Turk J Gastroenterol 2007; 18 (3): 188-191

Granular cell tumor of esophagus removed with endoscopic submucosal dissection

Özofagusun granüler hücreli tümörünün endoskopik submukozal diseksiyon yöntemi ile çıkarılması

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Granular cell tumors of the esophagus are rare neoplasms and their diagnosis is mainly based on histopathologic examination of endoscopic biopsies. With the development of endoscopy and iodine staining, there has been a marked increase in local treatment alternatives for early esophageal neoplasms. In this case report, we describe a granular cell tumor of the esophagus in an adult patient and briefly discuss the literature concerning clinicopathologic aspects and management of these uncommon tumors. In this patient, we describe the removal of the tumor by endoscopic submucosal dissection technique.

Key words: Esophagus, granular cell tumor, endoscopic submucosal dissection

Özofagusun granüler hücreli tümörü nadir görülen bir hastalık olup tanı temel olarak endoskopik biyopsilerin histopatolojik incelenmesine dayanır. Endoskopik işlemlerdeki gelişmeler ve mukozanın iyot ile boyanması gibi tekniklerin kullanılması ile erken özofagus tümörlerinde endoskopik tedavi alternatifleri doğmuştur. Bu yazı ile yetişkin bir hastada tespit edilen granüler hücreli tümör olgusu bildirilmiş ve nadir görülen bu tümörlerin kısaca tartışılması amaçlanmıştır. Ayrıca erken tespit edilen benzer olgularda endoskopik submukozal diseksiyon yönteminin başarı ile tedavi sağlayabileceği gösterilmiştir.

Anahtar kelimeler: Özofagus, granüler hücreli tümör, endoskopik submukozal diseksiyon

INTRODUCTION

Granular cell tumors (GCT), first described by Abrikossoff in 1926, occur throughout the body, most commonly in the tongue and skin, but also in the breast, respiratory tract, biliary tree, nervous system and gastrointestinal (GI) tract (1,2). Tumors involving the GI tract account for 8% of all GCT (1). Among the GCTs involving the GI tract, only 2% are found in the esophagus (2,3). The first case of esophageal GCT was also described by Abrikossoff in 1931 (4) and, since that time, over 200 cases have been reported in the literature (5). In this case report, we aimed to describe a GCT of the esophagus in an adult patient and its removal by endoscopic submucosal dissection technique. We also briefly discuss the literature concerning clinicopathologic aspects and management of these uncommon tumors.

CASE REPORT

A 51-year-old Caucasian male had a 5-year history of progressively worsening epigastric discomfort. Additionally, he had a 6-month history of intermittent dysphagia with epigastric pain radiating to the retro-sternum. He was treated with proton pump inhibitors; however, ongoing dysphagia and pain led to his referral to the gastroenterology outpatient clinic.

An upper GI endoscopic examination was performed which revealed a yellow submucosal tumor with central depression, located 37 cm distal from the incisor teeth (Figure 1). Microscopical examination of biopsy specimens from the lesion demonstrated a neoplasia consisting of nests and cords of elongated and polygonal cells containing small dark nuclei and abundant granular eosinophilic cytoplasm. Overlying epithelium had pseudo-

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Manuscript received: 23.01.2007 **Accepted:** 19.04.2007

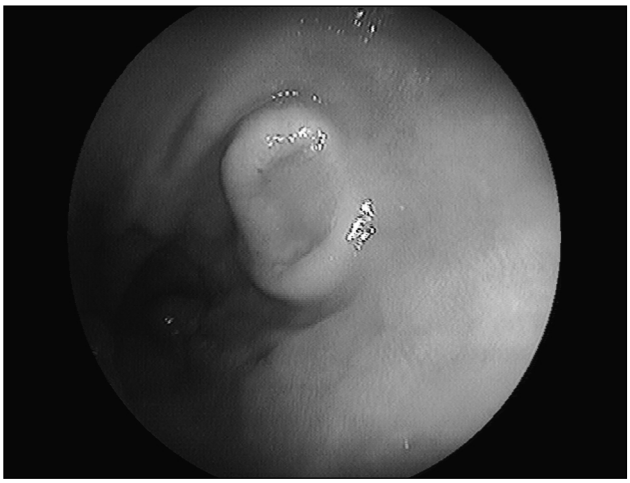

Figure 1. Endoscopic appearance of the esophageal GCT showing a 10x15 mm yellow mass protruding into the lumen

