

# Case of the Day

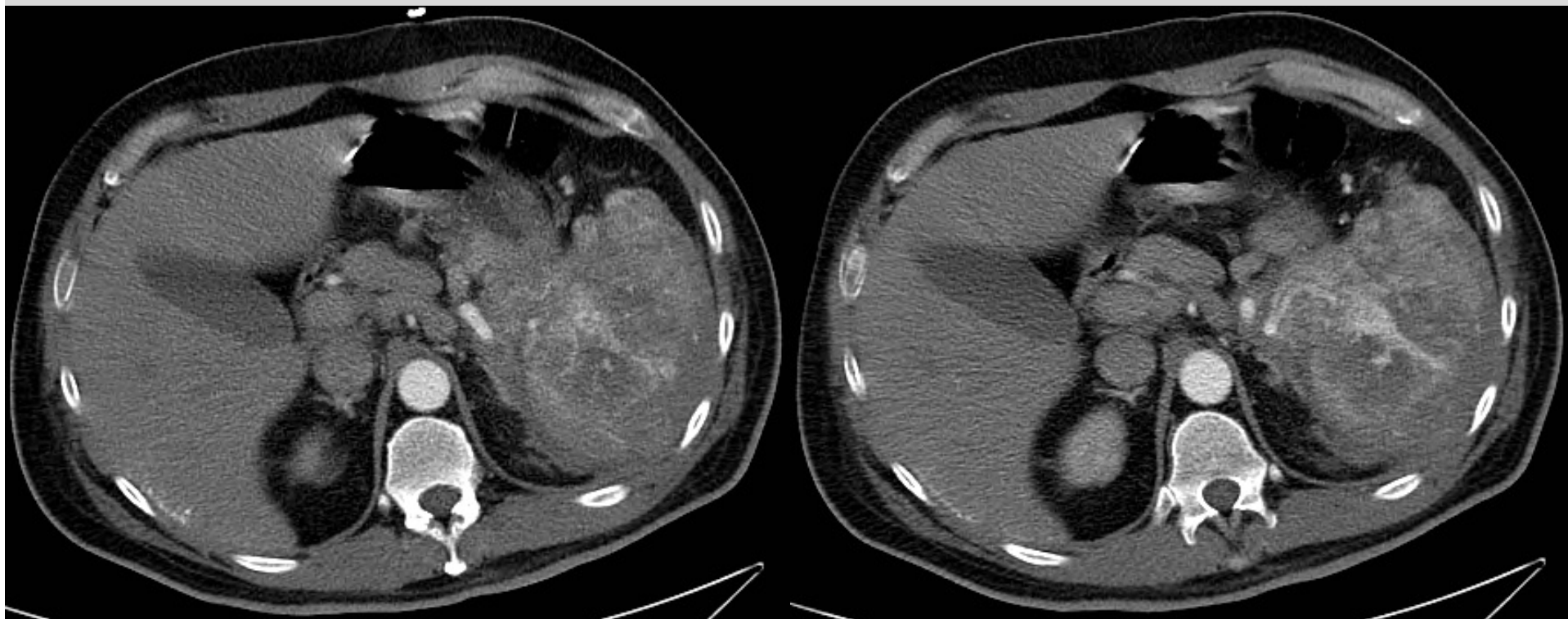
## August 2014

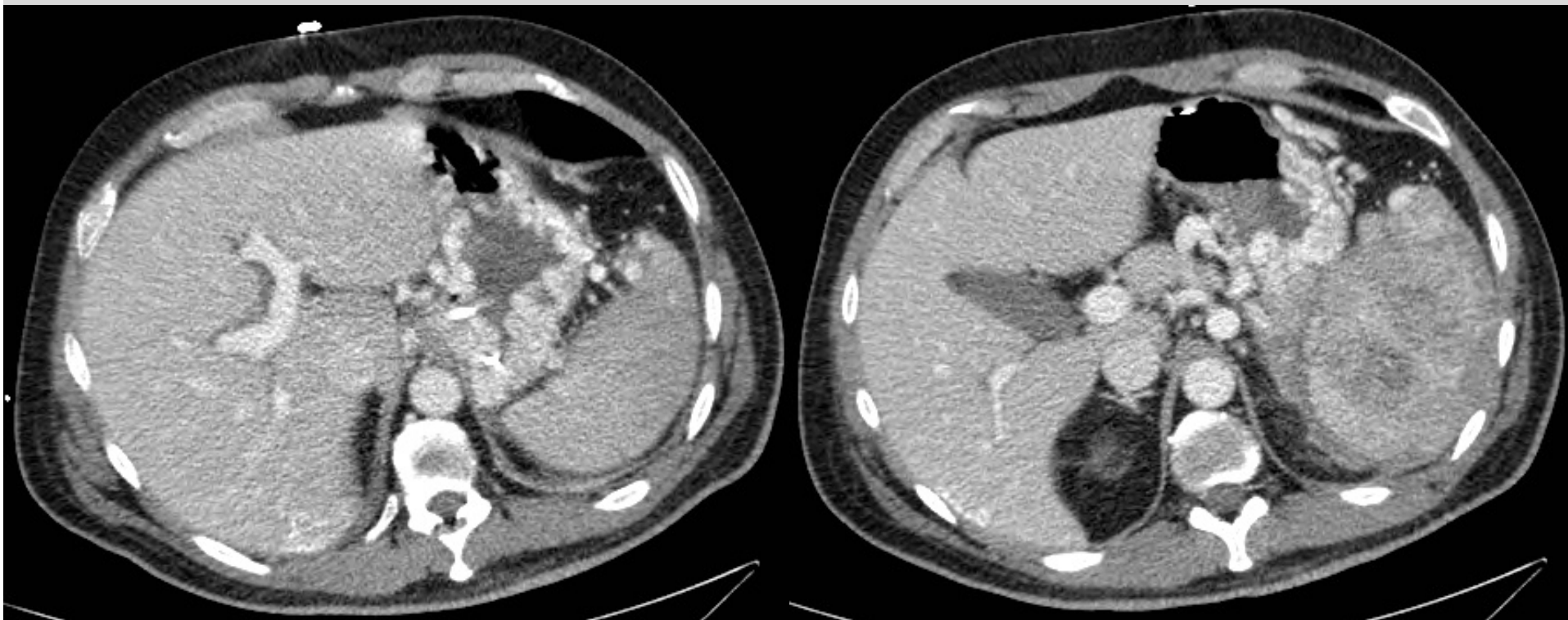
Case courtesy of Drs. M. Mongeon and L. Bouchard  
CHUM

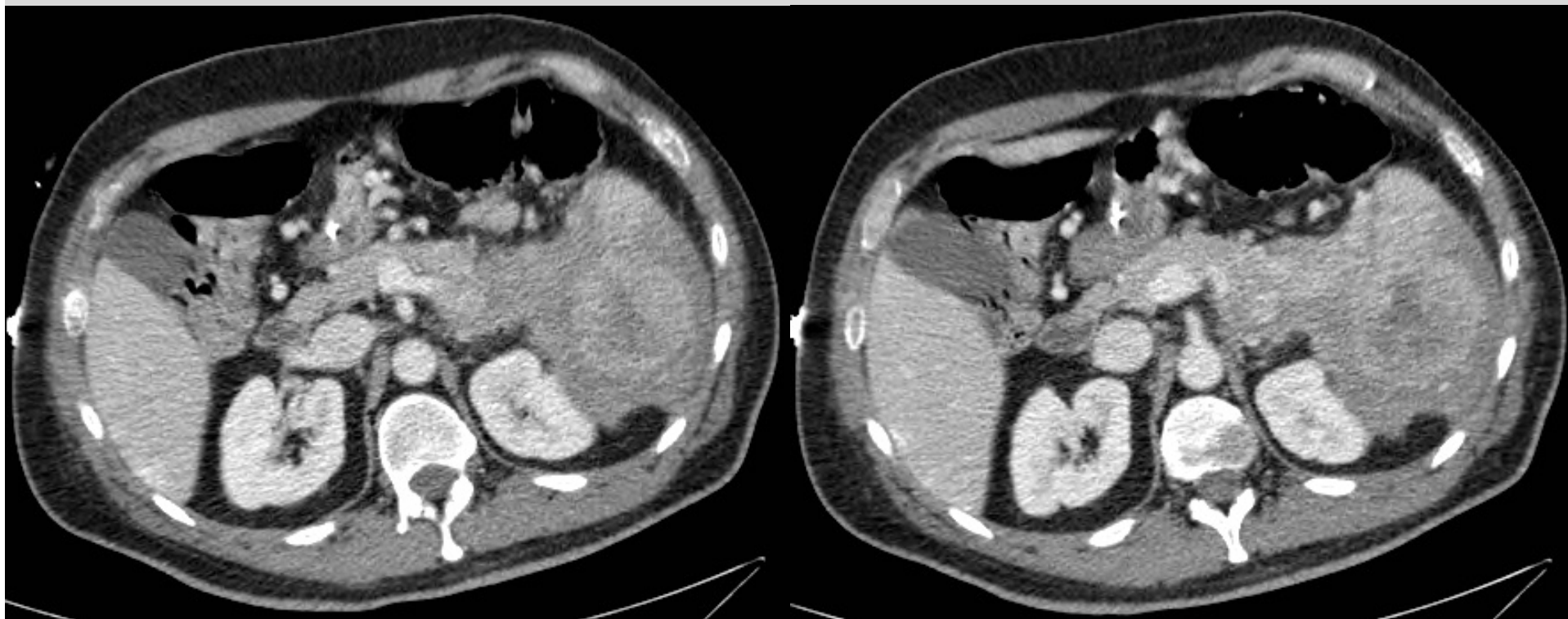
A 47 year old female with known cirrhosis (Child A) presents with severe UGI hemorrhage requiring transfusion. Endoscopic treatment with histoacryl injections was unsuccessful.

