

Case of the Week

April 2017

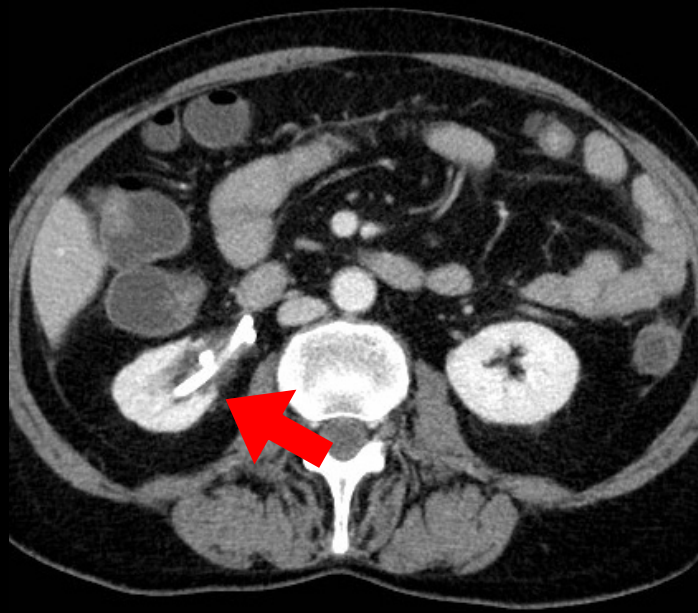
Case courtesy of Drs. Albert Asatryan and Guillaume Garneau
Centre Hospitalier Universitaire de Québec (CHUQ)
Laval University, QC

Case Report



- 72 year old female with abdominal pain, nausea, vomiting and diarrhea
- Past medical history:
 - **High grade serous papillary ovarian carcinoma** diagnosed in 2005
 - TAH-BSO and intermittent chemotherapy since diagnosis, paused during the past 2 months
 - **Diverticulosis**
- Vital signs normal
- Labwork normal except for elevated CRP
- Abdominal x-ray
 - Air-fluid levels in small and large bowel without distention
- An abdominal and pelvic CT scan was performed

Initial CT



Initial CT



- CT demonstrates:
 - A non-distended stomach and proximal bowel
 - **Dilatation of distal bowel** associated with slight **wall thickening**, not involving the terminal ileum
 - Dilation of the ileum was due to a 3.5 cm **solid necrotic mass along the right iliac vessels invading the distal ileum wall**
 - The patient was known to the IR department from a previous right nephrostomy tube placement due to right ureteral compression by the infiltrative mass

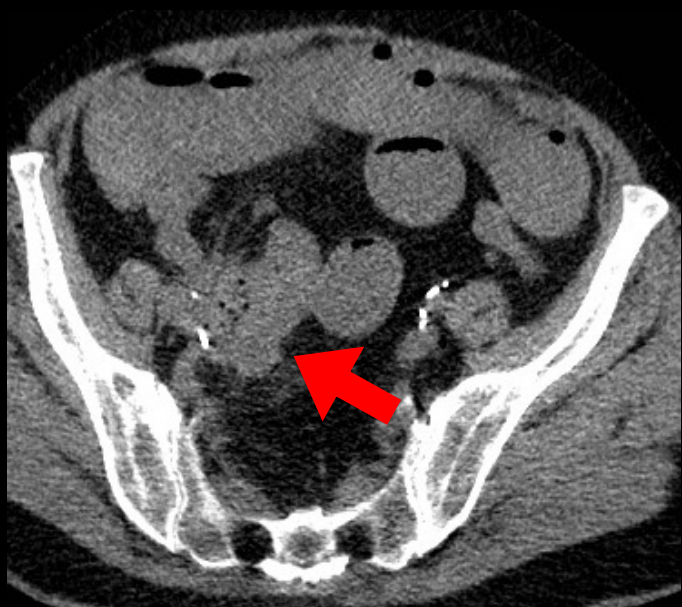
- The diagnosis was a **distal bowel obstruction from a metastatic lesion of a known ovarian carcinoma invading the bowel wall**
- Hospital admission with gynecology consult
- Patient got better with conservative treatment and was discharged 4 days later with a dexamethasone prescription
- She was advised that an eventual surgery might be needed because of cancer involving the bowel, but wasn't required for the moment

- Ten days later... 8 PM
- Patient was brought by ambulance to the emergency department for 6 episodes of rectal bleeding, abdominal pain and lipothymia
- Initial VS: BP 125/82 mmHg, HR 82 bpm, RR 16/min, SaO₂ 100%
- No evidence of blood on rectal examination at the ED
- A gastroenterology consult was obtained at 1 AM
- Patient was pale and felt tired
- ↓BP 103/75 mmHg and ↓Hb 101 → 82

