

## MORPHOLOGICAL STUDY

## Black esophagus: a rare autopsy case

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**Abstract:** The black esophagus is a rare entity of an acute esophageal necrosis described at endoscopy and typical histological properties of a diffuse mucosal necrosis. The presented case was a 17 year-old girl; admitted to the hospital with an abdominal distention and vomiting, who died soon after admittance. The case was investigated by local prosecutor, as the cause of the death was unknown; a forensic autopsy was mandated and later performed in our department. During autopsy on macroscopic examination an acute esophageal necrosis with black colored esophageal mucosa was detected. In this case report, we aimed to explain the autopsy findings, clinical presentation, histological appearance, risk factors and pathogenesis of the disease from the medico legal point of view (Tab. 1, Fig. 1, Ref. 5). Full Text (Free, PDF) [www.bmj.sk](http://www.bmj.sk).  
Key words: black esophagus, autopsy, forensic.

The acute esophageal necrosis, which presents as a black esophagus at endoscopy and typical histological features of diffuse mucosal and sub mucosal necrosis, is a rare disorder that

is inadequately described in the medical reports (1–5). Clinical presentation, associated diseases and symptoms were recorded in our patient and ingestion of caustic and corrosive agents was excluded. The acute necrosis of the esophagus seemed to be related to the individual's general health, but not as a local pathology (1, 2). In this case report, we aimed to explain the autopsy findings, clinical presentation, histological appearance of the disease from the medico legal point of view.

### Case Report

Document of death revealed that the presented case was a 17 years-old girl; admitted to the local public hospital with an abdominal distention and vomiting who dead soon after admittance.

The case was investigated by the local prosecutor, as the cause of her death was unknown; a forensic autopsy was mandated and later performed in our department. The family members stated that she had been medically evaluated in public hospital during past several days and it was explained that the patient had swelling of the abdomen due to gas; medical therapy was administered during past week. On gross examination there were no ex-



Fig. 1. Black colored esophageal mucosa.

ternal traumatic findings. During autopsy in macroscopic investigation an acute esophageal necrosis, with black colored esophageal mucosa (Fig. 1) and peritoneal cavity trapped purulent fluid between mesenteric folds and the 500 cc of purulent fluid was investigated. Also duodenal serous surface was dark red and greatly distended with 1.5 cm of perforation area detected at a distance of 5 cm far from pylorus. In microscopic investigation, esophageal mucosa with sloughing of the surface epithelium and histological features of diffuse mucosal and submucosal necrosis was described. Analysis of the blood, urine and organ specimens revealed none of the substances screened for in systematic toxicological methods. In the death certificate, the death was reported as a perforation of duodenal ulcer and peritonitis. Clinical presentation, associated diseases and symptoms were recorded for our patient and ingestion of caustic and corrosive agents was excluded in this case. We aimed to discuss the autopsy findings,

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**Tab. 1. Staging of acute esophageal necrosis.**

| Stage   | Appearance  |
|---------|---|
| Stage 0 | Normal-appearing mucosa intact epithelium   |
| Stage 1 | Circumferentially black-appearing necrotic debris, absence of viable epithelium   |
| Stage 2 | Residual dark spots, inflammation overlying appearance of thick white exudates the granulation tissue that are easily stripped off and reveal friable pink mucosa |
| Stage 3 | Esophageal mucosa regains normal pink appearance  |

clinical presentation, histological appearance of the disease from the medico legal point of view.

### Discussion

The diagnosis of the acute esophageal necrosis, reported with the incidence of 0.28 % during endoscopic procedures (4), was based on a the extraordinary endoscopic finding of an extensive black discoloration of the esophageal mucosa, usually from an acute esophageal necrosis at endoscopy and typical histological features of diffuse mucosal and sub mucosal necrosis (1–5). The presented case was a 17 year-old girl in contrast with elderly patients presented in the medical literature (4, 5). The case was admitted to the hospital with an abdominal distention and vomiting. In some studies gastrointestinal bleeding, hematemesis,

dysphagia and abdominal pain were often reported as a reason for admittance to the hospital (1–5). Ingestion of caustic and corrosive agents was excluded in our patient, like the different

cases presented in the medical reports (1–5). In macroscopic autopsy examination we detected an acute black colored esophageal mucosa and duodenal perforation, which was pointed as one of the possible reasons in the medical history of the patients with black esophagus (1, 2, 5). Besides Grudell et al reported that duodenal ulcer was the co-morbid condition in 33 % of the patients with black esophagus (5). Esophageal necrosis identi-

fication was based on typical endoscopic and histological features of diffuse mucosal and sub mucosal necrosis like the cases presented by different authors (1, 2) and staged in four groups (Tab. 1).

In the microscopic investigation, esophageal mucosa with sloughing of the surface epithelium and histological features of diffuse mucosal and sub mucosal necrosis were described

The acute necrosis of the esophagus seems to be related to the individual's general health status and is not accepted as a solely local pathology (1, 2). In the medical history of the

black esophagus associated diseases include a massive gastroesophageal reflux, esophageal infection, renal failure, anemia, hepatitis, nephritic syndrome, radiation therapy, and gastric volvulus (1–5). The acute necrotizing esophagitis, black discoloration of the esophageal mucosa was described in medical literature, but the underlying pathophysiologic mechanism leading to black esophagus is still unexplained. It should be considered in the differential

diagnosis of upper gastrointestinal tract.

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