

Case Report

Schwannoma of the epiglottis mimicking epiglottic cyst: a case presentation and literature review

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Abstract: Schwannoma of the larynx is a rare entity, accounting for less than 0.1% of all benign laryngeal neoplasms. In particular, schwannoma of the epiglottis is much more rare. We report a case of schwannoma located on the laryngeal surface of the epiglottis which mimicked epiglottic cyst. A 39-year-old female presented with a 5-month history of dry cough. Laryngostroboscopy examination revealed a smooth, pedunculated, measuring approximately 1.0 × 1.0 cm mass located on the laryngeal surface of the epiglottis. The patient had suspension laryngoscopy under general anesthesia, with the mass removed by electrotome excision. Based on the histological examination, a final diagnosis of laryngeal schwannoma was made. The patient was free of postoperative complications and had no sign of recurrence. Her dry cough had disappeared immediately after surgery

Keywords: Schwannoma, epiglottis, larynx, treatment

Introduction

Schwannoma is a type of neurogenic tumour, it is a benign and encapsulated tumor arising from the Schwann cells in the nerve sheath [1]. It was first described by Verocay in 1910 and termed neurinomas [2]. Schwannoma can arise from any peripheral, spinal, or cranial nerve in the body except the optic and olfactory nerves, and shows a predilection for the head and neck region [3]. Approximately 25-45% of all schwannomas occur in the head and neck, and most of these are found in the parapharyngeal space [4]. However, schwannomas account for only 0.1% of all benign neoplasms of the larynx [1, 4-7]. According to a systematic review of laryngeal schwannoma, the most of the reported cases were supraglottic, affecting the arytenoid cartilages, aryepiglottic folds, or false vocal cords [1]. In particular, schwannoma of the epiglottis is an extremely rare condition.

To the best of our knowledge, there are only 9 cases of schwannoma of the epiglottis in the English language literature since Goethals first reported a case in 1961 [4-12]. Among them, only 3 cases of schwannoma located on the laryngeal surface of the epiglottis [5, 6, 11]. Herein, we report an additional case of schwannoma located on the laryngeal surface of the epiglottis which mimicked epiglottic cyst. Clinical and pathological features of this unusual lesion are discussed and we further review the relevant English literature. Written informed consent was obtained from the patient for the publication of her data in the present study.

Case report

In April 2014, a 39-year-old female was referred to the Department of Otolaryngology, The First Affiliated Hospital, College of Medicine, Zhejiang University (Hangzhou, China) with a 5-month history of dry cough. The patient exhibited no

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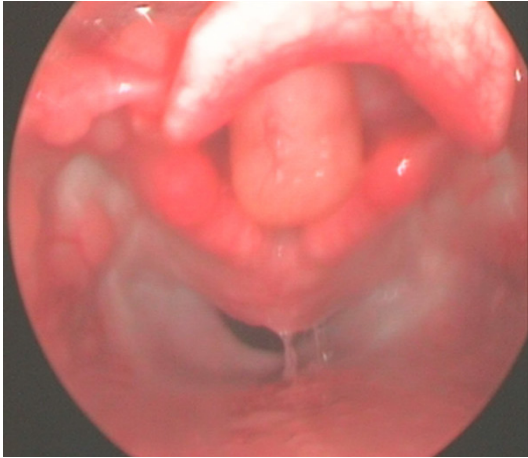


Figure 1. Laryngostroboscopy examination revealed a smooth, predunculated, measuring approximately 1.0 × 1.0 cm mass located on the laryngeal surface of the epiglottis.

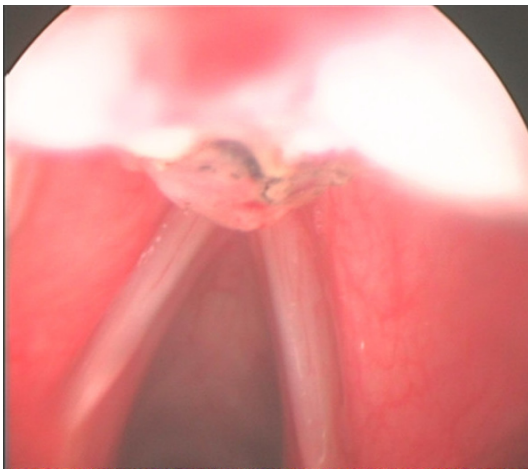


Figure 2. Postoperative laryngostroboscopy examination revealed that the mass was excised and the wound of epiglottis healed well.

expectoration, pharyngalgia, dysphagia, dyspnoea, hoarseness, chest congestion postnasal drip or fever. The patient had an operation history of cesarean seven years ago. The remaining medical history was uneventful.

