


## Black esophagus: an uncommon cause of upper gastrointestinal bleeding

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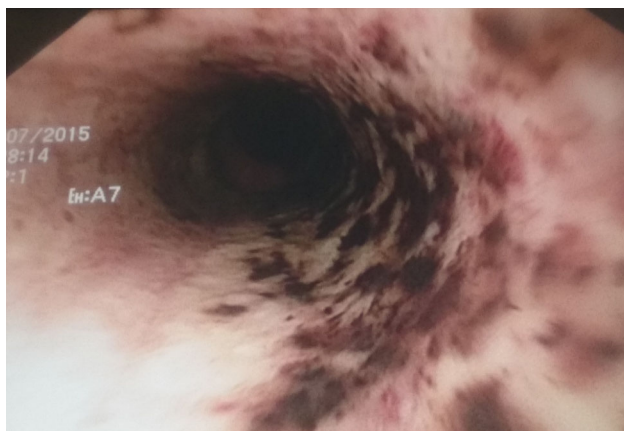
An 80-year-old woman presented to the internal medicine department for three episodes of melena for 2 days. She reported taking NSAIDs (ibuprofen 1600 mg daily) the prior week. The physical examination was unremarkable with stable vital signs. Laboratory tests were significant for an iron deficiency anemia with hemoglobin ranging from 9.0 to 11.0 g/dL (reference range 12.5–14.5 g/dL). Her past medical history included osteoarthritis (occasional taking of NSAIDs) and hysterectomy. Esophagogastroduodenoscopy showed a black-appearing esophageal mucosa circumferentially occupying the entire body of the second half of the esophagus (Fig. 1). Biopsies of the lesion demonstrated epithelial cell necrosis, with non-specific inflammatory exudates. The patient gradually recovered after conservative treatments (hydration, intravenous, proton pump inhibitor, sucralfate and total parenteral nutrition). Follow-up upper gastrointestinal endoscopy revealed a remarkable healing of the esophageal wall with no complications (Fig. 2).

‘Black esophagus’ or acute esophageal necrosis (AEN) was first described by Goldenberg et al. in the early 1990s

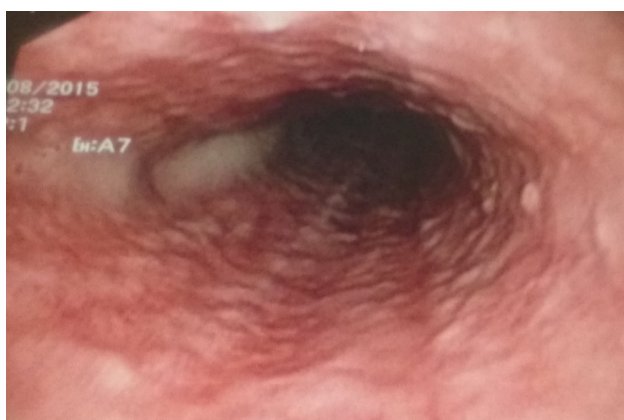
[1, 2]. The incidence of black esophagus is very low, ranging from 0.012 to 0.2 %, and according to the literature, 90 cases have been reported so far [3, 4]. The etiology is unknown in most cases. Most investigators have suggested an ischemic origin. Risk factors include advanced age, male gender, cardiovascular disease, alcoholic ingestion and malnutrition, acute gastric outlet obstruction with gastro-esophageal reflux, diabetes, acute renal failure and trauma. Candidiasis is a rare cause of AEN. An incidental finding in upper endoscopy has also been mentioned [5]. The esophagus has a black-appearing color, with easily crumbled mucosa predominantly affecting the lower two-thirds of the esophagus. Esophageal transit with barium swallow shows if there is any potential of an esophageal motility disorders, and computed tomography (CT scan) may reveal a thickened distal esophagus, a hiatal hernia, and a distended fluid-filled stomach with possible gastric outlet obstruction. Endoscopic biopsies show epithelial necrosis, with non-specific inflammatory exudates, and ulcerations. Esophageal bleeding (melena and hematemesis) is the most common presentation. The differential diagnosis of black esophagus includes: the ingestion of corrosive agents, infections, esophageal melanosis and pseudomelanosis, acanthosis nigricans and coal-dust miner. The main reported complications of AEN are stenosis and strictures. Regarding the therapeutic approach, most authors recommend adequate hydration, the use of a proton pump inhibitor, sucralfate, and treating the esophageal infection, if present. Additionally, treating the patient’s comorbidities such as restoration of the iron adequacy, and elimination of any esophageal infection as well as abstinence from alcohol, which may have been an aggravating factor. The prognosis is usually hopeful if other comorbidities do not influence the outcome.

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**Fig. 1** Endoscopic image showing a *black*-appearing esophageal mucosa occupying the body of the second half of esophagus



**Fig. 2** Endoscopic image showing a remarkable healing of the esophageal mucosa with no complications

### Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflict of interest.

**Statement of human and animal rights** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional or national research committees, and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with human and animals performed by any of the authors.

**Informed consent** Informed consent was obtained from all individual participants included in the study.

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