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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2022, 39(1):143–144

Surgery Quiz – Case 37

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A 65-year-old male patient without any pathologic medical history or comorbidities was examined in the emergency department due to dizziness and black-colored stools. Rectal examination confirmed the presence of melena. A nasogastric catheter was inserted and fresh red blood was aspirated. The complete blood count revealed a hematocrit of 29%. Upper abdominal computed tomography (CT) scan using gastrografin in carbonated drink depicted a tumor which occupied almost all of the gastric cardia (fig. 1). During an emergent upper gastrointestinal endoscopic examination, a submucosal mass measured 5×5 cm was traced in gastric cardia, with an 1.5 cm deep ulceration on top, without any active hemorrhage (fig. 2).

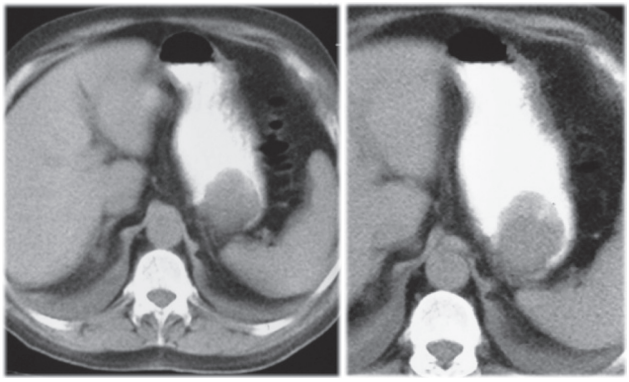

Figure 1. Computed tomography (CT) images of the upper abdomen in a 65-year-old male with melena. A submucosal tumor bulges in the gastric cardia.

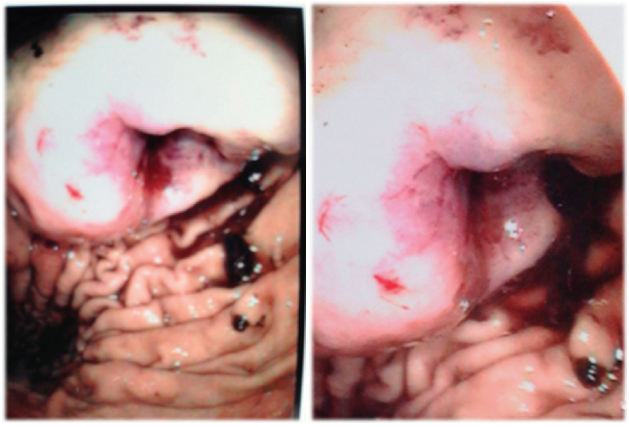

Figure 2. Upper gastrointestinal endoscopic images of a submucosal tumor with mucosal ulceration in gastric cardia.

Comment

Melena, with or without hematemesis, is the most typical symptom of an upper gastrointestinal (GI) hemorrhage, which can be life-threatening as it may lead to hypovolemic shock. Its most usual cause is peptic ulcer while other frequent reasons are gastritis, esophagitis, and other relatively usual conditions are angiodysplasia and Mallory-Weiss syndrome. Neoplasms, esophageal varices and Dieulafoy's lesions are less common etiologies of melena. Neoplasms comprise 3.7% of all cases. Submucosal tumors (SMTs) consist only a small portion of the neoplasms which derive from mesenchyma. They rarely provoke upper gastrointestinal hemorrhages commonly when they enlarge or when they exhibit malignant features. Their most frequent site is cardia and their typical symptoms include stomach pain, GI bleeding, and postprandial fullness. Obstructive symptoms can also occur if SMTs grow too large.

Leiomyomas, which consist a subdivision of SMTs, are 2–3% of all the gastric neoplasms and typically concern adults of both genders aged 50–70 years. They are usually asymptomatic and slowly growing, becoming evident during post-mortem investigation of stomach for other reasons. They develop symptoms, such as postprandial fullness, melena and hematemesis, when some ulceration supervenes. When leiomyomas grow larger than 2 cm, they are more likely to develop ulcerations on top of their mucosa. Regular use of anticoagulants, corticosteroids and non-steroid anti-inflammatory drugs have been associated with higher likelihood of bleeding.

Initially, the diagnosis of SMTs and leiomyomas require imaging via CT and upper GI endoscopy. Endoscopic ultrasound (EUS) can facilitate a more precise detection of the tumor, as well as the acquirement of a better histopathologic specimen. Endoscopy usually reveals a small, smooth, well circumscribed submucosal tumor with either normal overlying mucosa (Schindler's sign) or with ulceration on top.

Pathologic examination is required for the differential diagnosis of SMTs, which includes the malignant leiomyosarcomas, the potentially malignant gastrointestinal stromal tumors (GISTs) and the benign leiomyomas and schwannomas. Gastric leiomyoma specimens exhibit gastric smooth muscle cells with hyperplasia, minimal mitotic activity, and positive expression of desmin and actin with low expression of c-kit during immunohistochemistry.

On the contrary, leiomyosarcomas consist of smooth muscle cells with extremely high mitotic activity. Furthermore, GISTs are negative for desmin and actin, whereas they highly express c-kit and CD34.

In our case, pathologic examination of the specimen revealed a submucosal tumor consisting of hyperplastic smooth muscle cells with low mitotic activity which were positive for desmin and actin with low expression of c-kit.

There is controversy about the optimal treatment of a gastric SMT. If it is symptomatic or if its diameter is >5 cm, as in our case report, it must be resected. If it is malignant or 2–5 cm and subsequent imaging depicts enlargement of the lesion, it has to be resected as well, since 90% of the enlarging SMTs are GISTs and 10% have high-risk characteristics for malignancy. The management of stable 2–5 cm SMTs or SMTs <2 cm is controversial. Some studies support frequent follow-up with EUS. Nevertheless, there are studies supporting that GISTs barely larger than 1 cm exhibit much higher mitotic count than smaller ones, suggesting possible malignant characteristics even in small SMTs and proposing their resection as soon as possible. Resection can be executed by an open surgery or with laparoscopy.

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