Angiographic Findings and Outcomes of Endovascular Embolization for Acute Non-variceal Upper Gastrointestinal Bleeding: A Tertiary Center Experience

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Objectives

Endovascular embolization is indicated for patients with **acute upper gastrointestinal bleeding (UGIB)** that are not feasible for or had failed endoscopic treatments. We aim to review the **angiographic findings, technical success, clinical outcomes and safety** of endovascular embolization for acute non-variceal UGIB.

Materials and Methods

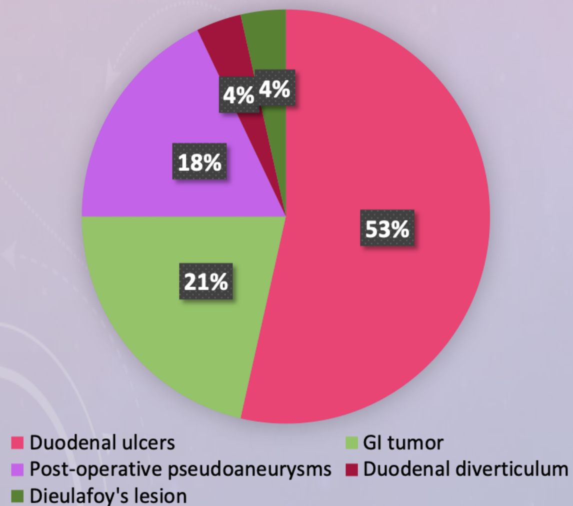
Retrospective review of patients who underwent endovascular embolization for acute non-variceal UGIB at our institution from June 2022 to June 2025 was performed. **UGIB is defined as bleeding proximal to ligament of Treitz**. Patient demographics, etiology of UGIB, angiographic findings and indication for embolization, type of embolic agents, procedure-related complications, rebleeding and mortality within 30 days were reviewed. Technical success was defined occlusion of the vessels accounting for hemorrhage. **Association of etiology of UGIB, angiographic findings and indications for treatment with rebleeding and mortality** were analyzed using Fisher exact test. A P value of <0.05 was considered statistically significant.

Results

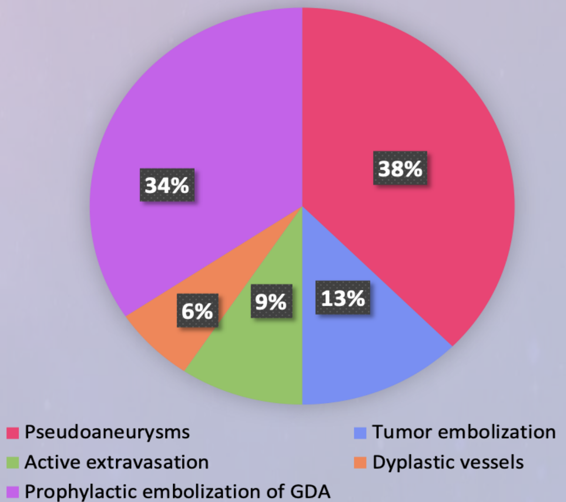
A total of 28 patients underwent 32 endovascular procedures

- Male= 19, female= 9; Mean age 70, range 40-94

Etiology of UGIB



Angiographic Findings and Indication of Treatments



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Outcomes

Technical success = 100%

Re-bleeding within 30 days = 16% (n=4)

- Re-intervention in 2 patients
- Surgical hemostasis in a patient with post-gastrectomy leakage
- Conservative treatment in a patient with advanced cancer

Mortality within 30 days = 32%

Causes of death:

