Case Report

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Surgery Section

# Cervical Vagal Schwannoma: Peculiarity in Diagnosis and Treatment

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## ABSTRACT

Vagal Nerve Schwannoma (VS) is a rare tumour, usually seen in patients of 30-50 years of age, affecting both sexes equally. Clinically, VS presents as a slow growing, asymptomatic tumour, often with minimal symptoms in the patient. It is necessary to distinguish VS from other neck masses and to arrive at a diagnosis only after ruling out commonly occurring neck lesions. Cytology in cases of VS is often inconclusive; hence, there is a higher degree of reliance on Magnetic Resonance Imaging (MRI) to establish a preoperative diagnosis. Treatment involves complete excision of the tumour. Other less frequently employed options include intracapsular enucleation. Postoperative morbidity has been reported and includes hoarseness of voice or speech difficulties. The final diagnosis is achieved by findings on histopathological examination. Here, a case of VS occurring in a 60-year-old female is described. The presenting clinical features, diagnosis and surgical management are further discussed.

**Keywords:** Benign tumours, Neck tumours, Neuroma, Vagus nerve

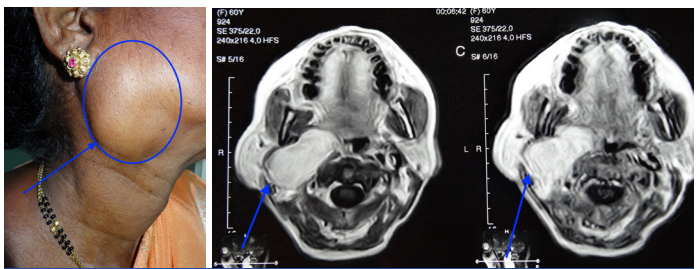
## CASE REPORT

A 60-year-old female, presented to the Department of Surgery, with a progressive swelling in the right side of the neck since five years, with no history of pain, hoarseness of voice, dysphagia, paroxysmal cough or any neurological deficits in the right upper limb. Patient did not give any history of prior masses or any other comorbidities. Physical examination revealed an 8x5 cm oval, firm, non tender, well defined, horizontally mobile swelling along the anterior border of the right sternocleidomastoid, extending from the tragus to three centimeters below angle of the mandible, present lateral to the carotid artery pulsation. There was no displacement of the carotid pulsation [Table/Fig-1].

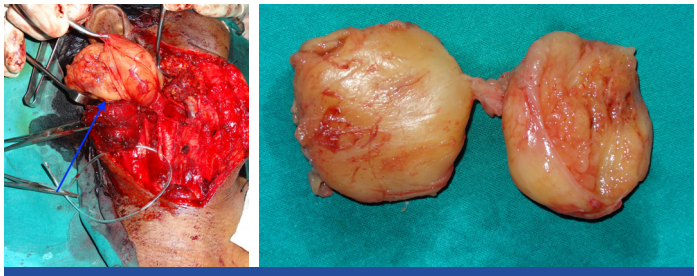
Ultrasound showed a soft tissue mass with no cystic changes or calcification. Considering a differential diagnosis of parotid gland tumour, and schwannoma a ultrasound guided Fine Needle Aspiration Cytology (FNAC) was performed which showed cells of neural origin, and was reported inconclusive.

MRI showed a well defined T2 homogeneously hyperintense lesion, T1 hypointense lesion deep to the right parotid gland, anterior to the right carotid space. Lesion extended superiorly to the skull base, inferiorly to the C4 vertebral level, and laterally into the right parapharyngeal space [Table/Fig-2].

Surgical fitness was sought and excision was planned. Under general anaesthesia, exploration of the right side of the neck was performed. A surgical plane was created between the external and internal carotid artery. Hypoglossal nerve and ansa cervicalis were identified and kept intact. A firm, encapsulated 8x6 cm tumour was separated from the vagus nerve and sent for histopathology [Table/Fig-3,4].



