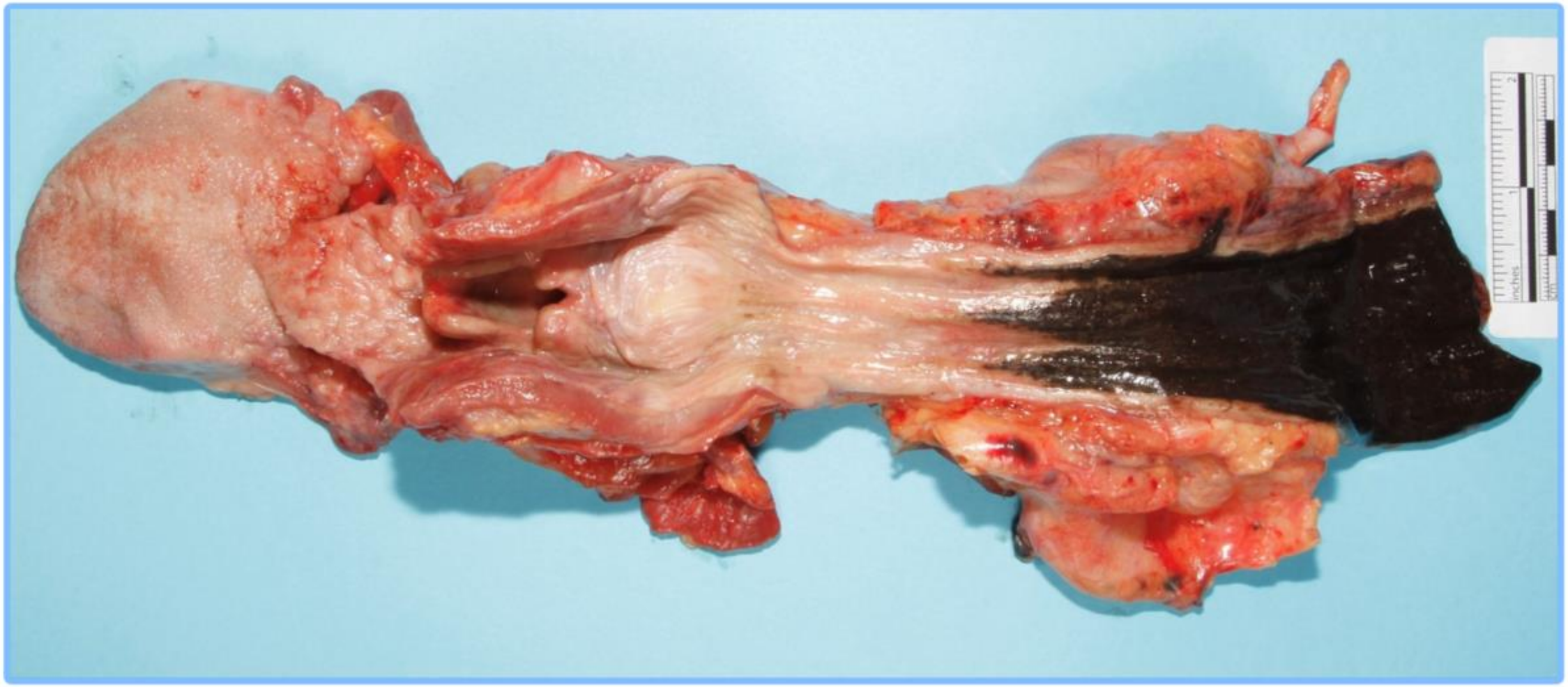
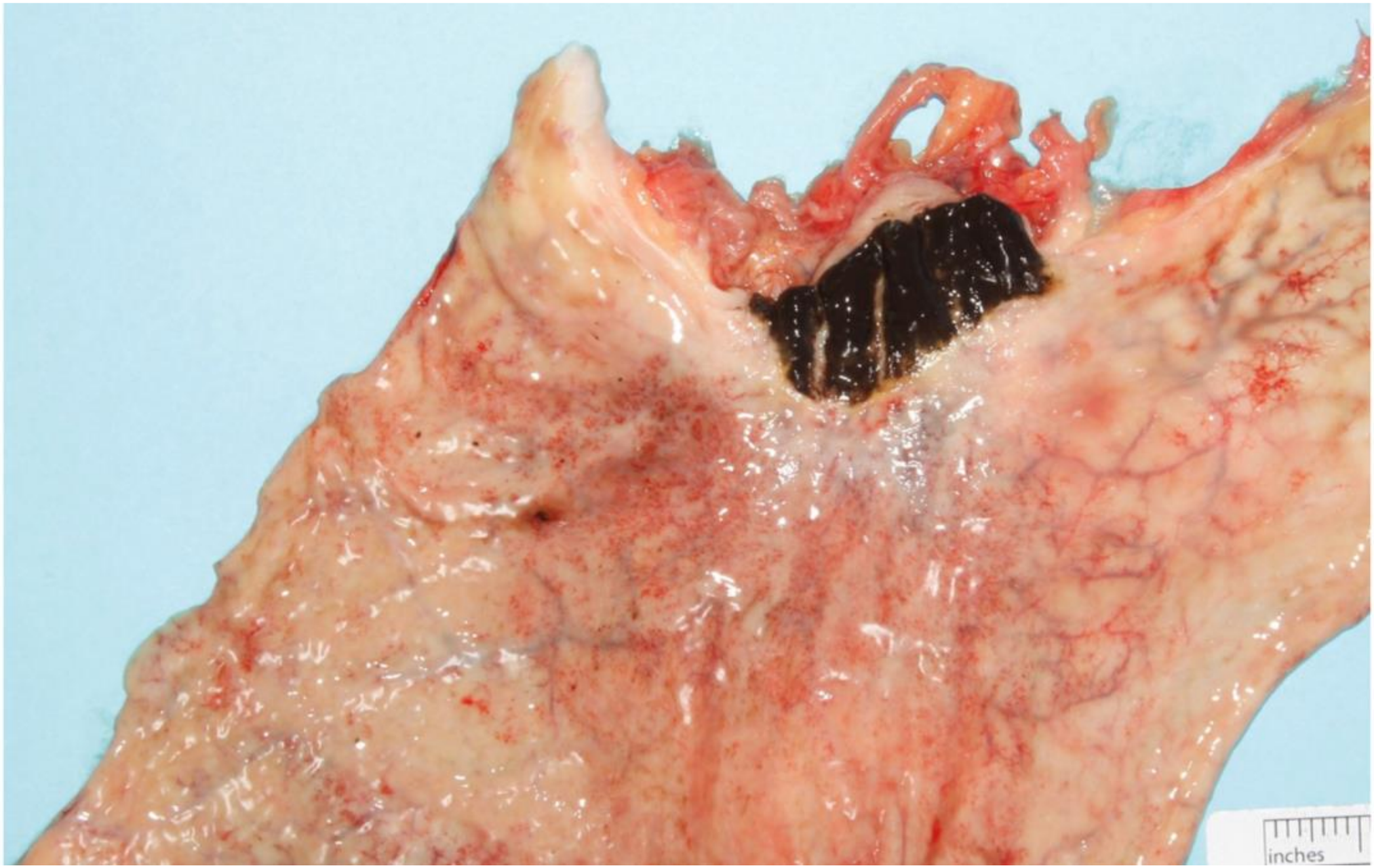
Case #1

