Hypopharynx giant fibrovascular polyps

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ABSTRACT
Hypopharyngeal fibrovascular polyps are rare in clinical work and often asymptomatic and overlooked for years until severe or even life-threatening onset of obstruction. In this article we present one rare case of giant fibrovascular polyps and review other similar cases in our center, to discuss about the clinical features, early diagnosis and surgical approaches.

INTRODUCTION
Fibrovascular polyps (FVP) are uncommon in digestive tract and also rare in the hypopharyngeal area. FVP of the esophagus are benign lesions that arise from the cervical esophagus and upper gastrointestinal esophageal sphincter [1]. The hypopharyngeal FVP usually originated from Killian dehiscence (the area between the superior and inferior cricopharyngeal muscles) or Laimer-Haeckermann area triangle (area between the inferior cricopharyngeal muscle and the proximal end of the esophagus) [2]. Due to weakness of muscles and the pressure during eating, loose mucosa prolapsed by gravity and elongate endoluminally from continuous peristaltic movements, leading to the mucosal and submucosal nodules valgus fold thickening and subsequent proliferative lesions [2,3]. Because of the dormant origination and the nature of slow growth [4], hypopharyngeal FVP is often asymptomatic and overlooked for years.

This paper reports one recent case of giant hypopharyngeal FVP, along with the review of other cases of our center.

CASE REPORT

GENERAL INFORMATION
A 34-year-old man was referred to our center due to progressive intermittent sore throat for eight years. The patient denied hoarseness, dysphagia or respiratory distress. He had been diagnosed by ‘chronic pharyngitis’ and received medication in local clinics. However the symptoms advanced in recent years. Fibrolaryngoscopy showed a mass with smooth surface arising from the left aspect of hypopharynx and protruding into the esophagus, without ulceration or invasion into adjacent structure. The extension of the mass cannot be evaluated in the routine examination (Figure 1). Imaging studies showed a tumor of about 8 cm diameters with heterogeneous contracts. The pedicle of mass was unable to be identified (Figure 2).

SURGICAL DETAILS
The patient underwent direct laryngoscope exploration under general anesthesia. During the exploration, a solid mass with a wide pedicle covered with smooth mucosa was found arising from left piriform fossa and postcricoid area and extended into the esophagus. Because of the difficulties of exposure and bleeding control, an open surgery with lateral neck incision was performed. The thyroid gland was exposed by separating the left sternocleidomastoid and strap muscles. The left lobe was retracted medially to allow the capsular dissection. The parathyroid and recurrent laryngeal nerve was clearly identified. The esophagus was entered through a vertical incision at the level of commencement. The polyp was found...
as a wide pedicle arising from left piriform fossa whose head extended to the thoracic segment of esophagus. The tumor was removed en bloc via the esophagus incision. The incision was then closed in a layered fashion following meticulous cautery hemostasis. Species inspection revealed a \( \frac{8}{C2} \times 4 \) multiple nodular mass covered with smooth mucosa and a ulceration at the top of one of the nodule (Figure 3). Nasogastric tube was set after operation. A tracheotomy was performed to secure the airway.

**Prognosis**

The tracheotomy was closed on postoperative day three. No breathing difficulties occurred so the tracheotomy tube was removed on postoperative day five. No obvious discomfort occurred after switching to oral feeding on day ten. Pathological examinations revealed: ‘Fibrovascular polyps, with fibroma hyperplasia.’ (Figure 4)

**Discussion**

Benign esophageal tumors are uncommon and they represent less than 1% of the esophageal neoplasms [5]. FVP of the esophagus and hypopharynx are

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**Figure 1.** Laryngoscope examination showed a smooth bulge mass (arrow) located left of hypopharyngeal area extending to postcricoid area. Bilateral vocal folds moved symmetrically.

**Figure 2.** Imaging findings. (a–c): Chest CT showed: internal carotid thoracic esophagus visible soft tissue structures filled, multinodular, clear boundaries. (d): Chest and neck MRI showed multiple nodular masses, border clearance, local esophageal dilatation change and there is uneven strengthen altered tumor enhancement.

**Figure 3.** Samples shows multiple nodular masses of about 8 cm with pedicle diameter up 4 cm, pedicles are intact with a smooth surface and a large nodule surfaces seem to have ulcers.

**Figure 4.**
benign tumors of the upper digestive tract. They commonly arise from two specific regions. One is between the superior and inferior cricopharyngeal muscles (known as the Killian dehiscence) and the other is the area between the inferior cricopharyngeal muscle and the proximal end of the oesophagus (known as the Laimer triangle). The early symptoms of hypopharynx FVP could be hoarseness, sensation of foreign body when swallowing, sore throat, cough, blood-tinged sputum, dysphagia, respiratory distress, dyspnoea or even asymptomatic. These early symptoms are non-specific and might lead to misdiagnosis. According to the Ramalho et al.'s report [4], showed that the average age for FVP to occur is 57.5 years. Where 64% of patients had dysphagia, 31% of patients had respiratory symptoms and 41% of patients suffered from esophagus reflux [3,4]. Furthermore, many papers reported that FVP is one of the causes of sudden onset of suffocation [4,6,7].