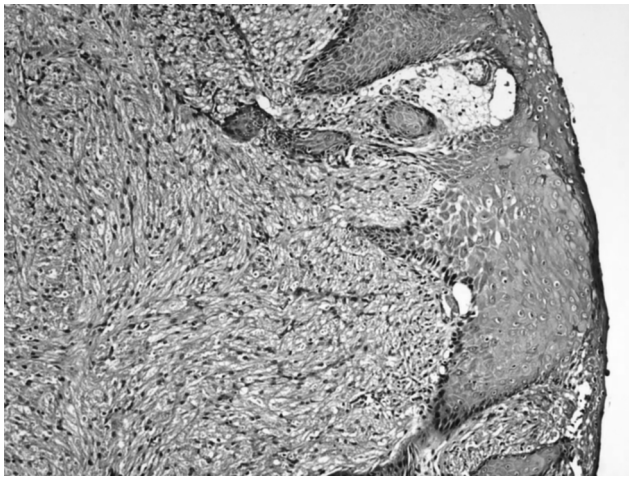

Figure 2. Histologic appearance of GCT. Squamous epithelium is hyperplastic; myoblastoma-like granular cell tumor with eosinophilic cytoplasm is seen under the epithelium

epitheliomatous hyperplasia. Based on these histopathological findings, the lesion was diagnosed as a GCT (Figure 2). Computed tomography scan of his chest and abdomen revealed no additional pathology except the solid mass in the distal esophagus. Esophageal endosonography revealed a 10 x 14 mm thick hypoechoic mass in the esophageal wall. The mass was located in the submucosa, and the muscularis propria was intact. There were no periesophageal or celiac lymph nodes. The patient subsequently underwent an endoscopic submucosal dissection (ESD) using sodium hyaluronate, a small-caliber-tip transparent hood and a needle knife according to the method developed by Yamamoto (6). ESD procedure was carried out by a single-channel upper GI endoscope (Fujinon Co, Japan) and a high frequency generator with an automatically controlled system (Endocut mode; Erbotom, ERBE Elektromedizin GmbH, Germany). A transparent cap was fitted on the tip of the endoscope to obtain a constant view and to create a tension on the connective tissue for dissection. Lugol chromoendoscopy was done to mark the margins of lesion. With the use of an electrosurgical needle knife, dots were placed about 5 mm outside of the margins at 2 mm intervals. Following an initial injection of 2 ml saline, a submucosal fluid cushion was created using a solution prepared with hyaluronic acid, saline, indigo carmine and epinephrine mixture. About 2 ml of the solution was injected into the submucosal layer at a time and repeated until the mucosa was lifted. After lifting the lesion, the mucosa was gently cut with the electrosurgical needle knife, using the Endocut mode. En bloc resection with tumor-free lateral/basal margins was accomplished. To control minor bleedings, hemostatic forceps were used in soft coagulation mode. The patient was discharged after one week without any complication. This method enabled submucosal incision under direct visualization and thus allowed precise determination of both the lateral and vertical margins to be resected (Figures 3, 4). Microscopically, the surgical margin was free of tumor cells. Follow-up endoscopy 6 weeks after removal of tumor showed scar tissue from prior mucosal dissection; no masses or nodules were detected (Figure 5).

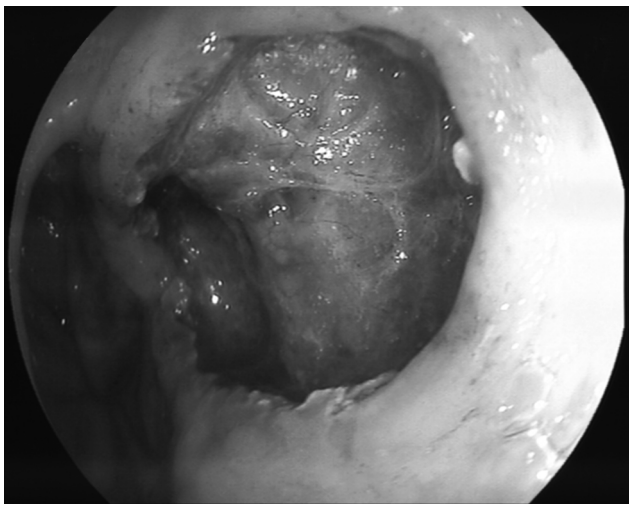

Figure 3. Endoscopic appearance of the esophagus after successful endoscopic submucosal dissection

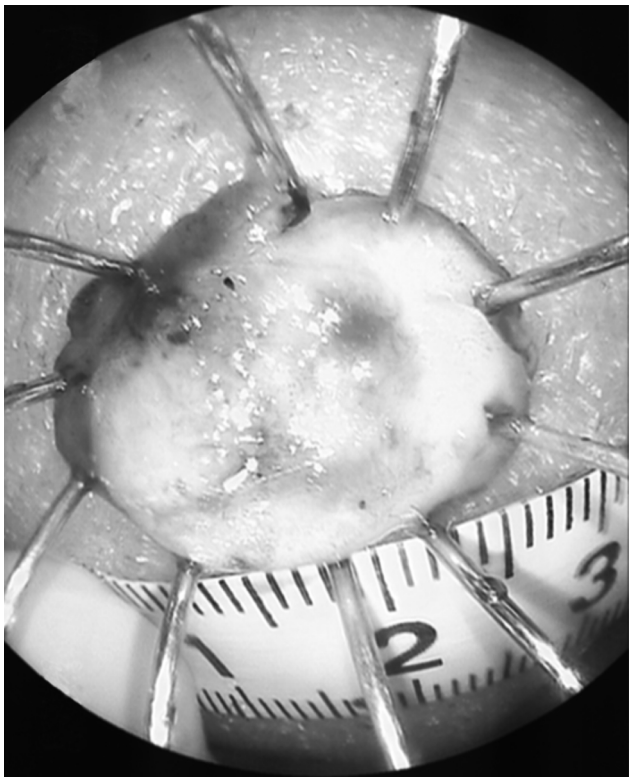

Figure 4. Gross appearance of the GCT tumor mass after endoscopic submucosal dissection

