

Giant schwannoma arising from cervical nerve root with intra-thoracic extension

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ABSTRACT

Schwannomas are well-encapsulated benign neurogenic tumors that arise from the nerve sheaths of peripheral nerves. Schwannomas may occur nearly anywhere in the body, but have a predilection for the head and the neck, with an incidence of 40-50%. Rarely, the cervical nerve root can be the site of a large dumbbell neurogenic tumor in the neck. In the present article, we describe the case of a 40-year-old male with a large schwannoma arising from the cervical nerve root with intrathoracic extension. Surgical excision is the treatment of choice for neurogenic tumors, and it has been described that if the lesion is known to be a schwannoma, it is possible to open the capsule and shell out the tumor from the nerve, possibly avoiding functional deficits. However, as in the present case, it may not be possible to resect the tumor safely from the involved nerve root and it may be necessary to sacrifice the nerve involved in the tumor to achieve complete resection.

Keywords: Brachial plexus, cervical nerve root, neck tumor, neurogenic tumor, schwannoma

Introduction

Schwannomas are well-encapsulated benign neurogenic tumors that arise from the nerve sheaths of peripheral nerves. Schwannomas may occur nearly anywhere in the body, but have a predilection for the head and the neck, with an incidence of 40-50%.^[1-7] Rarely, the cervical nerve root can be the site of a large dumbbell neurogenic tumor in the neck.^[8] In the present article, we describe the case of a large schwannoma arising from the cervical nerve root with intrathoracic extension.

Case Report

A 40-year-old male presented with progressively increasing swelling on the lower part of the right side of the neck of 1 year

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duration. This was associated with radicular pain, paresthesia and weakness of the right upper limb and with wasting of the hand muscles. There was a history of hoarseness and dry cough but there were no associated symptoms of dysphagia or odynophagia. On neurological examination, he had grade 3/5 weakness of forearm flexion and 50% grip weakness. There were no other deficits. Local examination revealed a firm, nontender, fixed and nonpulsatile mass on the right side of the neck [Figure 1]. The skin over the mass was freely mobile and there was no ulceration. There was no bruit or any cranial nerve palsies. Carotid pulse was not palpable. Other examinations were unremarkable. Thin sliced computed tomography (CT) scan and magnetic resonance (MR) imaging showed a well-defined dumbbell-shaped mass located in the right neuronal foramina causing foraminal widening with extension into the thoracic cavity and patchy enhancement after contrast administration. The mass was pushing the trachea and esophagus medially. The carotid artery was displaced anteromedially [Figures 2-5]. All these imaging findings, including configuration, were suggestive of peripheral schwannoma with intrathoracic extension. Fine needle aspiration cytology of the tumor was suggestive of schwannoma. Intraoperatively, the mass was exposed through a cervical incision and could be removed completely [Figure 6]. The mass was seen clearly arising from the cervical nerve root and was going into the neural foramina. During the procedure, the nerve root could not be saved. Histological examination confirmed the diagnosis of schwannoma. The patient did well postoperatively and the drain was removed on the second postoperative day.



Figure 1: Clinical photograph showing the fullness in the lower part of the neck on the right side

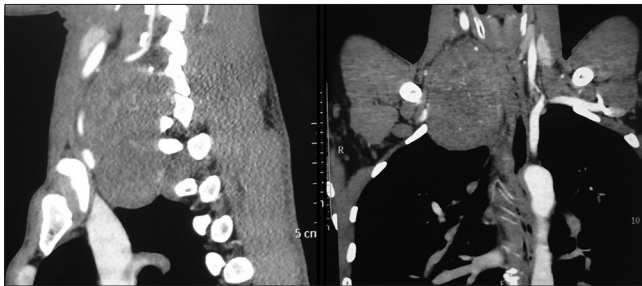


Figure 3: Multislice spiral computed tomography image with coronal and sagittal reconstruction showing the cervicomedial extent of the tumor

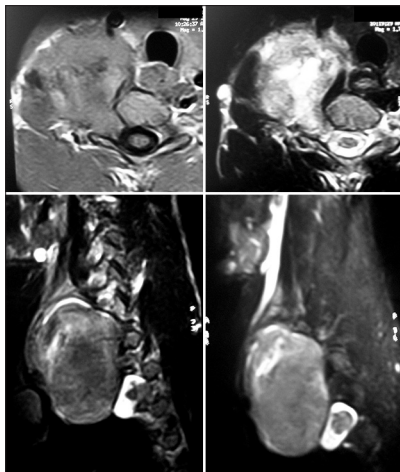


Figure 5: Magnetic resonance image showing the details of neck mass with thoracic extension

