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Resection of hepatic tumors simulating a gastric submucosal tumor: Report of two cases

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KEYWORDS

Liver tumor;
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Case 1

The patient was a 36-year-old male. A protruding lesion adjacent to the cardia of the stomach was detected by upper gastrointestinal series, and the diagnosis of gastric submucosal tumor was entertained by upper gastrointestinal endoscopy and abdominal computed tomography (CT) (Fig. 1), while endoscopic ultrasound (EUS) findings were not inconsistent with a muscular layer-derived tumor (Fig. 2). Laparoscopic partial resection of the stomach was therefore scheduled. The observation of the abdominal cavity revealed a tumor growing from the edge of the lateral segment of the liver (Fig. 3), for which laparoscopic partial resection of the liver was performed. He developed no complications and was discharged 5 days after surgery.

Case 2

The patient was a 41-year-old female, with a diagnosis of gastric submucosal tumor near the cardia of the stomach.

The patient was followed-up for about 4 years and the tumor exhibited a tendency to grow. Muscular layer-derived gastric submucosal tumor was diagnosed by EUS (Fig. 4) and abdominal CT (Fig. 5), for which laparoscopic partial resection of the stomach was scheduled. However laparoscopic observation demonstrated a tumor protruding from the ventral surface of the lateral segment of the liver (Fig. 6). Since intraoperative upper gastrointestinal endoscopy revealed no gastric submucosal tumor, the hepatic tumor was judged to have compressed the gastric wall to simulate a gastric submucosal tumor. Laparoscopic partial resection of the liver was performed using endo-GIA with minimal blood loss. She developed no complications and was discharged 5 days after surgery.

Discussion

Laparoscopic surgery is now becoming the standard approach to surgical treatment of gastric submucosal tumor. Therefore, preoperative accurate localization and qualitative diagnosis of such a tumor is important. EUS is generally useful for differentiating lesions originating from the wall of the gastrointestinal tract and ones caused by compression from tumors of adjacent

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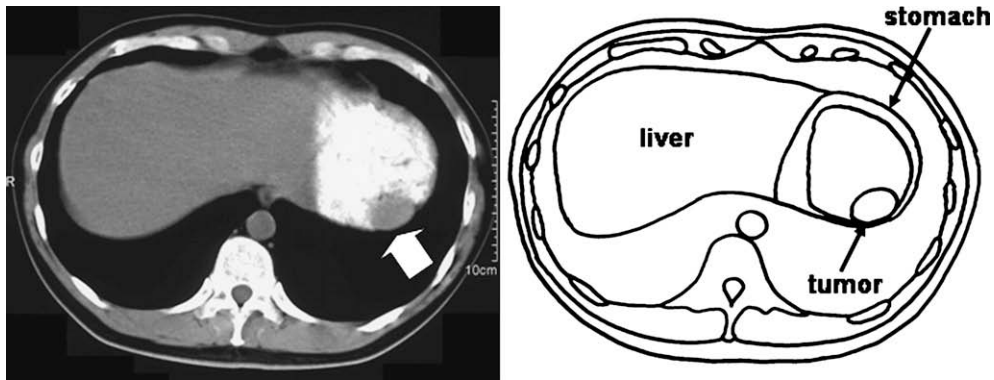


Figure 1 Computed tomography of case 1: revealed low density mass at the anterior wall of the upper part of the gastric corpus.

organs. For the diagnosis of localization of the tumor, combined use of EUS and abdominal CT is useful.¹⁻⁴ Both cases erroneously were diagnosed as muscular layer-derived gastric submucosal tumor by EUS and abdominal CT, and hepatic origin of the tumor was diagnosed during surgery. The reasons why external compression of the gastric wall in the arch of the stomach is misdiagnosed as gastric submucosal tumor include the following: 1) assumption that the arch of the stomach is the common site of gastric submucosal tumor; 2) since the cranial side of the liver is anatomically fixed by the diaphragm, the liver tumor originating from the vertical side protrudes toward the gastric lumen side and develop what looks like a submucosal tumor; and 3) since endoscopic observation of a mass in this area is obtained only by inversion of the endoscope, the change of findings by air insufflation is usually difficult. Therefore accurate diagnosis of this area by various techniques including EUS is thus inherently limited. In particular, since the anterior wall of the upper part of the gastric corpus is

