

Schwannoma of the Retropharyngeal Space

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— We report a rare case of schwannoma arising from the retropharyngeal space. A 24-year-old man presented a 2-month-history of a foreign body sensation in the throat and gradually progressing dysphagia when he swallowed solids and liquids. The patient had no odynophagia, fever, or blood in his saliva. Computed tomographic scans and magnetic resonance images revealed a well-defined and oval mass, measuring about 40 mm × 20 mm in size, in the retropharyngeal space. Because the tumor existed in the retropharyngeal space and was the adequate size, the patient underwent trans-oral resection under the direct laryngoscope without the need for skin incision. On the basis of the histological findings, the tumor was diagnosed as a schwannoma. It was mostly composed of spindle cells arranged in short bundles and fascicles, with focal palisading of the nuclei. The neoplasm arising from the retropharyngeal space is quite rare, because of few anatomical structures in the space. The post-operative course was uneventful, and the patient is currently free from disease 30 months after surgery. Diagnosis, clinical behavior, and treatment of retropharyngeal schwannoma are reviewed from perusal of the literature. When schwannomas are located in the pharynx, they may cause foreign body sensation or dysphagia. Therefore, when a foreign body sensation in the larynx is present, a thorough diagnostic procedure should be performed to evaluate the morphology of the upper aerodigestive tract.

—— schwannoma; retropharyngeal space; trans-oral method

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Schwannoma is a benign, encapsulated, peripheral nerve tumor that arises from the Schwann cell. Between 25 and 45% of schwannomas occur in the head and neck (Colreavy et al. 2000) and the most common sites

of origin is cutaneous or muscular branches of the cervical or brachial plexus (Colreavy et al. 2000). Less common sites include the oral cavity (Zachariades 1984), nasal cavity (Iwamura et al. 1972; Wada et al. 2001), paranasal sinus (Younis

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et al. 1991), extra auditory canal (Gross et al. 2004), and trachea (Takeda et al. 2003). Because the retropharyngeal space includes less anatomical structures, in comparison with the parapharyngeal space, tumors arising from this space are extremely rare. Here, we report a case that exemplifies the clinical features and therapy of this disease.

CASE REPORT

A 24-year-old man who had complained a sensation of a foreign body in the pharynx and consequent dysphagia which subsided under antibiotic treatment was referred to our clinic. The patient had no particular history nor family history of illness. On physical examination, there was an oval, firm with elastic consistency mass in the posterior wall of the oropharynx which was covered by an intact mucosa under flexible fiberoptic observation. No other abnormal findings were noted in the oral cavity, nose or larynx. The patient presented neither pain nor neurological deficit on physical examination. Computed tomographic scans (CT) revealed a round, well-defined, and slightly enhanced tumor in the posterior to right-sided lateral pharyngeal wall (Fig. 1).



Fig. 1. Computed tomographic scan with contrast enhancement (axial scan).

Note a round, well defined and slightly enhanced tumor (*), measuring about 40 mm × 20 mm in size, in the posterior to right lateral pharyngeal wall.

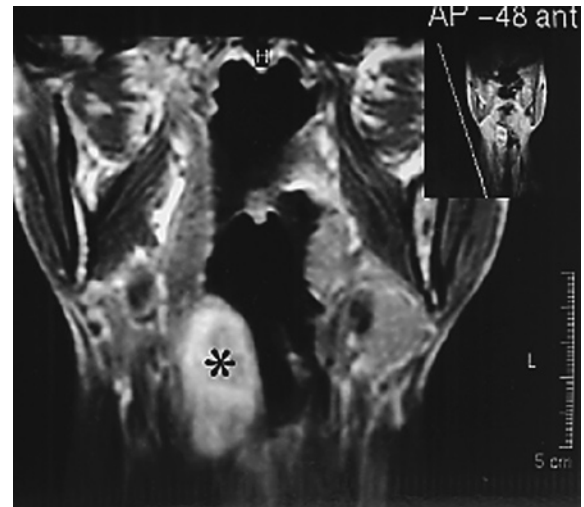


Fig. 2. Gadolinium-enhanced T1 weighted magnetic resonance image (coronal section).

Note a heterogeneously enhanced tumor (*) in the retropharyngeal space.
Scale bar = 50 mm.

