INTRODUCTION

Schwannomas of the gastrointestinal tract are considered to be rare, and they are distinct from the conventional schwannomas which arise from the soft tissue or in the central nervous system (1-4).

Gastrointestinal schwannomas occur most commonly in the stomach (60–70%), followed by the colon and rectum; and esophageal schwannomas are rarely found (5).

We experienced a rare case of esophageal schwannoma, which presented with the characteristic of homogeneously attenuating well-defined mural mass, similar to esophageal leiomyoma (5).

CASE REPORT

A 67-year-old man presented with dysphagia which had been persisting for six months. He was already receiving treatment for the dysphagia, which was presumed to be due to reflux esophagitis. However, his symptoms eventually progressed to solid food dysphagia. His only notable past medical history was atypical angina, treated with coronary artery stent insertion 16 years prior to admission. Physical examination did not show any specific findings.

Chest radiograph showed a retrocardiac, posterior mediastinal mass (Fig. 1A). Unenhanced chest CT demonstrated a lower esophageal mass with iso-attenuation (30–40 Hounsfield unit), as compared to the chest wall muscle (Fig. 1B). Contrast-enhanced chest CT images, obtained 55 seconds after the administration of 100 mL of iodinated contrast media (Covidien, St. Louis, MO, USA) at a rate of 2 mL/min, showed a lower esophageal mass with homogenous density that adhered to the right lateral wall of the esophagus, suggesting a submucosal tumor (Fig. 1C).

Flexible esophagoscopy identified the mass at 38 cm from the incisors and its attachment to the right lateral esophageal wall (Fig. 1D). The endoscopic biopsy only showed squamous epithelium and was thus insufficient for diagnosis.

A right posterolateral thoracotomy was later performed. The
mass was completely enucleated, and esophageal primary repair was achieved. The resected tumor was 7.5 × 5.0 × 5.0 cm in size with clear resection margins. The results of immunohistochemical stains was S100 protein (+), Ckit (-), DOG 1 (-), CD34 (-), and SMA (-) (Fig. 1E). Pathologic analysis of the tumor demonstrated a benign esophageal schwannoma.

**DISCUSSION**

Submucosal tumors in the esophagus are generally classified into three major categories: myogenic tumors, neurogenic tumors, and gastrointestinal stromal tumors (GISTs). Although esophageal leiomyoma, as a myogenic tumor, is the most common benign esophageal tumor, it is relatively rare with its overall incidence being 8–43 per 10000 autopsy series (1, 2). Schwannomas should be accurately distinguished from GISTs, which may be malignant or have malignant potential. Although 6 out of 34 cases reported in the literature have shown malignant esophageal schwannomas, most of the published pathology series reported that esophageal schwannomas are biologically benign and that most patients have an excellent prognosis after surgical resection (3-7). However, Saito et al. (8) suggested that all pa-

![Fig. 1. A 67-year-old man with an esophageal schwannoma.](image)
patients with esophageal schwannoma should receive follow-ups for a long period of time after the operation, due to the local recurrence.

Esophageal schwannomas occurs primarily in the middle-aged women and are usually located in the upper esophagus (7). Esophageal schwannomas are usually asymptomatic; sometimes, they can initially cause dysphagia, and later in the course of disease, dyspnea occurs due to tracheal compression (4).

The CT finding in our case showed a homogenous pattern of tumor attenuation on both the unenhanced and contrast-enhanced scans. The homogenous CT attenuation pattern directly corresponded to the homogeneity of the tumor that we witnessed, by grossly analyzing the cut surface.

The CT findings of esophageal schwannomas, with the characteristic findings of homogeneously attenuating well-defined mural mass, are similar to those of esophageal leiomyomas (5). Yang et al. (2) reported that esophageal leiomyomas also showed homogenous hypo- or iso-attenuation. However, esophageal leiomyomas are more commonly found in men and are located mainly in the middle or distal esophagus; on the other hand, esophageal schwannomas primarily occur in the middle-aged women and are usually located in the upper esophagus (7).

Umeoka et al. (9) reported that other esophageal cancers showed focal enhancement at 35 seconds (second arterial phase) and 65 seconds (venous phase) after the contrast injection. Focal enhancement of esophageal masses in the second arterial phase or venous phase, shown on dynamic CT, may aid in differentiating between esophageal cancer and schwannoma.

The main differential diagnosis for an esophageal submucosal tumor includes GISTs and leiomyomas, because these are the most common mesenchymal neoplasms of the esophagus. CT can be useful in differentiating between schwannomas and GISTs. In contrast to schwannomas, GISTs are typically large, hypervascular, enhancing masses on contrast-enhanced CT, and they are often heterogeneous due to the presence of hemorrhage, necrosis, and cystic changes (10). The CT findings of esophageal schwannoma are similar to those of esophageal leiomyoma (2). Therefore, it is difficult to differentiate between the two neoplasms. If we identify the esophageal mass as homogenous, iso-attenuating density, compared to chest wall muscle on pre and post-contrast CT, we should always include esophageal schwannoma as a differential diagnosis with esophageal leiomyoma.

In conclusion, esophageal schwannomas are very rare tumors. They are homogeneous, iso-attenuating with chest wall muscle on pre- and post-contrast chest CT. The CT findings of esophageal schwannomas are similar to those of esophageal leiomyoma. Hence, esophageal schwannoma may be a differential diagnosis with esophageal leiomyoma.

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식도 신경집종의 전산화단층촬영 소견: 증례 보고

이만호1 · 류대식1 · 엄대운2 · 신동락1 · 최수정1 · 안재홍1 · 박만수1 · 유동근3

식도 신경집종은 주로 중년 여성의 상부 식도에서 발생하는 비교적 드문 양성 종양이다. 저자들은 67세 남자에서 발생한 하부 식도 신경집종 1예를 보고한다. 이 병변은 흉부 전산화단층촬영상 조영 전과 후 흉벽 근육과 동일한 정도의 균질한 밀도를 보였다. 식도 신경집종의 전산화단층촬영 소견은 식도 평활 근종의 전산화단층촬영 소견과 유사하다. 그러므로 식도 평활 근종과 함께 식도 신경집종이 감별 진단에 포함될 수 있다.

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