

CIRA Case of the Week

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Case courtesy of Drs. David Tso, Darren Klass, Fergus
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Case History

- A 64 year old female admitted for management of infected groin seromas from recent bilateral femoral endarterectomies
- One month into her hospitalization, she developed coffee ground emesis, melena and dropping hemoglobin levels

PMH

- SLE with lupus nephritis
- Renal insufficiency
- Rheumatoid arthritis
- Peripheral vascular disease
- CVD: coronary artery disease, hypertension, and dyslipidemia
- Surgeries: left renal pelvic allograft, AAA repair

Upper GI Endoscopy #1

- Multiple necrotic ulcers at the duodenal bulb with a large adherent clot seen on the posterior wall
- The ulcer was injected with 3 cc of 10,000 U of epinephrine



Upper GI Endoscopy #2

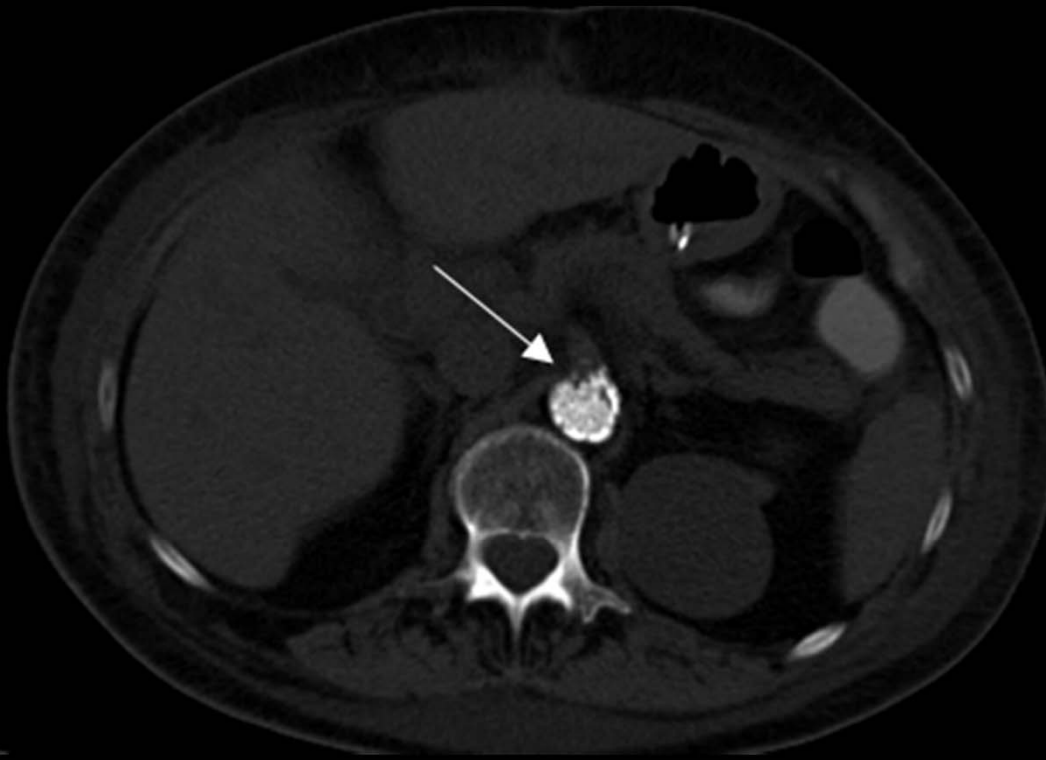
- 2nd endoscopy performed the next day due to recurrent bleeding showed continued bleeding of the duodenal ulcer
- Epinephrine and hemostatic spray were used to achieve hemostasis



IR Consultation

- Despite maximal medical management, the ongoing melena and dropping hemoglobin levels continued
- Patient was referred to the IR service for consideration of transcatheter embolization for management of the duodenal bleeding
- Non-contrast CT Abdo/Pelvis was performed

