

# Endoscopic Submucosal Dissection as Diagnostic Treatment for Gastric Granular Cell Tumor Confined to the Submucosa

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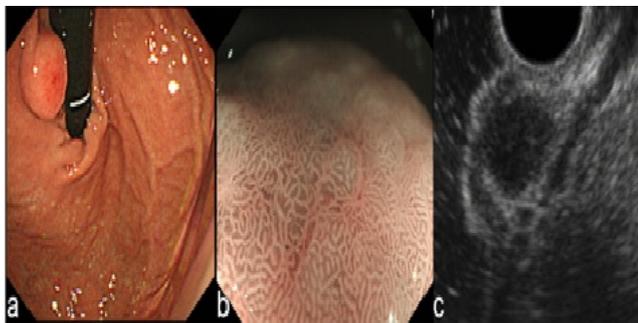
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## Case Report

It is difficult to obtain a definitive diagnosis of a submucosal tumor (SMT) by using various biopsy methods, including endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) [1,2]. We report a case of gastric granular cell tumor (GCT) treated with endoscopic submucosal dissection (ESD).

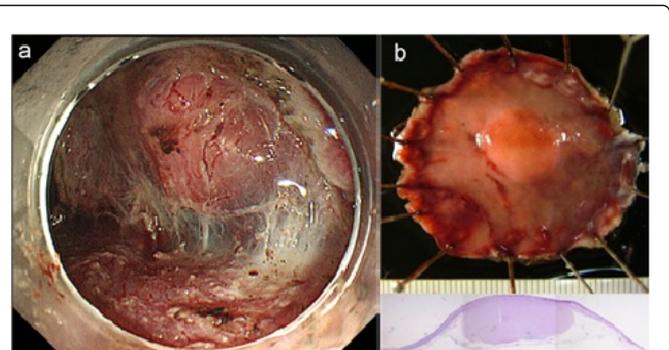
A screening esophagogastroduodenoscopy revealed a 10-mm SMT at the lesser curvature of the cardia in the stomach in a 40-year-old woman. This tumor had a central depression (Figure 1a) and normal mucosal findings on magnified endoscopy with narrow band imaging (Figure 1b). EUS showed a hypoechoic solid tumor in the submucosal layer (Figure 1c).



**Figure 1:** 1a: The submucosal tumor (SMT) at the lesser curvature of the cardia showing a central depression. 1b: Magnified endoscopy with narrow band imaging showing a normal mucosal pattern. 1c: Endoscopic ultrasonography demonstrating a hypoechoic solid tumor in the submucosal layer.

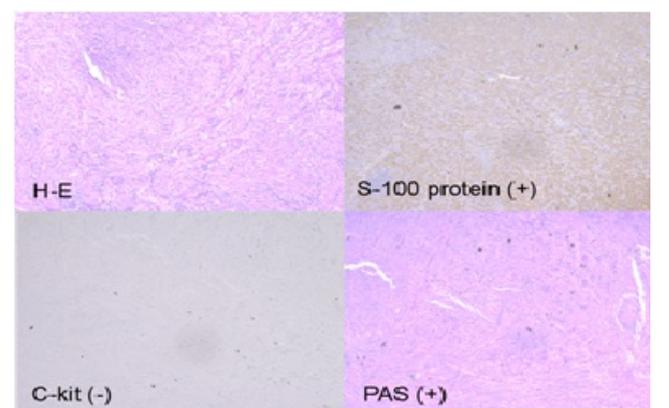
Although a gastrointestinal stromal tumor (GIST), neuroendocrine tumor (NET), or GCT was suspected, biopsied specimens obtained using EUS-FNA did not confirm the diagnosis. Therefore, we performed ESD with an en-bloc resection by using an IT knife2 (KD-611L; Olympus, Tokyo, Japan).

During ESD, the submucosal layer beneath the tumor was visually confirmed and dissected, and the tumor was completely resected and no adverse events were reported (Figure 2a and 2b).



**Figure 2:** 2a: The submucosal layer beneath the tumor is dissected during endoscopic submucosal dissection, under direct vision. 2b: The submucosal layer beneath the tumor completely resected during endoscopic submucosal dissection, under direct vision.

Microscopically, the tumor was mainly located in the submucosal layer and had negative vertical and horizontal margins. After various types of immunohistochemical staining, including staining for S-100 protein antibody, the tumor was diagnosed as GCT (Figure 3).



**Figure 3:** Microscopic appearance with hematoxylin-eosin (HE) showed alveolar small round nucleoli without necrosis and mitotic proliferation. The tumor cells are negative for C-kit, and positive for S-100 protein and periodic acid-Schiff (PAS) stain in immunohistochemical examinations.

No recurrence occurred within 3 years.

The incidence of gastric GCT is very rare [3,4]. Although most GCTs that originate from Schwann cells are benign, about 2% of malignant cases have been reported. It is also difficult to differentiate malignant potential tumors such as GIST and NET by using biopsied specimens obtained from EUS-FNA and endoscopic images [1,2,5]. The present case shows that ESD could be a useful option for the diagnostic treatment of SMT located in the submucosal layer with minimal invasiveness, because this technique allows en-bloc resection and corrects pathological diagnosis. ESD for gastric SMT were reported useful with negative margin and safety [2]. Because surgical wedge resection of tumor located on cardia is difficult, more invasive than endoscopic therapy, and increase risk of stricture [2]. The limitation of ESD is invasion depth of SMT. Because indication of ESD limited submucosal layer due to risk of perforation, preoperative EUS is recommended for decision making concerning the indication of ESD.

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