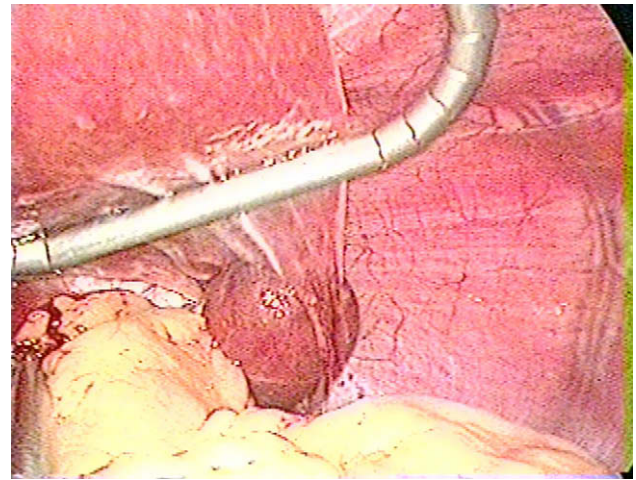


Figure 3 Intraoperative findings of case 1: laparoscopic observation of the abdominal cavity revealed a liver tumor protruded from the edge of the lateral segment.

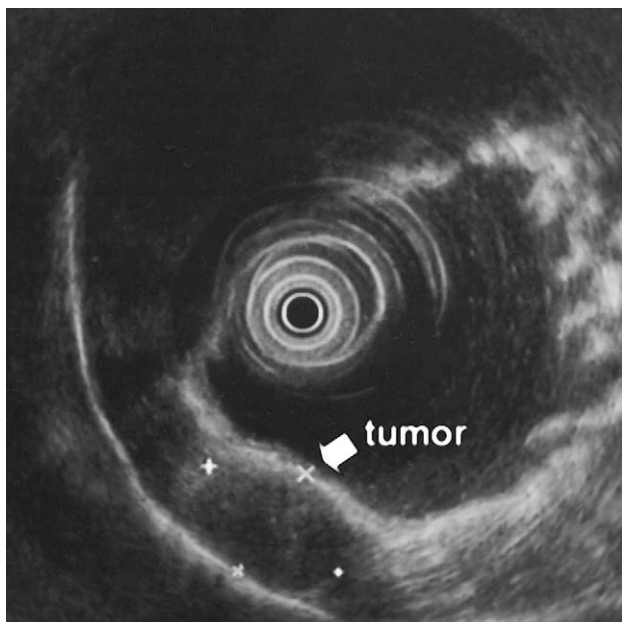


Figure 2 Endoscopic ultrasound of case 1: revealed iso-echoic mass which derived muscular layer.

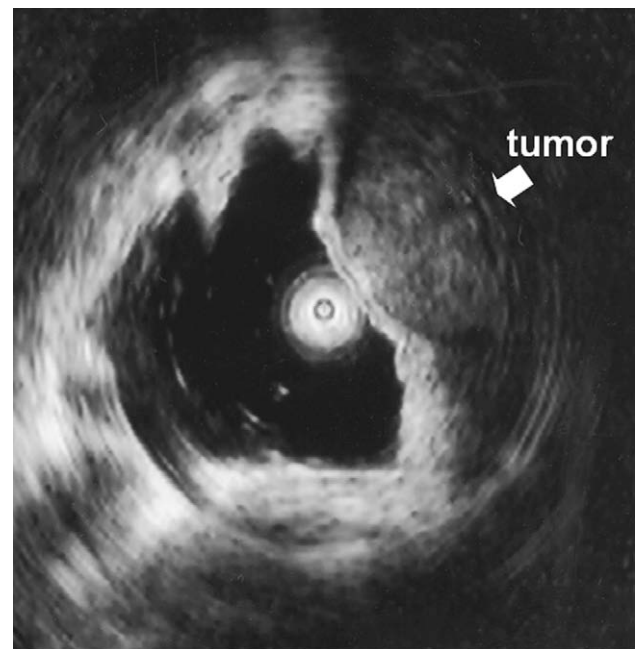


Figure 4 Endoscopic ultrasound of case 2: revealed iso-echoic mass which derived muscular layer.

