

Splenic Artery Embolization

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Case

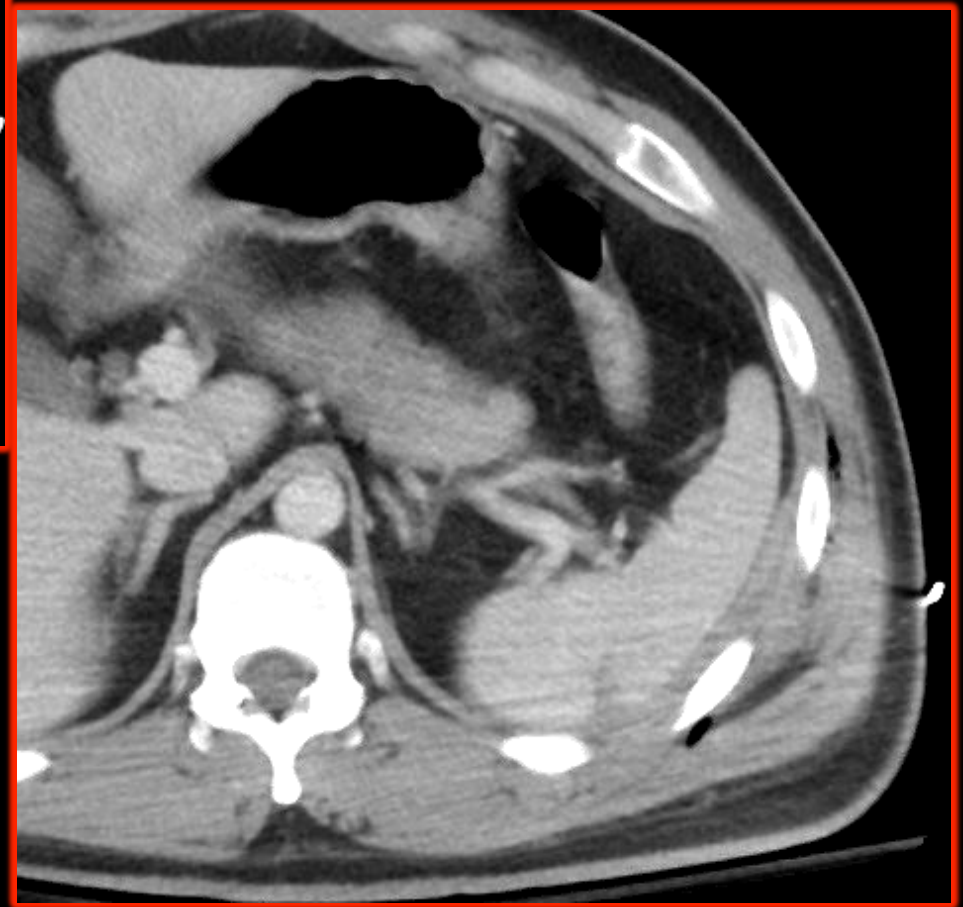
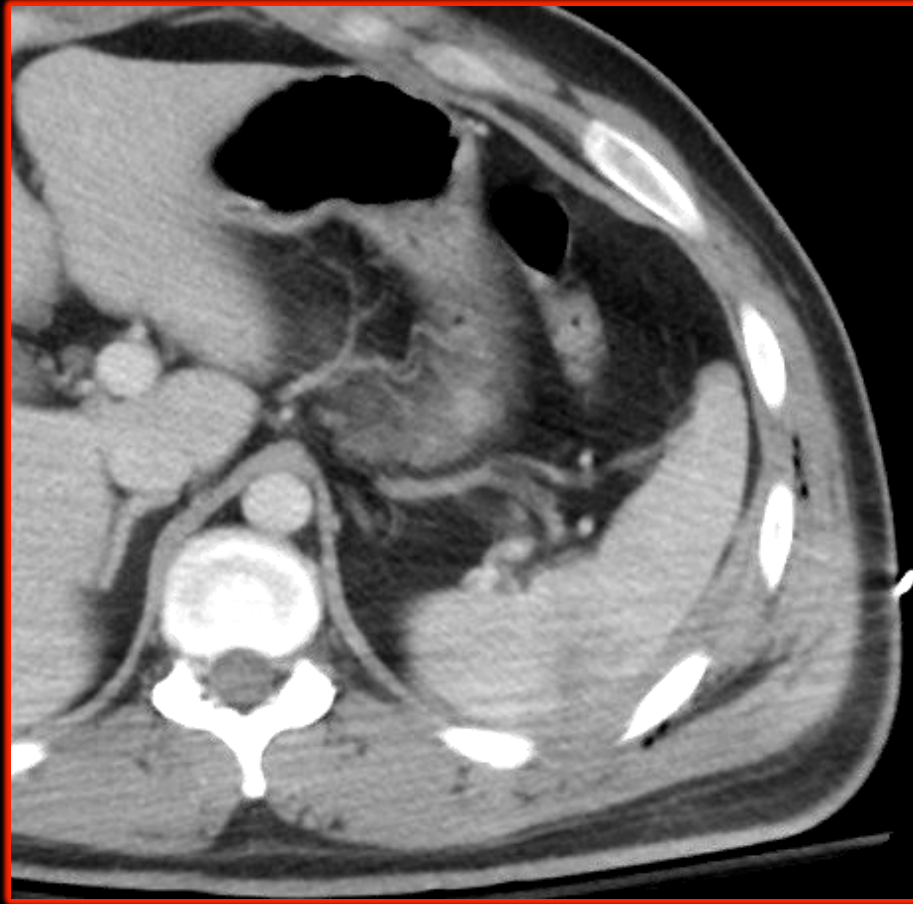
- 33 yo M helmeted motorcycle collision 25 mph hit car +/-LOC +ETOH p/w left-sided chest/abdominal pain
- HCT 43->45, post 1U PRBCs + IVF
- Left 5-8 rib fxs
- Grade 3 splenic laceration with possible extravasation vs. pseudoaneurysm
- Hemodynamically stable