Laryngostroboscopy examination revealed a smooth, predunculated, measuring approximately 1.0 × 1.0 cm mass located on the laryngeal surface of the epiglottis (**Figure 1**). This appearance mimicked that of an epiglottic cyst. On physical examination, the nasopharynx, tongue, hypopharynx, interior laryngeal and cervical lymph nodes were normal. The patient's blood pressure and other vital signs

were also normal. The initial clinical diagnosis was epiglottic cyst. The patient had suspension laryngoscopy under general anesthesia, with the mass removed by electrotome excision. During the operation, we found that the mass was originated in the laryngeal surface of the epiglottis, the direct relation between the mass and a nerve was not identified, and it was sharply excised at its base. The postoperative course was uneventful. One day after the surgery, laryngostroboscopy examination revealed that the wound of the epiglottis healed well (**Figure 2**), and then she was discharged.

The lesion was sent for histological examination. Microscopic analysis showed that the mass was confirmed as Antoni type A and Antoni type B patterns (**Figure 3A**). The immunohistochemical stains was applied. The mass was strongly positive for S-100 protein on immunohistochemical staining (**Figure 3B**). Based on these findings, a final diagnosis of laryngeal schwannoma was made.

The patient is being regularly followed up. She was free of postoperative complications and had no sign of recurrence. Her dry cough had disappeared immediately after surgery.

Discussion

Schwannoma of the larynx is a rare entity, accounting for less than 0.1% of all benign laryngeal neoplasms [1, 7]. It has been proposed that the most common peripheral nerve of origin is the internal branch of the superior laryngeal nerve [3]. Supraglottic mass is the most common type among these tumours as they usually involve in the aryepiglottic folds or in the false vocal cords [11]. However, location in the epiglottis is extremely rare. To the best of our knowledge, including the present case, there are only 10 cases of schwannoma of the epiglottis that have been reported in the English literature since Goethals first reported in 1961 (**Table 1**). Of the 10 cases included in the study group, 7 (70%) were males, and 3 (30%) were females. The patients' age ranged from 23 to 79 years with mean age of 43.3 years. 3 patients had tumors involving the laryngeal surface of the epiglottis. 2 patients had tumors involving the lingual surface of the epiglottis. One patient had a tumor involving the lingual and laryngeal surface of the epiglottis. One patient had a tumor involving the epiglottis and

Schwannoma of the epiglottis

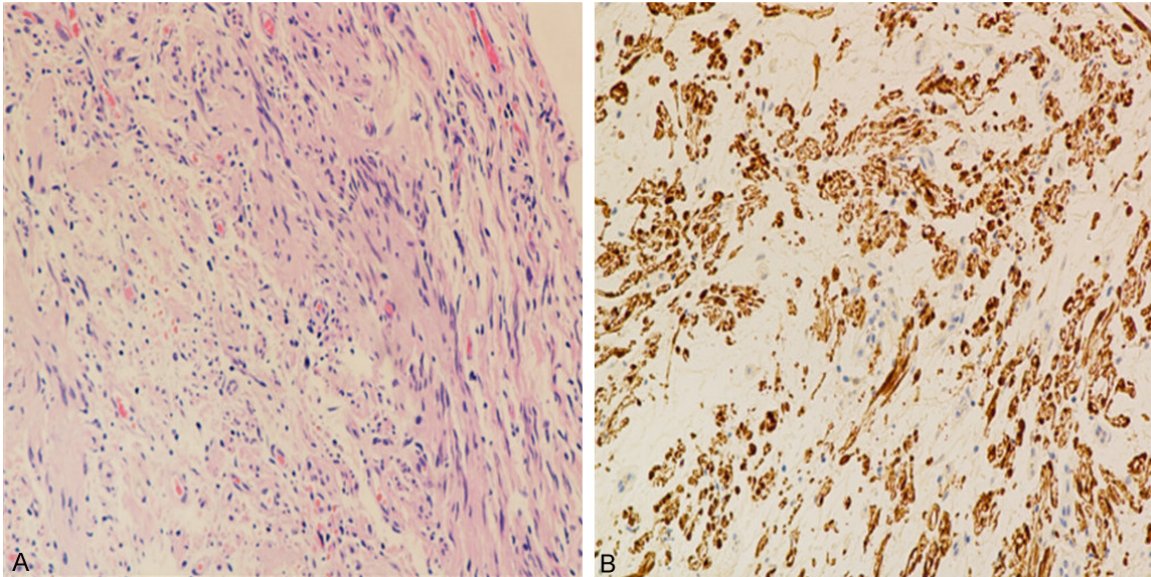


Figure 3. Pathological results of the postoperative specimen. A. Microscopic analysis showed that the mass was confirmed as Antoni type A and Antoni type B patterns (H&E staining; magnification, $\times 200$). B. The mass was strongly positive for S-100 protein on immunohistochemical staining (magnification, $\times 200$).

right aryepiglottic fold. One patient had a tumor involving the posterior surface of the epiglottis. 2 patients did not describe the definite tumor location of the epiglottis. The size of the tumours were variable but the smallest recorded lesion was 0.5 cm found on the laryngeal surface of the epiglottis. The largest lesion of the study was 3.0 \times 4.0 cm found on the laryngeal surface of the epiglottis. One patient did not describe the size of the tumor. All patients underwent surgical excision. Follow-up information was available for 7 patients with an interval ranging from 5 months to 17 years. 7 patients were alive with no evidence of disease.