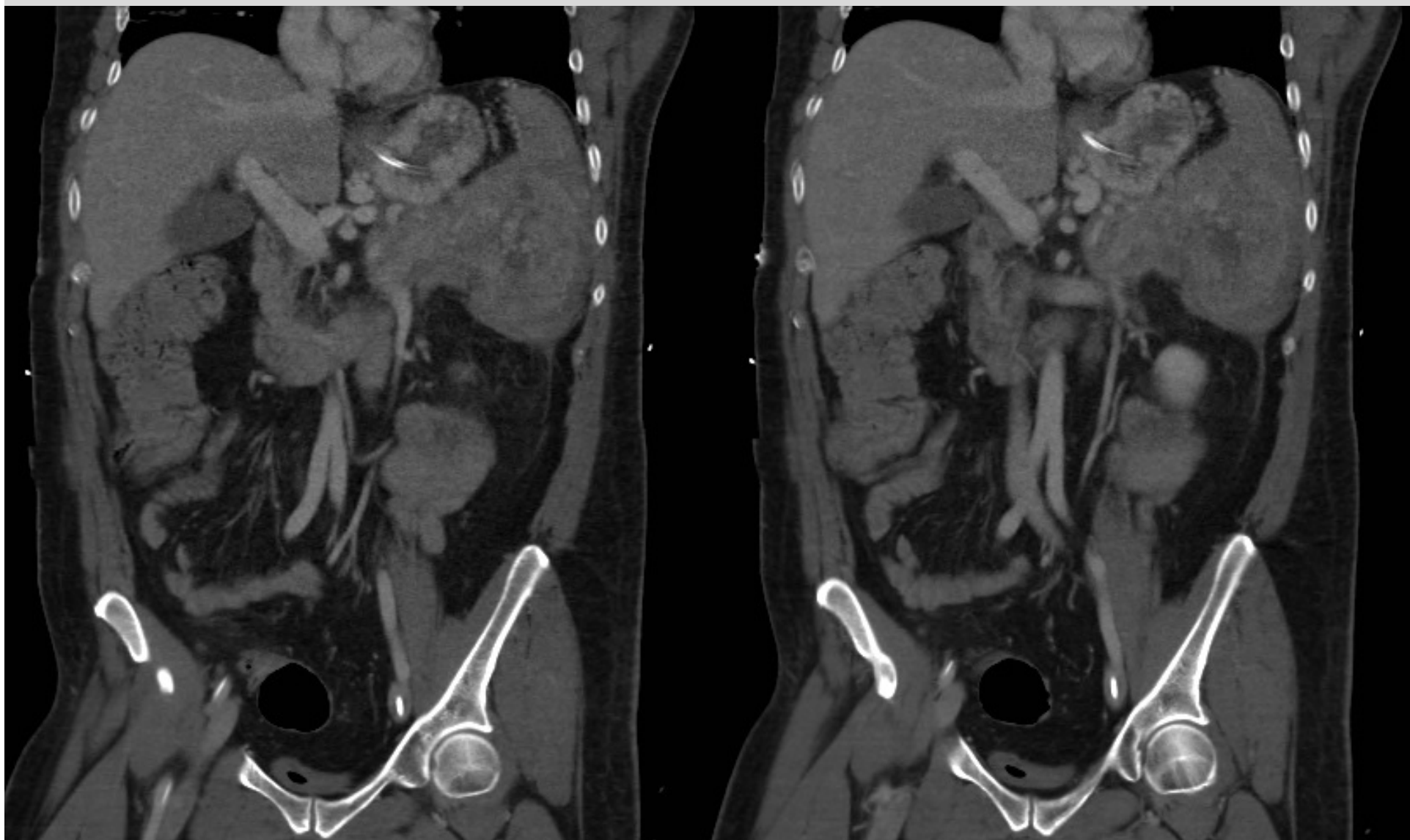
Past medical history was significant for recent pulmonary embolism requiring thromboprophylaxis.

