Schwannoma of Parapharyngeal Space: a Case Report

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Abstract The incidence of schwannoma in the head and neck region is between 25 and 45 %. The vestibular nerve is involved in most cases followed by the parapharyngeal space. Schwannoma, also known as neurilemmoma, is a benign neoplasm that originates from the Schwann cells. These cells form the myelin sheath around myelinated peripheral axons. Here, we report a case of parapharyngeal space schwannoma in a 27-year-old female.

Keywords Schwannoma · Neurilemmoma · Schwann cell · Parapharyngeal space

Introduction

A schwannoma, also referred to as neurilemmoma, is a relatively uncommon, slowly growing benign lesion which originates from the peripheral neural sheath of any myelinated nerve [1]. A schwannoma can arise from any part of the body. Between 25 and 45 % of schwannomas have been reported to occur in the head and neck region. Tumors of the parapharyngeal space are uncommon, comprising less than 1 % of all head and neck neoplasms. Both benign and malignant tumors may arise from any of the structures contained within the parapharyngeal space (PPS). Of all the parapharyngeal space tumors, 70–80 % are benign, and 20–30 % are malignant [2]. Most PPS tumors are of salivary or neurogenic origin. The schwannoma is the most common

neural tumor found in the PPS. The vagus nerve is reported to be the origin for 50 % of parapharyngeal space schwannomas, and the cervical sympathetic chain is the next common source. It is most commonly seen in the young and middle-aged individuals and is characterized by slow insidious growth. The clinical presentation of schwannoma varies with the anatomical area involved [3]. Surgical excision has been the treatment of choice for decades, and recurrence is very rare.

Case Report

A 27-year-old female patient reported with a swelling in the throat and difficulty in swallowing of 6 months duration. Clinical examination revealed a well-defined solitary mass of size 4×4 cm encroaching the lumen of the oropharynx behind the right posterior tonsillar pillar, pushing it forward and pushing the right parapharyngeal wall medially (Fig. 1). It was tender and firm to palpation, and the overlying mucosa was normal.

Fig. 1 A well-defined solitary mass of size 4×4 cm encroaching the lumen of the oropharynx

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Examination of the Neck

Swelling was palpable below the angle of the mandible extra-orally on the right side. No e/o cervical lymphadenopathy was found.

The Rest of the ENT and Cranial Nerve Examination The rest of ENT and cranial nerve examination were within normal limits.

Investigations

MRI T1W1 (Post-Contrast) A well-defined, iso- to hyper-intense mass with heterogenous areas of enhancement of size 5×4 cm was evident in the right parapharyngeal space in the poststyloid compartment, displacing the major vessels posterolaterally and compressing the oropharyngeal airway (Fig. 2).

Digital Subtraction Angiography Digital subtraction angiography of the carotid vessel was done. Diagnostic angiography with the plan of sos therapeutic embolization was also done. A moderate-degree tumor blush was seen in the right external carotid artery angiogram, predominantly supplied by the right ascending pharyngeal artery. Preoperative embolization of the feeding vessel to the tumor was done in the same setting, with total occlusion of the tumor blush 24 h before surgery.

Excision of the Right Parapharyngeal Space Mass by Transcervical Approach Under General Anesthesia:

1. Incision: 2 cm below the arch of the right mandible, from symphysis menti to mastoid tip.

Fig. 2 MRI T1W1

2. The subplatysmal flap was elevated, preserving the marginal mandibular and cervical branch of the facial nerve.
3. The external jugular vein, retromandibular vein, facial veins, and right facial artery were ligated and divided.
4. The digastric muscle, divided at the tendon and posterior belly, was excised for better access to the tumor.
5. The right submandibular gland was excised.
6. The right external carotid artery was ligated and cut.
7. The hypoglossal N, lingual N, and superior laryngeal nerves were identified and secured.
8. A well encapsulated firm mass was found medial to the carotid sheath in the poststyloid region. The mass was excised in toto by blunt dissection (Fig. 3).
9. The wound was closed in layers with drain in situ.

No post operative complication was noted. Post operative antibiotic injection of cefotaxime and injection of metronidazole was given for 5 days. The drain was removed on day 4, and the patient was discharged on the 7th post operative day.

Histopathological Examination Histopathological examination showed Antoni A and Antoni B areas along with Verocay bodies, consistent with histological features of schwannoma.

