Transoral excision of retropharyngeal schwannoma: Case report

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ABSTRACT
Schwannoma is a benign nerve sheath tumor that arises from neural crest-derived Schwann cells. They are well-circumscribed and encapsulated tumor, commonly seen over the cervical region that involves the cervical and brachial plexus. However, the existence of this benign tumor in retropharyngeal space is infrequent. We report a case where a patient presented with incidental findings of retropharyngeal schwannoma, who is treated with trans-oral excision with tumor completely excised and patient recovered completely post-operative.

ARTICLE HISTORY
Received 9 November 2016
Accepted 2 March 2017

KEYWORDS
Retropharyngeal; schwannoma; transoral excision

Introduction
Schwannoma is a benign nerve sheath tumor that arises from neural crest-derived Schwann cells [1]. It is well-circumscribed and encapsulated tumor, commonly seen at age 20–70 years old in both genders [2]. It was reported 25–45% of the extracranial schwannoma found at head and neck region, most commonly involves the cervical and brachial plexus [2]. However, the existence in the retropharyngeal space is infrequent. Transcervical approach is used for complete enbloc removal of retropharyngeal tumor traditionally. However, neurogenic injury, unfavorable scars, loss of function, etc. are potential post-operative sequelae [3]. Here, we report a case whereby transoral excision was performed in a patient presented with retropharyngeal schwannoma, and patient has fully recovered.

Case report
A 27-year-old gentleman with no known medical illness presented with signs and symptoms of allergic rhinitis. Other than nasal congestion, he had no complaint of globus sensation, dysphagia, odynophagia, voice changes, dyspnea or noisy breathing, the hallmark characteristics of retropharyngeal tumor. Clinical examinations also showed no hoarseness or stridor. Blood investigations were normal. However, after an indirect nasal and laryngeal endoscope was performed, we noted retropharyngeal mass extending to the left piriform fossa, obliterating 70% of the larynx. Initial provisional diagnosis was retropharyngeal retention cyst. Patient was arranged for emergency tracheostomy for airway protection in view of the retropharyngeal tumor was obstructing the upper airway. After airway has been secured, further investigations were performed.

Computed tomography scan of neck revealed a large prevertebral swelling at the level of C6, extending inferiorly to the left piriform fossa and anterior epiglottic space, measuring 4.5 cm × 3.8 cm × 5 cm (see Figure 1).

The lesion was further confirmed with magnetic resonance imaging (MRI) which showed a well-encapsulated heterogeneously enhanced T1 hypointense and T2 hyperintense mass arising from the prevertebral space at the level of C3–C6, measuring 3.0 cm × 3.6 cm × 5.5 cm, almost completely obliterating the airway (see Figure 2).

After further investigation, patient was counseled for excision of tumor. In view of the center-seated retropharyngeal tumor, option of transoral excision was counseled to patient.

During operation, patient was put at supine position with neck extended. The retropharyngeal operation field was observed under direct laryngoscope with suspension. Incision was made over the mucosa of superior part of the retropharyngeal tumor via sickle knife until the margin was revealed. Then,
complete excision of the tumor was done using diathermy method. The posterior pharyngeal mucosa was sutured with absorbable stitch size 2/0.

Specimen was sent for histopathological examination showed biphasic pattern of hypercellular Antoni A areas and loose myxoid Antoni B areas with narrow, elongated, wavy cells. Collectively these findings concluded the diagnosis of a retropharyngeal schwannoma.

Patient recovered well without any loss of function over the larynx post-operatively. He was kept on tracheostomy for the next 3 weeks until review. The tracheostomy was able to wean off 3 weeks post-operative and he was able to resume his work 1 month after the operation. Currently, patient has been asymptomatic for 1 year. Surveillance MRI of neck has been done 1 year after the excision which shows no deposit of tissue with clear airway (see Figure 3).

**Discussion**

The retropharyngeal space is a space that lies posterior to the pharynx and esophagus, that separates the pharynx from the prevertebral muscles [4,5]. It extends from the base of skull superiorly, to the posterior mediastinum up to the sixth vertebra inferiorly, with anterior part of the space covered by buccopharyngeal fascia and posteriorly by prevertebral fascia [4,5]. The retropharyngeal space is further divided into suprathyoid and infrahyoid parts [4]. The suprathyoid part contains fat and lymph nodes which lie medial to internal carotid artery, whereas the infrahyoid part contains only fat [4].