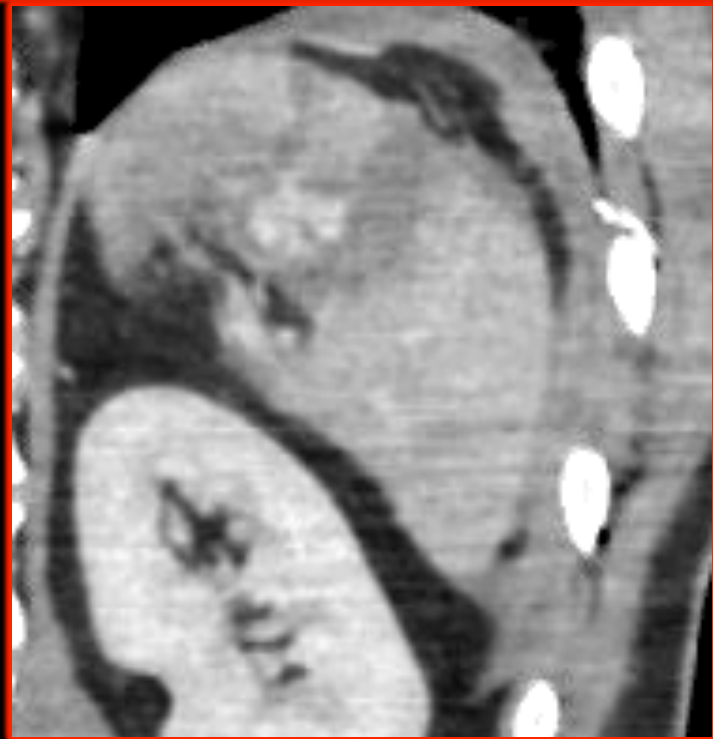
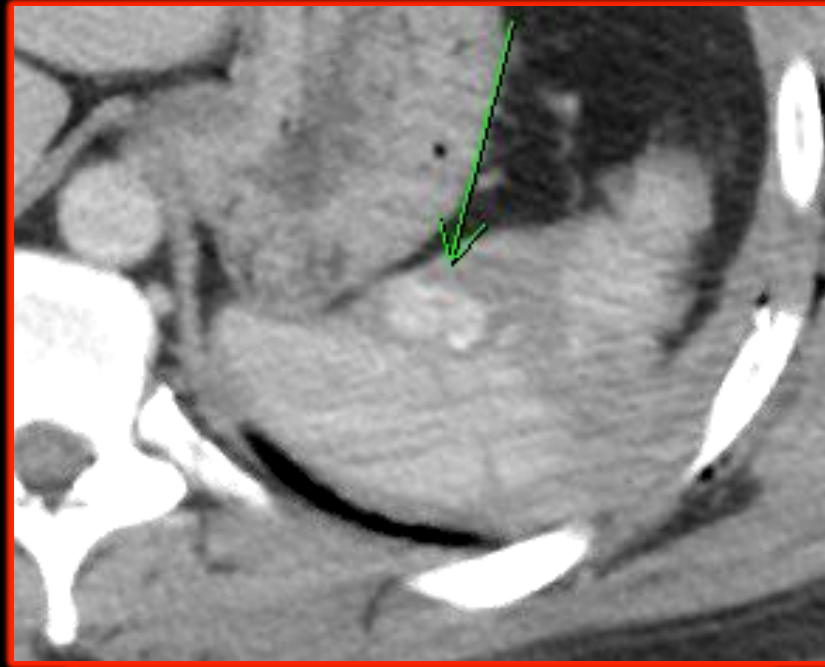
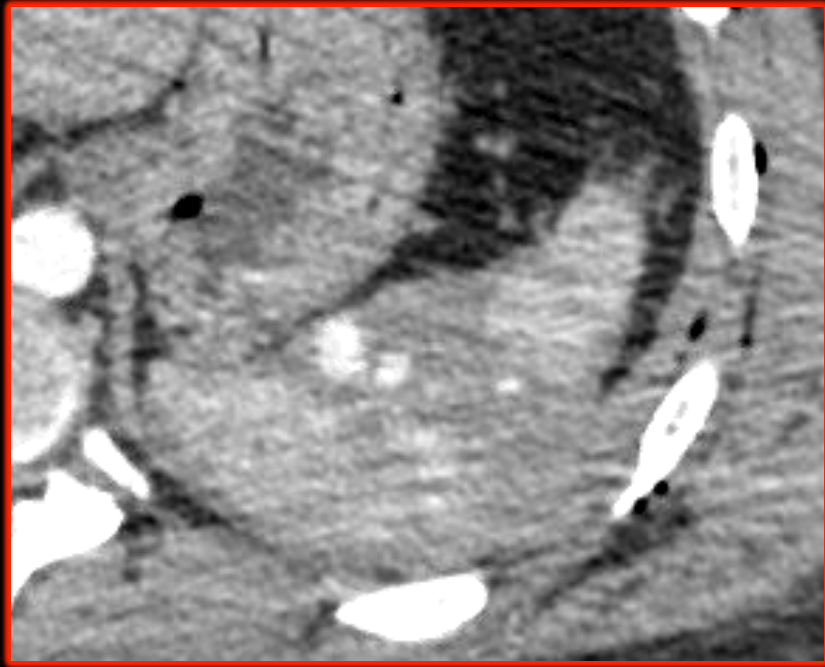
Specimen	HGB	HCT
<input checked="" type="checkbox"/> 09/08/2013 BWH 07:53		28.2(*) (40-54)
<input checked="" type="checkbox"/> 09/07/2013 BWH 23:07		29.7(*) (40-54)
<input checked="" type="checkbox"/> 09/07/2013 BWH 08:50	10.7(*) (13.5-18.0)	32.4(*) (40-54)
<input checked="" type="checkbox"/> 09/06/2013 BWH 22:12	11.2(*) (13.5-18.0)	33.9(*) (40-54)
<input checked="" type="checkbox"/> 09/06/2013 BWH 14:50	12.1(*) (13.5-18.0)	36.9(*) (40-54)
<input checked="" type="checkbox"/> 09/06/2013 ⁽¹⁾ BWH 10:15	12.7(*) (13.5-18.0)	37.6(*) (40-54)
⁽¹⁾ NO MD		
<input checked="" type="checkbox"/> 09/06/2013 BWH 04:25	14.2 (13.5-18.0)	42.7 (40-54)
<input checked="" type="checkbox"/> 09/05/2013 BWH 21:52	15.5 (13.5-18.0)	45.0 (40-54)

