SCHWANNOMA OF THE CERVICAL VAGUS NERVE

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INTRODUCTION

The head and neck region is a source of wide range of swellings of pathological types. Schwannoma of cervical vagus are rare [1]. The benign tumour arises from the Schwann cells that surround axons as they leave the central nervous system. The tumour can involve any peripheral nerve that has Schwann cell. The head and neck, flexor extremities and trunk are common location in decreasing order [2]. Between 25 and 45 % of all reported schwannoma are found in the head and neck region [3]. An unusual case of huge cervical vagal schwannoma is reported which was excised with preservation of vagus nerve.

CASE REPORT

A 24 years old married female from Peshawar presented with (Lt) side Neck Swelling of 10 yrs duration and difficulty in swallowing for the last 6 months. She was alright 10 yrs back when she noticed a small swelling on (Lt) side of her neck that progressed gradually to the size at presentation. It became painful for the last six months. Pain was persistent dull in character and aggravated by neck movements. Along with it she developed difficulty in swallowing for the last 6 month that was gradual & progressive in nature and became cumbersome in last 1 month. She had difficulty in movement of neck especially on turning the neck to left. This was associated with feeling of choking on lying on left side. There was no associated vomiting, weight loss, palpitation, hoarseness, sweating or tremors. There was no weakness of (Lt) upper limb. She had repeated visits for 6 year to general practitioners, ear, neck and throat (ENT) specialists and general surgeons in Peshawar. Incisional biopsy was done at Peshawar 2 yrs back that came out to be Schwannoma but no surgical treatment was done. Family history, personal history and socioeconomic history were not contributory. Her routine general and physical examination was normal however her local examination of the neck revealed a large diffusely enlarged mass of about 12x15 cm with visible scar mark of previous incisional biopsy (fig. 1). No color changes, visible pulsation were present. Mass did not move on swallowing or protrusion of tongue. On palpation it was non-tender, firm, nodular mass with ill defined margins, moveable along transverse plane only. Only lower limit was approachable. Trachea was deviated to (Rt) with (Lt) carotid displaced medially and was palpable superficially. No Lymph node was palpable and there was no motor or sensory loss of Lt Upper limb. Her base line investigations were normal Tracheal deviation was evident on Neck X-Ray .On ultrasonography (USG) Neck (fig. 6), a 10.7 x 9.5 cm^2, predominantly solid mass with minimal vascularity and few cystic areas were seen that were displacing vessels and neck structures towards midline. No thyroid enlargement was noted. Fine needle aspiration cytology (FNAC) was performed which was consistent with Schwannoma (Lt) side of neck. Contrast Enhanced CT Scan was performed that showed a 13 x 11 cm hypo-dense mass, extending from base of skull to 6th cervical vertebral level, displacing vessels antero-medially and compressing the larynx towards (Rt) (fig. 5) side. Case was discussed with Neurosurgeon and ENT specialist and surgery was planned. Surgery was carried out under General Anesthesia. Mass was approached through elliptical transverse incision on (Lt) side of neck to remove redundant soft tissue for better cosmetic

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results. Sternomastoid was divided, Great auricular nerve was sacrificed and sub-capsular excision of mass in toto with preservation of (Lt) Vagus was done. Meticulous hemostasis was maintained and incision closed in layers over a redivac drain. Post operatively she could show her teeth, shrug her shoulder and protrude her tongue straight so confirming the integrity of 7th, 9th and 11th Cranial Nerves (fig. 7,8). There was no hoarseness of voice. Specimen was sent for histopathology which consists of a nodular mass measuring 13 x 11 x 9 cms (fig. 4). On cut section there was hemorrhagic and grey white solid area which showed tumour of alternating cellular and paucicellular areas. Many verrucay bodies were seen with area of myxoid degeneration and cyst formation. This was consistent with schwannoma.

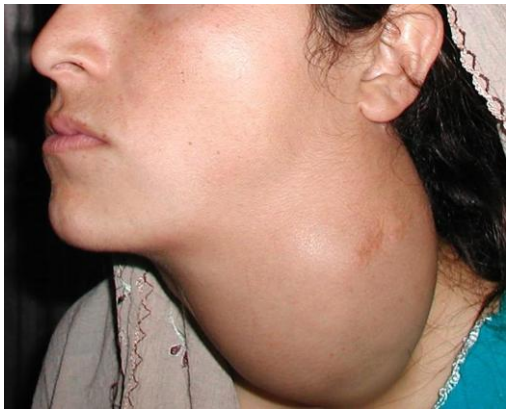

Fig. 1: Left sided schwannoma with scar mark.

