LEARNING OBJECTIVES

1) Learn how to recognize Heterotopic Mesenteric Ossification (HMO)
2) Become familiar with complications associated with HMO

CLINICAL CASE

HPI:
An 18 year old African American man, with no significant past medical history, presented after his motorcycle crashed into an oncoming car.

Hospital Course:
He sustained a closed head injury, small bowel injury, class V liver injury requiring embolization and hepatectomy, and colonic leak requiring repair and drain placement. His injuries also required multiple surgeries for debridements, washouts, and progressive closure of his abdominal incision. Hospital course was further complicated by development of enterocutaneous fistula, and self limited bloody stools. The patient had a gradual spontaneous improvement in pain, GI bleed, and PO intake and was discharged.

Interval CT Imaging After Admission:
At one and two weeks: worsening of diffuse mesenteric stranding. At six weeks: circumferential area of increased density at the anterior aspect of the right abdominal wall. At seven weeks: worsening curvilinear densities in the mesentery, wrapping around portions of the colon (Figure 1).

DISCUSSION

Heterotopic ossification is ossification of tissue that normally does not form bone. Osteoprogenitor cells → osteoblastic tissue → mature lamellar bone.

Epidemiology:
Mesenteric ossification is very rare, with less than 15 cases previously reported. It is twice as common in men, and often associated with abdominal trauma or recent abdominal surgical procedures. Bone formation can be thought of as an exuberant reaction to trauma to predisposed individuals.

Symptoms:
HMO most commonly presents with stiffness. Some patients also present with pain. Often times, patients are asymptomatic and it is either incidentally found on imaging or more commonly presenting as one of HMO’s complications.

Commonly confused with:
- Contrast extravasations
- Sarcoma
- Dystrophic calcification
- Osteosarcoma

How do I decide?
On Radiology: distinguished by stationary location of contrast on xray independent of patient movement. This can be compared to contrast extravasations, which should collect at the most dependent portion of the body. Dystrophic calcifications differ by its appearance of irregular punctate and faint radiodense areas.
On Pathology: HMO is laid down in organized trabecular pattern of osteoid material, rimmed by a layer of active osteoblasts. Malignant features are lacking (Figure 2). This can be compared to dystrophic calcifications which is a collection of calcifications without osteoblasts.
On Laboratory: Robust production has been correlated with a sedimentation rate greater than 35ml/hr or a serum alkaline phosphatase greater than 250IU/L.

REFERENCES

1. Tonino BA et al, Heterotopic Mesenteric Ossification: a case report
   Eur radiol (2005) 15: 195-197

DISCUSSION CONTINUED

Complications:
As seen in our case patient, enterocutaneous fistulae and GI bleed often occur. Small bowel obstruction and bowel perforation are also feared complications. Patients found to HMO commonly first present with small bowel obstruction or enterocutaneous fistula.

Treatment:
Given the rarity of the disease, there is little evidence supporting optimum treatment. If required, treatment can consist of lysis of adhesions and resection of non-viable small bowel. Given HMOs ability to recur, removal of heterotopic bone (fig. 3) should be deferred. There has been some use of local irradiation, bisphosphonates, and anti-inflammatory agents. However, results have been variable.