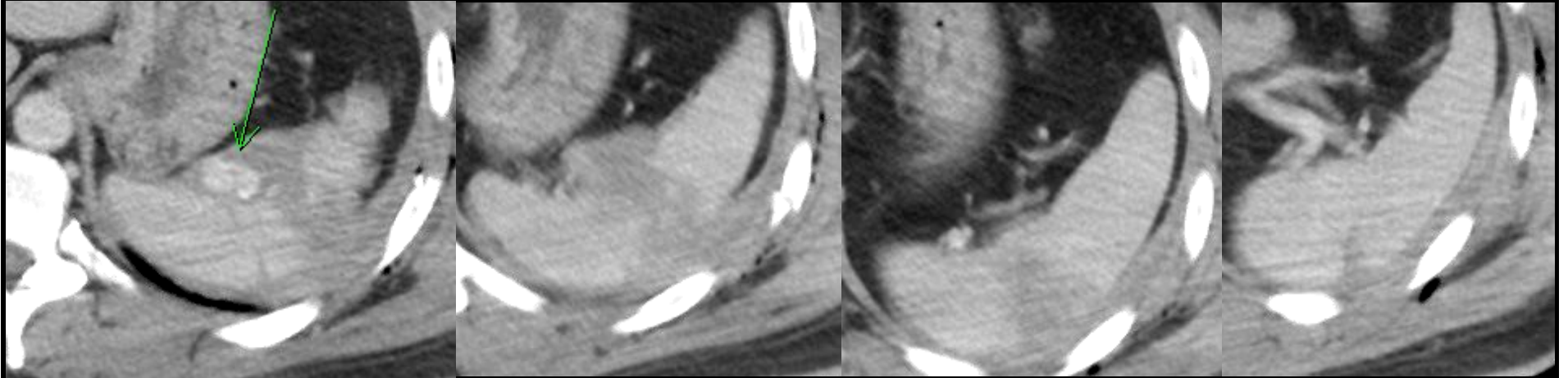
TABLE I: Organ Injury Scale for the Spleen, According to the American Association for the Surgery of Trauma (AAST) [19]

AAST Grade	Splenic Injuries
I	Hematoma: subcapsular, < 10% of surface area Laceration: capsular tear, < 1 cm of parenchymal depth
II	Hematoma: subcapsular, 10–50% of surface area Intraparenchymal hematoma, < 5 cm in diameter Laceration 1–3 cm in parenchymal depth not involving a parenchymal vessel
III	Hematoma: subcapsular, > 50% of surface area or expanding Ruptured subcapsular or parenchymal hematoma Intraparenchymal hematoma, > 5 cm in diameter Laceration of > 3 cm parenchymal depth or involving trabecular vessels
IV	Laceration of segmental or hilar vessels producing major devascularization (> 25% of spleen)
V	Completely shattered spleen Vascular hilar injury that devascularized spleen

Note—Advance one grade for multiple injuries to same organ up to grade III.

