

Acute oesophageal necrosis (black oesophagus) - report of three cases

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Abstract. Acute oesophageal necrosis is defined as a dark, pigmented oesophagus at endoscopy ("black oesophagus"), with mucosal and submucosal necrosis at histology. We have reported here on three cases of this rare condition, discuss possible causes, and provide a concise review of the literature.

Key words: acute oesophageal necrosis, black oesophagus

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Souhrn. Akutní nekróza jícnu je vzácné onemocnění charakterizované endoskopickým nálezem tmavého jícnu („černý jícen“) a nekrózou sliznice a submukózy v histologickém obraze. Předmětem tohoto sdělení je popis tří případů tohoto vzácného postižení, jsou diskutovány možné příčiny a je podán přehled dostupné literatury.

Klíčová slova: akutní nekróza jícnu, černý jícen

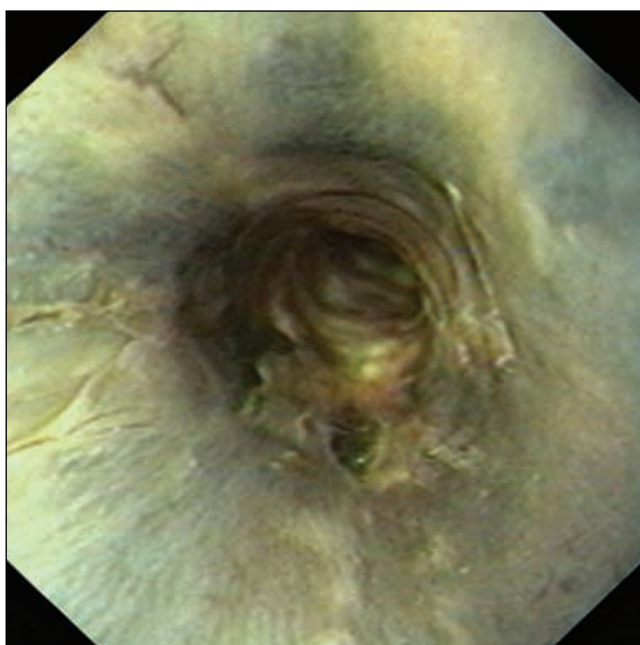


Figure 1
Case 1. A dark diffuse black-greenish appearance of the middle part of the oesophagus.

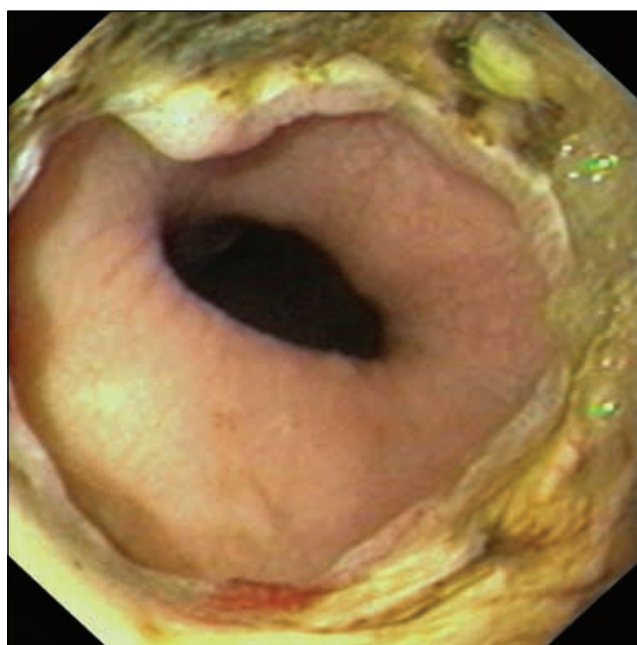


Figure 2
Case 1. Sharp borderline between the necrotic oesophageal mucosa and normal gastric mucosa in a small axial hiatal hernia.