NAME Educational Activities Committee

Courtesy of Dr. Nika Aljinovic

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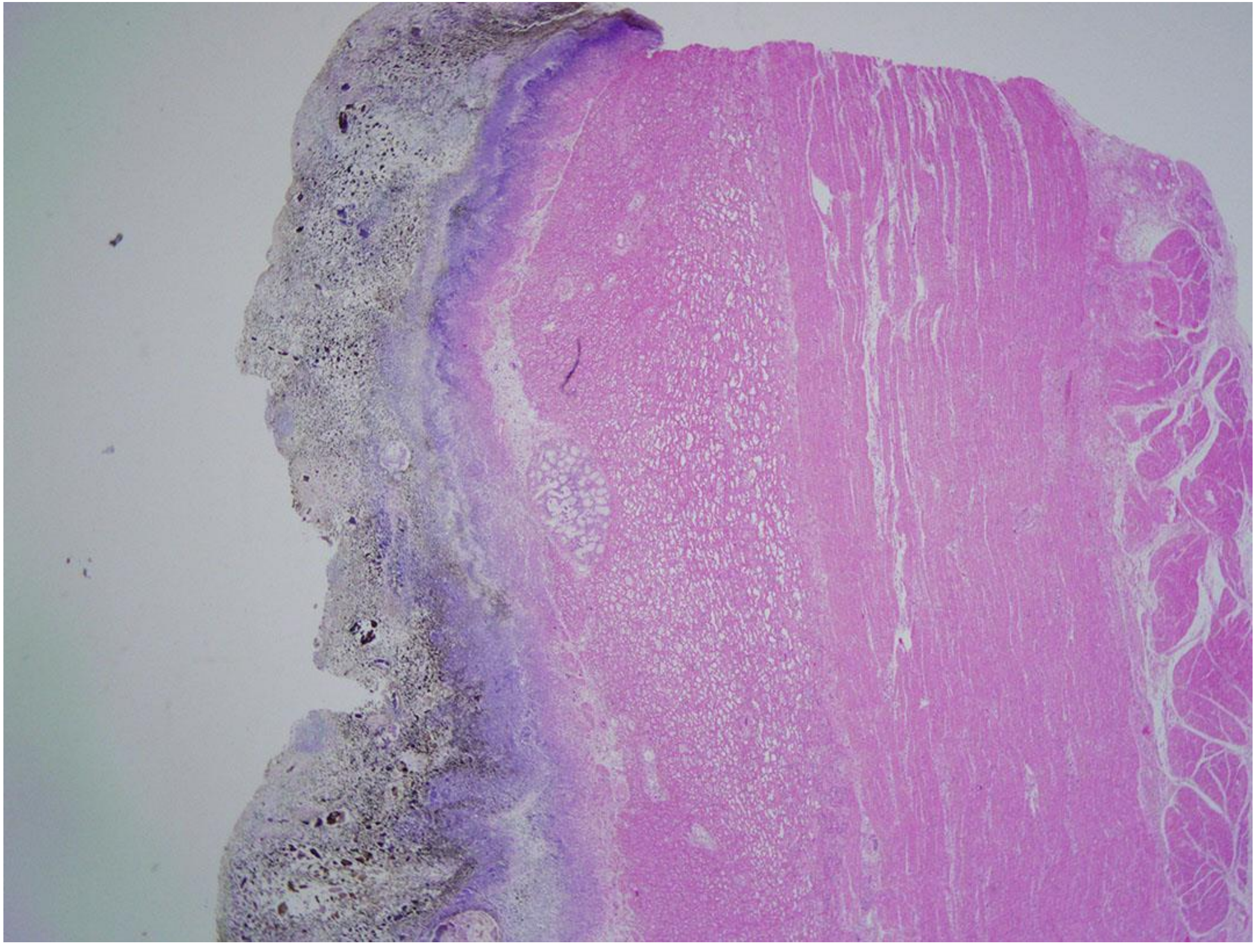
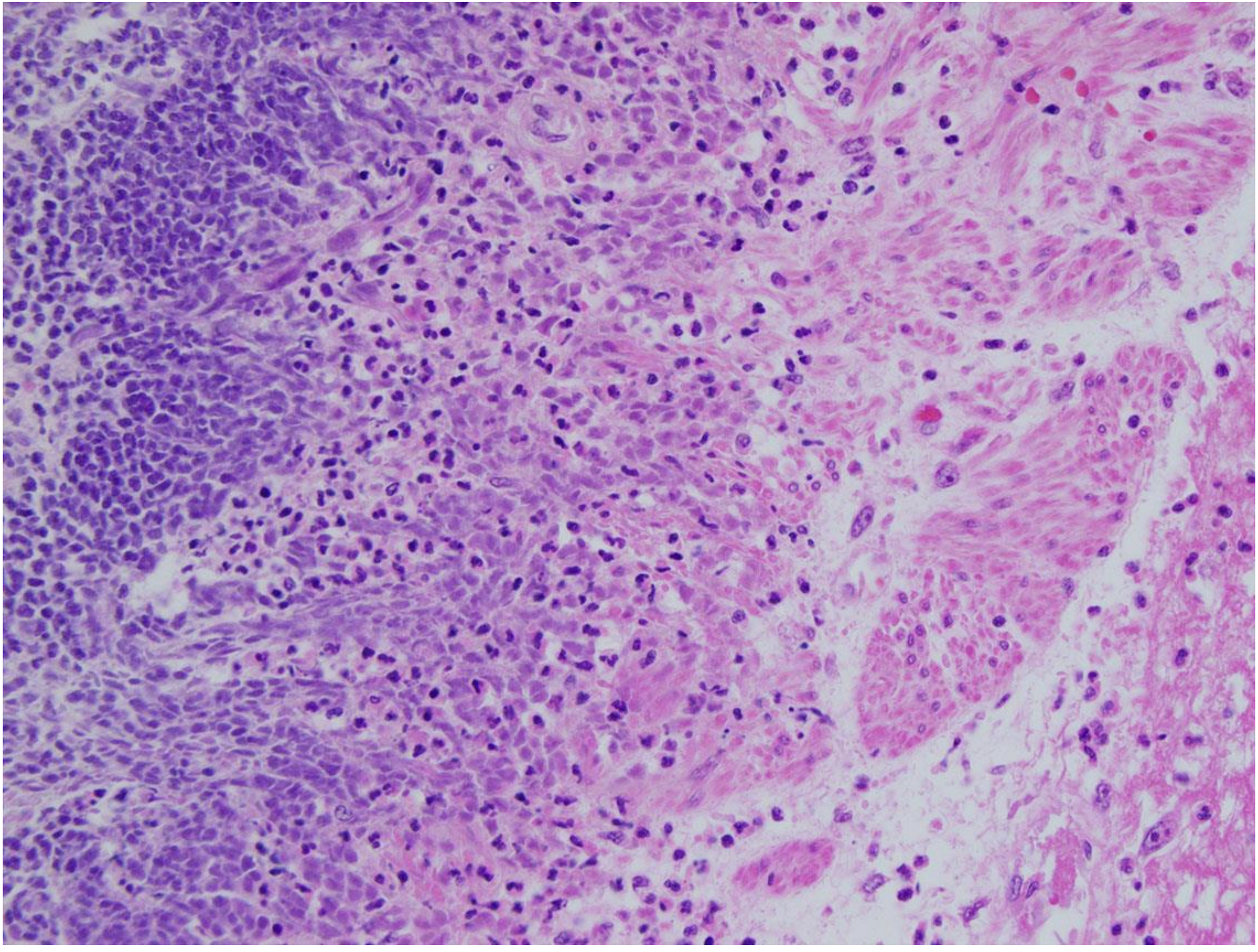
1. Middle aged man with no past medical history, found dead in bed. The stomach contents are brown partially digested food and liquid. There were no other lesions identified on autopsy. What would you do in addition to histology?