Discussion

As in the present case, schwannomas in the head and neck region are mostly located in the parapharyngeal space; the vagus nerve is the most commonly involved nerve, followed by the cervical sympathetic nerve.^[1-7] Rarely, cervical schwannoma may originate from the brachial plexus^[9-15] or cervical root,^[8]

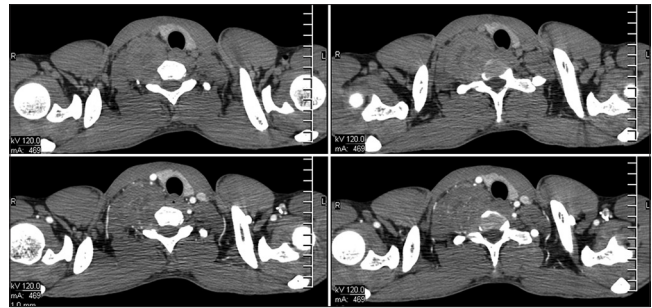


Figure 2: Axial computed tomography scan showing a tumor arising from the nerve root on the right side with mainly extraspinal growth and patchy enhancement. Note the widening of the nerve root exit foramina

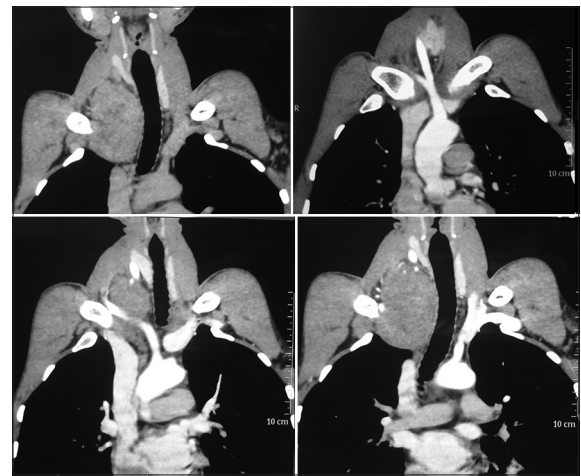


Figure 4: Multislice spiral computed tomography angiography images showing the position of the carotid artery and parapharyngeal mass. Note the anteromedial displacement of the internal carotid artery and displacement and compression of the trachea

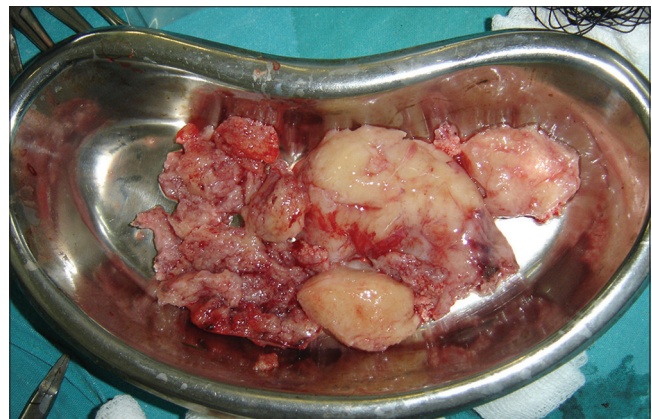


Figure 6: Specimen of the totally resected mass

with associated intrathoracic extension posing a difficult management challenge.^[1-7] Rarely, cervical schwannoma may originate from the brachial plexus.^[9-15] These lesions can present either as asymptomatic solitary mass in the parapharyngeal space or neck^[9-14] or, as in the present case, with neurological signs related to the involved nerve/nerves.^[8,14] On clinical examination, the displaced carotid artery can be palpated in an anteromedial

direction^[9-14]; however, in the present case, it could be felt probably because of the tumor size. A contrast-enhancing CT and particularly MR image is the cornerstone of preoperative planning as other tumors that can present in a similar manner (a vagal or cervical sympathetic chain tumor) can be ruled out. Apart from this, imaging will help to determine the relation of the tumor mass to the carotid artery system.^[9-14] As in the present case, a CT scan can reveal a displaced carotid artery in the anteromedial direction.^[9-14] Surgical excision is the treatment of choice for neurogenic tumors^[8,15-17] and it has been described that if the lesion is known to be a schwannoma, it is possible to open the capsule and shell out the tumor from the nerve, possibly avoiding functional deficits.^[15,17] However, as in the present case, it may not be possible to resect the tumor safely from the involved nerve root and it may be necessary to sacrifice the nerve involved in the tumor to achieve complete resection.^[8,18]