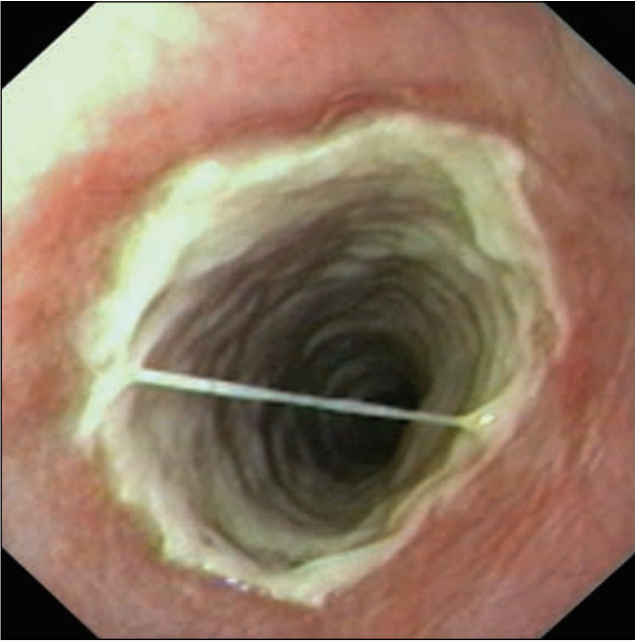


Figure 3
Case 1. Control endoscopy after 3 weeks. Distal third of the oesophagus is covered by white pseudomembrane.

Acute oesophageal necrosis (in the absence of caustic or corrosive injury) has been reported to be extremely rare. It is defined as the presence of diffuse dark pigmentation (so called “black oesophagus”) as seen on endoscopy associated with mucosal (or even submucosal) necrosis found at histology (1,19). Here we report on three cases of this unusual condition found out of 14,880 upper GI endoscopies within a 9-year period.

CASE REPORTS

Case 1

An obese, immobile 55-year-old woman (body-mass index 41.0) in generally poor condition (ischaemic heart disease, hypertension, and type 2 diabetes mellitus) was admitted with life threatening gastrointestinal bleeding (vomiting blood, melaena, haemorrhagic shock). At endoscopy black oesophagus was identified (Figs. 1 and 2), with mucosal and submucosal necrosis at histology (Fig. 4). No other

