

AMSER Case of the Month

July 2022

56 y.o female with a history of vulvar carcinoma requiring radiation therapy and ileal conduit urinary diversion now presenting with hematuria

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Patient Presentation

- **HPI:** Patient presented to the ED with increasing bloody output from her ileal conduit. She also reported worsening generalized abdominal pain with nausea and vomiting. Denied fever, chills, shortness of breath
- **Past Medical/Surgical Hx:** stage III vulvar SCC s/p total pelvic exenteration with end colostomy and ureteral diversion with ileal conduit and chemoradiation; chronic left hydronephrosis managed with indwelling stent
- **Medications:** no anticoagulation

Pertinent Labs

Physical Exam

Vitals: BP 176/85, HR 86, RR 14, Temp 99.1°C

GI: generalized tenderness worse in LLQ, mild left CVA tenderness

GU: Ileal conduit with gross hematuria and blood clots, end of ureteral stent visible in bag.

Labs

- Cr 1.35 (Baseline 1.2-1.3)
- Hgb 11.9
- Plts 254
- INR 0.9

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 4: Gross hematuria. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
CTU without and with IV contrast	Usually Appropriate	⊕⊕⊕⊕
MRU without and with IV contrast	Usually Appropriate	○
CT abdomen and pelvis without and with IV contrast	May Be Appropriate	⊕⊕⊕⊕
MRI abdomen and pelvis without and with IV contrast	May Be Appropriate	○
MRI abdomen and pelvis without IV contrast	May Be Appropriate	○
US kidneys and bladder retroperitoneal	May Be Appropriate	○
CT abdomen and pelvis with IV contrast	May Be Appropriate	⊕⊕⊕
CT abdomen and pelvis without IV contrast	May Be Appropriate	⊕⊕⊕
Radiography abdomen and pelvis (KUB)	Usually Not Appropriate	⊕⊕
Arteriography kidney	Usually Not Appropriate	⊕⊕⊕
Radiography intravenous urography	Usually Not Appropriate	⊕⊕⊕

This imaging modality was ordered by the ER physician to evaluate for GU and GI sources of bleeding

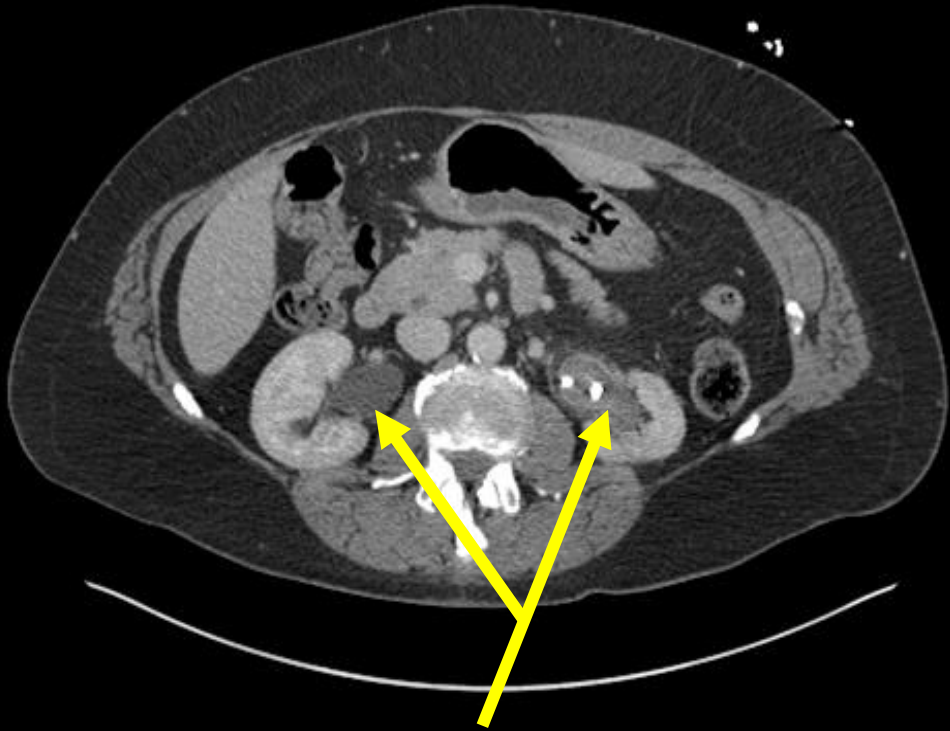
Variant 1: Lower gastrointestinal tract bleeding. Active bleeding clinically observed as hematochezia or melena in a hemodynamically stable patient. Next step.

