Schwannoma of the Cervical Vagus Nerve in a Child: A Case Report

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Abstract Schwannoma are relatively rare tumor and even rarer in children. Nerve sheath tumors arising from the cervical nerve are extremely rare. We report a 13-year old boy presented with a history of an asymptomatic right cervical swelling since one year. An ultrasound and FNAC revealed schwannoma. He was meticulously evaluated with MRI. Surgical excision of the lesion was carried out and histopathological examination confirmed the diagnosis. Patient recovered completely without any morbidity. We are presenting this case since it is a rare case and patient recovered without morbidity. It is possible to do the complete surgical excision of schwannoma with complete cure and without complication.

Keywords Vagal schwannoma · Pediatrics

Introduction

Paragangliomas are rare tumors. Schwannoma has been reported commonly in adults. The head and neck region is a source of swelling of a wide range of pathological types. The commonest cause of neck swelling in children is reactive lymphadenopathy associated with upper respiratory tract infections. However, swellings such as branchial, sebaceous and thyroglossal cysts are other regularly encountered swelling of the neck. Neurogenous tumors are

relatively rare in children. The vagus nerve is the most commonly involved cranial nerve. The nerve of origin can be identified in only approximately one quarter of cervical schwannoma. Surgical resection of schwannoma is usually present with complications like hoarseness of voice, pharyngo-laryngeal anesthesia, aspiration and cranial nerves IX, XI and XII palsies which may be transient or permanent. We report a rare case of schwannoma in a 13 year old child, who recovered completely after surgical excision of the tumor without any complications.

Case Report

A 13 year old boy presented with a history of an asymptomatic swelling of the right side of neck since one year, which has gradually increased in size to achieve the present size. On examination it was nontender firm swelling about 5 × 6 cm situated just anterior to the right sternodeidomastoid muscle and extending superiorly up to the right mastoid tip. It was mobile in transverse plane, but non mobile in vertical direction. There was no history of hoarseness of voice, nasal regurgitation, syncopal attacks or associated pain. The carotids were palpable anterior to the swelling (Fig. 1).

Examination of oropharynx revealed a smooth bulge on the right lateral wall of the oropharynx and the right tonsil and peritonsillar structures were pushed medially (Fig. 2).

The ultrasonographic examination revealed a 5 × 4 × 6 cm mass, with plenty of vascularity, in the right carotid space displacing the carotid arteries anteriorly and the internal jugular vein (IJV) laterally. The ultrasonography guided needle core biopsy report was schwannoma. The MRI of neck showed well defined oval hypodense lesion in the right carotid space, extending from the angle

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Fig. 1 Clinical photograph of patient showing right sided neck swelling (schwannoma)

Fig. 2 Clinical photograph of patient showing tumor bulge on the right lateral wall of oropharynx

Fig. 3 a, b: MRI of neck showing the vagal schwannomas in the right carotid space

Fig. 4 Photograph showing excision of schwannoma

of mandible to C4 vertebral level and enhancing very well a contrast administration (Fig. 3a, b).

The neck was explored by an oblique incision along the anterior border of sternocleidomastoid. There was a vascular brownish tumor in between the carotids anterolaterally and IJV posteromedially (Fig. 4). The tumor was arising from vagus nerve and extending up to the base skull. The tumor was completely excised along with vagus nerve (Fig. 5).

Patient recovered completely without any postoperative complications. The histopathological examination of the specimen confirmed the diagnosis of schwannoma. Patient was discharged after 10 days and is under regular follow up. Histopathologic examination showed encapsulated benign neurogenic neoplasm which was composed of spindle cells. Spindle cells showed hypercellular and hypocellular areas giving rise to Antoni A and B patterns, prominent verocay bodies were seen (Fig. 6).

Fig. 5 Photograph showing schwannoma excised in toto

Fig. 6 a, b: Histopathological examination typically of schwannoma (Type A antonis cells & Type B antonis cells)

Discussion

Paragangliomas are rare tumors. Approximately 10% of them arise from the vagus nerve. Till 2006, only 96

schwannoma has been reported in the literature, with the majority of being in patients between 30 and 60 years of age [4, 7, 11]. The neck swellings in children are common. The majorities of these swellings in children are due to the reactive lymph nodes. Neurogenous tumors are relatively rare. In the series of pediatric neck masses, neurogenous tumors accounted for 2% of benign non-lymphadenomatous lesion. The commonest cause was sebaceous cysts (34%), followed by thyroglossal cysts (13%), branchial remnants (9%) and dermoid 9% [10]. Approximately 10% of schwannoma are diagnosed in patients less than 21 years of age [2, 3, 9]. It is more commonly seen in adults. Between 25 and 45% of all reported schwannoma are found in the head and neck region. These sites include the parapharyngeal space, neck, Paranasal sinuses, nasal and oral cavities, face, scalp, intracranial cavity and larynx [5, 6]. Reported cases of head and neck schwannoma in children include involvement in the nasopharynx and neck [8] and larynx [1]. The lateral side of the neck is the commonest site of extra cranial schwannoma. The vagus nerve is the most commonly involved cranial nerve. Schwannoma also tend to occur in the flexor surface of the upper and lower extremities.

The history of painless, pulsatile swelling, characteristically mobile laterally but immobile vertically raise a high suspicion of schwannoma. CT scan, MRI and angiography may confirm the diagnosis. Incisional biopsy is contraindicated due the vascular nature of the lesion, and there may be possibility of uncontrolled hemorrhage also the tumor removal may become difficult due to obliteration of tissue plane. A schwannoma is a solitary and encapsulated tumor. Surgical excision and histopathological examination confirms the diagnosis. Histologically, it exhibits two main patterns—Antoni A and Antoni B. Antony A tissue is represented by verocay bodies. There is palisading of the nuclei about a central mass of cytoplasm. In contrast Antoni B tissue is a loosely arranged stroma in which the fibers and cells form no distinctive pattern. A mixed picture of both types can exist. Gross total excision is the treatment of choice. As much as possible of the capsule should be removed to prevent the recurrence—However, if the nerve or some of the fascicles cannot be salvaged, a split repair should be performed using the greater auricular or sural nerve. In cases where it is not possible, vagus nerve is sacrificed along with the tumor. Hoarseness is the commonest postoperative complication. Other complications are aspiration, pharyngolaryngeal anesthesia and cranial nerves IX, XI and XII palsies, which can be transient or permanent. In our patient the tumor was excised completely. Still our patient did not have any postoperative complication and has recovered completely.

Conclusion

Schwannoma of the head and neck is a benign, slow growing tumor. They occur most commonly in adults but can also be seen in children. Even in children, such tumors are relatively rare as compared to other types of neck swellings. CT scan and MRI play very important role in diagnosis. But complete surgical excision with histopathological examination confirms the diagnosis. It is possible to do the complete surgical excision of schwannoma with complete cure and without complication.

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