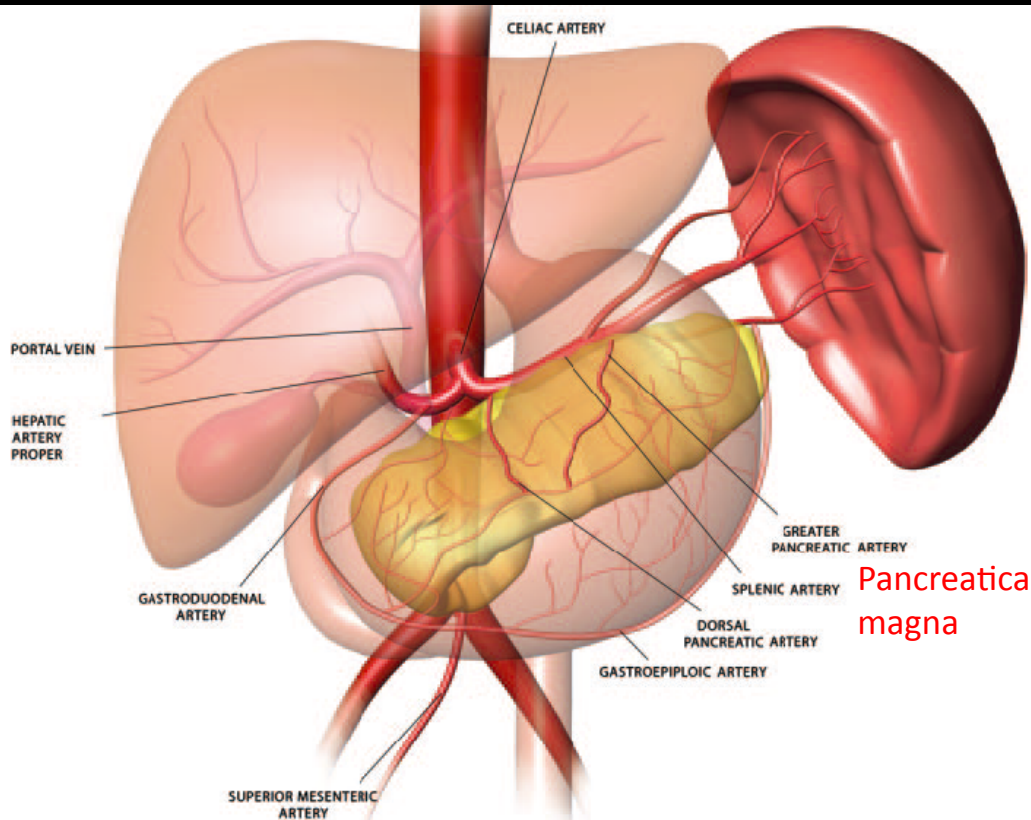