TIPS was requested and a pre-procedural CT performed.









CT imaging demonstrates a hypervascular heterogeneous mass arising from the pancreatic tail and involving the splenic hilum. This mass invaded the adjacent splenic vein, which was thrombosed with large gastric varices present. There was no radiographic evidence of cirrhosis. Pre-operative tumor embolization was requested.



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CELIAC





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SMA

MASO



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MASO  
PORTAL VEIN



que8

SPLENIC



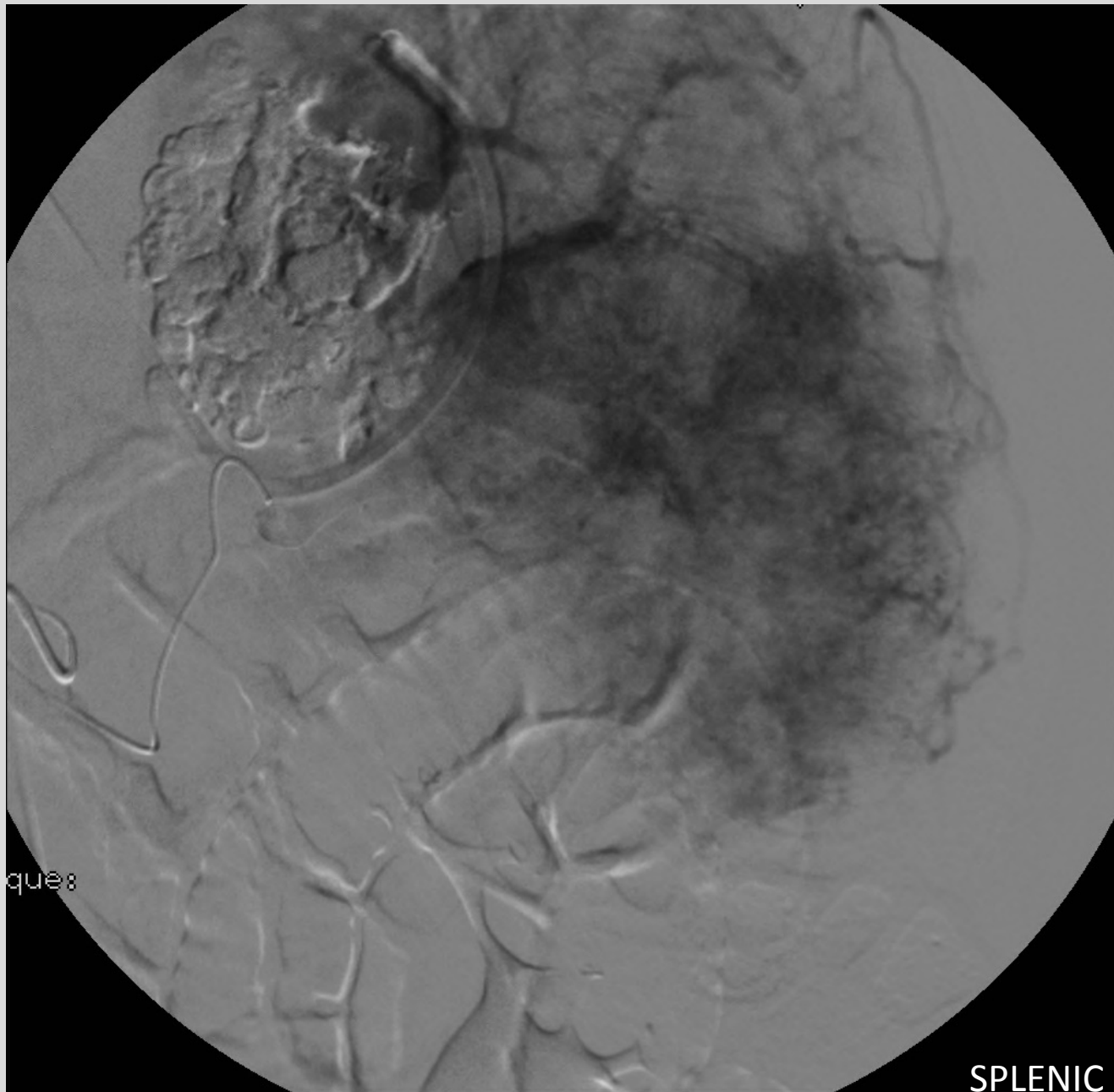
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SPLENIC



