A Case Report on Parapharyngeal Nerve Cell Tumor (Schwannoma)

Dhaval Odhavjibhai Mangukiya · Ali Reza ·
Margaret Topno · Raj Gautam ·
Prashant Mullerpattan · Raviraj Jadhav

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Introduction

The Parapharyngeal space (PPS) is shaped like an inverted pyramid, extending from the skull base superiorly to the greater cornu of the hyoid bone inferiorly. The superior border of the PPS comprises a small area of the temporal and sphenoid bones, including the carotid canal, jugular foramen, and hypoglossal foramen. The PPS is limited anteriorly by the pterygomandibular raphe and pterygoid fascia and posteriorly by the cervical vertebrae and prevertebral muscles. The medial border of the PPS is the pharynx, and the lateral border is comprised of the ramus of the mandible, the medial pterygoid muscle, and the deep lobe of the parotid gland. Below the level of the mandible, the lateral boundary consists of the fascia overlying the posterior belly of the digastric muscle. The fascia from the styloid process to the tensor veli palatini divides the PPS into an anteromedial compartment (i.e. prestyloid) and a posterolateral (i.e. poststyloid) compartment. The prestyloid compartment contains the retromandibular portion of the deep lobe of the parotid gland, adipose tissue, and lymph nodes associated with the parotid gland. The poststyloid compartment contains the internal carotid artery, the internal jugular vein, CNs IX–XII, the sympathetic chain, and lymph nodes.

Tumors of the PPS 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 PPS. Of PPS tumors, 70–80% are benign, and 20–30% are malignant. Most PPS tumors are of salivary or neurogenic origin, although metastatic lesions; lymphoreticular lesions; and a variety of uncommon, miscellaneous lesions may arise in this location [1].

Schwannoma are the most common peripheral nerve tumor also referred to as neurilemmoma or neurinoma. This benign tumor arises from myelin in peripheral nerve. The most characteristic presentation is a mass lesion with point tenderness and shooting pain on direct palpation.

Case Report

A 32 year old male patient was admitted with history of swelling in right side of neck since 2 years (Photo 1). On physical examination a non tender, hard, mobile (minimally in horizontal direction), bosselated swelling measuring 8×6.5 cm which has displaced thyroid cartilage and with larynx to opposite side. No symptoms of pressure effect on trachea, esophagus. Intraoral examination finding was normal with no other mass palpable in the body. Indirect and direct laryngoscopy showed a bulge in right supra-glottic area with normal overlying mucosa and vocal cord movements. X-ray neck was suggestive of shifting of trachea towards left. Routine blood investigations were within normal limit.

D. O. Mangukiya (✉) · A. Reza · M. Topno · R. Gautam ·
P. Mullerpattan · R. Jadhav
MGM Medical College,
Kamothe Panvel,
Navi Mumbai 410209 Maharashtra, India
e-mail: dhaval_mangukia@yahoo.com

Photo 1 Preop photos of swelling

FNAC report was a benign pleomorphic adenoma. Contrast CT-scan has shown a well circumscribed mass in right parapharyngeal space displacing submandibular gland superiorly, carotid sheath anterolaterally (Photo 2).

Photo 2 CT Scan - Neck

Excision of this mass was done by transcervical approach. Intra operative findings showed a well circumscribed encapsulated mass with no evidence of infiltration. The mass was situated in right PPS with displacement of esophagus and larynx to the opposite side. Carotid vessels was pushed anteriorly over the swelling. The vagus nerve was normal & swelling seems to arise from cervicosympathetic chain.

On gross examination it was a lobulated mass and on cut section it was homogenous, firm, grayish white with slightly myxoid appearance. No areas of haemorrhage or necrosis seen.

Microscopic section show a tumor composed of benign short spindle cells with wavy nuclei with no atypia or

necrosis or increased mitosis which was suggestive of benign schwannoma (Photo 3).

Photo 3 Histopath picture

Post operative period was uneventful and patient was discharged after suture removal on seventh post op day with an advice to have a periodical follow up (Photo 4).

Photo 4 Post op photo

Discussion

Of the masses found in parapharyngeal space, 40–50% of the tumors are of salivary gland origin. LN metastasis and primary lymphoma represents 15% of lesions. Neurogenic lesions are the most common tumors of the poststyloid PPS and account for 25–30% of PPS lesions [2]. Neurilemmomas are the most commonly encountered lesions, followed in frequency by paragangliomas and neurofibromas. Benign neurogenic lesions include neurilemma (schwannoma), paraganglioma, neurofibroma, and ganglioneuroma. Malignant neurogenic lesions include malignant paraganglioma, neurofibrosarcoma, schwannosarcoma, and sympatheticoblastoma.

Neurilemmomas, or schwannomas, are the most common neurogenic tumors and arise from any nerve surrounded by Schwann cells. In the PPS, the most common sites of origin are the vagus nerve and the sympathetic chain. Neurilemmomas are slow growing and rarely cause palsy of the nerve of origin. They are encapsulated and histologically distinct from the nerve itself. Treatment is by enucleation, and preservation of the nerve of origin is usually possible; however, every patient should be cautioned about the possibility of postoperative paralysis. One can assume that tumor arising anterior to styloid process are most likely of salivary gland origin, whereas those of a retrostyloid compartment are vascular or neurogenic [3].

CT scanning can localize a PPS mass in the prestyloid or poststyloid space. It may also demonstrate whether the mass arises from the deep lobe of the parotid; a fat plane between the parotid and the mass suggests an extraparotid origin. With contrast infusion, the relationship of the mass to the great vessels may be appreciated, although enhanced poststyloid lesions may be difficult to separate from the carotid artery [4].

Schwannomas of the cervical sympathetic chain were found to displace both the carotid and jugular vessels without separating them. Vagal nerve schwannomas were found to separate the carotid arteries from the internal jugular vein. A vagal nerve schwannoma may also displace the sheath vessels posteriorly, without splaying them.

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