**[Table/Fig-1]:** Image showing swelling over right side of the neck (arrow). **[Table/Fig-2]:** Magnetic resonance imaging film shows lesion located deeper to the parotid gland and displacing structures within the right parapharyngeal space (arrow). (Images from left to right)



**[Table/Fig-3]:** Intraoperative photograph showing lesion (arrow) being lifted from the right parapharyngeal space. **[Table/Fig-4]:** Photograph of excised specimen measuring 8×6 cm. (Images from left to right)

Wound was closed, and patient was shifted to postoperative ward. Patient did not complain of postoperative hoarseness of voice, or difficulty in speech. Histopathology revealed tumour composed of Antoni A and Antoni B areas. Section showed palisading of spindled hyperchromatic nuclei, resembling verocay bodies, suggestive of VS.

At one year of follow-up after the surgery, patient remained asymptomatic and did not report any difficulty in speech or hoarseness in voice. There was no clinical evidence of disease. Informed consent was procured from the patient for publication of the above findings. Patient was lost to follow-up after one year.

## DISCUSSION

Schwannomas are benign neural tumours which arise from cranial, peripheral or autonomic nerves. Schwannomas in the neck, are mostly of cranial or sympathetic chain origin, and occupy the parapharyngeal space [1-3,5]. VS is rare (2-5%), and few cases have been documented in medical literature [5-7].

VS presents as a slow growing painless mass in the lateral aspect of the neck. It is commonly seen in the third to fifth decade of life, affecting both sexes equally [2,3]. The swelling is asymptomatic in most patients [4]. Symptoms, if present, are hoarseness of voice, or neurological deficits occurring due to large lesions [1]. A clinical sign specific to VS, is a paroxysmal cough which can be elicited by palpating the mass [2].

Clinicians should have a high index of suspicion to include schwannoma as one of the differentials. Several lateral neck masses may mimic symptoms caused by schwannomas. Common causes of lateral neck lesions, namely reactive lymphadenopathy, tuberculous lymphadenitis, malignant lymphoma, branchial cysts,

paraganglioma, glomus tumour and malignant neck secondaries must be ruled out before considering the diagnosis [2-5].

Schwannomas usually have two histological types. The Antoni A type has verocay bodies (palisading of hyperchromatic nuclei) while the Antoni B has no distinctly identifiable pattern, containing tumour tissue with loose stroma [3,5].

Availability of advanced imaging has made preoperative workup of a suspected schwannoma simple [3]. MRI provides details regarding surgical plane of the tumour, and can be used to decide the course of treatment. The mass is seen as a well circumscribed lesion, with the carotid trunk displaced medially and internal jugular vein displaced laterally [2]. Any extension of the tumour, and its resectability should be decided based on the MRI.

FNAC may be performed if a MRI shows suspicion of a neural tumour. FNAC reports are often inconclusive, and can lead to misdiagnosis [2,4]. Hence, they should be considered carefully to prevent misdiagnosis.

Treatment choices for VS range from conservative observation of small tumours to excision of significant tumours [2-5,8]. The option of observation for asymptomatic tumours can be offered to patients due to the benign nature of the lesions. Surgical intervention is prioritised, and can be either complete excision or intracapsular enucleation [2,3,5]. Complete excision of the mass leads to profound neurological deficits of the vagus nerve and is hence less preferable [8]. Nerve sparing surgical techniques involve enucleation, extracapsular removal and microsurgical dissection [8]. Enucleation is effective in preserving nerve function as compared to complete excision, which often leads to lifelong morbidity for the patient, whereas microsurgical dissection allows for careful subcapsular dissection and is found to have a low risk of recurrence [2,4,8].

## CONCLUSION

The above described case and subsequent discussion highlights the rarity of VS. Due to the absence of any other clinical signs and symptoms, VS can be difficult to diagnose and requires careful elimination of all the commonly occurring causes of neck swellings. The choice of observational treatment versus resection of small tumours should be offered to the patient, after explaining the benefits and risks associated with both.

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