- Hospital-acquired pneumonia in 3 patients
- End-stage malignancy in 4 patients

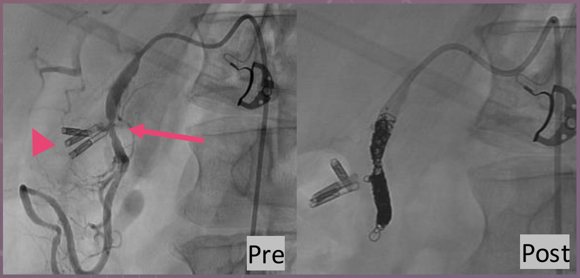
Procedure-related complications = 0

Factors associated with re-bleeding/ mortality

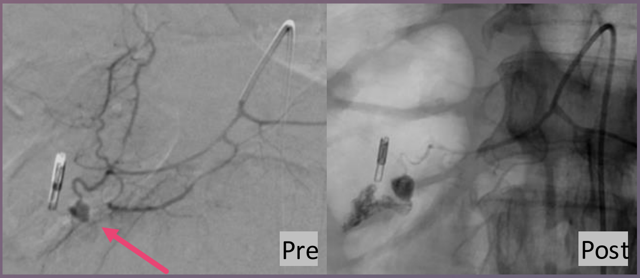
- **Post-operative pseudoaneurysm** associated with rebleeding*
- No etiology or angiographic findings associated with mortality
- Results are limited by small sample size

Etiology of UGIB/ Angio- findings	Rebleeding n=	P value
Duodenal ulcers	0	0.16
GI tumor	1	0.51
Post-op pseudoaneurysm	4	**0.015***

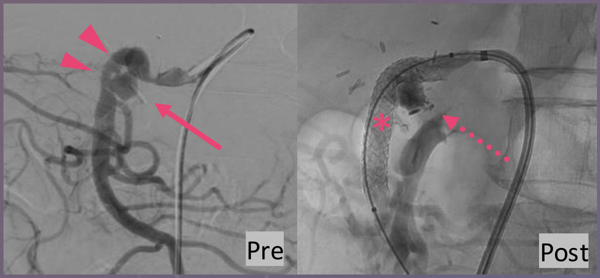
Etiology of UGIB/ Angio- findings	Mortality n=	P value
Duodenal ulcers	3	0.13
GI tumor	3	0.35
Post-op pseudoaneurysm	3	0.29



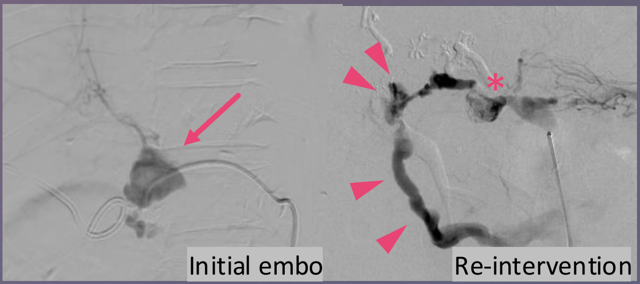
Case 1. 61/M, duodenal ulcer failed endoscopic hemostasis. Noted hemostatic clip placed during OGD to guide embolization (arrow head). Pseudoaneurysm arising from gastroduodenal artery (GDA) noted adjacent to the hemostatic clip (arrow). Coiling performed across the origin of pseudoaneurysm.



Case 2. 62/M, CA ampulla with bleeding ulcer, failed endoscopic hemostasis. Superior mesenteric angiogram (SMA) revealed pseudoaneurysm with extravasation (arrow), embolized with 33% NBCA glue.



Case 3. 66/F, post Whipple operation UGIB and anastomotic leakage. Angiogram showed pseudoaneurysm arising from SMA (arrow), also noted the irregularity along SMA (arrowheads). The pseudoaneurysm was embolized with 33% NBCA glue (dash arrow) and stent graft placed covering the dysplastic SMA (*)



Case 4. 63/M, post gastrectomy right hepatic pseudoaneurysm bleeding into duodenal stump. Right hepatic angiogram revealed large pseudoaneurysm (arrow), it was embolized with NBCA glue. Patient had re-bleeding, angiogram revealed partial recanalization of the pseudoaneurysm (*) with significant extravasation into duodenum (arrowheads).

Conclusion

Acute non-variceal UGIB consist of variable etiologies and angiographic findings. Endovascular embolization is **effective and safe** for treatment with high technical and clinical success rate, and low complication rate.