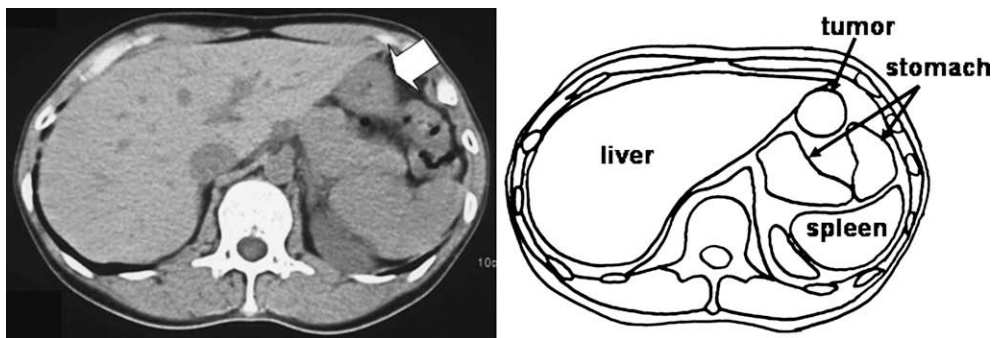


Figure 5 Abdominal computed tomography of case 2: revealed a low density mass below the lateral segment of the liver, and gastric submucosal tumor was suggested.

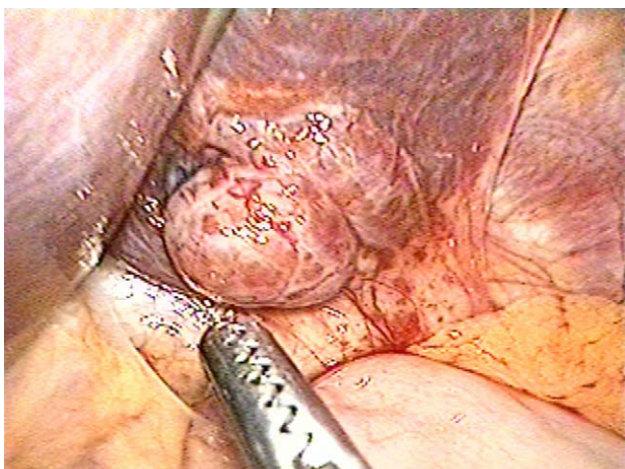


Figure 6 Intraoperative findings of case 2: laparoscopic observation of the abdominal cavity revealed only a liver tumor protruding from the ventral surface of the lateral segment.

in close contact with the left hepatic lobe, there is a high likelihood of misinterpreting a liver tumor in this region that protrudes ventrally as a gastric submucosal tumor.

Furthermore, EUS-guided fine-needle aspiration biopsy (EUS-FNA), which is recently advocated for qualitative diagnosis,⁵ is difficult in this region because the tumor is

located in the tangential direction, which makes insertion of the puncture needle difficult. In fact, this technique was attempted in our case 2, but was unsuccessful to give histological diagnosis.

In addition to upper gastrointestinal endoscopy, EUS and abdominal CT, preoperative evaluation by abdominal US and abdominal MRI is necessary to prevent such misinterpretation. Furthermore, we recommend EUS-guided fine needle aspiration biopsy to further confirm the diagnosis.

References

1. Yasuda K, Nakajima M, Yoshida S, Kiyota K, Kawai K. The diagnosis of submucosal tumors of the stomach by endoscopic ultrasonography. *Gastrointest Endosc* 1989;**35**:10–5.
2. Boyce GA, Sivak Jr MV, Rosch T, Classen M, Fleischer DE, Boyce Jr HW. Evaluation of submucosal upper gastrointestinal tract lesions by endoscopic ultrasound. *Gastrointest Endosc* 1991;**37**:449–54.
3. Horton KM, Juluru K, Montgomery E, Fishman EK. Computed tomography imaging of gastrointestinal stromal tumors with pathology correlation. *J Comput Assist Tomogr* 2004;**28**:811–7.
4. Sanders L, Silverman M, Rossi R, Braasch J, Munson L. Gastric smooth muscle tumors: diagnostic dilemmas and factors affecting outcome. *World J Surg* 1996;**20**:992–5.
5. Vander Noot MR, Eloubeidi MA, Chen VK, Eltoun I, Thala D, Jhala N, et al. Diagnosis of gastrointestinal tract lesions by endoscopic ultrasound-guided fine-needle aspiration biopsy. *Cancer* 2004;**102**:157–63.