NECT Abdo/Pelvis

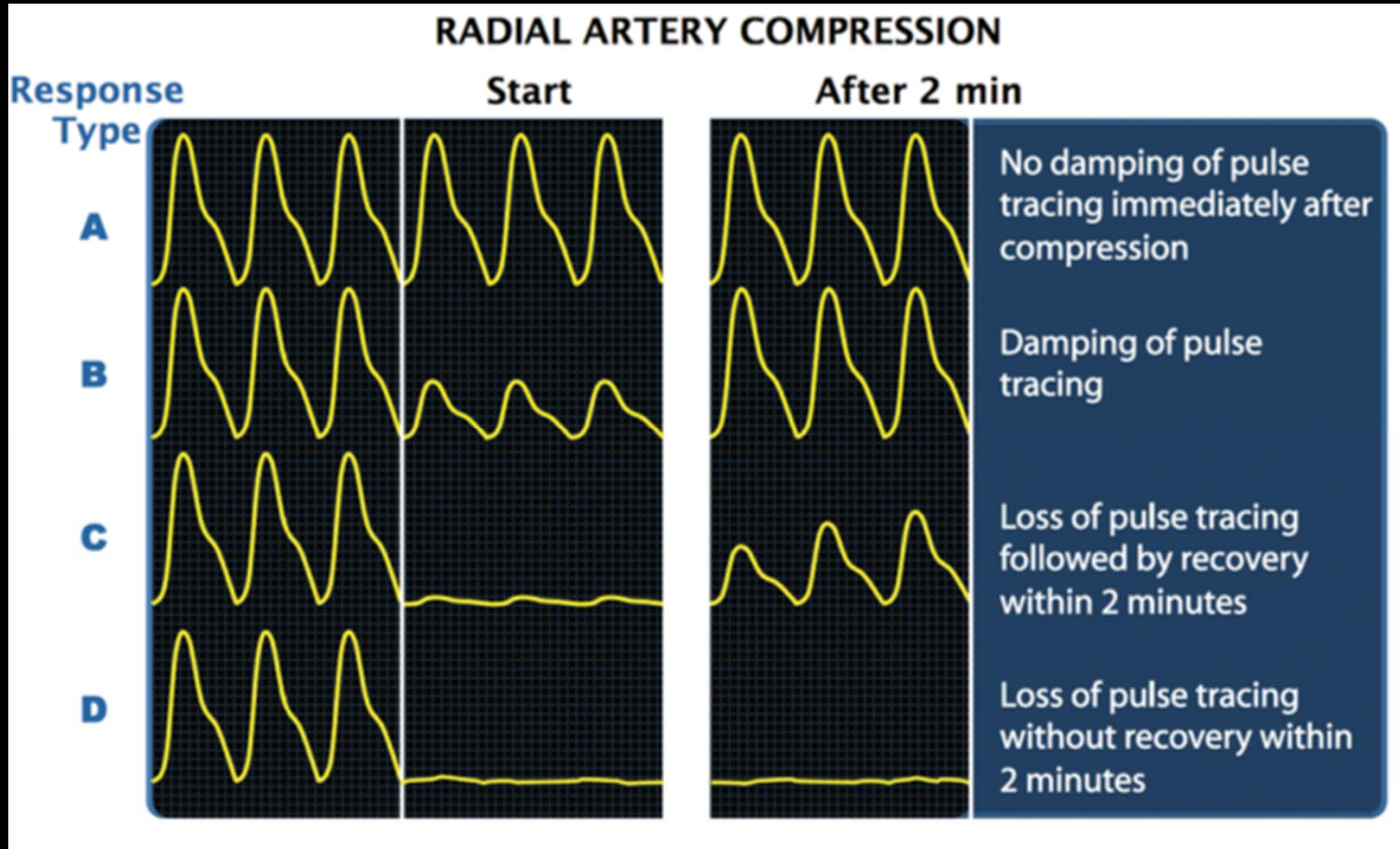


Subtotal occlusion of the infraceliac aorta with dense calcified plaque, precluding access and selection of the celiac axis from the transfemoral route

