

Image Quiz: A Biopsy of Gastric Mucosa from a 10-Year-Old Child with a History of Iron Deficiency Anemia Who Presented with Chief Complaint of Abdominal Pain

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Clinical Context

► **Fig. 1** is a composite of microscopic images from a hematoxylin and eosin (H&E) stained mucosal biopsy taken at upper endoscopy from a 10-year-old child who presented with

abdominal pain. Past medical history is significant for iron deficiency anemia managed by oral iron supplements.

What is your diagnosis?

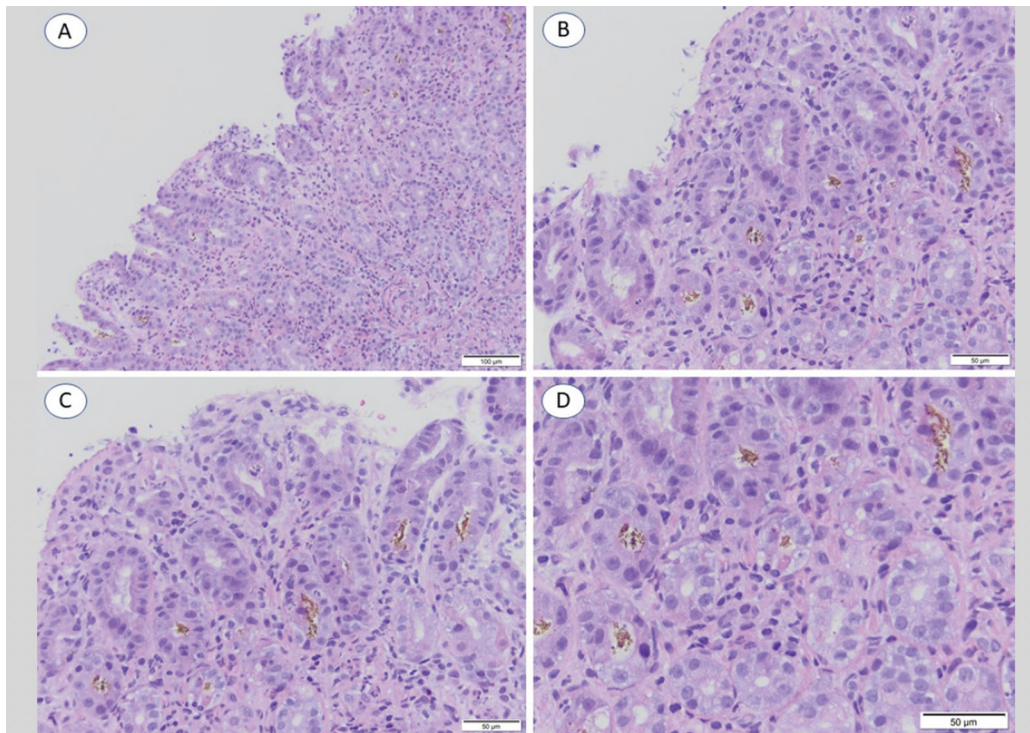


Fig. 1 (A–D) A hematoxylin and eosin-stained biopsy of gastric mucosa showing active and chronic gastritis and deposits of brown pigment in glands lumens.

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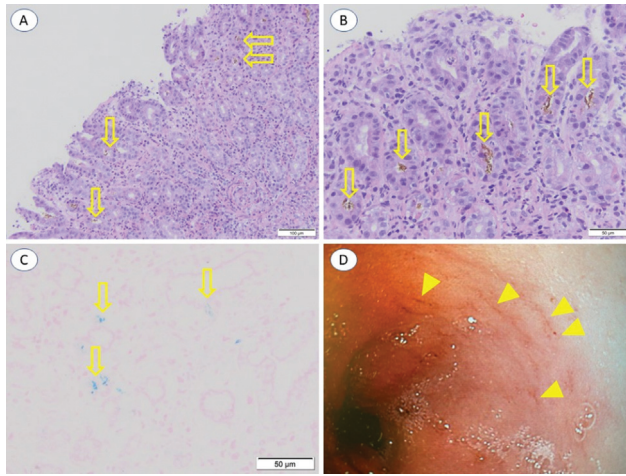


Fig. 2 Hematoxylin and eosin-stained biopsy of gastric mucosa showing deposits of brown pigment in glands lumens (A and B—arrows). This pigment stained with iron stain (Prussian blue stain—C, arrows). Endoscopic photo showing gross appearance of typical changes of erosive gastritis (D, arrowheads—this photo is from a different but similar case).

Answer to Image quiz:

The diagnosis is pill-induced gastritis. As you can see, highlighted, in **Fig. 2A and B**, there is active and chronic inflammation of gastric mucosa. The most superficial mucosa shows changes suggestive of healing erosions and brown pigment deposits are evident in gastric glands lumens (arrows). Iron stain (Prussian blue stain—**Fig. 2C**, arrows) showed the pigment to stain blue supporting its nature as iron compound.

Discussion

Perhaps due to empiric management or underreporting, the prevalence of pill-induced gastritis in general and iron pill gastritis is largely unknown. In a review of 1,300 upper gastrointestinal tract biopsies from 33 patients, iron deposits were found in 0.9% of biopsies.¹ This is not surprising considering that iron deficiency is the most common type of anemia, with most patients treated with oral iron supplementation.^{2,3}

It is suspected that the effect of iron pill on gastric mucosa is comparable to chemical burn, and related symptoms and signs are a result of corrosive mucosal injury.⁴ The gastric erosions (superficial ulcerations) associated with iron pill gastritis may result in gastrointestinal bleeding and may exacerbate the patient's anemia.

Iron pill gastritis is usually suspected based on the clinical history. Confirmation can be made at endoscopy and through a biopsy of mucosa followed by iron staining. The microscopic images of the gastric mucosa of this patient usually exhibit deposits of brown substance called hemosiderin and variable erosive and inflammatory changes (**Fig. 1 and 2**).

It has been found that solid iron supplements are significantly more erosive to gastric mucosa than liquid iron supplements.^{4,5} Replacing solid iron supplements by liquid iron supplements may be an option that replenish deficient iron while reducing the complication of pill gastritis.

Ethical Approval

Not required.

Funding and sponsorship

None.

Conflict of interest

None declared.

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