Clinical History:

The patient has a history of Crohn’s disease, small bowel resections, short gut syndrome. Admitted for acute on chronic abdominal pain.
New onset, non-pulsatile bleeding from large enterocutaneous (EC) fistula. Local bleeding control responded only transiently to hours of manual compression and topical thrombin; recurred immediately after stopping compression. Decreasing haemoglobin and haematocrit.

Imaging Findings:

Pre-contrast CT angiogram (CTA) of the abdomen and pelvis (Figure 1) shows intermediate-density fluid and interspersed air along the anterior abdominopelvic wall, representing a mix of blood clot and wound packing material.
Post-contrast delayed CTA image at the portal venous phase (Figure 2) shows small aligned streaks of hyperdensity in this mix consistent with active extravasation (not visible on arterial phase CT images). The extravasation is outside the skin.
Selective arteriogram of the right gastroepiploic artery from a left brachial artery approach (Figure 3) demonstrates no extravasation of contrast, pseudoaneurysm, or arteriovenous fistula in this artery nor in the parent gastroduodenal artery.
Repeat selective arteriogram (Figure 4) after microcoil embolisation (with pushable 0.018 microcoils, 2-3mm in diameter each) demonstrates successful occlusion of the right gastroepiploic artery.

Discussion:

A fistula is an abnormal communication between two epithelial lined surfaces. The vast majority of enterocutaneous fistulas (ECF), i.e. communications between the skin and gastrointestinal tract, develop as postoperative complications, whereas a minority occur spontaneously due to conditions such as Crohn’s disease, acute diverticulitis, radiation therapy, or ulcerative colitis [1]. Most ECF originate from the small bowel; however, they can theoretically occur from any site along the alimentary tract [2, 3].

Treatment of uncomplicated ECF typically involves medical management and local wound care initially, to reverse
any electrolyte imbalances, treat associated sepsis if present, and provide adequate nutrition using parenteral or enteral means [4-6].

Uncomplicated ECF may resolve within a few weeks of medical management and therefore many authors recommend waiting at least 6 weeks before attempting surgical closure of uncomplicated ECF [4, 7-8]. Complications such as obstruction, bleeding, or abscess formation may necessitate early implementation of invasive management [7].

Bleeding from an ECF is not a commonly described complication. When present, it tends to respond to noninvasive treatment such as applying local pressure and adequate wound care. The present case prompted the performance of a CT angiography to search for potential culprit vessel(s). Although no active bleeding was seen at the arterial phase, venous phase CT images showed active extravasation in the external blood clot overlying the skin, yet without evident source vessel. The right gastroepiploic artery was the vessel seen most closely located to the bleed, but appeared normal and was separated from the contrast extravasation by a clean, non-infiltrated subcutaneous fat plane and by the overlying skin.

Due to ongoing bleeding recurrence as soon as external compression dressings were removed, arteriographic exploration was performed. Selective angiograms of the right gastroepiploic artery before embolisation showed normal appearance of this vessel and no contrast extravasation, pseudoaneurysm, or arteriovenous fistula. The right gastroepiploic artery was then embolised prophylactically with 0.018” microcoils. Post-embolisation arteriograms were obtained with the microcatheter in the right gastroepiploic artery and its more proximal parent branch, the gastroduodenal artery, and revealed successful occlusion of the suspect vessel.

After the procedure, the patient remained haemodynamically stable and was weaned off pressors within 4 hours, moved from the ICU to a regular floor the next day, and eventually discharged from hospital the following week. No recurrent bleeding occurred for over 6 months thereafter.

**Differential Diagnosis List:** Bleeding enterocutaneous fistula treated by embolisation of right gastroepiploic artery, Arteriovenous fistula, Pseudoaneurysm

**Final Diagnosis:** Bleeding enterocutaneous fistula treated by embolisation of right gastroepiploic artery.

**References:**


Kuvshinoff BW, Brodish RJ, McFadden DW, Fischer JE. (1993) Serum transferrin as prognostic indicator of
Description: Precontrast CT angiogram (CTA) of the abdomen and pelvis. Origin: Baystate Medical Center, Division of Interventional Radiology, Springfield, MA (USA)
Figure 2

Description: Postcontrast delayed CTA

Origin: Baystate Medical Center, Division of Interventional Radiology, Springfield, MA (USA)
Description: Selective arteriogram of the right gastroepiploic (from a left brachial artery approach)
Origin: Baystate Medical Center, Division of Interventional Radiology, Springfield, MA (USA)
Figure 4

Description: Repeat angiogram after embolotherapy

Origin: Baystate Medical Center, Division of Interventional Radiology, Springfield, MA (USA)