Radial access assessment

- Due to the urgency and limited options for vascular access, a transradial arterial approach was considered
- On physical examination, her left hand was blanched and cool to the touch (Reynaud's phenomenon/SLE)
- A Barbeau test was performed revealing a Type B waveform

Barbeau waveforms



Source: cictoday.com

Compression of the ipsilateral radial artery and recording waveform from plethysmography and pulse oximetry probe placed on the thumb

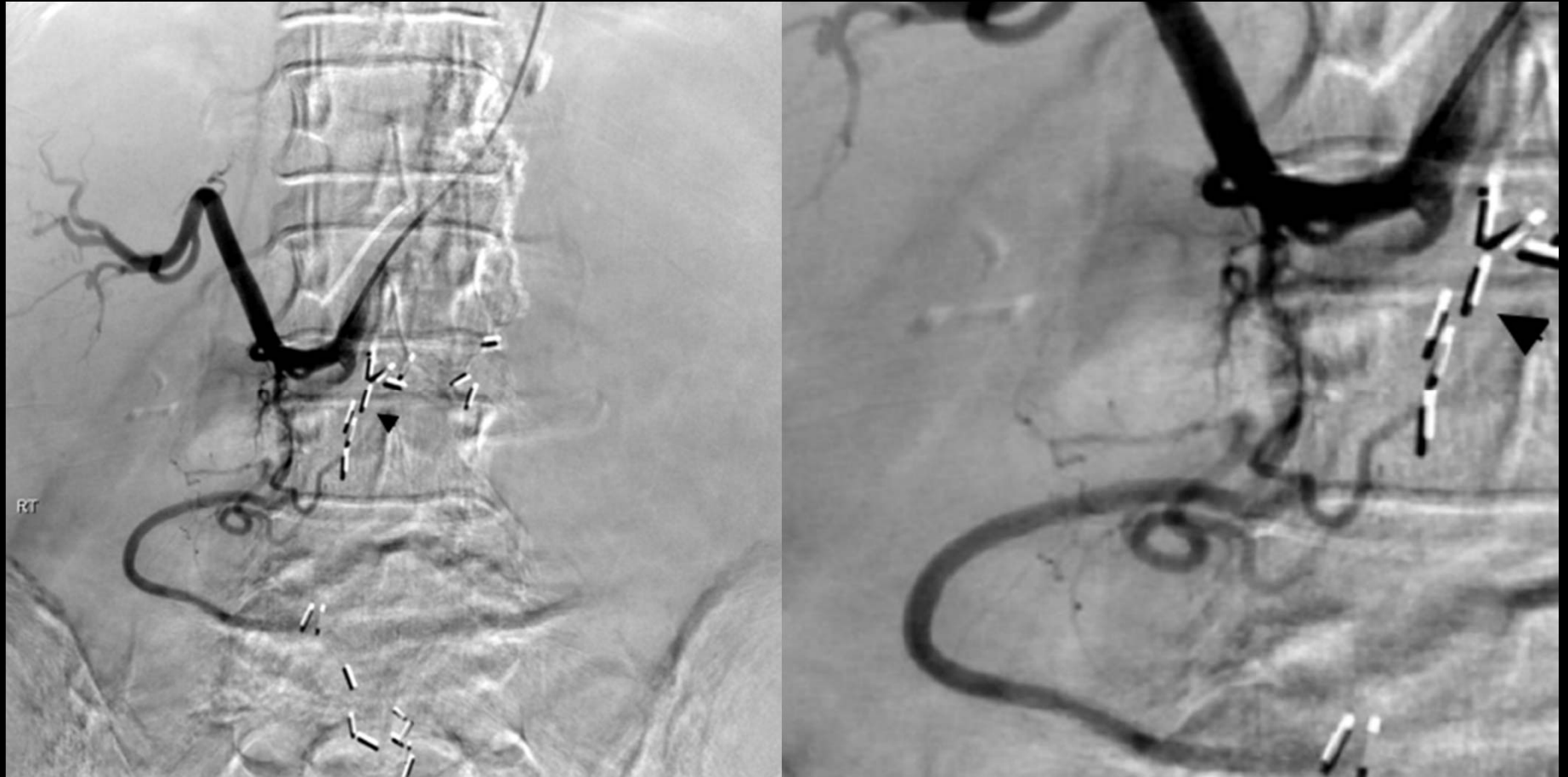
Patient preparation