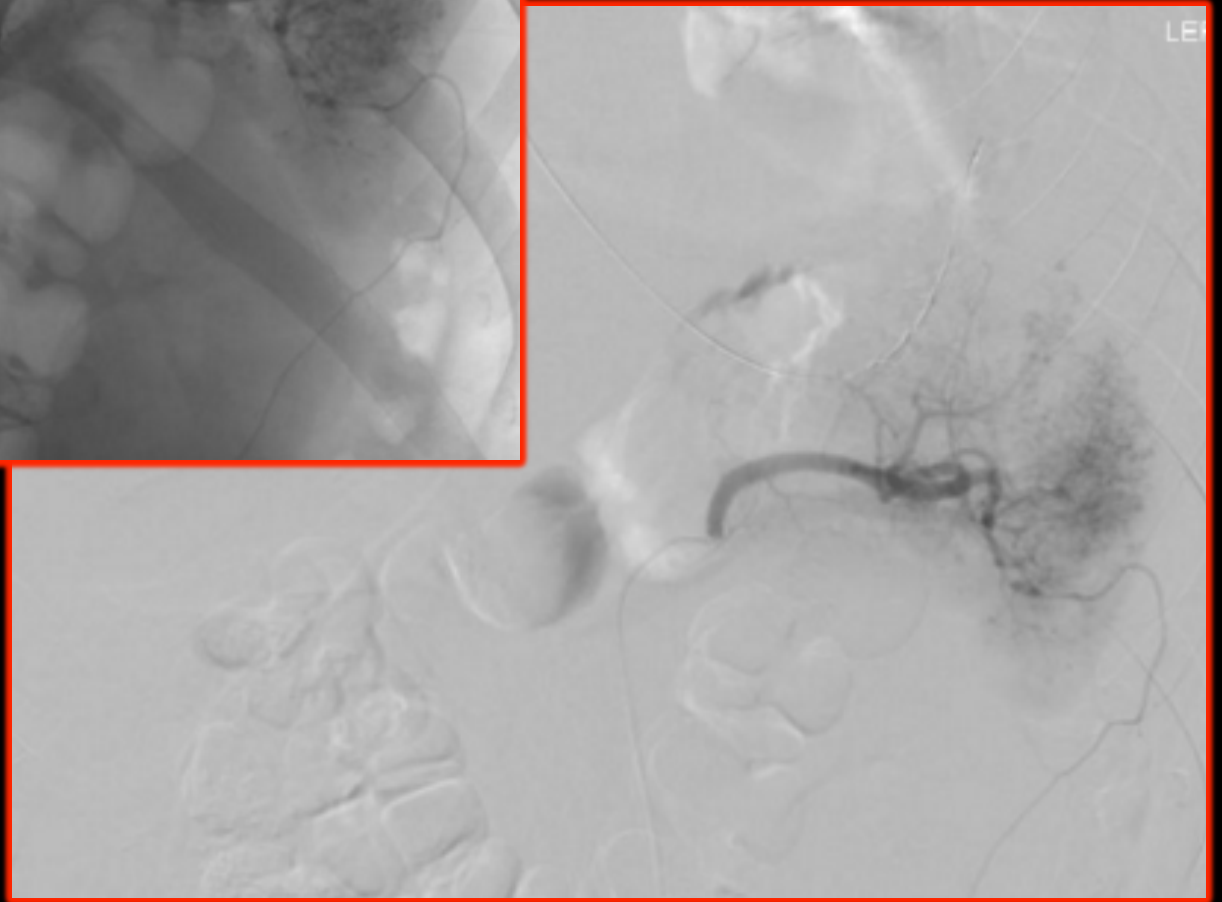
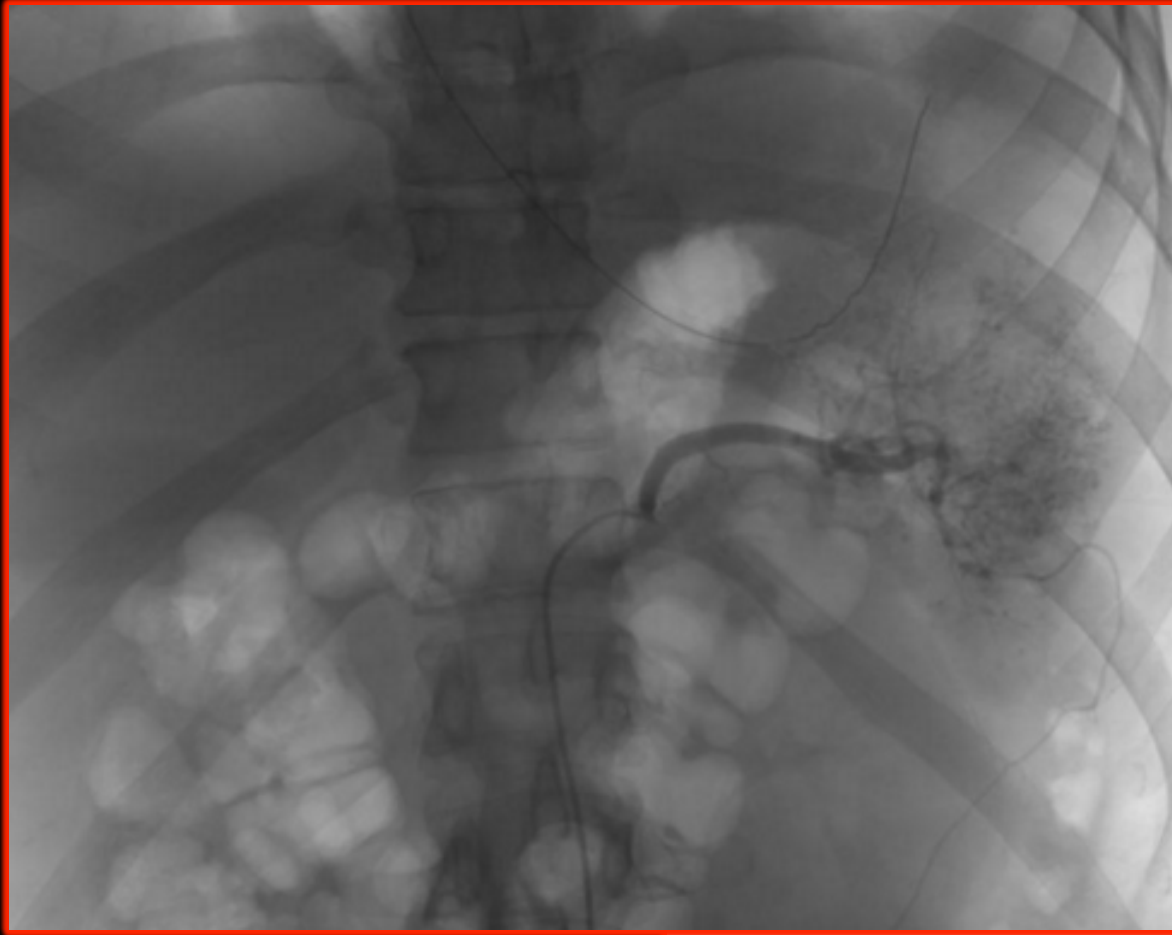


