

Introduction

- Pseudomelanosis of the upper gastrointestinal (GI) tract is a rare condition characterized by diffuse black-brown pigmentation on endoscopy, and is histologically distinct from its colonic counterpart.
- While considered benign, it has been associated with various conditions including hypertension, diabetes, chronic kidney disease, GI bleeding, and several medications including oral iron supplements and diuretics.
- We present a case of upper intestinal pseudomelanosis in a patient presenting for evaluation of iron deficiency anemia.

Case Presentation

- An 80-year-old woman with HTN, type 2 diabetes, CKD 3b, coronary artery disease, GERD, hypothyroidism, and celiac disease was referred for evaluation of iron deficiency anemia.
- She had undergone screening colonoscopy two years prior notable for scattered diverticulosis, and upper endoscopy five years prior notable for mild gastritis, with biopsies negative for *Helicobacter pylori*.
- Medications included: aspirin, hydralazine, metoprolol, losartan, atorvastatin, pantoprazole, ferrous sulfate, insulin glargine, and epoetin alpha injections.
- Patient underwent video capsule endoscopy which demonstrated mild non-erosive gastropathy and scattered black colored pigmentation in the proximal duodenum (Figure 1A).
- Subsequently underwent upper endoscopy demonstrating scattered pigmentation in the gastric antrum, duodenum, and proximal jejunum (Figure 1B).
- Duodenal biopsies revealed pigment laden macrophages within the mucosa consistent with pseudomelanosis (Figure 2).

Capsule and Upper Endoscopy

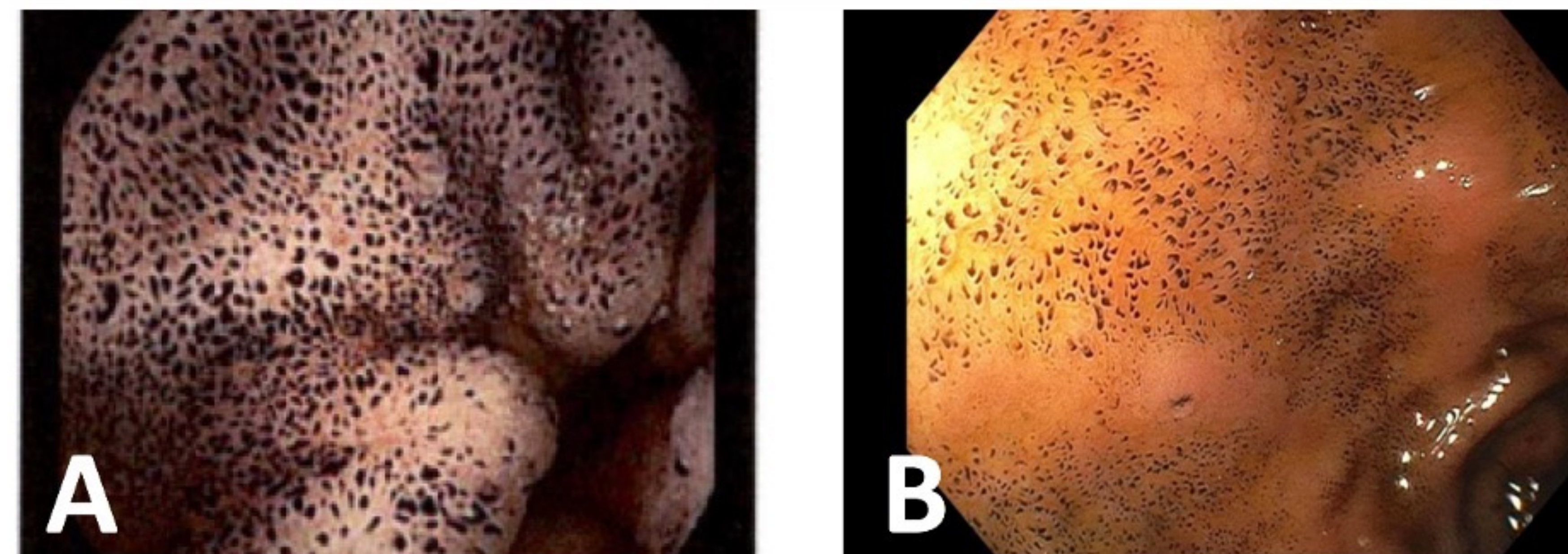


Figure 1: (A) Capsule endoscopy demonstrating scattered black pigmentation within the duodenal mucosa. (B) Endoscopic view of the duodenal bulb with scattered foci of pigmentation.