- ◯ Vitreous fluid electrolytes
- ◯ Nothing further
- ◯ Thyroid function studies
- ◯ Toxicology of gastric contents
- ◯ H. pylori immunohistochemistry stains





A. **Vitreous fluid analysis. (CORRECT ANSWER)**
57.32% of responses

Acute esophageal necrosis (AEN), also known as black esophagus, is a rare condition characterized by a diffuse circumferential black appearance of the distal esophageal mucosa that stops at the gastroesophageal junction. The etiology is unclear; however, it is most often associated with underlying diabetes mellitus and diabetic ketoacidosis. Therefore, vitreous fluid analysis for elevated ketones and glucose should be the next step, especially in a decedent with no known medical history or other significant autopsy findings.
Results were as follows:
Vitreous fluid analysis:
Beta-hydroxybutyrate (BHB): 13.50 mmol/L
Sodium: 136 mmol/L (normal range = 135-150 mmol/L)
Chloride: 110 mmol/L (normal range = 105-135 mmol/L)
Potassium: 14.0 mmol/L (normal range = <15 mmol/L)
Urea nitrogen: 98 mg/dL (normal range = 8-20 mg/dL)
Creatinine: 2.2 mg/dL (normal range = 0.6-1.3 mg/dL)
Glucose: 427 mg/dL (normal range = <200 mg/dL)

In addition, toxicology (postmortem blood sample) was positive for acetone.

B. **Nothing further. 7.95% responses**
Given that there is no known medical history or other significant lesions identified during autopsy it is important to evaluate the decedent for disorder's associated with acute esophageal necrosis that could be related to cause of death.

C. **Thyroid function studies. 2.09% responses**
Thyroid dysfunction does not have a known association to acute esophageal necrosis.

D. **Toxicology on gastric contents 28.03% responses**
Even though acute esophageal necrosis has been previously reported from prolonged vomiting following alcohol binging, cocaine use and alcoholic hepatitis, gastric contents are not generally the first choice of specimen for toxicology. Also because the process in the picture show involvement of the lower half of the esophagus, with an abrupt stop at the GE junction, it would be less likely that there was an acute ingestion of a toxic/erosive substance that would be discovered on analysis of the gastric contents.

E. **H. pylori immunohistochemical stains 4.6% responses**
H. pylori is does not have a known association to acute esophageal necrosis. Infections in which AEN can be seen are Candida, CMV, HSV, and Klebsiella pneumoniae.

References:

https://www.uptodate.com/contents/acute-esophageal-necrosis-black-esophagus

Gurvits GE. Black esophagus: acute esophageal necrosis syndrome. *World J Gastroenterol*. 2010;16(26):3219-3225. doi:10.3748/wjg.v16.i26.3219

Ghoneim S, Shah A, Dalal S, Landsman M, Kyprianou A: Black Esophagus in the Setting of Diabetic Ketoacidosis: A Rare Finding from Our Institution. Case Rep Gastroenterol 2019;13:475-480. doi: 10.1159/000504434