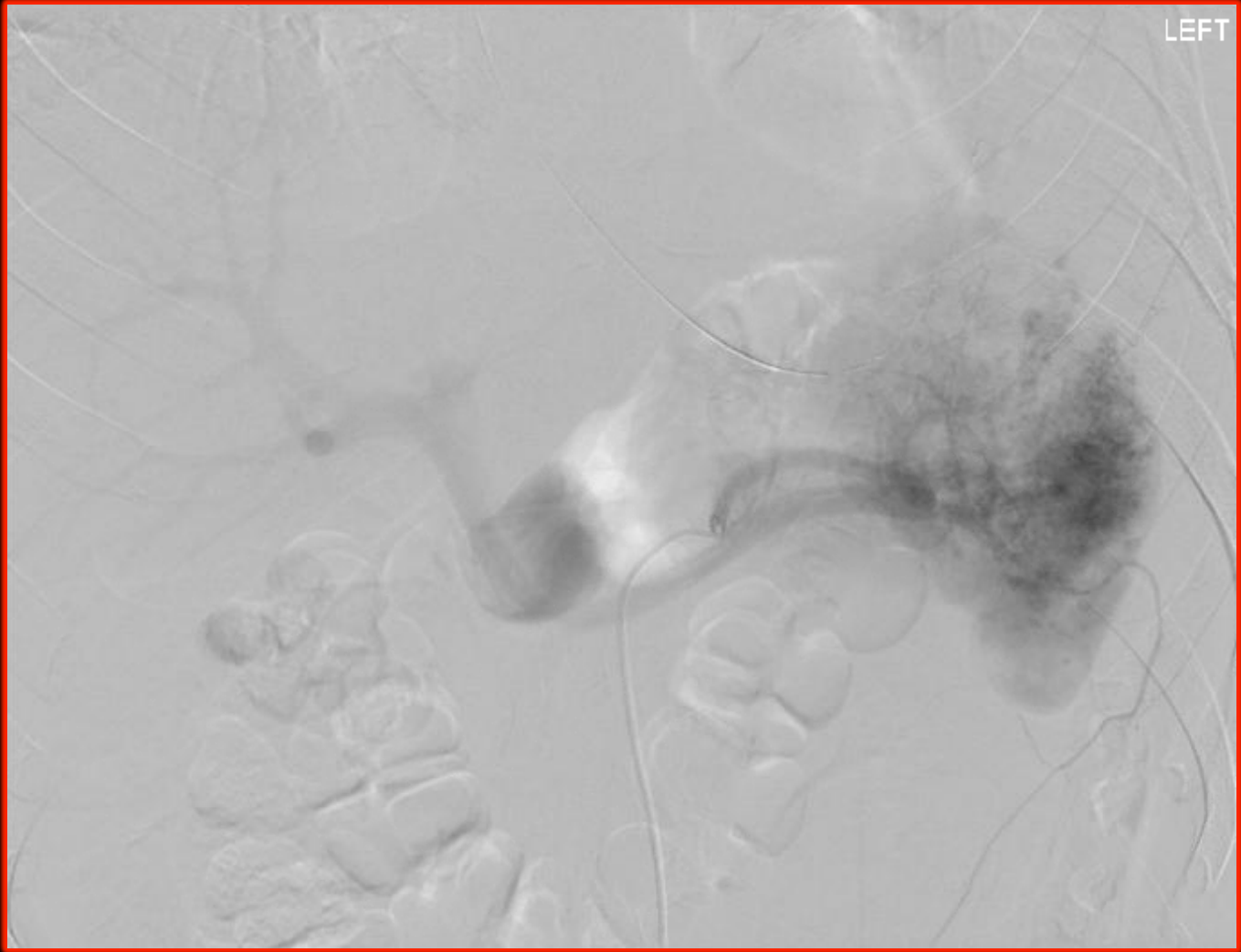
Indications for Angiographic Evaluation of Splenic Trauma (Blunt Injury)