References

1. Myssiorek DJ, Silver CE, Valdes ME. Schwannoma of the cervical sympathetic chain. *J Laryngol Otol* 1988;102:962-5.
2. Zbären P, Markwalder R. Schwannoma of the true vocal cord. *Otolaryngol Head Neck Surg* 1999;121:837-9.
3. Rosner M, Fisher W, Mulligan L. Cervical sympathetic schwannoma: Case report. *Neurosurgery* 2001;49:1452-4.
4. Uzun L, Ugur MB, Ozdemir H. Cervical sympathetic chain schwannoma mimicking a carotid body tumor: A case report. *Tumori* 2005;91:84-6.
5. Kahraman A, Yildirim I, Kiliç MA, Okur E, Demirpolat G. Horner's syndrome from giant schwannoma of the cervical sympathetic chain: Case report. *B-ENT* 2009;5:111-4.
6. Sanghvi V, Lala M, Borges A, Rodrigues G, Pathak KA, Parikh D. Lateral thyrotomy for neurilemmoma of the larynx. *J Laryngol Otol* 1999;113:346-8.
7. Enzinger FM, Weiss SW. Soft tissue tumors. 2nd ed. St. Louis: Mosby; 1988.
8. Agrawal A, Singh GK, Rauniyar RK, Singh I, Shrestha S, Agrawal R. CT Characteristics of dumbbell schwannoma arising from the fifth cervical nerve root. *Eur J Gen Med* 2009;6:123-6.
9. Noda M, Minowa M, Hosaka T, Takahashi S, Handa M, Kondo T. Schwannoma arising from brachial plexus with intrathoracic extension; report of a case. *Article in Japanese. Kyobu Geka* 2005;58:78-81.
10. Kanzaki M, Ohtsuka T, Obara T, Yamamoto H, Onuki T. Surgically treated dumbbell schwannoma arising in the brachial plexus with intrathoracic extension. *Jpn J Thorac Cardiovasc Surg* 2003;51:62-4.
11. Umemori Y, Makihara S, Kotani K, Miyahara N. A case of schwannoma arising in brachial plexus with intrathoracic extension. [Article in Japanese]. *Kyobu Geka* 2001;54:599-602.
12. Tanimura S, Ishikawa K, Mun M, Tomoyasu H, Kohno T, Matsushita H. A case of benign schwannoma arising in the brachial plexus with intrathoracic extension. [Article in Japanese]. *Kyobu Geka* 2001;54:493-6.
13. Tokitsu K, Tachibana S, Kawakami M, Orino T, Nakao K, Morita T, et al. A case of schwannoma arising in the brachial plexus with intrathoracic extension. [Article in Japanese]. *Kyobu Geka* 1997;50:598-601.
14. Gyhra A, Israel J, Santander C, Acuña D. Schwannoma of the brachial plexus with intrathoracic extension. *Thorax* 1980;35:703-4.
15. Leal Filho MB, Aguiar Ade A, de Almeida BR, Dantas Kda S, Vieira MA, de Moraes RK, et al. Schwannoma of brachial plexus: Report of two cases. [Article in Portuguese]. *Arq Neuropsiquiatr* 2004;62:162-6.
16. Ku HC, Yeh CW. Cervical schwannoma: A case report and eight years review. *J Laryngol Otol* 2000;114:414-7.
17. Sheridan MF, Yim DW. Cervical sympathetic schwannoma: A case report and review of the English literature. *Otolaryngol Head Neck Surg* 1997;117:S206-10.
18. Kwok K, Davis B, Klot M. Resection of a benign brachial plexus nerve sheath tumor using intraoperative electrophysiological monitoring. *Neurosurgery* 2007;60(Suppl 4):316-20.

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