Vagal nerve Schwannoma

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ABSTRACT

Schwannoma arising from the Vagus nerve is an uncommon (2–5%) benign nerve tumour. This tumour most often presents as a slow growing asymptomatic solitary neck mass which rarely undergoes malignant transformation. Definitive pre-operative diagnosis may be diffi-cult and investigations such as FNAC have low specificity. The carotid artery and internal jugular vein may be displaced antero-laterally. Diagnosis is based on clinical suspicion and confirmation is obtained by means of surgical pathology. Surgical excision is the treatment of choice for this tumour, with recurrence being rare. Here we describe a case of vagal nerve schwannoma in a 65 years male who presented with a neck mass.

Keywords: Schwannoma, Benign nerve tumour, Vagal nerve.

INTRODUCTION

Vagal nerve schwannomas are rare neural sheath tumors. Although schwannomas are gener-ally benign lesions,usually reported to occur in patients between 30 and 50 years of age and there does not seem to be a sex-related predisposition. They are known to enlarge at a rate of 2.5 to 3 mm per year according to published reports. The most common presenting symptoms are hoarseness, dyspnea, dysphagia, cough, aspiration, tongue weakness, and vocal cord paralysis. However, it is not uncommon for this tumor to present as an enlarging asympto-matic neckmass.

Asymptomatic tumors can be observed closely due to their benign nature and indolent course. Surgical resection is the standard of care for symptomatic schwannomas. Some of the authors claim that careful dissection can separate these tumors from their associated nerves and favor nerve sparing techniques including enucleation, extracapsular removal. The technique of enucleation of vagal nerve tumors has been described by several authors with moderately good results.

CASE REPORT

A 65 years old male patient presented to Otorhinolaryngology department with complaints of painless swelling on the right side of the neck anterior to mid sternocleidomastoid muscle since 5 years. The swelling was gradually increasing in size since 5 years. On examination of the swelling an oblique, oval swelling of size 5x4cm extending in front of middle one-third of sternocleidomastoid muscle approximately 5cm below the mastoid tip to the angle of mouth. Skin over the swelling is pinchable, firm in consistency and transversely mobile.Edges are well defined, non-tender swelling and no local rise of temperature seen. Swelling is situated deep to sternocleidomastoid muscle. On palpation, paroxysmal cough was elicited. [Figure 1.]

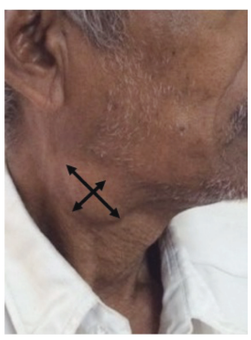

Fig 1: oblique, oval swelling of size 5x4cm

On Ultrasound of neck, evidence of well-defined heterogeneous hypoechoic lesion of size 5x4cms with internal vascularity noted in the right submandibular region anterior to carotid vessels. Plain MRI neck findings with evidence of well-defined fusiform heterogeneous T1 hypointense, T2 hyper intense lesion with multiple focal hypo intensities noted within, located in right sub-mandibular space bounded antero-laterally by sub-mandibular gland, posteriorly by carotid vessels and internal jugular vein and medially by hyoid bone. [Figure 2.] On Fine needle aspiration cytology, features are suggestive of benign spindle cell lesion.

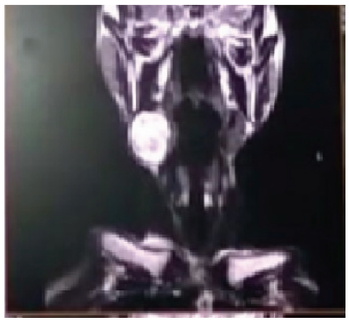

Fig 2: MRI shows on avoid mass in the right submandibular space bounded posteriorly by carotid vessels and internal jugular vein

Under general anaesthesia, a cervical skin crease incision was made and the dissection pro-ceeded beneath the muscle. A yellowish white, ovoid shaped mass was observed, measuring 6×5cm lying away from the carotid artery and the internal jugular vein.[Figure 3.] Both the superior and inferior ends of the mass appeared in continuity with the vagus nerve. The tu-mour was separated from the vagal nerve and dissected completely, keeping the nerve trunk intact. [Figure 4.]