- Upper left arm was warmed by a surgical air warmer to facilitate arterial dilation and perfusion
- Perivascular local anesthetic was administered prior to access, 2-3ml administered of cocktail
 - 9mL 1% lidocaine
 - 100 mcg of nitroglycerin

Vascular access

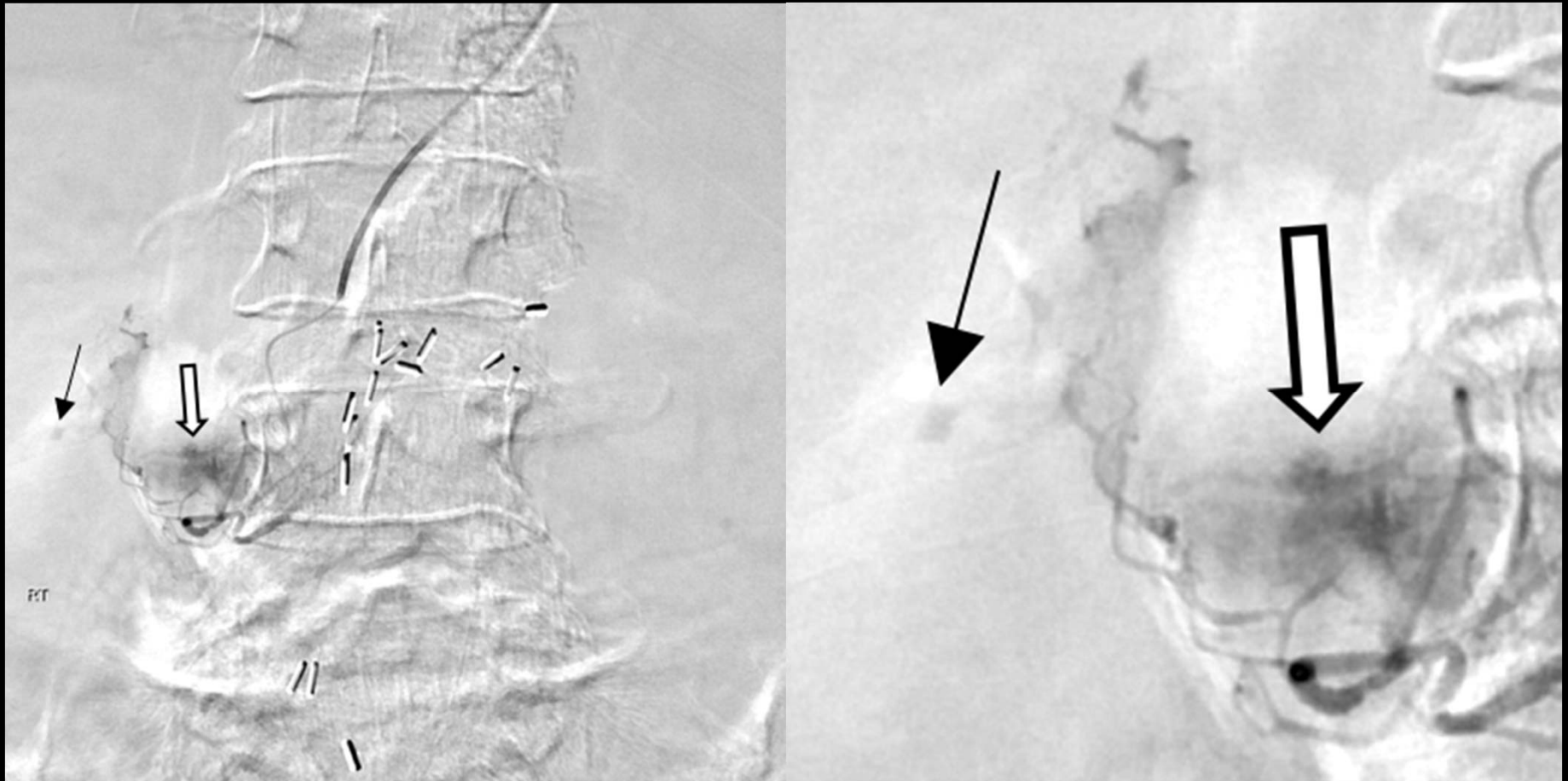
- Radial arterial access was obtained with a 5F vascular sheath
- Cocktail administered through sheath:
 - 200mcg Nitroglycerin
 - 2.5mg Verapamil
 - 2000 units Heparin
- Infusion performed by aspirating blood into a 20mL syringe containing the mixture of medication and then re-injecting hemodiluted solution