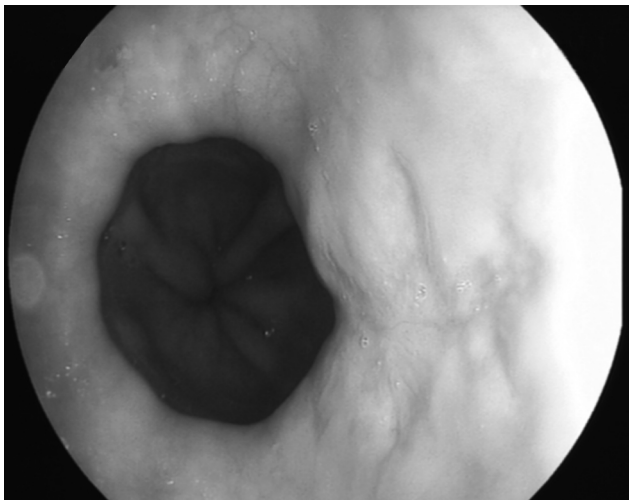

Figure 5. Endoscopic appearance of the distal esophagus 6 weeks after removal of the tumor

DISCUSSION

Granular cell tumors are uncommon tumors in the GI tract and are very rare in the esophagus. Most esophageal GCTs are found incidentally during endoscopy, upper GI contrast studies, or at autopsy. Although patients usually have no symptoms, those with tumors larger than 1 cm may report dysphagia (5). Nausea, vomiting, and retrosternal or epigastric pain occur less frequently (7).

The endoscopic appearance of a GCT is characteristic. The tumor usually appears as a yellow, firm, polypoid submucosal mass. Differential diagnosis should include esophageal cyst, epithelial lesions such as glycogenic acanthosis, inflammatory polyp, and squamous papilloma, and other submucosal tumors, such as leiomyoma, lipoma, and hamartoma.

Many kinds of cells have been postulated as an origin of the tumor including myoblasts, histiocytes, perineural fibroblasts, Schwann cells, and undifferentiated mesenchymal cells (8). Theories regarding the non-neoplastic nature of the lesion and its association with inflammatory as well as degenerative processes have also been considered. More strongly, the evidence of a close association of tumor cells with peripheral nerves, and the presence of S-100 protein, neuron-specific enolase, and myelin proteins on immunohistochemical stains support a Schwann cell derivation (9). Histologically, these tumors consist of polygonal and fusiform cells disposed in compact "nests" (10). Cells have small dark nuclei and abundant, fine, granular eosinophilic acid-Schiff–positive, diastase-resistant cytoplasm (11). GCTs of the skin, larynx, and esophagus are known to induce pseudoepitheliomatous hyperplasia in the malpighian epithelium. This feature may simulate a primary squamous cell carcinoma (2, 12).

Although the natural history of the tumor is unclear, most esophageal GCTs have a benign clinical course. The infiltrative pattern of growth and the presence of metastases are important features in differentiating between malignant and benign tumors because histologically they may appear very similar. Malignant lesions are usually larger than 4 cm, display rapid recent growth, tend to recur locally after resection, and may have such subtle histologic features as nuclear pleomorphism, increased nuclear size, tumor cell necrosis, large nucleoli, mitotic figures (2 or more/10 HPF), and tumor cell spindling (13).

Treatment of esophageal tumors has recently included saline-assisted endoscopic mucosal resection (EMR), which is considered a safe, successful procedure, and complications are uncommon (14). In a series of 650 esophageal mucosal cancers removed with EMR, Makuuchi (15) reported a comp-

lication rate of 4.8% (perforation 0.7%, bleeding 3.1%, stricture 1.6%). ESD for esophageal pathology has been recently established and the affected mucosa is incised and removed using a variety of endoscopic electrosurgical knives. Using ESD, a wider range of the mucosa can be resected in one piece more reliably using an endoscope. In our case, after submucosal injection of sodium hyaluronate to maintain sufficient thickening of the submucosal tissue, dissection of the mucosa and submucosa with a needle knife was performed by the method developed by Yamamoto (6). We preferred ESD for its more accurate resections than conventional EMR and sodium hyaluronate solution for it ability to maintain submucosal elevation for a longer time. Additional esophagectomy with lymph node dissection was not required since no submucosal invasion or vessel permeation was seen in the endoscopically resected specimen.

In summary, granular cell tumors of the esophagus are rare neoplasms. Endoscopic biopsies are the mainstay of diagnosis. Endoscopic and endosonographic evaluation of the lesion defines the location and extension of the tumor and its suitability for endoscopic treatment. Endoscopic submucosal dissection is a safe and accurate procedure for selected cases.

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