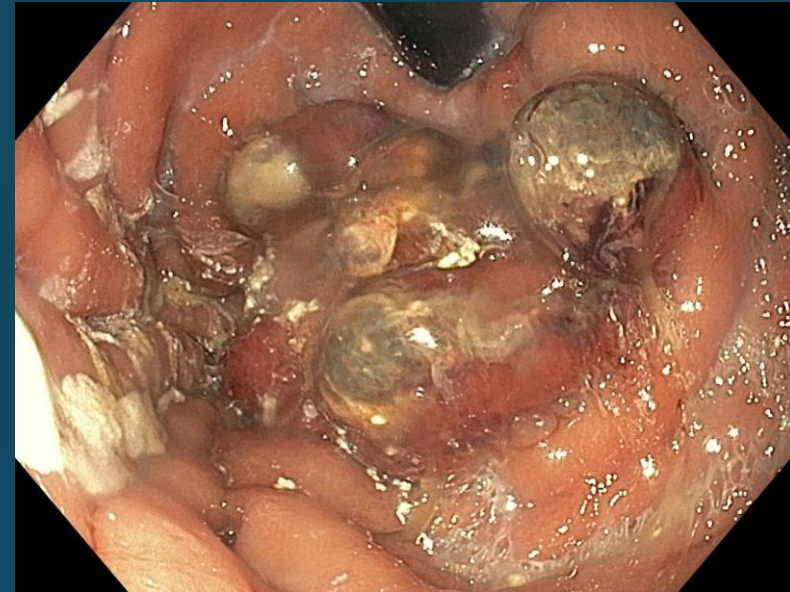
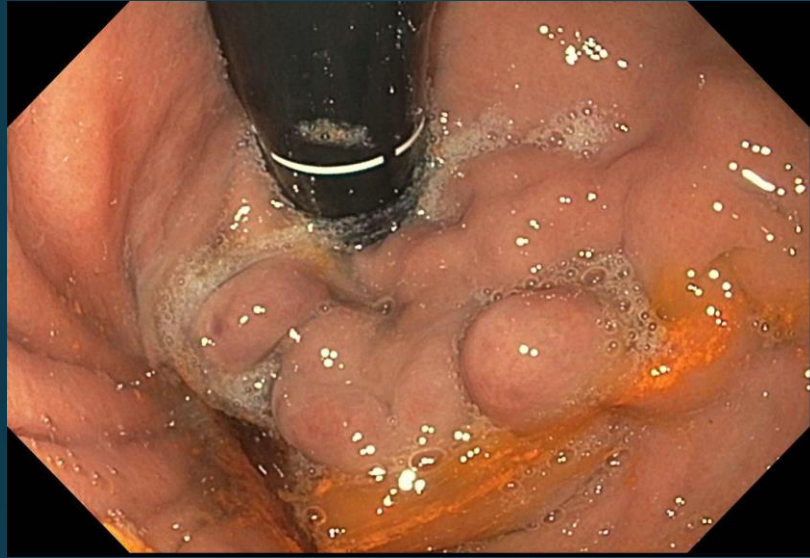
- Access to gastric varices achieved through left renal vein
- shunt occlusion by a balloon followed by endovascular injection of sclerosing agent and/or coils directly into gastric variceal system
- BRTO augments perfusion of the hepatic parenchyma

BRTO for gastric variceal bleeding



- Technical and clinical success rate for BRTO was >90 %
- Major complication rate was 2.6 %
- Esophageal variceal recurrence rate was 33.3 %

EUS evaluation post BRTO



Summary: management of gastric varices

- multidisciplinary approach when possible
- early abdominal imaging in those with known or suspected bleeding cardiofundal varices to define the vascular anatomy
- a role for endoscopic and IR management strategies in selected cases
- Future prospective studies needed
- aspects of the methodology need to be refined:
 - the type of cyanoacrylate
 - the type of angiographically administered sclerosants
 - the duration of balloon occlusion