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SPLENIC POST-PVA



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SPLenic POST-PVA





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SPLENIC POST-  
GELFOAM AND COILS



que:

CELIAC POST-EMBO



CELIAC POST-EMBO



que:

GASTROEPIPLOIC

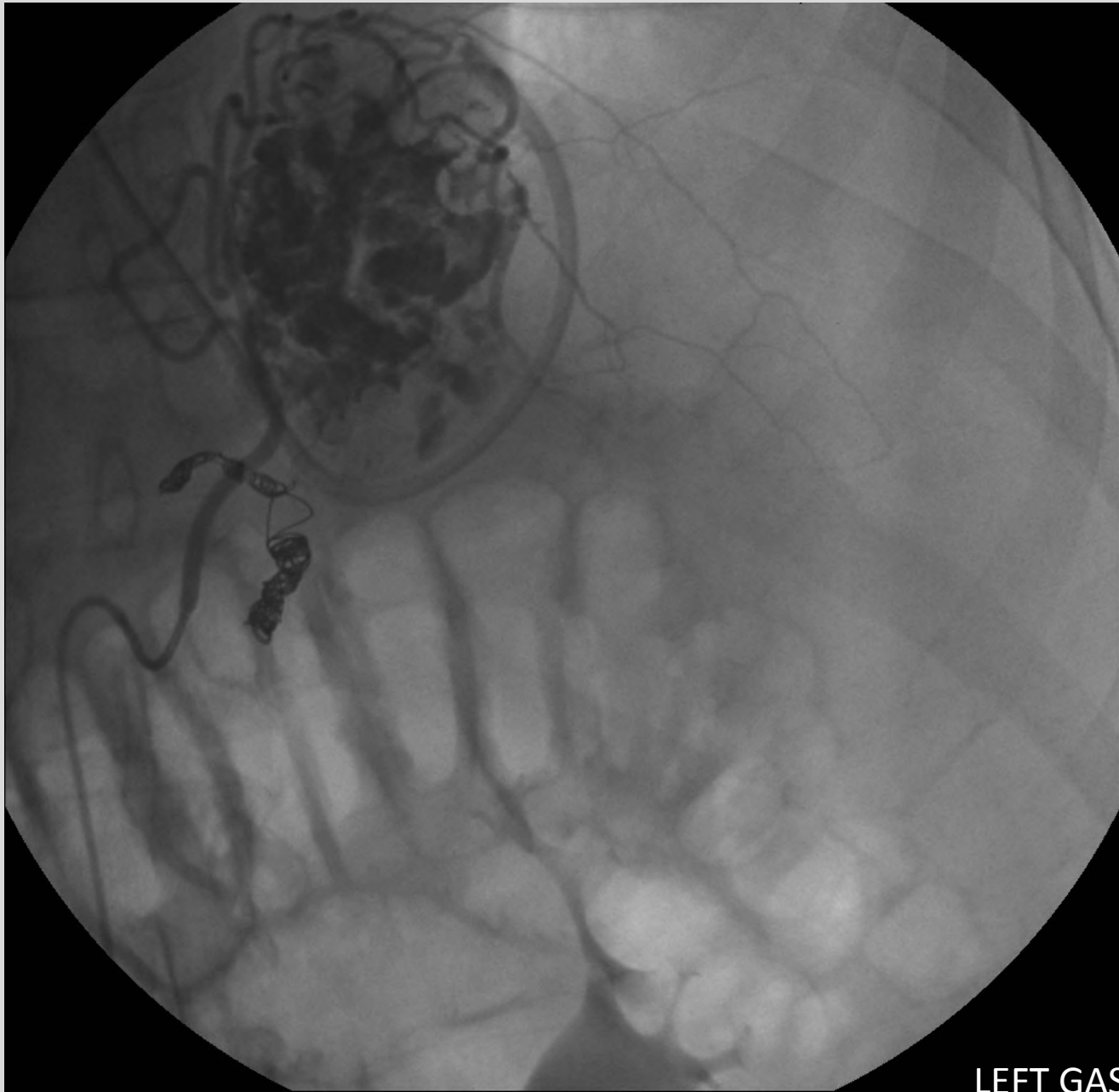


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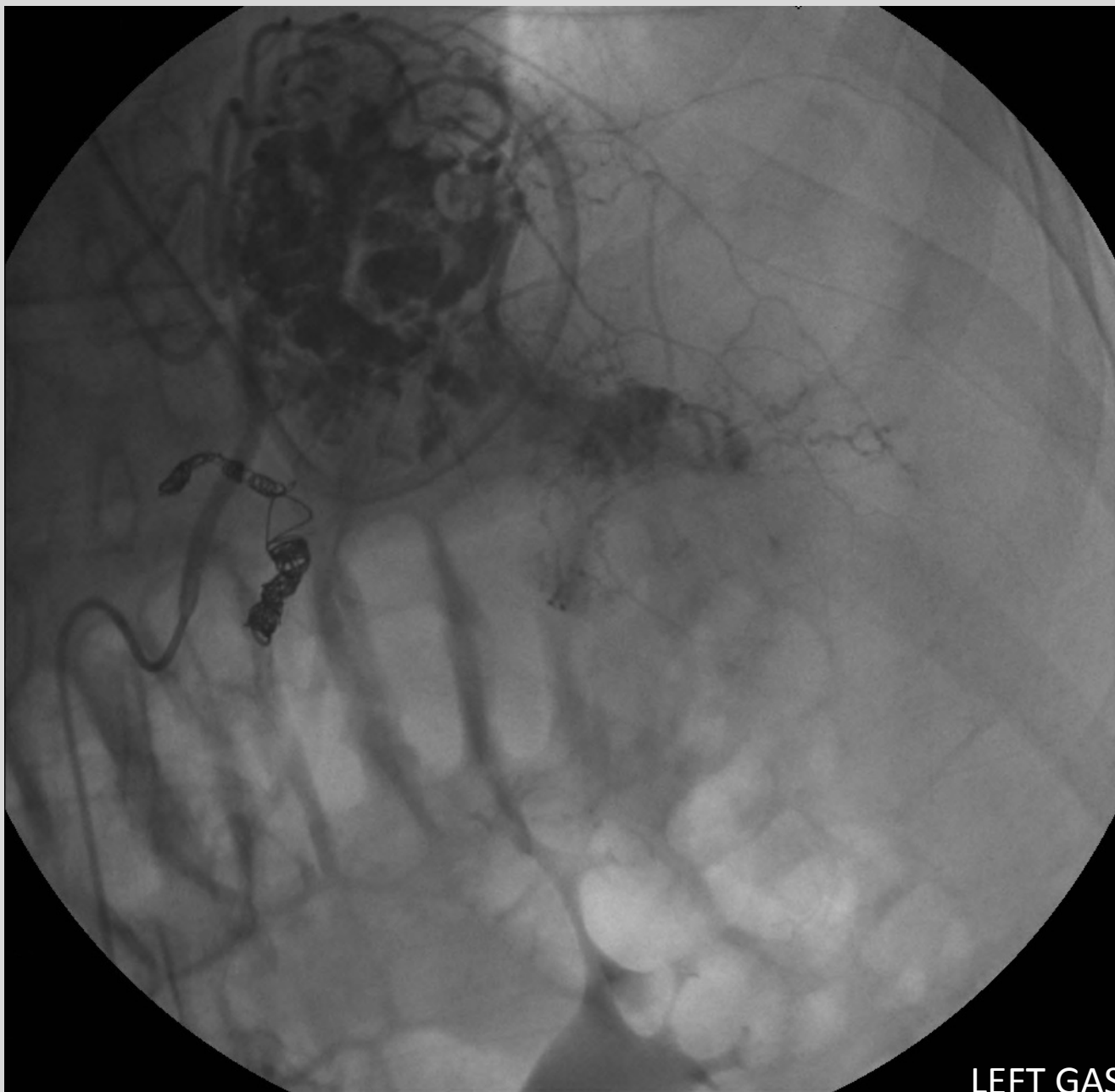
GASTROEPIPLOIC