Magnetic resonance image (MRI) demonstrated a well defined, heterogenous, enhanced, oval mass, measuring 40 mm × 20 mm in size, in the retropharyngeal space (Fig. 2). The tumor was oval and extended to the right-sided parapharyngeal space.

Because the tumor mainly occupied retropharyngeal space and was far from the major vessels, he underwent trans-oral resection under the direct laryngoscope with forceps for laparoscopic surgery. The mucosal incision ran in the center of the tumor. Because tumor existed into the pharyngeal constrictor muscles, these muscles were divided and the capsule of the tumor was released from the surrounding tissue with forceps and scissors. Since major nerves were not present during the surgery, the tumor might originate from peripheral plexus in the retropharyngeal space. The patient did not manifest paresthesia and had an uneventful course post-operatively. The resected tumor was 37 × 18 × 16 mm in size and well circumscribed (Fig. 3). Its cross-section showed a firm, yellow and homogenous appearance. The microscopic finding showed the tumor surrounded by a fibrous capsule, composed of spindle cells with focal palisading of the nuclei arranged in short bundles and fascicles (Fig. 4). On the basis

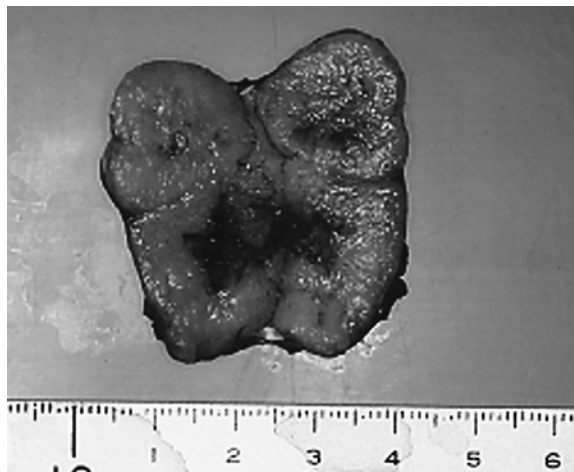


Fig. 3. Cross section of the tumor.
The resected tumor was 37 × 18 × 16 mm in size.

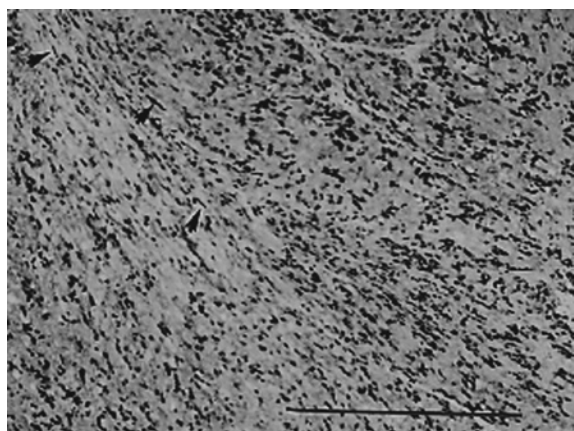


Fig. 4. Microscopic findings of the tumor showing the spindle cells with focal palisading of the nuclei (arrowhead) arranged in short bundles and fascicles.
Scale bar = 400 μm (Hematoxylin-Eosin stain × 400).

of these findings, the tumor was diagnosed as a schwannoma and classified into Antoni A type. No additional treatment was given to him because the operative and histopathological findings indicated that the tumor was completely resected and was benign. The patient is currently free from disease 30 months after surgery.

DISCUSSION

Retropharyngeal space is an unpaired median

space, which separates the pharynx from prevertebral muscles. While the paravertebral and prevertebral muscles constitute the posterior wall, the pharyngeal constructor muscles perform the anterior wall. The space created by these structures may be divided by the fascia, covering the styloid process and its muscles into an anterior space (prestyloid space), and a posterior space, in turn divided by the fascia from the carotid to the prevertebral muscle into a lateral space (retrostyloid space), and a medial space (retropharyngeal space).