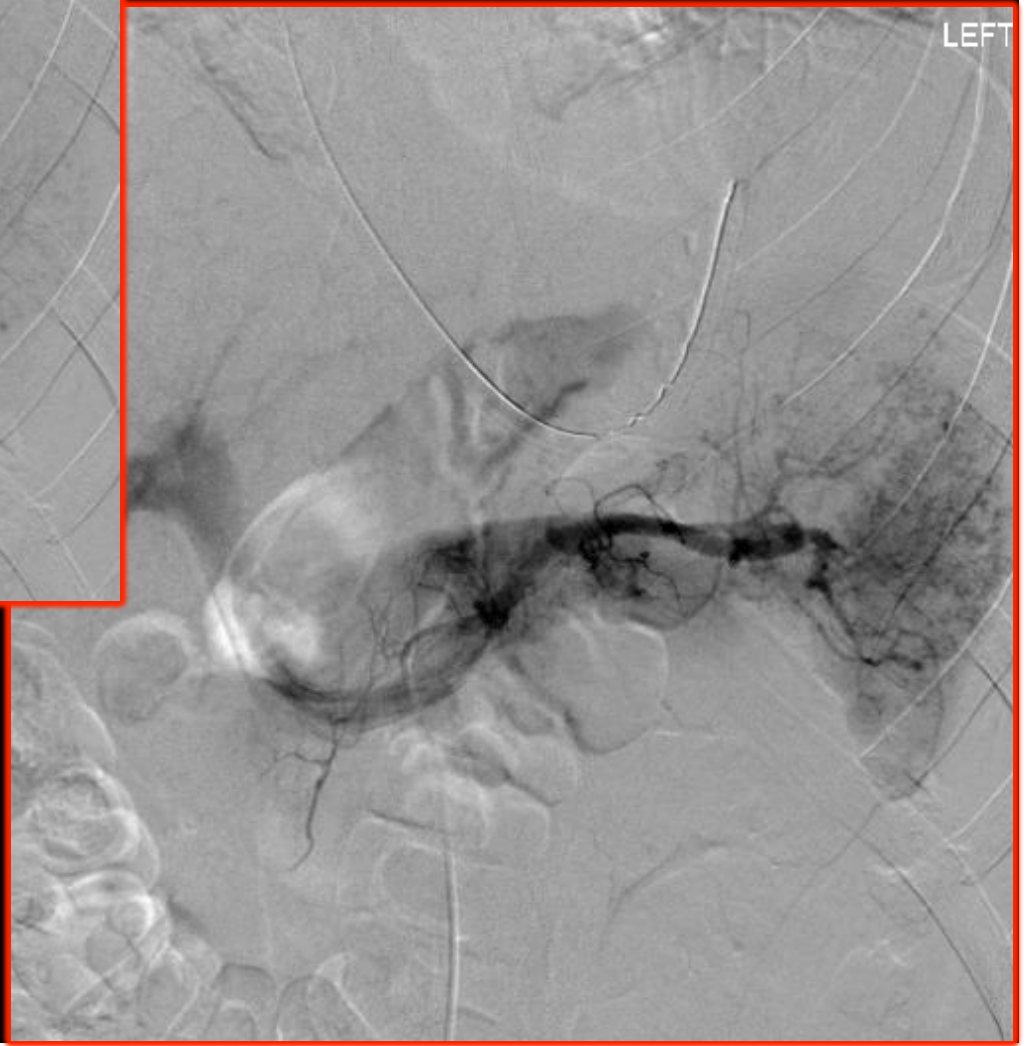
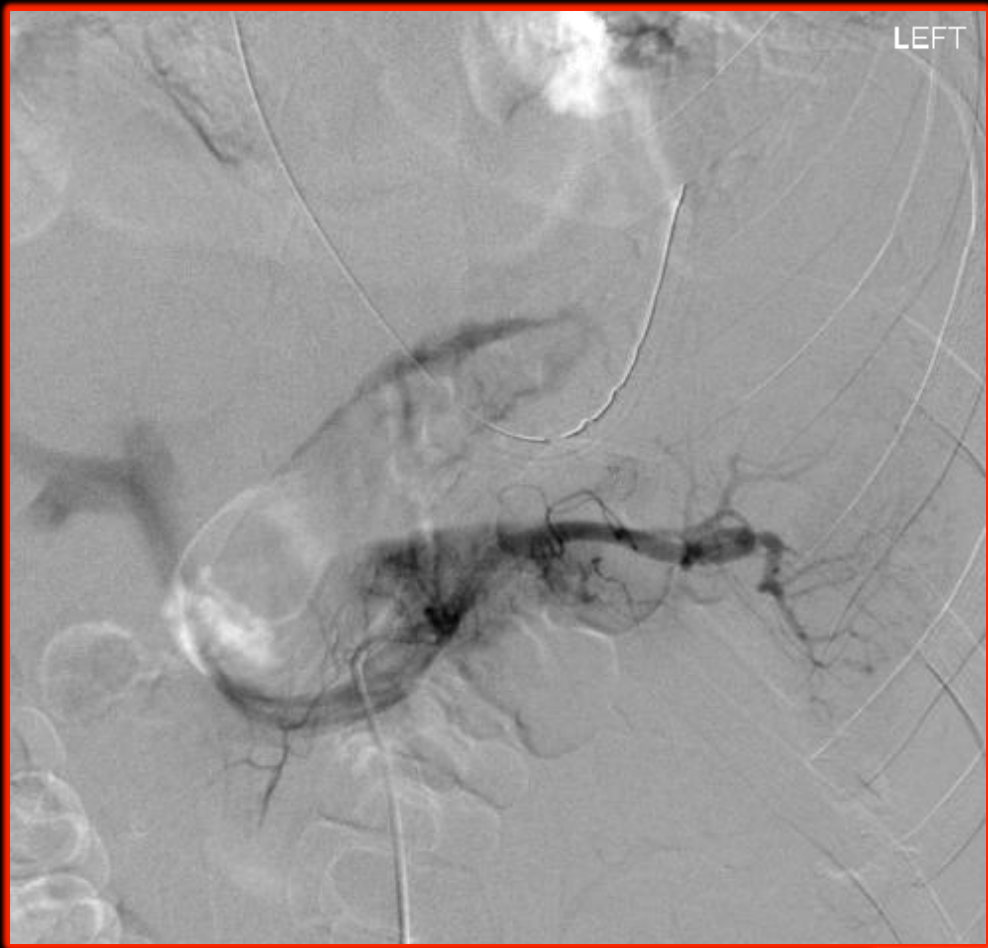
- Nonoperative stable pt w/ e/o arterial injury, active bleeding or large hemoperitoneum on CT
- Falling Hb, ongoing transfusions required
- Persistent postoperative bleeding



- Embolization of the injured arteries, as distally as possible (extrav, psa) to preserve perfusion to the remaining spleen. Distal embolization increased incidence of infarction.
- Proximal segment embolization for high risk of secondary rupture to decrease pressure/volume to the splenic parenchyma, facilitate healing, allow spontaneous thrombosis of psa.
 - Preserved by collateral flow via gastric, gastroepiploic, pancreatic arteries.