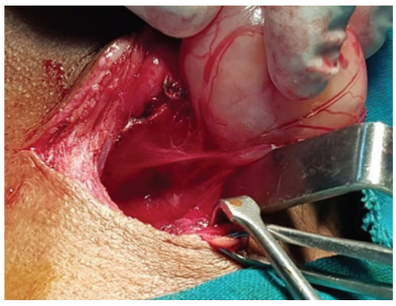

Fig 3: Intra-operative image of mass seperated from vagus nerve and underlying structures.

Fig 4: Excised mass of size 6x5cm

The specimen was sent for histopathological examination and pathological examination con-firmed the diagnosis of benign schwannoma of vagus nerve. Microscopically the neoplasia was composed of ''Antoni A'' pattern with palisading nuclei surrounding pink areas (Verocay bodies). ''Antoni B'' pattern with looser stroma, fewer cells, myxoid change. [Figure 5.]

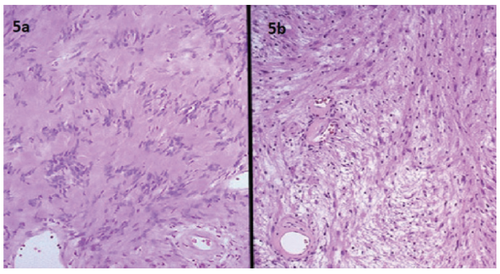

Fig 5: Photomicrograph of the histology of the tumour

Fig 5a: More cellular "Antoni A" pattern with palisading unclei surrounding pink areas (Verocay bodies)

Fig 5b: "Antoni B" pattern with a looser stroma, fewer cells, and myxoid change.

Post-operatively the patient was comfortable and examination of the larynx showed bilateral vocal cord normal movement.

DISCUSSION

A schwannoma is a tumour of the peripheral nervous system that arises in the nerve sheath. Tumours of the parapharyngeal space are rare, with 55% of these tumours being schwannomas and approximately half of these arising from the vagus nerve.[1] Most schwan¬nomas occur between the third and fifth decade of life, af¬fecting both genders equally, and have minimal risk of malig¬nant transformation. Schwannoma presents as a slow-growing, fixed, and painless mass.[2,3] In this case,hoarseness of voice is the most common symptom and on palpa-tion of the mass, paroxysmal cough is elicited.

Schwannoma of the vagus nerve should be differentiated from other parapharyngeal space tumours of the neck before planning surgery to reduce the risk of nerve injury due to prox-imity of the tumour to the vagus nerve. Fine needle aspiration cytology (FNAC), Ultrasono-graphy of the neck, Computed tomography (CT) and Magnetic resonance imaging (MRI) are all pre-operative diagnostic methods. Of all these investigations Magnetic resonance imaging is the main-stay and investigation of choice.[4] MRI is helpful in defining diagnosis and in evaluating the extent and relationship of the tumour with the jugular vein and carotid artery. MRI findings are useful in providing pre-operative estimation of the nerve of origin of the schwannomas and to differentiate pre-operatively between schwannoma of the vagus nerve and schwannoma of the cervical sympathetic chain. Vagal schwannomas in fact displace the internal jugular vein laterally and carotid artery medially, whereas schwannomas from the cervical sympathetic chain displace both the carotid artery and jugular vein without separating them.[5]

Treatment of vagal nerve tumours is complete surgical excision. At surgery, these tumours appear as yellowish-white, well-circumscribed masses. Dissection of the tumour from the vagus with preservation of the neural pathway should be the primary aim of surgical treatment for these tumours.[5] In this case surgical excision was done preserving the vagus nerve. The patient didn't develop any post-operative complications and patient voice was not affected.

Specimen was sent for Histopathological examination which showed two patterns consistent with a diagnosis of benign schwannoma.The more cellular areas (Antoni A) include palisading of cell nuclei of the spindle cells and round cells (Verocay bodies); the less cellular areas (Antoni B) contain edematous stroma in which fibers and cells form no distinctive pattern.

CONCLUSION

Vagal schwannomas are rare benign lesions of the head & neck. They present insidiously and are usually asymptomatic.With clinical suspicion and proper imaging studies, diagnosis can be made most of the time.Surgical technique is crucial since preservation of the integrity of vagus nerve is of paramount importance.Considering rarity of schwannomatosis of vagus nerve, adequate care should be given before, during and after surgical treatment.Recurrence being rare.

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