Small-bowel pseudomelanosis

An 80-year-old man with a past medical history of hypertension and stage 3 chronic renal failure was referred for capsule enteroscopy because of iron deficiency anemia without overt bleeding. Previous upper gastrointestinal endoscopy and colonoscopy had revealed no significant changes. He had been on oral therapy with ferrous sulfate, in addition to candesartan cilextil/hydrochlorothiazide.

Capsule enteroscopy (Video 1) showed brown hyperpigmentation with a speckled, continuous pattern affecting the jejunum (Fig. 1a, b), but no hemorrhagic lesions were detected. Single-balloon enteroscopy revealed normal morphology of the villi with the same speckled brown pigmentation throughout the jejunum (Fig. 2a, b). Histology revealed the deposition of brown pigment within macrophages in the lamina propria of normal villi (Fig. 3a). A positive result with Prussian blue stain indicated hemosiderin deposition (Fig. 3b).

The term melanosis, derived from the Greek, means “state of blackness” and is appropriately used to describe conditions associated with excessive pigmentation. A variety of elements and compounds may cause dark pigmentation of the bowel, including melanin, lipofuscin, bismuth, iron, hemosiderin, and charcoal. The mechanisms of pigment deposition are unknown, and the consequences are thought to be benign [1]. Regardless of the chemical composition, deposits are typically found within macrophages in the lamina propria of normal villi. Pseudomelanosis of the small intestine is very rare, with only a few cases reported. It may be associated with chronic renal failure, gastrointestinal bleeding, drugs (hydralazine, propranolol, hydrochlorothiazide, furosemide, ferrous sulfate), or folic acid deficiency [2]. Although pseudomelanosis is a rare entity, physicians should be aware of it to facilitate a prompt diagnosis and avoid unnecessary testing.

This case report underscores the association of pseudomelanosis of the small bowel with oral iron therapy and chronic renal failure. It has been hypothesized that the coupling of absorbed iron with a sulfur moiety in antihypertensive medications is the underlying mechanism for pigment accumulation in macrophages in the small-bowel mucosa [3].

Competing interests: None
Fig. 3  

a  Histology shows the deposition of brown pigment within macrophages in the lamina propria of normal villi.  
b  A positive result with Prussian blue stain indicates hemosiderin deposition.

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DOI http://dx.doi.org/10.1055/s-0034-1391956
Endoscopy 2015; 47: E291–E292
© Georg Thieme Verlag KG Stuttgart · New York
ISSN 0013-726X

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