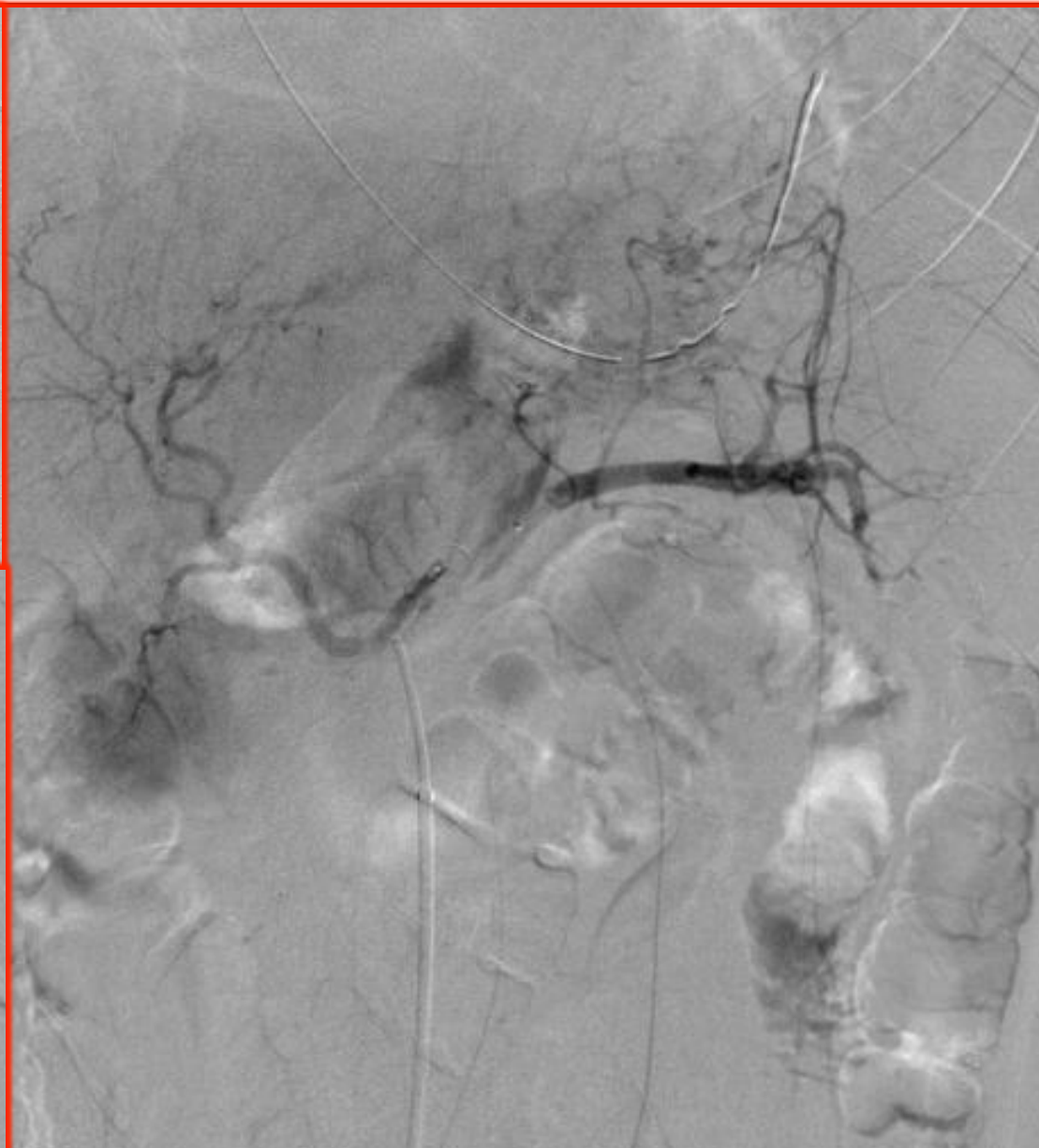


LEFT









AVP vs Coils

- Accuracy of first coil placement can be problematic
- Can extend/migrate to the hilum, intrasplenic branches thus increasing r/o splenic infarction
- AVP nitinol 4-16mm x 2 cm, oversize 30-50% c/w artery
- Retrievable
- Placed far from point of resection and away from the hilum
- Coils can enhance occlusion and AVP prevents coil migration distally
- Limited use in tortuous arteries

References

- Bessoud B, Denys A, Calmes JM, Madoff D, Qanadli S, Schnyder P, Doenz F. Nonoperative management of traumatic splenic injuries: is there a role for proximal splenic artery embolization? *AJR Am J Roentgenol*. 2006 Mar; 186(3):779-85. PubMed PMID: 16498106.
- Madoff DC, Denys A, Wallace MJ, Murthy R, Gupta S, Pillsbury EP, Ahrar K, Bessoud B, Hicks ME. Splenic arterial interventions: anatomy, indications, technical considerations, and potential complications. *Radiographics*. 2005 Oct;25 Suppl 1:S191-211. Review. PubMed PMID: 16227491.
- Valji, Karim. *The Practice of Interventional Radiology* (2012). Section in Ch. 12: Hepatic and Splenic Trauma, pp. 389-392.
- Widlus DM, Moeslein FM, Richard HM 3rd. Evaluation of the Amplatzer vascular plug for proximal splenic artery embolization. *J Vasc Interv Radiol*. 2008 May;19(5):652-6. doi: 10.1016/j.jvir.2007.11.025. Epub 2008 Mar 17. PubMed PMID: 18440451.