

Iron-induced esophageal ulceration

Esophageal inflammation or ulceration is a well recognized side-effect of some oral medications, especially nonsteroidal anti-inflammatory or potassium chloride tablets. A similar injury can be induced by iron but endoscopically detected lesions are rarely reported [1,2].

An 82-year-old woman presented a sudden complaint of dysphagia after ingestion of a ferrous sulphate tablet. She had chronic esophageal reflux and Raynaud's syndrome. Her physical examination was normal.

An upper endoscopy revealed a black-brown, ulcerated and necrotic lesion, just below the upper esophageal sphincter, 2 cm in length, well circumscribed and associated with a slight stenosis. Below the lesion the esophageal lumen was distended and atonic, with candidiasis and a grade D peptic esophagitis (◀ Fig. 1, ▶ Video 1).

Histological evaluation revealed ulcerated esophagitis, with acute inflammatory granulation tissue containing abundant brown crystalline nonbirefringent material, confirmed as iron by Perl's staining (▶ Fig. 2, 3). Other stainings for brown pigments and infections were negative.

The patient's iron tablets were stopped and a high dose proton pump inhibitor was prescribed. The dysphagia was relieved and a repeat upper endoscopy revealed progressive resolution of the necrosis and stenosis (▶ Fig. 4, ▶ Video 2). Iron-induced esophageal erosions or ulcerations are seldom described and the differential diagnoses might be striking. Tablet debris seen at endoscopy is diagnostic but rarely detected. Histological examination reveals a typical brown crystalline material positive with Perl's staining [1,3,4]. The pathogenesis is believed to be a high local iron saturation causing a concentration-dependent absorption, resulting in the formation of reactive oxygen metabolites and mucosal injury [3]. Anatomical factors such as motility disorders or previous inflammation might predispose to the iron injury [3,4].

Treatment requires stopping the offending drug or, if iron is still necessary, changing to a liquid preparation [3,5]. Iron-induced lesions are not endoscopically specific and histological investigation is essential to the diagnosis.

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Bibliography

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Video 1

Upper endoscopy at day 1 revealed a black-brown, ulcerated and necrotic lesion, just below the upper esophageal sphincter and a distended atonic esophagus.

Video 2

Upper endoscopy at day 8 showing the progressive resolution of the lesion with a circumferential brown-pigmented lesion with no necrosis or stenosis.

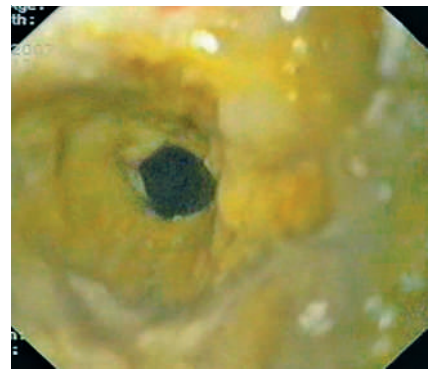


Fig. 1 Upper endoscopy at day 1 revealed a black-brown, ulcerated and necrotic lesion, just below the upper esophageal sphincter.

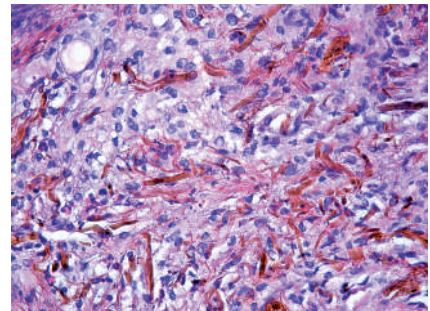


Fig. 2 Granulation tissue from the area with ulcerated esophagitis containing abundant brown crystalline material (hematoxylin and eosin, ×400).

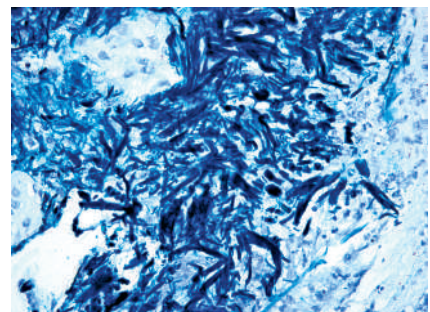


Fig. 3 Positive blue staining of the crystalline material with Perl's iron stain (×400).

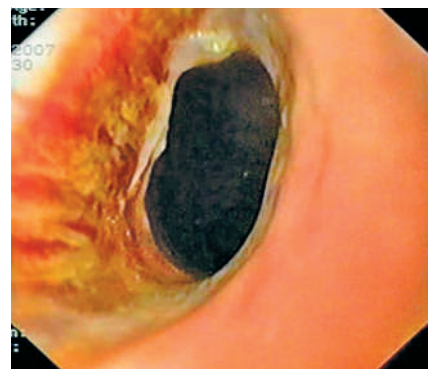


Fig. 4 Upper endoscopy at day 8 showing the progressive resolution of the lesion, with a brown pigmentation and no necrosis.