Procedure	Appropriateness Category
CTA abdomen and pelvis without and with IV contrast	Usually Appropriate
Diagnostic/therapeutic colonoscopy	Usually Appropriate
RBC scan abdomen and pelvis	Usually Appropriate
Transcatheter arteriography/embolization	May Be Appropriate
MRA abdomen and pelvis without and with IV contrast	Usually Not Appropriate
Surgery	Usually Not Appropriate

Findings (unlabeled)



Findings (labeled)



Chronic left hydronephrosis managed with stent

*New right hydronephrosis

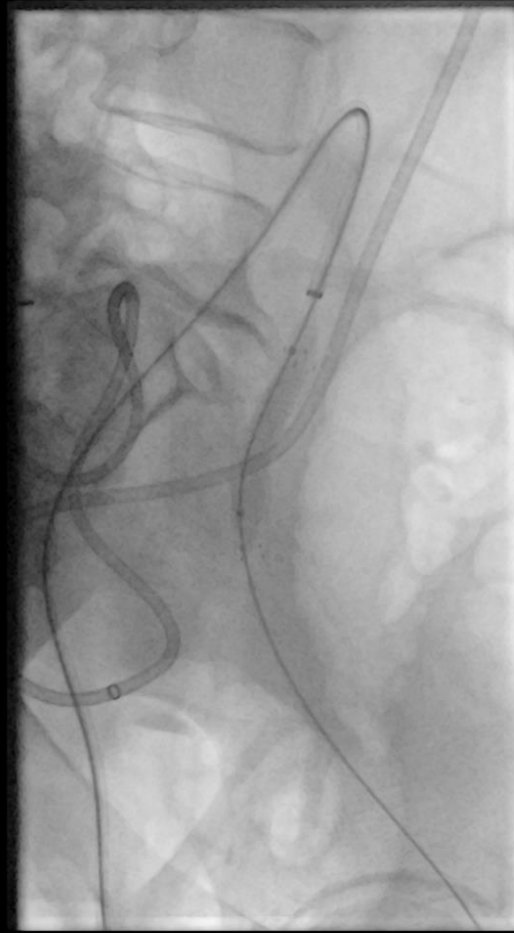


A focal outpouching of the left external iliac artery where the ureteral stent crosses

Findings (unlabeled)

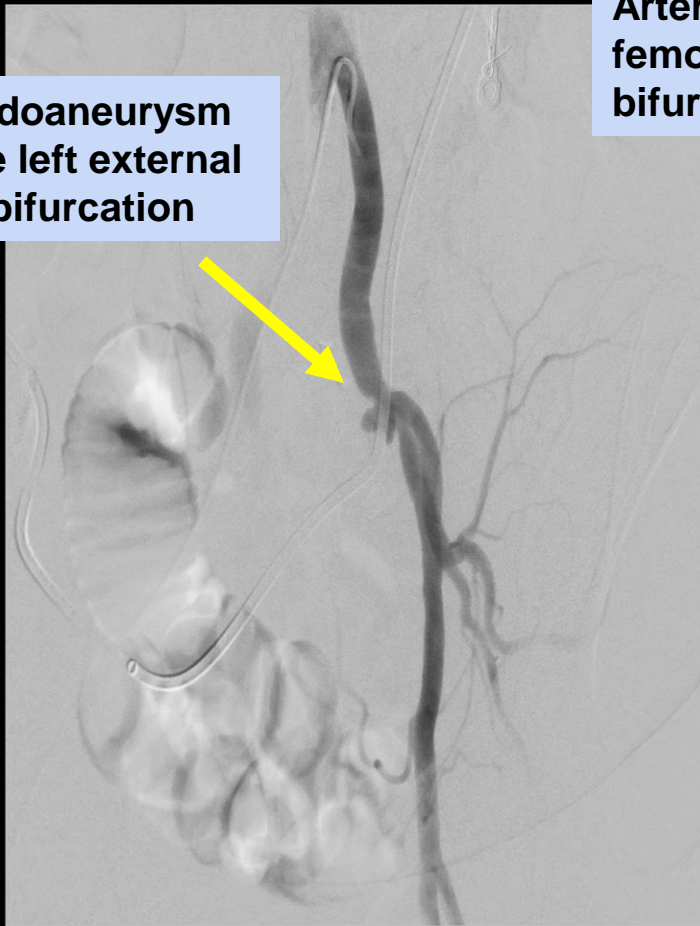


LEFT



Findings (labeled)