Clinical symptoms of schwannoma of the larynx are usually closely associated with the size, location and the particular nerve origin of the tumor [1, 3, 8]. Symptoms may include globus sensation, cough, hoarseness, snoring, odynophagia, dysphagia, dyspnoea and so on. However, due to the slow growing features of schwannoma, patients may have nondescript symptoms for months or years, and they may be only discovered by incidental examinations. On direct or indirect laryngoscopy, the characteristic manifestation for laryngeal schwannoma regardless of the subsite is a round submucosal swelling [1]. Computed tomography (CT) and/or magnetic resonance imaging (MRI) are very helpful for determining the size, location, extension and cellularity of the tumor. CT scan

images often exhibit heterogenic density, on contrast enhancement, with centrally distributed areas of low attenuation, surrounded by a peripheral enhancing ring, but without signs of destructive growth such as cartilage erosion or infiltrative pattern [1, 3, 5, 6, 11]. On MRI scans, the lesions appear isointense or slightly hyperintense in T1-weighted sequences, hyperintense in T2-weighted sequences and hyperintense after administration of gadolinium [1, 11]. However, CT and MRI appearances are not characteristic, so they are not efficient to diagnose schwannomas. A differential diagnosis must be proceed with laryngeal cysts, laryngoceles and other tumours of the larynx, such as adenomas, lipomas, chondromas, neurofibromas and mucoceles.

The definitive diagnosis of schwannoma can only be made by histopathologic examination. Electron microscopy usually shows cells in the peripheral boundary region having a markedly convoluted outline, covered by a prominent basal lamina. This manifestation is suggestive of schwannoma [3]. Enzinger and Weiss made three histological criteria for the diagnosis of schwannoma: the tumor has a capsule; it contains Antoni-A and Antoni-B patterns; positive staining with S-100 [13].

As schwannomas are always benign, radioreistant and do not recur on long-term follow-up,

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Table 1. Cases of schwannoma of the epiglottis in the English language literature

Author	Age (years)/ Sex	Symptoms	Site	Tumor size (cm)	Treatment	Complication	Recurrence	Follow-up
Present case	39/F	Cough	Laryngeal surface of the epiglottis	1.0 × 1.0	Suspension laryngoscopy excision	No	No	NED, 2 years
Lee <i>et al</i> [2]	28/M	Muffled voice	Lingual surface of the epiglottis	3.2 × 2.9 × 2.7	Pharyngoscopic excision	No	No	NED
Romak <i>et al</i> [3]	56/M	Incidental finding on bronchoscopy	Epiglottis	NA	Excisional biopsy	NA	NA	NA
Stanley <i>et al</i> [13]	51/F	Dysphonia, odynophagia, globus	Epiglottis and right aryepiglottic fold	3.0	Direct laryngoscopy, excision	NA	NA	NED, 17 years
Xu <i>et al</i> [6]	42/M	Muffled voice	Lingual and laryngeal surface of the epiglotti	1.4 × 2.4	CO ₂ laser excision	No	No	NED, 5 months
Saita <i>et al</i> [7]	62/M	Dysphonia	Laryngeal surface of the epiglottis	0.5	Endoscopic excision	No	NA	NA
Martin <i>et al</i> [9]	79/M	Globus sensation, chronic throat clearing, cough	Lingual surface of the epiglottis	2.5	Direct laryngoscopy, excision	No	No	NED, 6 months
Arora <i>et al</i> [10]	30/M	Globus sensation, irritating dry cough	Epiglottis	2.5 × 1.5	Direct laryngoscopy, excision	No	NA	NA
Goethals <i>et al</i> [11]	23/M	Hoarseness, dysphagia	Posterior surface of the epiglottis	3.5 × 2.5 × 2.5	Suspension laryngoscopy, excision	No	No	NED
López-Álvarez <i>et al</i> [12]	23/F	Neck pain	Laryngeal surface of the epiglottis	3.0 × 4.0	CO ₂ laser excision	No	No	NED, 5 years

M, male; F, female; NA, not available; NED, no evidence of disease.

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the treatment of choice for laryngeal schwannoma is complete surgical excision. The approach of surgical excision depends on the size and location of the tumor. Small lesions are usually removed endoscopically, whereas large or malignant tumor might require lateral pharyngotomy, lateral thyrotomy, median thyrotomy, suprahyoid pharyngotomy and submandibular [1, 3, 8, 11].

In conclusion, schwannoma of the epiglottis is extremely rare. ENT surgeons should be aware that schwannomas, may present in the epiglottis mimicking other more common lesions. Surgery is the best choice for the treatment of schwannoma of the epiglottis.

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Disclosure of conflict of interest

None.

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