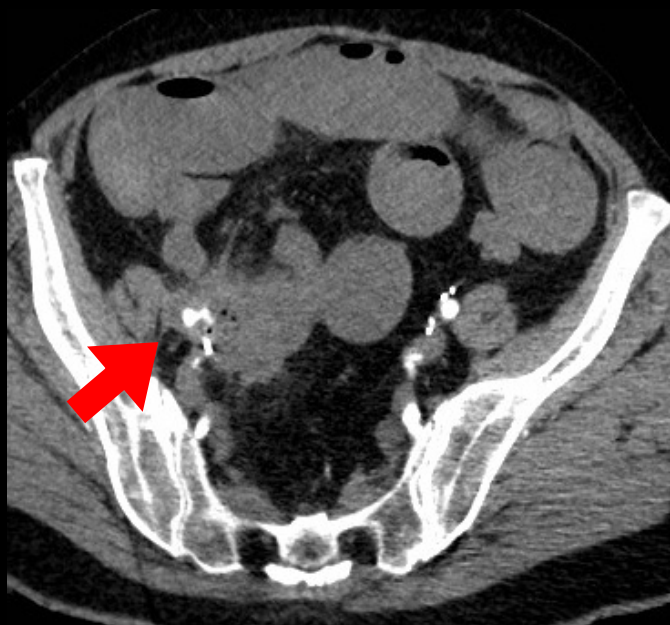
- Differential diagnosis considered:
 - Atypical lower GI bleeding from diverticulosis – most probable
 - An upper GI bleeding in the context of dexamethasone use
 - Possible bleeding from metastatic mass ulceration
- In the context of relative hemodynamic instability the patient was admitted to the ICU with a blood transfusions
- Plan:
 - Diagnostic NG tube: if blood → EGD; if no blood → colonoscopy in the morning
 - Patient didn't tolerate tube insertion
 - Contact interventional radiology if hemodynamic instability during the night

- Patient required more than 6 blood transfusions during the night and was still unstable
- **BP further dropped** to 65/40 mmHg
- **Hb dropped** to 52 (from 82 ← 101)
- Quick! Call IR
- We asked to perform an abdominal/pelvic CTA in order to plan the intervention

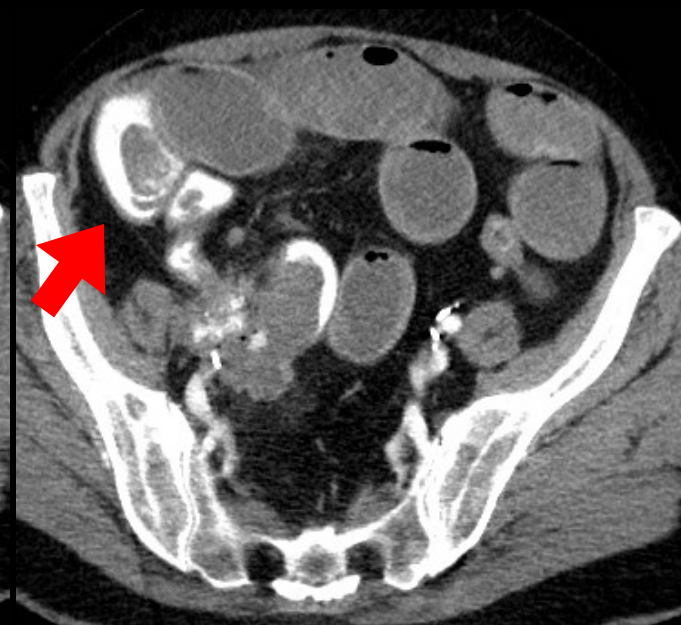
Repeat CTA - 4:30 AM



C-



C+ arterial



C+ venous

Repeat CTA



C+ arterial



C+ arterial MIP



C+ venous

Repeat CTA Findings



- **Arterial phase:** small extravasation of contrast from the right external iliac artery
- **Venous phase:** large extravasation, with contrast filling the terminal ileum, cecum and ascending colon up to the hepatic flexure
- No intraperitoneal spill of contrast
- The bleeding originated from the site of a known metastatic lesion in proximity to the right external iliac artery and invading the wall of the distal ileum
- Air bubbles inside the lesion were also suggestive of fistulization with bowel, which explained the GI bleeding