Histopathology

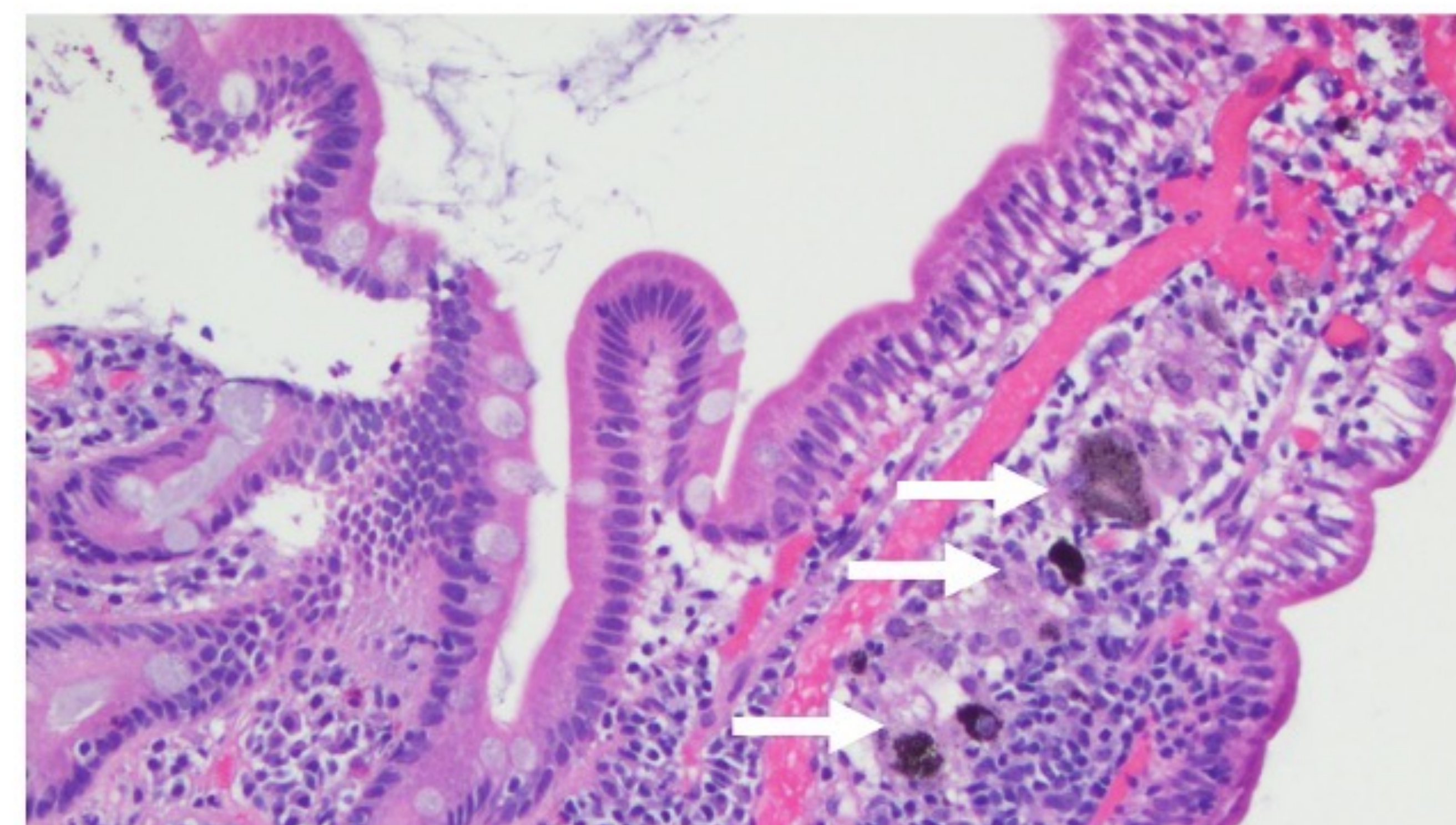


Figure 2: Duodenal biopsy H&E stain demonstrating pigment laden macrophages (white arrows) consistent with pseudomelanosis.

Clinical Course

- Patient was continued on oral iron supplementation, and medically optimized from a cardiac and renal perspective.
- Gradually her anemia improved with iron and epoetin alpha.

Discussion

- The hallmark of upper intestinal pseudomelanosis is the characteristic black/brown scattered pigmentation as demonstrated in Figure 1.
- Diagnosis of the condition is based on direct visualization via endoscopy, and confirmed through biopsies with the characteristic pigment laden macrophages (Figure 2).
- It is important to create distinction between upper intestinal pseudomelanosis and colonic pseudomelanosis, which are two histologically distinct entities.
 - Colonic pseudomelanosis is characterized histologically by accumulation of lipofuscin within the colonic mucosa, associated with laxative use.
 - Upper intestinal pseudomelanosis is characterized histologically by accumulation of ferrous sulfate containing compounds in combination with various trace elements of sulfur, calcium, magnesium, potassium and silver.
- Although pseudomelanosis of the upper intestinal tract most commonly affects the duodenum, in even rarer cases it has been known to affect the gastric body and jejunum, as seen in this case.
- While pathogenesis of upper intestinal pseudomelanosis remains unclear, chronic oral iron therapy and its interaction with sulfur metabolism dysregulation has been suggested as a possible factor.
- While upper intestinal pseudomelanosis has long been considered benign, given its overall rarity, there is still much to learn about this insufficiently understood condition.