GASTROPILOIC  
POST-GELFOAM AND  
COILS



LEFT GASTRIC



LEFT GASTRIC



Angiographic images demonstrate a massive tumoral blush being supplied primarily via the splenic artery. There was no significant contribution from the SMA branches.

The splenic artery was embolized with PVA, gelfoam and IDC coils.

Following splenic artery embolization significant contribution was noted from the gastroepiploic and left gastric arteries.

The gastroepiploic artery was embolized with gelfoam and IDC coils.

The left gastric artery was not embolized due to risk of gastric ischemia.

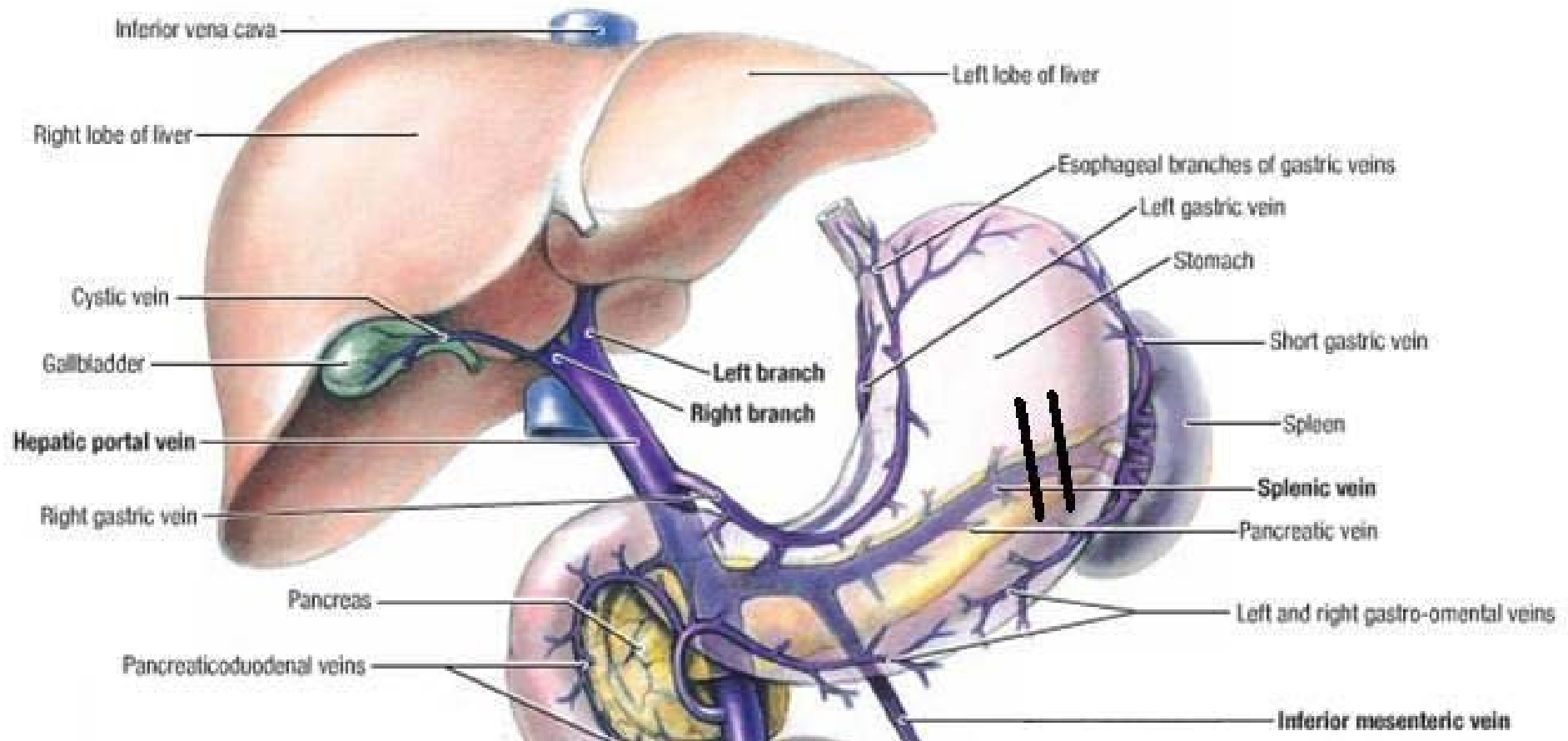
Following embolization the patient had en bloc tumor resection including partial pancreatectomy, splenectomy, radical left nephrectomy, subtotal gastrectomy and left hemicolectomy. Peri-operative blood loss was 2.5 L.