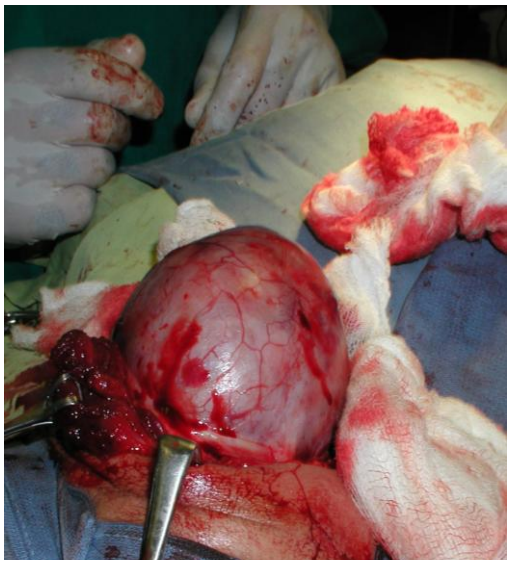

Fig. 2: Schwannoma after excion and mobilization of carotid.

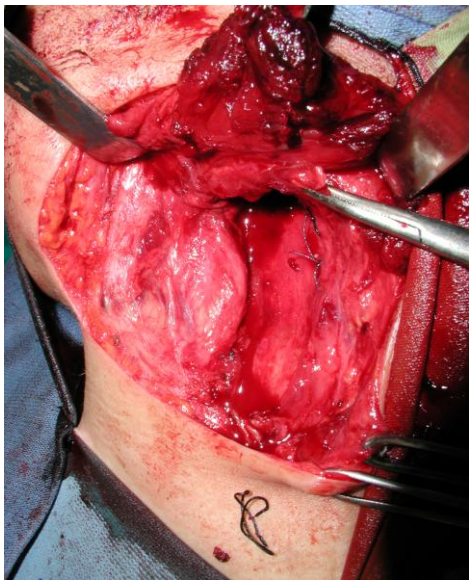

Fig. 3: Bed of the tumor once removed carotid in place upper end shows cut sternocleidomastoid muscle.

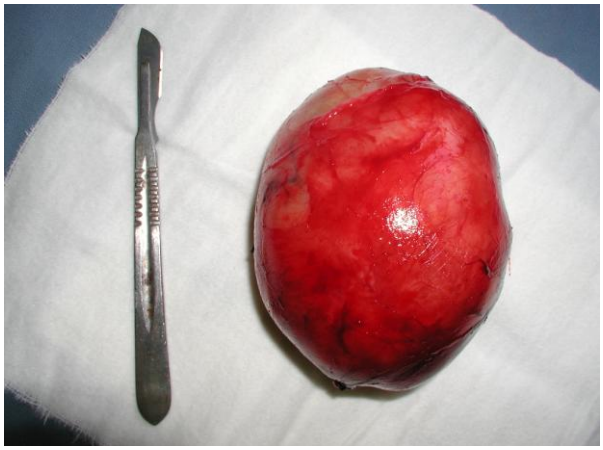

Fig. 4: In Toto removed specimen.

DISCUSSION

Paragangliomas are rare tumors. Approximately 10% of them arise from the vagus nerve. Till June 2000, only 95 schwannoma has been reported in the literature, with the majority of being in patients between 30 and 60 yrs of age [4,5]. They occur in the head and neck region and the flexor surfaces of the upper and lower extremities. Between 25 and 45% of all reported schwannoma are found in the head and neck region. These sites include the Para pharyngeal space, neck, Para nasal sinuses, nasal and oral cavities, face, scalp, intracranial cavity and larynx [6,7]. The lateral side of the