Procedure – 7 AM



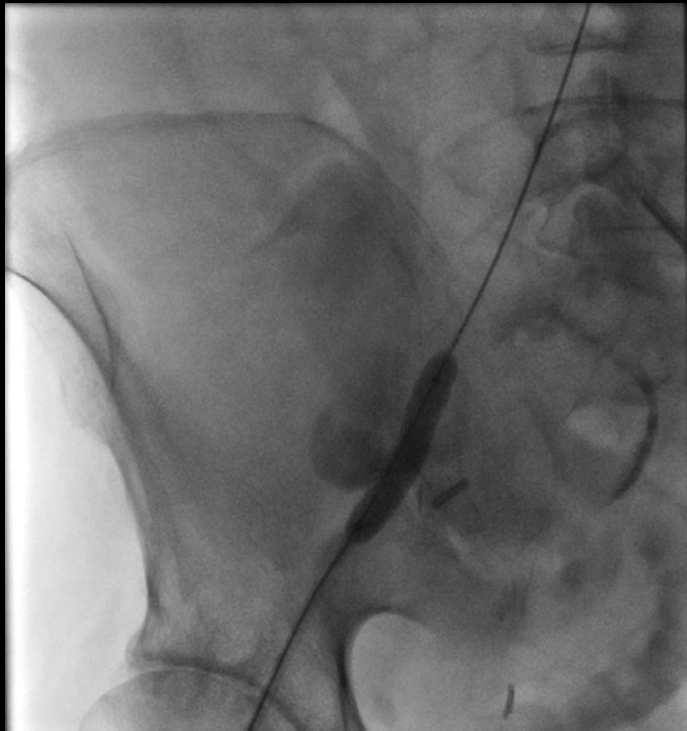
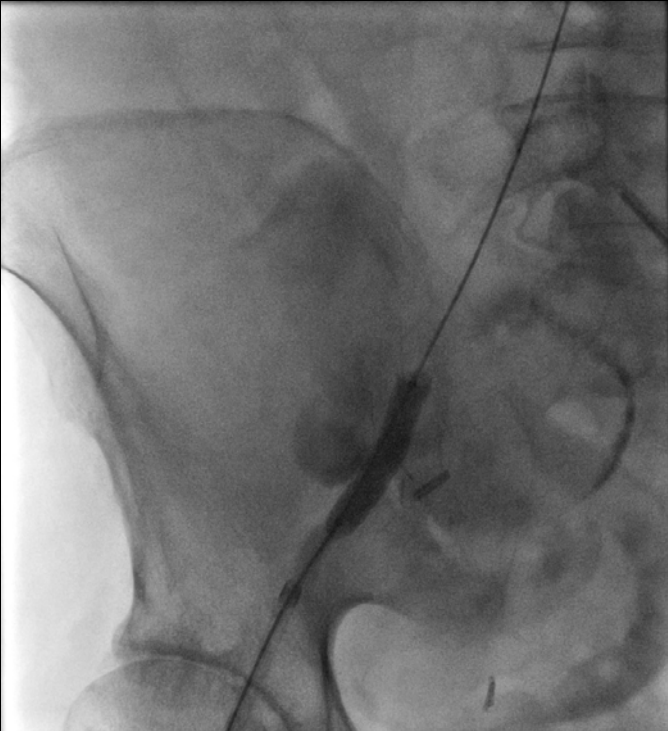
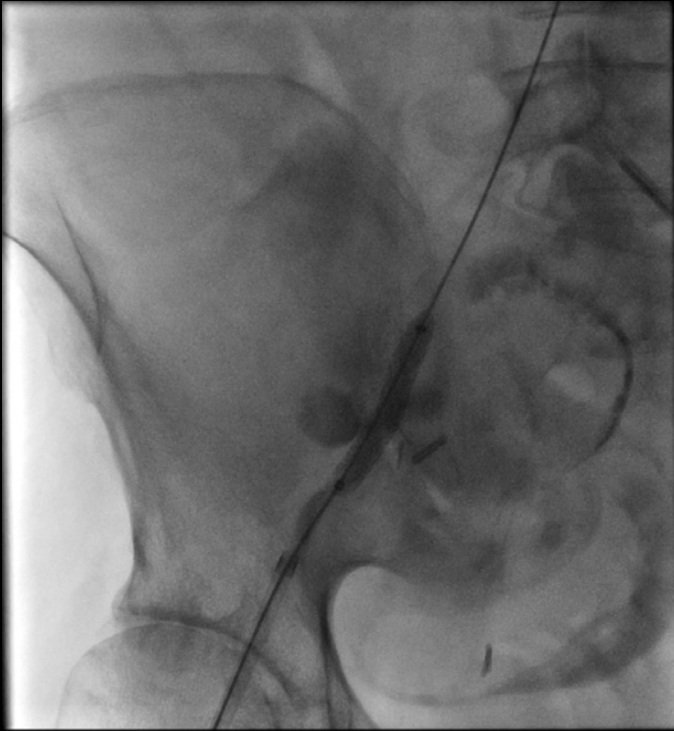
- Right femoral approach
- Iliac angiography was performed; let's take a look!