The final pathology report demonstrated a pancreatic neuroendocrine tumor.

# Case Discussion

- Incidence: 4 cases/1000 000 individuals/year
- ♂ = ♀
- Pancreatic endocrine cells
  - Hypervascular pancreatic tumor
- Clinical presentation and classification
  - Functioning vs non functioning tumor
    - Excess hormone secretion
    - Non functioning (3rd most frequent)
      - 20 – 45% of neuroendocrine tumors
      - 80 – 100% malignant

# Clinical Presentation: Variceal Physiopathology



Gastric varices were due to the splenic vein thrombosis (blood return via the short gastric veins).

# WHO Classification

- Differentiation/grade
  - Important prognostic factor
  - Mitotic rate/Ki67 labeling index
  - Well differentiated
    - Low (G1) – No necrosis
    - Intermediate (G2) – Foci of necrosis
  - Poorly differentiated
    - High grade (G3)

# TNM (AJCC, 7th Edition, 2010)

TX	Primary tumor cannot be assessed.
T0	No evidence of primary tumor.
Tis	Carcinoma <i>in situ</i> . <sup>b</sup>
T1	Tumor limited to the pancreas, ≤2 cm in greatest dimension.
T2	Tumor limited to the pancreas, >2 cm in greatest dimension.
T3	Tumor extends beyond the pancreas but without involvement of the celiac axis or the superior mesenteric artery.
T4	Tumor involves the celiac axis or the superior mesenteric artery (unresectable primary tumor).

# Surgical Treatment

- Surgical resection classification
  - R0: No residual tumor
  - R1: Microscopic residual tumor
  - R2: Macroscopic residual tumor
- Long term survival
  - Survival after R0/R1 resection >> R2 resection or non resected
    - Includes locally advanced tumors
    - 2 year overall survival R0/R1 resection (80%) vs R2/non-resected (20%), (*Schurr, Paulus G. et al, Ann Surg 2007*)
    - Median survival R0/R1 resection (112,1 months) vs R2 resection (24,1 months), (*Bloomston, Mark et al. J Gastrointest Surg 2006*)

# Embolization Goals

- To reduce tumor perfusion
  - Acute setting
    - Management of acute hemorrhage
    - To stabilize the patient in the preoperative period
      - Prevent new episodes of hemorrhage
      - Semi elective vs emergent surgery
  - Adjunct to surgical treatment
    - To facilitate aggressive locally advanced tumor resection
      - To achieve R0/R1 resection if feasible
      - ↓ perioperative blood loss

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