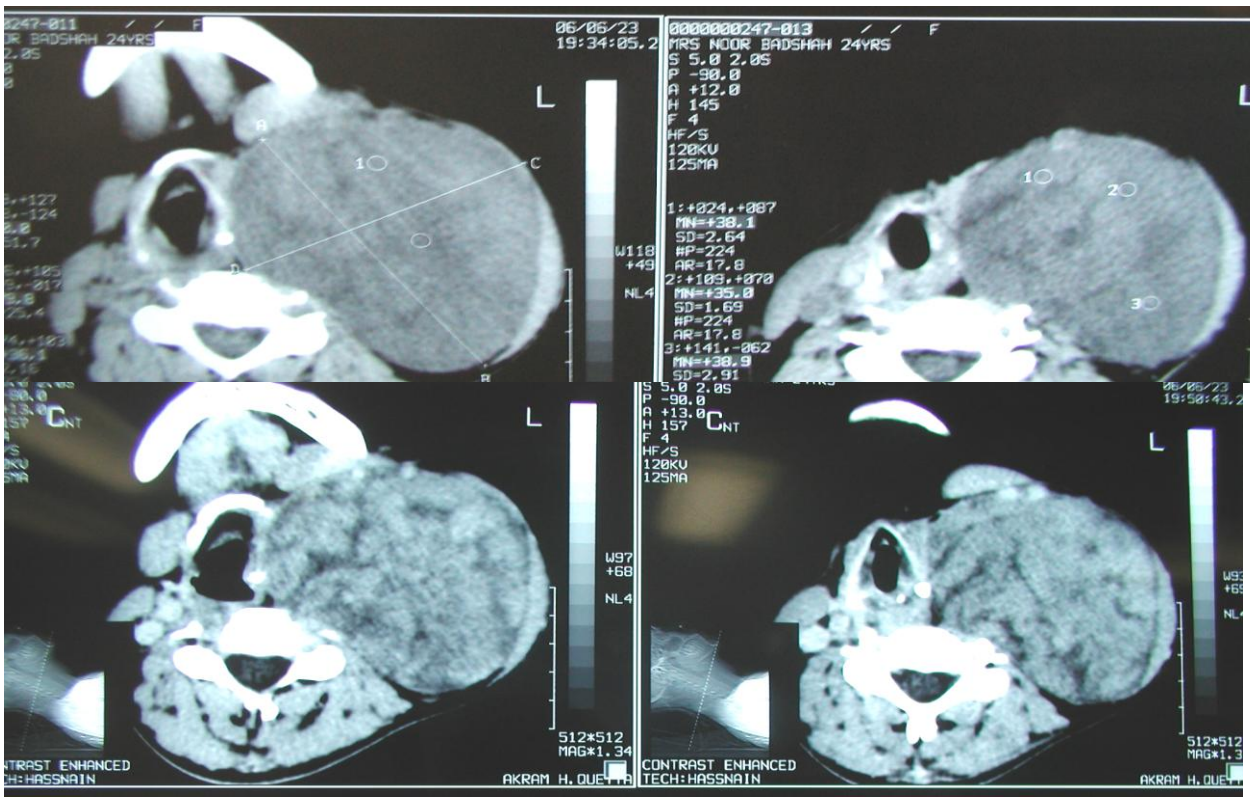

Fig. 5: CT scan showing displaced carotid and displacement with extension to base of skull.

neck is the commonest site of extra cranial schwannoma. Cranial nerves and sympathetic chain give rise to tumors in the medial half of the neck. 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. A preoperative diagnosis may be made with some certainty based on a high index of suspicion from the history of painless, pulsatile swelling, characteristically mobile laterally but immobile vertically, reflecting its attachment to the vagus nerve. CT scan, MRI and angiography may obtain confirmation of the diagnosis. Incisional biopsy is unnecessary and contraindicated because of vascular nature of the lesion and the possibility of uncontrolled hemorrhage. It may also make removal of tumor mass difficult because of obliteration of tissue plane [11].

A schwannoma is a solitary and encapsulated tumor. Histologically, it exhibits two main patterns - Antoni A and Antoni B. Antoni A tissue is represented by a tendency towards palisading of the nuclei about a central mass of cytoplasm (Vero cay bodies). 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. Other typical features include necrosis, hemorrhage and cystic degeneration. Malignant change in the nerve sheath tumors in the head and neck is very rare [11].