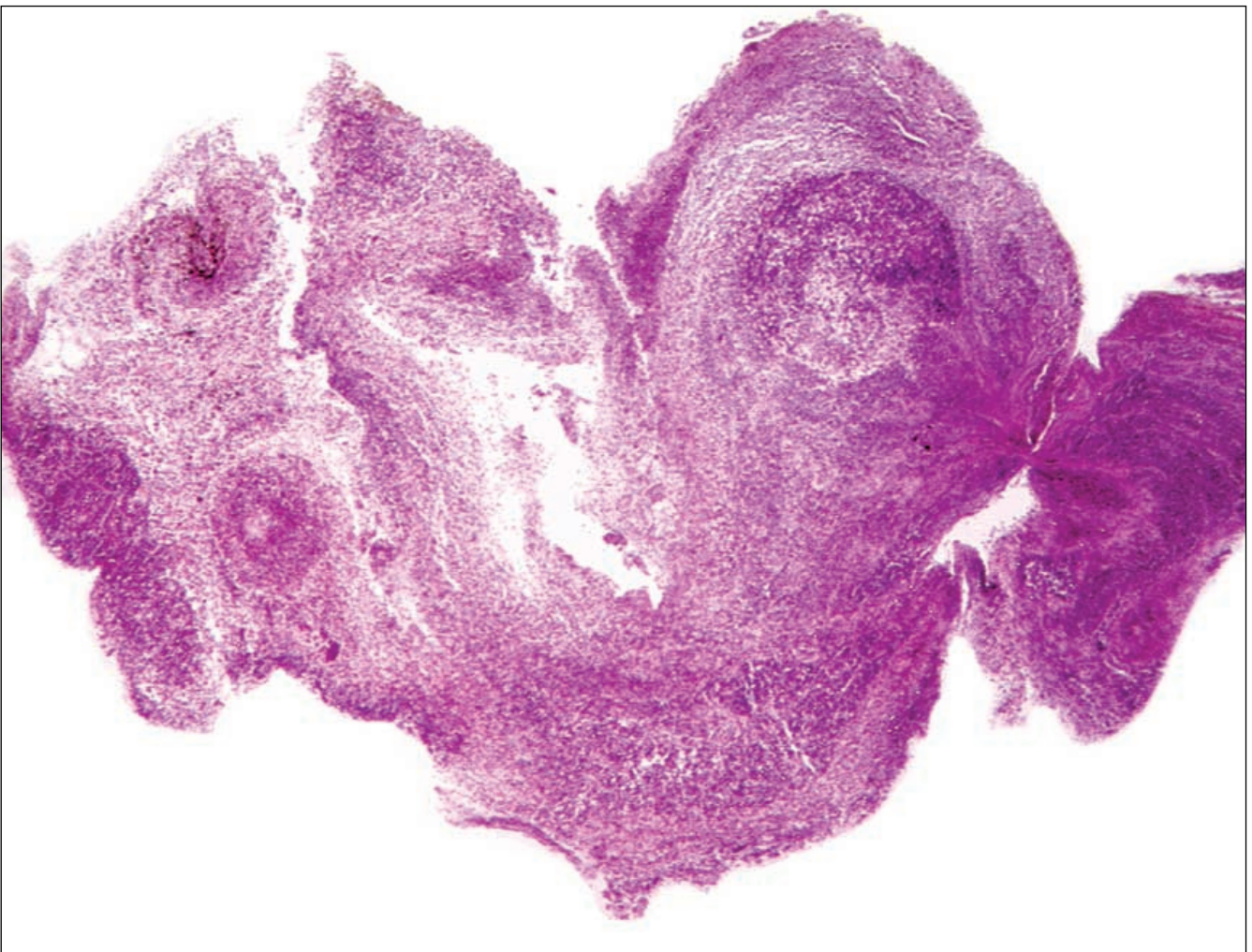


Figure 4
Case 1. Mucosal and submucosal necrosis in the acute phase was found at histology. Stroma is infiltrated mainly by neutrophilic leukocytes. Haematoxylin-eosin.