The majority content of the retropharyngeal space is fat tissue; thus, lipoma appears to be the most common primary tumor in this space [6]. Other tumors frequently seen are liposarcoma and lymphoid tumor (sarcoidosis, lymphomatous tumor, metastatic lymph node) [6]. Schwannoma, on the other hand, has only been sporadically reported to occur in retropharyngeal space [7]. This is because anatomically the major peripheral, cranial or autonomic nerves are more commonly found at parapharyngeal space, oral cavity and sinonasal regions, compared to retropharyngeal space [7].

Schwannoma is a slow growing tumor that is usually benign in nature. It does not usually cause pain [7]. Unless there are malignant changes where patients usually experience parasthesia and present to

**Figure 1.** The sagittal view of the retropharyngeal tumor in computed topography scan.

**Figure 2.** The axial view of T1-weighted magnetic resonance imaging showing well-encapsulated heterogeneous mass which is enhanced with gadolinium.
As reviewed in most literature, patients with retropharyngeal schwannoma are mostly asymptomatic and also have no neurogenic dysfunction [7]. Diagnosis of retropharyngeal schwannoma will never be completed without imaging studies. MRI is best use together with gadolinium enhancement [6]. On MRI, schwannoma presents in low signal intensity on T1-weighted images and high signal intensity on T2-weighted images, and the solid part of tumor is strongly enhanced after administration of gadolinium. The imaging helps to identify the site, size, extension and relation of the tumor with surrounding vessels and nervous system [8].

The gold standard in treating retropharyngeal schwannoma is through total resection of the tumor [7]. Transcervical, transparotid and transoral excisions are the most reviewed surgical approaches in literature to remove retropharyngeal tumor. Regardless of which method used, the goal is to ensure complete removal of the tumor as any residual retropharyngeal schwannoma will inevitably continue to progress and subsequently necessitate a second surgical procedure [7]. Incomplete resection can also introduce an opportunity for malignant progression, adversely impact on patient’s clinical outcome.

In our case, the decision to excise the tumor via trans-oral approach is used in view of the central seated retropharyngeal tumor as revealed by the pre-operative MRI evaluation. It does not involve the nearby internal carotid artery and other major structures. As a result, it was a successful operation where patient has the least intra- and post-operative complications. There was no documented loss of function of the head and neck post-operatively. The pain was well controlled with the use of analgesics.

Transoral excision allows total removal of retropharyngeal schwannoma and also minimizes the duration of patient on tracheostomy as upper airway obstruction is relieved. On contrary to transcervical approach, transoral tumor excision provides patient a more favorable cosmetic outcome as scar formation can be avoided. In transcervical approach, a surgeon needs to dissect and manipulate major structures around the neck region before pharyngeal space is reached. This, no doubt, poses risks of intra- and post-operative complications such as bleeding and nerve injury to patient. Furthermore, we usually keep surgical drain in patient post-neck dissection to prevent fluid collection over the surgical site. All these post-operative cares lengthen hospital stay and indirectly putting patient at further risk to develop hospital acquired pneumonia, thrombophlebitis from the intravenous catheter site, mental distress, etc. In our case, this patient had only minimal hospital stay, whereby he was fit to be discharged home on the third-day post-operation.

Conclusions

Retropharyngeal schwannoma is rare, but its existence always needs appropriate investigations to confirm the site, size and the origin of tumor, to provide an appropriate approach of operation. Transoral excision can be an alternative method for retropharyngeal schwannoma in selected cases as it causes minimal post-operative morbidities and cosmetically more favorable as it left no scar over the neck compared to external approach.

Summary

- This case report aimed to share the unusual occurrence of schwannoma at the retropharyngeal space.
- Transcervical, transparotid and transoral excisions are the most reviewed methods of tumor resection. In our case, transoral excision was conducted in view of the central seated tumor.
- Comparatively, transoral excision of retropharyngeal schwannoma poses minimal morbidities post-operative and has more favorable cosmetic outcome.
Disclosure statement

The authors report no interest of conflicts.

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