

## Gastrointestinal pseudomelanosis

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An 81-year-old Caucasian woman with a history of hypertension, stage IV chronic kidney disease and iron deficiency anemia was evaluated for a 3-month history of common bile duct dilation (16 mm). Physical exam was unremarkable with stable vital signs. Laboratory tests were significant for a hemoglobin ranging from 8.4-10.0 g/dL (reference range: 12.0-15.0 g/dL) and creatinine ranging from 2.44-2.75 mg/dL (reference range: 0.70-1.50 mg/dL). Medication list included lisinopril, metoprolol, hydralazine, clonidine with a 3-month prior increase in ferrous sulfate from q.d. to t.i.d. Esophagogastroduodenoscopy prior to endoscopic ultrasound demonstrated gastric and duodenal black pigmented mucosa (Fig. 1). Duodenal biopsies demonstrated submucosal pigment laden macrophages (Fig. 2; H&E staining, original magnification 20x) characteristic of pseudomelanosis of the stomach and duodenum.

Extra-colonic pseudomelanosis is a relatively rare but incidental finding on endoscopy. The most common extra-colonic location is the duodenum with only 2 cases reported involving the stomach, duodenum and jejunum. Associated clinical conditions include chronic renal failure, hypertension, diabetes mellitus and medications such as iron supplements (e.g. ferrous sulfate) and anti-hypertensives (hydralazine, hydrochlorothiazide, furosemide, propranolol) [1-2]. The etiology of pseudomelanosis involving the upper gastrointestinal (GI) tract remains uncertain, but it is hypothesized that impaired iron transport and iron coupling with sulfa moieties in anti-hypertensive medications may be the underlying mechanism of mucosal pigmentation [3]. Pseudomelanosis of the upper GI tract is not associated with long-term complications and does not require specific therapy or follow up.

### Acknowledgment

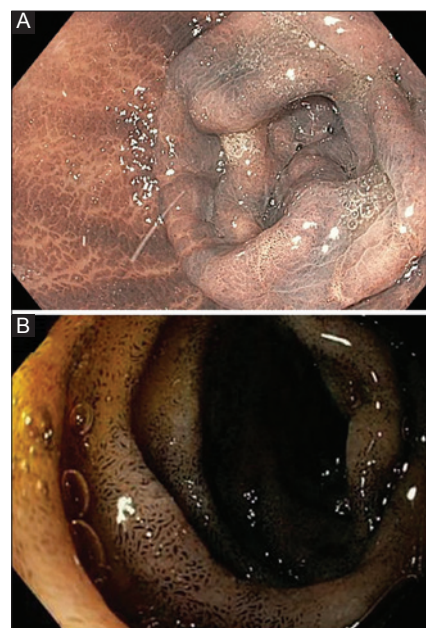
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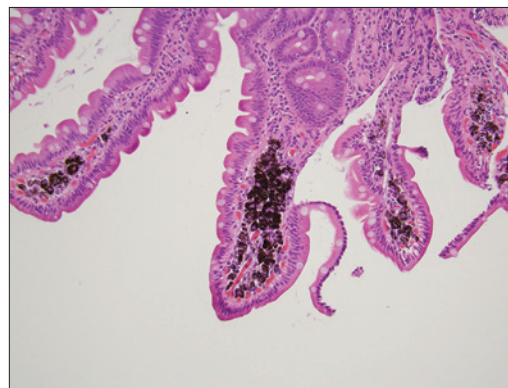
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**Figure 1** Esophagogastroduodenoscopy revealing gastric (A) and duodenal (B) black pigmented mucosa



**Figure 2** Duodenal biopsy demonstrating submucosal pigment laden macrophages

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