

Gastric emphysema after endoscopic submucosal dissection

A 62-year-old male patient with underlying Type 2 diabetes mellitus and hypertension underwent screening esophago-gastroduodenoscopy. A 5-cm flat nodular mucosal lesion, which was confirmed to be high grade dysplasia, was noted at the upper body along the lesser curvature, just below the cardia (● Fig. 1).

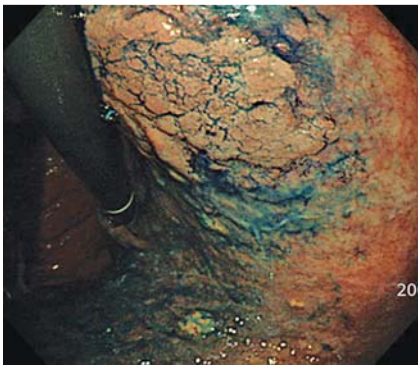


Fig. 1 A flat nodular mucosal lesion at the upper body along the lesser curvature was diagnosed as high grade dysplasia.

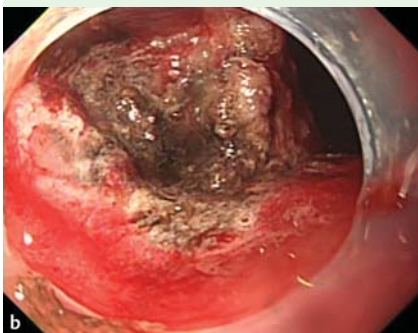
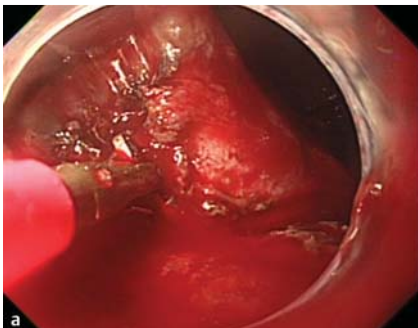


Fig. 2 Extensive bleeding during endoscopic submucosal dissection required frequent electrohemostasis. **a** Electrohemostasis using hemostatic forceps with 80 W soft-mode coagulation. **b** Extensive tissue burn injury due to excessive current application.

Endoscopic submucosal dissection (ESD) was performed at a universal setting with high frequency apparatus (VIO300D; ERBE, Tübingen, Germany). During the procedure, large amounts of bleeding occurred, which necessitated frequent electrohemostasis, resulting in extensive tissue burn injury (● Fig. 2 a, b).

The total procedure time was 4 hours and 30 minutes. The following day, fever of 38.5 °C and abdominal pain developed. Perforation was suspected, and abdominal computed tomography scan was performed. Intramural gas was present from the plane of the fundal portion of the stomach to the posterior wall of the mid-body, with accompanying edematous wall thickening (● Fig. 3 a).

Intramural gas was even more evident in the lung window view (● Fig. 3 b). The triad of fever, abdominal pain, and air

within the gastric wall led us to consider the possibility of a potentially fatal emphysematous gastritis; thus, broad spectrum antibiotics were promptly applied (ceftriaxone 2 g i.v. q.d., metronidazole 500 mg i.v. t.i.d.) [1–2].

Fortunately, the fever and abdominal pain quickly subsided, just a day after its initial manifestation. Due to the benign course of the patient's condition, we were able to make a diagnosis of gastric emphysema (gastric pneumatosis) [3].

Well known complications of ESD are pain, bleeding, perforation, and stricture [4–5]. To our knowledge, this represents the first reported case of gastric emphysema as a complication of ESD. We suggest the possible etiology to be the persistent intragastric pressure elevation due to a prolonged procedure and excessive current application for hemostasis. Due to its fast absorption, insufflation with carbon dioxide may be considered in cases of prolonged ESD in order to prevent emphysema.

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Competing interests: None



Fig. 3 Conventional computed tomography scan images.

a Gas in the stomach wall from the plane of the fundal portion to the posterior wall of the mid-body, with edematous wall thickening. **b** Lung window setting demonstrated even more intramural gas.



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