Gross total resection remains the treatment of choice for these tumors. The capsule is gently and carefully dissected from the fascicles of the nerve. When it is necessary to debulk the tumor, the capsule is incised longitudinally to preserve the uninvolved fascicles. However as much as possible of the capsule should be removed to prevent recurrence. If the nerve or some of the fascicles cannot be salvaged, a split repair should be performed using the great auricular or sural nerve. In cases where it is not possible, vagus nerve is sacrificed along with the tumor. Hoarseness is nearly always present after resection and recovers in most

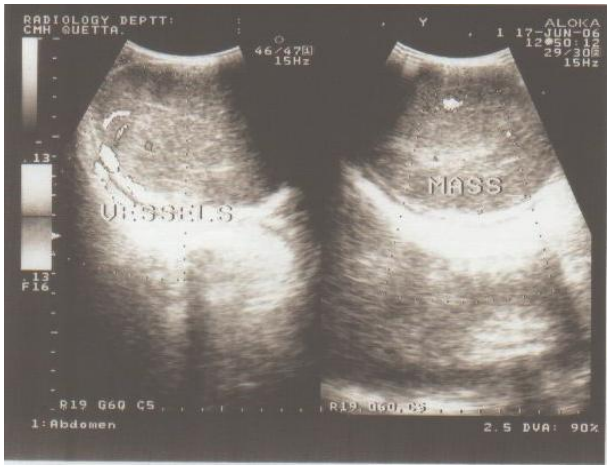

Fig. 6: Ultrasound of neck.

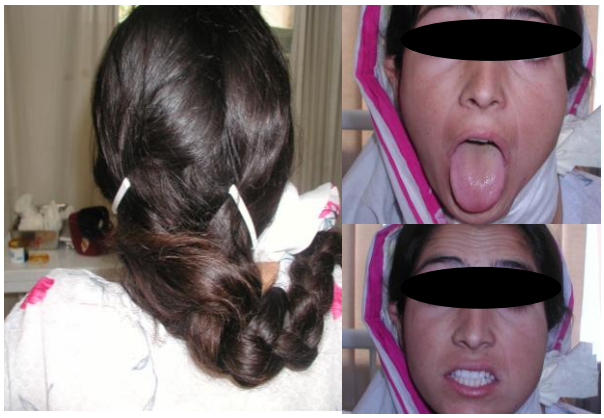

Fig. 7: Showing the integrity of cranial nerves.

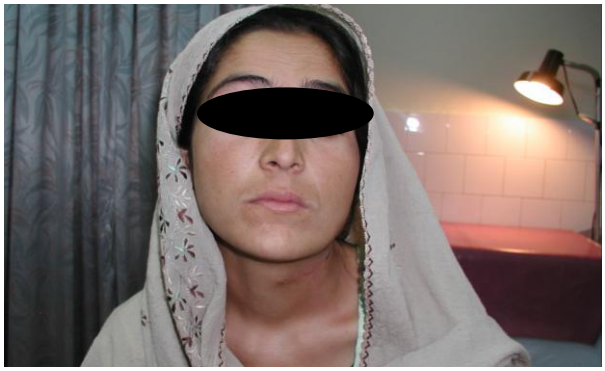

Fig. 8: Postoperative follow up.

cases. Other common complications include pharyngo-laryngeal anesthesia, aspiration and cranial nerves IX, XI and XII palsies, which may be transient or permanent. Surgical excision with preservation of the vagus nerve is the treatment of choice. It is required for the correct diagnosis to prevent further growth and compression on adjacent structures [8]. Schwannomas of neck have been classified into 4 types based on macroscopic nature. In type 1, the nerve of origin could not be identified. In type 2, normal nerve passes on the surface of the tumour. In type 3 nerve fibers are slightly dilated on tumour surface. In type four tumour surfaces is covered by the nerve fibers [9]. Careful intra capsular excision is recommended for schwannoma originating from vagus nerve [1,11]. In most cases the tumour cannot be separated from the nerve resulting in homolateral vocal cord parlysis [6,11]. In the described patient the tumour was of type 2 and was shaved off over the vagus preserving its continuity with complete removal of tumour.

CONCLUSION

Schwannoma of the head and neck are usually benign and slow growing tumors. They are most often diagnosed in adults but can also occurs in children although not so often. Surgical excision of schwannoma with or without sacrificing nerve results in complete cure with little likelihood of recurrence.

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