Arteriogram



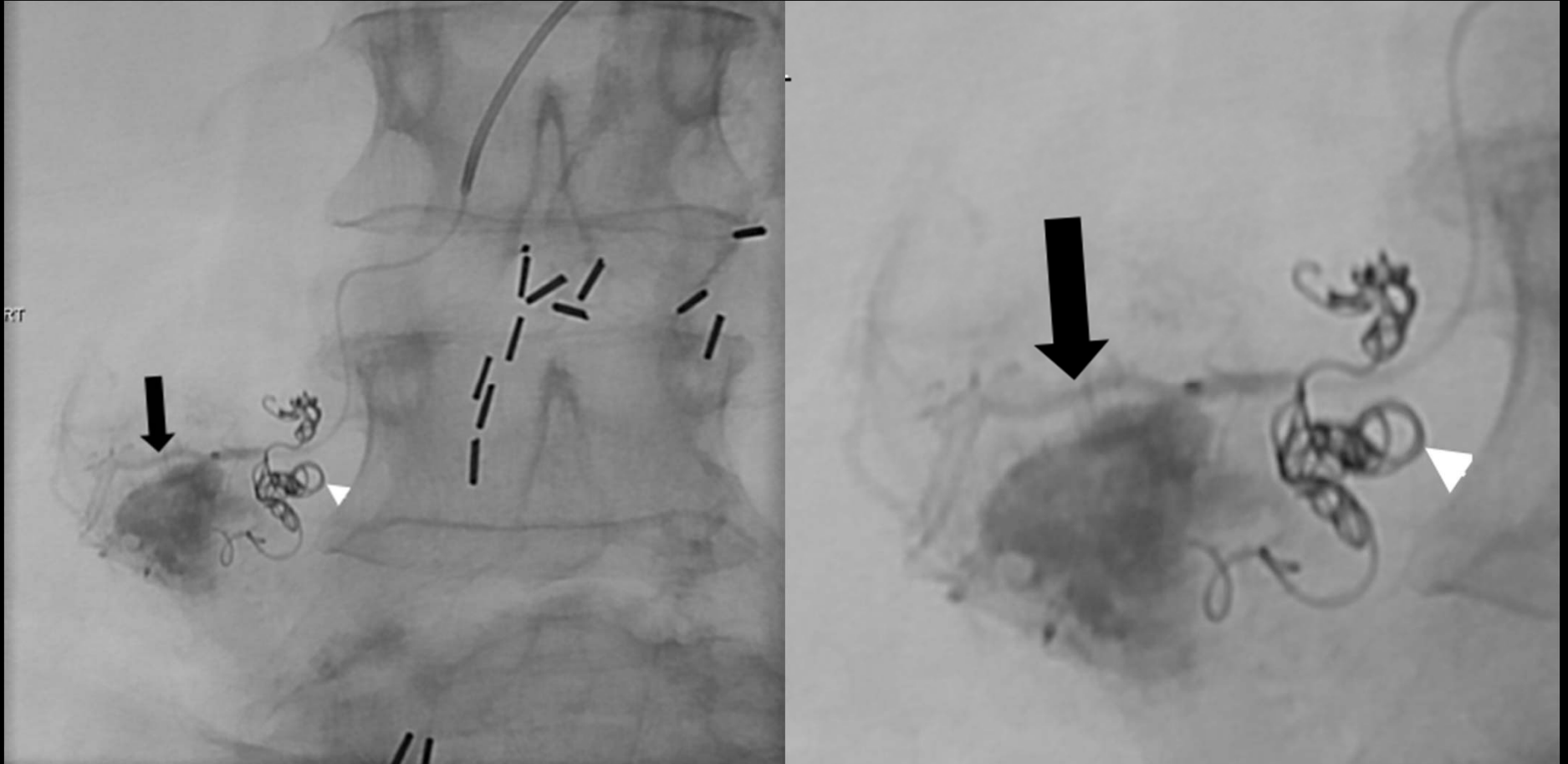
Celiac artery anatomy is demonstrated with surgical clips from a previous left nephrectomy