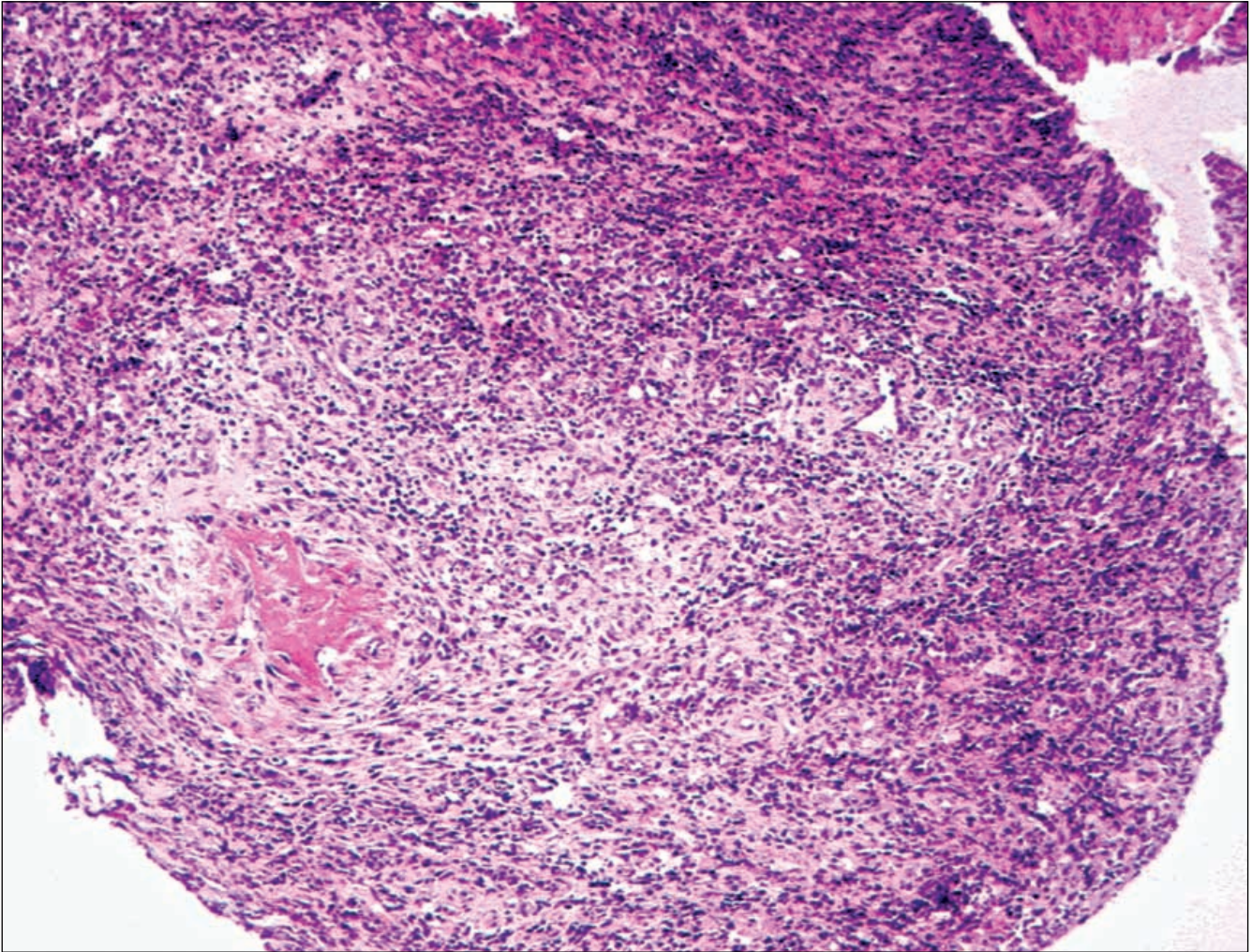


Figure 5
Case 1. Control histology after 3 weeks. Healing of the oesophageal wall by the transformation into the granulation tissue. Haematoxylin-eosin.

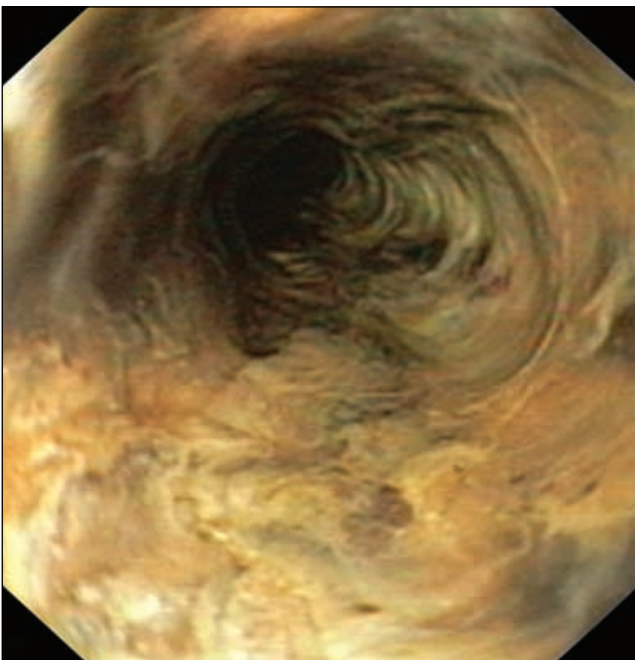


Figure 6
Case 2. Endoscopy picture of pigmented black-brownish appearance of the necrotic oesophageal mucosa.

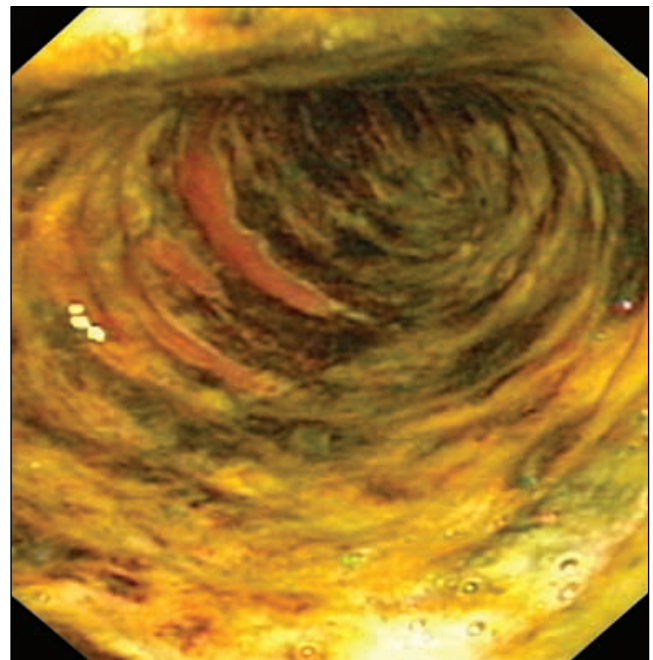


Figure 7
Case 2. Endoscopic picture of black-brownish necrotic mucosa of the duodenum.

