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## CLINICAL CASE REPORTS

# Endoscopic Submucosal Tunnel Dissection for Esophageal Granular Cell Tumor Resection ☆ ☆



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### KEYWORDS

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Video

### Abstract

Endoscopic submucosal tunnel dissection (ESTD) was recently described for the resection of upper gastrointestinal submucosal tumors, namely leiomyomas, GISTs and aberrant pancreas. Granular cell tumors (GCT) are usually benign, but should be removed when symptomatic, significantly increase in size or have atypical histological or ultrasonographic features. We aim to describe the role of ESTD for the resection of an esophageal GCT. A 51 year-old patient was referred to us due to the presence of an esophageal submucosal lesion with increased size in the follow-up. Deep biopsy specimens were positive for granular cell tumor. Suboptimal submucosal lifting precluded conventional endoscopic submucosal dissection (ESD). In this context an ESTD was performed. First, a submucosal tunnel was created starting 5 cm above the tumor. Afterwards, the GCT was carefully dissected from the overlying submucosa and muscularis propria using TT knife and IT knife<sup>2</sup>. The ESTD procedure was possible and en bloc resection achieved, being the 25 mm long lesion retrieved. The mucosal orifices were closed using conventional clips. The patient started oral diet 1 day after ESTD and was discharged at day 4 without any complications. In this first report of ESTD for esophageal GCT resection, this technique shown to be feasible, reliable and safe, enabling complete resection, even in this case with poor submucosal lifting.

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## Video related to this article

Video related to this article can be found online at <http://dx.doi.org/10.1016/j.vjgien.2013.05.004>.

### 1. Case report

- 51 year-old male patient.
- History of erosive esophagitis non-responsive to proton pump inhibitor therapy.
- Esophageal submucosal lesion with increased size in the follow-up.
- Biopsy specimens positive for granular cell tumor.
- Endoscopic ultrasound shows a lesion restricted to the submucosal layer.
- Poor submucosal lifting precluded conventional ESD resection.
- Endoscopic submucosal tunnel dissection was performed.
- Patient started oral diet on day 1 and was discharged asymptomatic at day 4.
- Patient remained asymptomatic at the 2 and 6 months follow-up.

### 2. Materials

- Gastroscope GIF-H180 and GIF-HQ190 (Olympus Corp., Hamburg, Germany).
- Spray catheter (PW-6P-1; Olympus).
- Interject sclerotherapy needle (1835, Boston Scientific, Natick, MA, USA).
- Transparent cap (DH-29CR, Fujinon, Omiya, Japan).
- Saline solution with diluted epinephrine (1:200,000) and methylene blue.
- Triangular tip knife (TT knife, KD-640L; Olympus).
- Insulation tipped IT-knife2 (KD-611L; Olympus).
- Coagulation forceps (FD-410LR, Coagrasper; Olympus).
- Quick clip 2 (HX-201LR-135.A, Olympus).
- Carbon dioxide gas for insufflation.
- Electrosurgery unit (Erbe Vio 300S; Erbe Elektromedizin, Tübingen, Germany).

### 3. Endoscopic procedure

- Intravenous metronidazole and ciprofloxacin are given before the procedure and maintained in the first day.
- Intravenous proton pump inhibitor (PPI) is started before the procedure and changed to oral PPI after resumption of oral diet.
- The esophagus is rinsed with saline and chlorhexidine using a catheter spray.
- Mucosal entry is created by mucosal lifting 5 cm above the submucosal lesion, using the sclerotherapy needle and a saline solution with diluted adrenalin and methylene blue.
- Subsequent longitudinal incision is made using TT knife in endocut mode effect 2. Using continuous endoscope-knife traction a 5 cm long incision is performed.
- A 10 cm long submucosal tunnel is created using TT knife in spray coagulation mode, effect 2, 50 W.
- Coagulation of big or bleeding vessels is performed using coagrasper in softcoagulation mode effect 5, 80 W.

- Delineation and dissection of the submucosal side of the granular cell tumor is performed using IT knife 2 and TT knife, in spray coagulation mode, effect 2, 50 W and endocut mode effect 2.
- The granular cell tumor is resected, from the luminal side, with the covering mucosa, using IT knife 2 and TT knife.
- The 2 mucosal defects are closed with clips.

### 4. Discussion

Endoscopic submucosal tunnel dissection (ESTD) was shown to be feasible, reliable and safe, enabling complete resection of an esophageal granular cell tumor (GCT) in our patient.

Granular cell tumors are rare, usually benign and can occur in any part of the body, having the risk of malignant degeneration in only 1-2% of the cases [1]. In the esophagus, GCTs are usually restricted to the submucosa, but in some cases, they can also involve the mucosal or muscularis propria layers [2].

Histologically, GCTs have neurogenic origin, arising from the Schwann cells that are located in the submucosal neuronal plexus of the esophagus [3]. As the risk of malignization is low, a conservative approach is advocated in most cases [4]. These tumors should be removed when symptomatic, when significantly increase in size or when atypical histological or ultrasonographic features are found [4]. If small, GCTs are usually removed through conventional endoscopic mucosal resection, being minimally invasive surgery an option for large lesions [5]. Endoscopic submucosal dissection (ESD) was seldom described for treatment of GCT [2]. The technique of endoscopic submucosal tunnel dissection (ESTD) was recently described for the resection of submucosal gastroesophageal lesions, namely GISTs, leiomyoma and aberrant pancreas [6,7]. As in the case of peroral endoscopic myotomy for the treatment of achalasia, ESTD is based on mucosal incision, creation of a submucosal tunnel and closing of mucosal defects with clips [8]. To our knowledge, ESTD was never reported for the resection of esophageal GCTs. In our patient, poor lifting after submucosal injection precluded conventional ESD and a decision for ESTD was made based on the co-morbidities associated with surgical resection.

Flexible endoscopy with biopsies is the mainstay for the diagnosis of esophageal GCT [4]. Like in more than 80% of esophageal GCTs, in our patient the histological diagnosis could be done with conventional biopsy samples [5]. Endoscopic ultrasound was performed to characterize the lesion, to provide additional information on the layer of origin, evaluate the tumor extension and to excluded muscularis propria involvement that could be the cause of the poor submucosal lifting.

In ESTD, a submucosal tunnel is performed. The tangential dissection enables an accurated approach to the submucosal fibers avoiding the muscle layer and reducing the risk of perforation. As it was not possible to completely dissect the GCT from the mucosal layer, a resection including the mucosa was performed as described previously for ESTD of aberrant pancreas [9]. En bloc resection was

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