Discussion

The parapharyngeal space is often described to be a deep potential neck space shaped as an inverted pyramid. The base of the pyramid is at the skull base, and the apex is at the greater cornu of the hyoid bone. Clinically, the parapharyngeal space should be considered in two compartments: pre-styloid

Fig. 3 Dissected mass

compartment and poststyloid compartment. Fascia from the styloid process to the tensor veli palatine muscle divides the parapharyngeal space into these two compartments. The pre-styloid compartment is anterolateral and contains the retromandibular portion of the deep lobe of the parotid gland, minor or ectopic salivary gland, a small branch of CN V to the tensor veli palatine muscle, ascending pharyngeal artery, and pharyngeal venous plexus. The majority of the pre-styloid compartment is actually fat. The poststyloid compartment is posteromedial and contains the internal carotid artery, internal jugular vein, CN IX to XII, cervical sympathetic chain, lymph nodes, and glomus bodies.

Schwannomas are tumors well known to occur in the head and neck (25–45 %) region. Of the masses found in the parapharyngeal space, 40–50 % of the tumors are of salivary gland origin. Lymph node metastasis and primary lymphoma represent 15 % of lesions. Neurogenic lesions are the most common tumors of the poststyloid PPS and account for 25–30 % of PPS lesions of which approximately 2 % of head and neck paraganglioma secrete catecholamines [3]. They are reported to occur in the face, scalp, intracranial cavity, orbit, nasal and oral cavities, mastoid, parapharyngeal space, larynx, and medial and lateral regions of the neck. This neoplasm is considered to originate from either the Schwann cell or fibroblast supporting the nerve. The parapharyngeal space is a potential site reported to house a spectrum of tumors, most of them being benign.

A schwannoma can occur at any age and seen equally in both sexes, often seen in the second and third decades of life and very rarely below 10 years of age. Generally, schwannomas are characterized by slow and asymptomatic growth. However, its progressive growth in the parapharyngeal region can result in pressure effect manifestations like dysphagia and hoarseness of voice.

Histologically, schwannomas are well circumscribed and encapsulated, and may show cystic degeneration. Antoni A areas are solid with Schwann cells lying in rows resulting in palisading of nuclei; Antoni B areas do not show any architectural pattern as their arrangement of cells and fibers is disorderly [4].

Prognosis is excellent as schwannomas are usually encapsulated. Surgical excision has been the treatment of choice, and recurrence is very rare. They yield to simple

excision, and incomplete removal results in recurrence which should be treated with a repeat excision [2]; malignant transformation is rare. Radiation therapy is never indicated because schwannomas exhibit radioresistance. Some authors suggest preoperative evaluation with imaging modalities like computer tomographic scan and magnetic resonance imaging to determine the nerve of origin which may reduce the postoperative neural deficits. Transoral biopsy and excision of a parapharyngeal space schwannoma is reported to be associated with complications like incomplete removal, hemorrhage, infection, and cranial nerve damage (IX to XII). The transcervical, transparotid, transzygomatic, transmandibular, and combination of transparotid and transcervical surgical approaches are currently preferred techniques. For most tumors of the poststyloid compartment, transcervical approach is adequate. Early direct access to the poststyloid compartment allows straightforward removal of most of benign nerve tumors and paragangliomas [5]. In the present case, as the tumor was in the poststyloid compartment, we approached the tumor via transcervical approach. The tumor was found medial to the carotid sheath and was smooth and encapsulated. The postoperative period was not associated with any neurological deficit or other complications. In our case, the schwannoma might have arisen from the cervical sympathetic chain, which is the next common after the vagus nerve. The patient was followed up regularly for the next 3 years, and no recurrence was noted.

References

1. Weiss SW, Goldblum JR (eds) (2001) Enzinger and Weiss's soft tumours 4th ed. Mosby Inc, St Louis, pp 1111–207, Chap. 29, Benign tumours of peripheral nerves
2. Batsakis JG, Sneige N (1989) Parapharyngeal and retropharyngeal space diseases. *Ann Otol Rhinol Laryngol* 98:320–321
3. Dhaval Odhavjibhai M, Ali R, Margaret T, Raj G, Prashant M, Raviraj J (2011) A case report on parapharyngeal nerve cell tumor (schwannoma). *Indian J Surg* 73(1):58–60
4. Batsakis JG (1979) Tumours of head and neck .clinical & pathological consideration 2nd Ed. Williams and Wilkin, Baltimore, pp 313–333
5. Chang SS, Goldenberg D, Koch WM (2012) Transcervical approach to benign parapharyngeal tumour. *Ann Otol Rhinol Laryngol* 121(9):620–624