Right iliac angiography



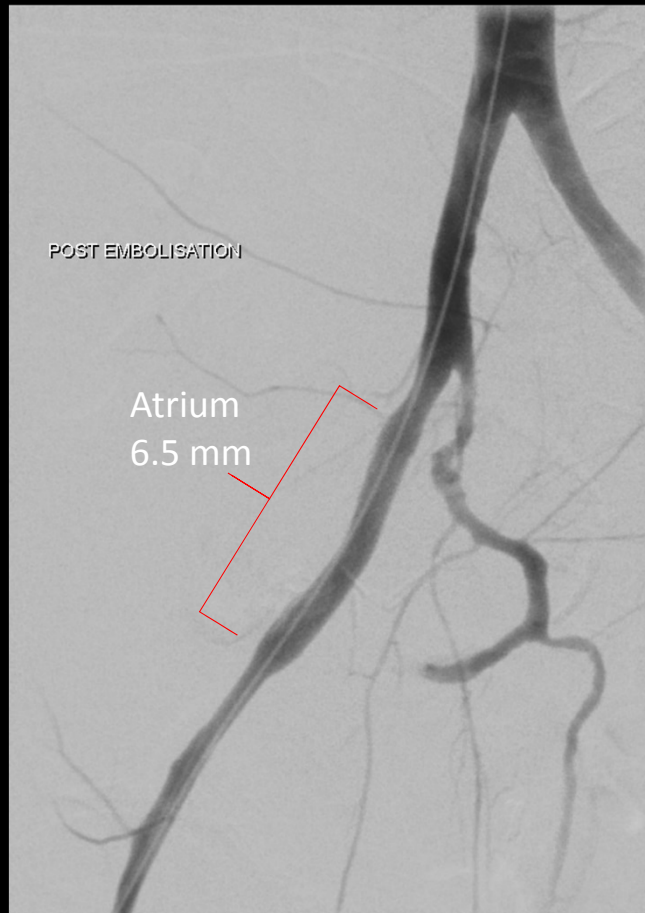
- Right iliac angiography demonstrated **active contrast extravasation** in the middle third of the right external iliac artery in relation to the known perforation

Stent deployment



- The perforation was sealed by deploying a **covered balloon-expandable 5 mm x 38 mm Atrium stent**, which was **post-dilated to 6.5 mm**

Post-Procedure



Good result - bleeding completely stopped!

- Patient was returned to the ICU hemodynamically stable
- Vasopressors were stopped and the patient's clinical condition quickly improved
- During the same hospitalization:
 - Successful resection of the ilio-enteric fistula and creation of a right ilio-femoral bypass using a segment of the superficial femoral vein
- Patient was discharged from the hospital a week later

Discussion



- It was a good idea to **begin with a CTA in order to locate the source of the bleeding**
- The diagnosis could have been missed if we directly went to selective angiography of the digestive arterial trunks
- Stent choice was limited. The two options were a **balloon-expandable 5 mm stent**, which was small but with the potential to **post-dilate up to 12 mm** (Atrium V12), or a **self-expanding 9 mm x 50 mm stent** (Viabahn), which seemed too big in this case
- An **8 mm x 50 mm Viabahn would have been a good choice** but was used the previous day to treat another patient and was not available
- It was also a little **difficult to know the exact diameter of the artery in this patient who was in shock**. The idea was to expand the Atrium to 6.5 mm and, if needed, return and re-expand the stent in the following days

- The patient had **surgery to prevent potential long term complications of an infected stent graft** – persistent sepsis, stent perforation with recurrent bleeding, mycotic pseudoaneurysm, etc.
- The **immediate outcome** of stent grafts in an infected environment is **good** (as in the case of mycotic aneurysms), but **a closer long term follow-up must be ensured** as sterilization of the site with antibiotics is difficult
- For this reason, the stent was **explanted** and a **venous bypass graft** was created between the right common iliac artery and the right common femoral artery
- A venous bypass graft was used in this case, as a **synthetic graft would be harder to sterilize with antibiotics**
- The right internal iliac artery was also embolized prior to stent explantation to prevent bleeding during the procedure

Take-home points



1. In the setting of lower gastrointestinal hemorrhage it is important to begin imaging with CTA
2. Evaluation of precise artery diameter can be tricky in a patient in shock. Choosing a balloon-expandable stent leaves the door open to go back and further dilate if needed
3. In most cases, stent placement in an infected environment should be a temporary measure to achieve hemodynamic stability. If a decision is made to keep the stent in place, close patient follow-up must be ensured