Retrospectively analysis of the four FVP cases in our department showed the average age was 45 years old. One case underwent emergency tracheotomy because of the sudden onset of laryngeal obstruction. Two cases complained masses protruding from their mouth when vomiting. The last one was found by routine laryngoscopy. Preoperative examination included fibrolaryngoscopy, esophageal barium radiography and computed tomography. The origin is in the postcricoid area and aryepiglottic fold in all cases. The patient in this report was 34 years old. The history of the mass can be traced back to eight years before. So the age of onset may be earlier than that of the literature. The chief complain of this patient was sore throat. Preoperative laryngoscopy and imaging (CT and MRI) revealed the solid mass. During the operation, it was found that a wide pedicle originated from the left aryepiglottic fold and extended to the side of the epiglottis and postcricoid region.

Three out of five patients FVP was completely removed via per-oral endoscopic approach by CO₂ laser system. The remaining two patients(including the patient in this study) were operated via lateral cervical approach. No thoracotomy was necessary in all cases. No vocal cord paralysis, laryngeal/hypopharyngeal stenosis or other complications occurred.

Early diagnosis of patients with hypopharynx FVP is established by endoscopy and radiologic evaluations. However the masses might be overlooked in early stage when no specific symptoms are presented. Moreover, small polyps can often be mistaken for normal structures so that the further radiological evaluation may be essential for early diagnosis. Many cases were inexpertly diagnosed during routine thoracic CT or MRI imaging for other purposes [3,8]. The pathologic feature of FVP is the presence of different proportions of vascular structure, fibrous and adipose tissue, covered with normal mucosa, which demonstrated inhomogeneous signals on contrast enhancement CT or MRI [9–11]. Vessels can rarely be detected on CT scans. The presence of large vessel components in pre-operative radiological evaluations may be great helpful for surgical approach design [8,9,11]. The literature suggests that PET-CT can play an important role on differential diagnosis with gastrointestinal cancer [12].

Surgical excision is the main treatment of hypopharynx FVP. Open approach surgeries were often seen in early literatures. In recent years, more and more endoscopic approach surgeries were reported. In our experience, the surgical plan should be individualized to obtain the maximum exposure while minimize the surgical trauma. First determine the size, extension and origin under the help of endoscopic and radiological evaluations. Then design the approach based on the blood supply showed on contract CT or MRI. Most of the small masses with narrow pedicle
and poor blood supply can be removed under endoscopy. Those large FVP with wide base and rich blood supply could be explored under endoscopy with full preparation of open approach. Complications are rarely occurred with meticulous dissections even via open surgery.

In conclusion, the hypopharyngeal FVP is a rare lesion. Early clinical manifestations are non-specific so can often be ignored. Patients may already have long history and large tumors when in first visit. Although the disease is benign, surgery is still the primary treatment. A detailed preoperative endoscopic and radiological assessment is necessary for appropriate approach selection. Complete resection, especially the pedicle of polyps, can prevent recurrence, reduce complications and minimize surgical trauma.

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References
[1] Yannopoulos P, Manes K. Giant fibrovascular polyp of the esophagus: imaging techniques can localize, preoperatively, the origin of the stalk and designate the way of surgical approach: a case report. Cases J. 2009;2:6854.
[2] Ozdemir S, Gorgulu O, Selcuk T, et al. Giant fibrovascular polyp of the hypopharynx: per-oral endoscopic removal. J Laryngol Otol. 2011;125:1087–1090.
[3] Hinton-Bayre AD, Pham T. Dramatic presentation of a giant fibrovascular polyp of Laimer's triangle. ANZ J Surg. 2016;86:514–515.
[4] Ramalho LN, Martin CC, Zerbini T. Sudden death caused by fibrovascular esophageal polyp: case report And Study Review. Am J Forensic Med Pathol. 2010;31:103.
[5] Rice TW, Murthy SC. Surgical treatment of benign esophageal diseases. In: Sellke FW, del Nido PJ, Swanson SJ, editors. Sabiston & spencer surgery of the chest. Philadelphia: Elsevier Saunders; 2005. p. 583–609.
[6] Kanamoto T, Matsuki M, Kani H, et al. A case of giant fibrovascular polyp of the esophagus: MR findings [J]. Nihon Igaku Hoshasen Gakkai Zasshi. 2005;65:276–277.
[7] Sargent RL, Hood IC. Asphyxiation caused by giant fibrovascular polyp of the esophagus. Arch Pathol Lab Med. 2006;130:725–727.
[8] Kim TS, Song SY, Han J, et al. Giant fibrovascular polyp of the esophagus: CT findings. Abdom Imaging. 2005;30:653–655.
[9] Lewis RB, Mehrtra A, Rodriguez P, et al. From the radiologic pathology archives: gastrointestinal lymphoma: radiologic and pathologic findings. Radiographics. 2014;34:1934–1953.
[10] Jang KM, Lee KS, Lee SJ, et al. The spectrum of benign esophageal lesions: imaging findings. Korean J Radiol. 2002;3:199–210.
[11] Ascenti G, Racchiusa S, Mazzotti S, et al. Giant fibrovascular polyp of the esophagus: CT and MR findings. Abdom Imaging. 1999;24:109–110.
[12] Beylergil V, Simmons MZ, Ulaner G, et al. FDG PET/CT findings in a rare case of giant fibrovascular polyp of the esophagus harboring atypical lipomatous tumor/well-differentiated liposarcoma. Clin Nucl Med. 2014;39:288–291.