source of bleeding was found. The patient was provided with complex intensive care (blood transfusions, total parenteral nutrition, antibiotics, and proton pump inhibitors). Mild oesophageal stenosis developed three weeks later (Figs. 3 and 5). The patient has recovered, being symptom-free for the next three years.

Case 2

A duodenal carcinoid was resected in a 60-year-old man. Two months later the patient bled from multiple prepyloric gastric ulcers, and black oesophagus was found during the same endoscopy (Fig. 6). Similar dark black-brownish pattern of the necrotic duodenal mucosa was seen as an additional finding (Fig. 7). Because of recurrent bleeding into the duodenum he was operated on and died seven days later from multiorgan failure.

Case 3

Cancer of the oral cavity base was resected in a 47-year-old man, followed by radiotherapy. Eight months later, surgical treatment of the mandible was performed. Carcinoma relapse occurred one year after the initial surgery. The patient was referred for a PEG placement (percutaneous endoscopic gastrostomy). Upon endoscopy, an asymptomatic black oesophagus was found. The patient died suddenly three days later. No autopsy was performed.

Discussion

Acute oesophageal necrosis is defined as a dark, pigmented state of the oesophagus at endoscopy ("black oesophagus"), with mucosal and submucosal necrosis at histology. Acute oesophageal necrosis is an extremely rare condition. Moreto et al. (23) found 10 cases out of 80,000 upper GI endoscopies within a 16-year period. Lacy et al. (19) reported on two patients and reviewed another 23 cases in publications over the past 30 years. We have described three of our patients with acute oesophageal necrosis, and have found another 15 cases that were published previously (2,6-8,11,15,16,18,26,27,29,30). Recently a one-year prospective study identified 8 new cases among 3,900 patients in routine endoscopic practice (1). In a Czech autopsy study, Peychl (28) collected 25 cases within a 30-year period. There was a diffuse involvement of the entire oesophagus in 15 cases and affection of the lower third or half in remaining 10 patients

(28). In a Danish autopsy study, Jacobsen et al. (14) reported 32 cases out of 310 consecutive autopsies. Oesophageal necrosis presented with punctuated, striped or confluent areas in their series (14).

Endoscopic pattern of the black oesophagus is quite characteristic and can be easily distinguished from other conditions like melanoma of the oesophagus (11) and dust coal deposition (17,21,24).

The pathogenesis of acute oesophageal necrosis remains unknown but miscellaneous aetiology has been suggested including ischaemia, gastric outlet obstruction, hypersensitivity to antibiotics, and viral infections (1,6,9,10,18,19,22,25). Several predisposing factors were also identified. Acute oesophageal necrosis was seen as a complication of shock (2,13), hypothermia (3), severe bleeding (1,2,20,26,30), after major surgery (29), nasogastric tube trauma (1,6,19), in the anticardiolipin antibody syndrome (4), as a complication of severe vomiting (16), in elderly patients with neoplasm (26), sepsis (7) or diabetic ketoacidosis (8). Transient ischaemia induces the production of free oxygen radicals resulting in reperfusion injury (1, 12).

Two of our three patients died, their death was not directly related to acute oesophageal necrosis but to the underlying disease. Acute oesophageal necrosis offers a poor prognosis, with a lethality rate of 33 to 50% (1, 6, 19). Only a few authors reported more favourable prognosis in their cases (5,23). The main complication in those who survived the acute phase of this disease is oesophageal stenosis (15 - 25% of patients) which usually requires repeated dilatation (19).

In summary, acute oesophageal necrosis is an uncommon disease of unknown aetiology, with quite characteristic endoscopy picture, and is generally associated with a poor prognosis.

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