Differential diagnosis of retropharyngeal space-occupying lesions include abscess, lipoma, sarcoidosis, aberrant internal carotid artery, Forestier disease, and neurogenic or lymphogenic tumors. Schwannoma occurs usually as a solitary mass. On the other hand, neurofibroma may be multilobulated and even originate from many nerve fibers or fibrils and by growth into fascia planes encroach upon adjoining structures. Some authors assume schwannomas arising from this space originated in the peripheral plexus (Work and Hybels 1974). Paresthesia and neuralgia are uncommon but are suggestive of malignancy (Weber et al. 2000). In this case, the patient did not present with a neurological deficit. Symptoms appear only when the mass is well enlarged and results from the compression of the surrounding structures. Preoperative investigations for pharyngeal masses are done to detect vascular or malignant tumors. It is important to exclude a malignant tumor or a vascular tumor such as a chemodectoma, glomus tumor, and hemangioma, because such tumors may require a different surgical approach. CT and MRI, and angiography may help to differentiate these diseases before surgery. While lipomas, because of their fat content, should allow a low density mass, abscess usually show a ringed enhancement on CT. Since areas of hemorrhage or cystic degeneration can occur, neurogenic tumor areas may not enhance with an irregular enhancement on CT and MRI. Hemangiomas usually show a significant enhancement. Angiography is helpful to diagnose the vascular lesion such as hemangioma, chemodectoma, and aberrant internal carotid artery

(Carinci et al. 2000). The treatment of schwannoma is complete surgical removal with the preservation of nerve function but, in some cases, the size of the neoplasm allows for only a partial removal or a nerve resection (Leu and Chung 2002). Enucleation or “shelling out” of the lesion, with preservation of the trunk of the major nerve, may prevent neurological complication (Carinci et al. 2000). Many surgical approaches have been described, depending on the site of origin and the size of the tumor such as trans-oral, cervical, trans-parotid, trans-parotid and cervical, and trans-oral and cervical approach (Bradely and Bowerman 1989). In this report, we used the trans-oral approach under the direct laryngoscope. The present case meets such circumstances, and is to be under close follow-up hereafter.

In conclusion, a schwannoma of the retropharyngeal space is a clinical entity. When the surgery is planned, the best approach will inevitably depend on the tumor location, size, and its relations to the surrounding structures. Trans-oral approach under the direct laryngoscope is the optimal technique for middle-sized neoplasms limited to the retropharyngeal space.

References

- Bradely, N. & Bowerman, J.E. (1989) Parapharyngeal neurilemmomas. *Br. J. Oral. Maxillofac. Surg.*, **27**, 139-146.
- Carinci, F., Carls, F.P. & Grasso D.L. (2000) Schwannoma of the pharyngeal space. *J. Craniofac. Surg.*, **11**, 367-370.
- Colreavy, M.P., Lacy, P.D. & Hughs, J. (2000) Head and neck schwannomas- a 10 years review. *J. Laryngol. Otol.*, **114**, 119-124.
- Gross, M., Maly, A., Eliashar, R. & Attal, P. (2004) Schwannoma of the extra auditory canal. *Auris Nasus Larynx*, **31**, 77-79.
- Iwamura, S., Sugiura, S. & Nomura, Y. (1972) Schwannoma of the nasal cavity. *Arch. Otolaryngol.*, **96**, 176-177.
- Leu, Y.S. & Chang, K.C. (2002) Extracranial head and neck schwannomas: A review of 8 years experience. *Acta Otolaryngol.*, **127**, 435-437.
- Takeda, K., Horiuchi, M., Nakaya, M., Yamaguchi, K. & Fujikawa, A. (2003) Schwannoma of the trachea; a new resection technique. *Auris Nasus Larynx*, **30**, 425-427.
- Wada, A., Matsuda, H., Matsuoka, K., Kawano, T., Furukawa, S. & Tsukuda, M. (2001) A case of schwannoma on the nasal septum. *Auris Nasus Larynx*, **31**, 173-175.
- Weber, A.L., Montandon, C. & Robson, C.D. (2000) Neurogenic tumors of the neck. *Radiol. Clin. North. Am.*, **38**, 1077-1090.
- Work, W.P. & Hybels, R.L. (1974) A study of tumors of the parapharyngeal space. *Laryngoscope*, **84**, 1748-1755.
- Younis, R.T., Gross, C.W. & Lazar, R.H. (1991) Schwannomas of the paranasal sinuses: case report and clinicopathologic analysis. *Arch. Otolaryngol. Head Neck Surg.*, **117**, 677-680.
- Zachariades, N. (1984) Schwannoma of the oral cavity: review of the literature and report of a case. *J. Oral. Med.*, **39**, 41-43.