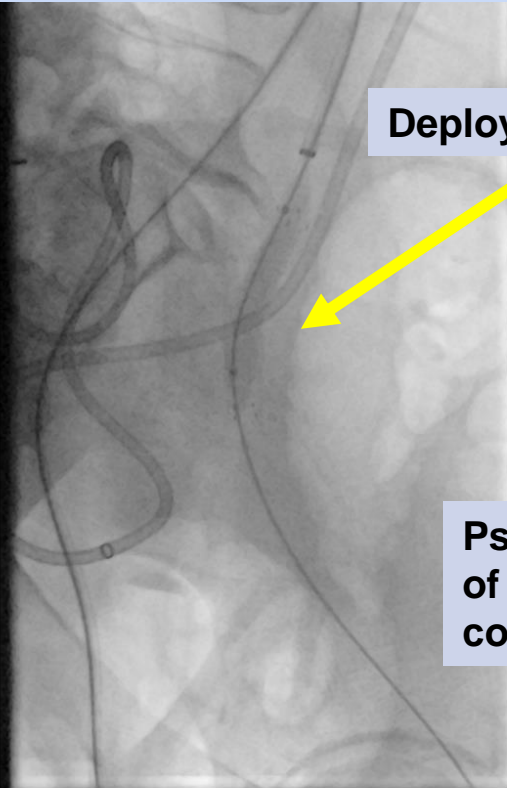
Pseudoaneurysm at the left external iliac bifurcation



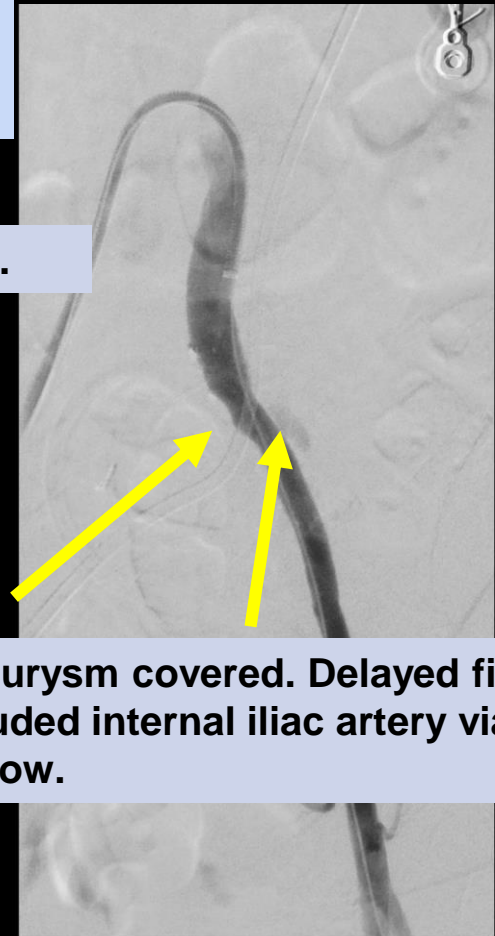
Arteriogram: Access is contralateral right femoral artery. Sheath placed over the bifurcation in preparation for stent placement.

LEFT

Deployed stent.



Pseudoaneurysm covered. Delayed filling of the excluded internal iliac artery via collateral flow.



Final Dx:

Left uretero-iliac fistula and left iliac
pseudoaneurysm

Uretero-Iliac Artery Fistula

Background

- Ureteroarterial fistula is a rare but life-threatening condition secondary to fibrosis and inflammation from previous abdominal or pelvic surgery, radiotherapy, or alteration of the urinary system
- Prompt treatment is associated with improved clinical outcomes, but diagnosis is often delayed due to its rarity and diagnostic difficulty

Risk Factors

- Prior surgical intervention for pelvic malignancy
- Urinary diversion
- Pelvic irradiation
- Female sex
- Chronic ureteral stent

Clinical Presentation

- In most patients, hematuria is the only symptom (macroscopic or microscopic, intermittent or gross)
- Acute anemia and hemodynamic instability is possible, which may progress to hemorrhagic shock if diagnosis is not caught early
- Massive or pulsatile hematuria during ureteral stent manipulation is a diagnostic clue
- New or worsening hydronephrosis may be present

Diagnosis

- Patients often undergo multiple unnecessary examinations due to difficulty in obtaining imaging diagnosis
- Pelvic angiography is most sensitive. Provocation with manipulation of stent increases sensitivity but is potentially dangerous and can trigger massive bleeding and contrast extravasation
- Initial CTA is appropriate in hemodynamically stable patients to rule out other causes

Management

- Combined endovascular (arterial stents) and endoureteral treatments are associated with more favorable outcomes and less complications compared with open surgical approaches
- Short term follow up imaging is often performed to confirm pseudoaneurysm occlusion

References:

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