Arteriogram



Catheter superselection of the GDA demonstrates contrast extravasation in the proximity of the duodenal ulcer (black arrow). Contrast blush denotes an area of localized rupture and contrast accumulation during hand injection (thick white arrow).

Arteriogram



Interval coil deployment within the GDA (white arrowhead). Contrast blush is again noted (black arrow).

Arteriogram



Successful coil embolization which demonstrates preservation of flow through the GDA (arrow).

Hemostasis

- Hemostasis of the radial artery puncture site achieved using a hemostatic pad and radial artery compression device
- Hemostasis and compression device removal was complete within 15 minutes of initiation
- The patient's hemoglobin levels stabilized post-embolization with no further episodes of melena

Discussion

- One of the early IR cases outlining a transradial access technique to treat life threatening GI bleed in which trans-femoral access was limited



Source: cathlabdigest.com

RIVAL Trial (Lancet, 2011)

- Largest multi-center randomized controlled trials, 7021 patients randomized to either radial or femoral artery access for PCI in the setting of ACS
- Comparable safety and efficacy when comparing transarterial vs transfemoral coronary angiography and intervention
- Lower rates of local vascular complications were reported with the radial approach, including fewer large hematomas and pseudoaneurysms

IR Literature

- Retrospective review of complication rates of 1004 transradial IR procedures
- 0.3% major adverse events requiring additional management
 - E.g. large hematomas, pseudoaneurysms
- 3.2% minor adverse events
 - E.g. radial artery occlusion, small hematomas
- Conclusion: transradial access is safe and well tolerated in the typical IR population

Conclusion

- Transradial access for acute life threatening GI bleeding is a safe and well-tolerated procedure
- Demonstrates utility in many patients, particularly those with severe peripheral vascular disease where transfemoral access is extremely challenging or not possible

References

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2. Jolly SS, Yusuf S, Cairns J, Niemelä K, Xavier D, Widimsky P, et al. Radial versus femoral access for coronary angiography and intervention in patients with acute coronary syndromes (RIVAL): A randomised, parallel group, multicentre trial. *Lancet*. 2011;377(9775):1409–20.
3. Joyal D, Bertrand OF, Rinfret S, Shimony A, Eisenberg MJ. Meta-analysis of ten trials on the effectiveness of the radial versus the femoral approach in primary percutaneous coronary intervention. *Am J Cardiol*. 2012;109(6):813–8.
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