



Schwannoma of Brachial Plexus Presenting as Supraclavicular Mass: A Rare Presentation, Evaluation and its Management is a Challenge to Surgeons

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Abstract

Schwannomas, also termed as neurilemmomas, are benign nerve sheath neoplasms that originate from peripheral, cranial or autonomic nerves. Schwannomas originating from the brachial plexus are rare and most of them are benign. The majority present as a slow growing mass. Microscopically, pathological features of these tumors are unique, composed of spindle Schwann cells forming hyper- or hypocellular areas (Antoni A and Antoni B, respectively). A 40 year old women presented with left supraclavicular swelling since 6 years. Patient gives history of numbness in the left upper limb after excessive movements of the limb. On evaluation by FNAC, CT scan neck, diagnosis of benign nerve sheath tumour was made. On through evaluation patient underwent excision of tumour. HP report of specimen reveled features of schwannoma. Final diagnosis of schwannoma brachial plexus was made. Hence patient with supraclavicular mass, differential diagnosis of schwannoma should be considered to avoid complications following surgical excision of lesion.

Keywords: Brachial plexus schwannoma, Antoni A- Antoni B cells, Supraclavicular schwannoma, Supraclavicular mass.

Introduction

Schwannomas are rare tumors and most of them arise in head and neck region⁽¹⁾. Schwannomas, also termed as neurilemmomas, are benign nerve sheath neoplasms that originate from peripheral, cranial or autonomic nerves. Schwannomas originating from the brachial plexus are rare and most of them are benign⁽²⁾. These benign nerve sheath tumors of about 5% are supraclavicular in

location, mostly arising from brachial plexus in this location. These are well encapsulated tumors and malignant transformation is extremely rare. Neurogenic tumours of the brachial plexus are an important differential diagnosis for a supraclavicular lump. The majority present as a slow growing mass. Tumors involving head and neck region consist of around 25% of all cases, usually originated from cranial (V, VII, IV, X, XI and XII)

nerves, sympathetic or peripheral nerves⁽³⁾. Advanced imaging investigations, such as magnetic resonance imaging (MRI) and/or computed tomography (CT) scan, are particularly useful in diagnosing these neoplasms and have become the routine studies for these patients⁽⁴⁾. Microscopically, pathological features of these tumors are unique, composed of spindle Schwann cells forming hyper- or hypocellular areas (Antoni A and Antoni B, respectively)⁽⁵⁾. In this study, we report a middle aged woman with brachial plexus schwannoma who was presented as supraclavicular mass.

Case Report

A 40 year old women presented with left supraclavicular swelling since 6 years. The size of the swelling is gradually increasing from the time of apperence that of pea nut to the present size of around lemon. The swelling is associated with pain, dull aching in nature and moderate degree. Patient gives history of numbness in the left upper limb after excessive movements of the limb. There is no history of trauma, loss of function of limb, hoarseness, dysphagia, synchopal attack. On physical examination, there was a smooth swelling of size 3x2 cm, firm in consistency, mobile, non tender, non fluctuant, non pulsatile present in left supraclavicular region. No motor or sensory neurological abnormalities of ipsilateral limb. Clinically diagnosis of enlarged lymphnode or ectopic thyroid gland was made. On evaluation by investigation, blood tests were within normal limits. Ultrasound report shown there could be lymf node deposit or other solid tumour ?neurogenic.

Fine needle aspiration from the swelling on microscopy, smear studied are moderately cellular and show benign spindle cells in cohesive sheets, clusters and singles. These cells have bland spindle nuclei, moderate amount of cytoplasm in a background of abundant myxoid and fibrillary material, suggestive of benign spindle cell lesion- schwannoma.

A computed tomography(CT) of the neck revealed an oval hypodense lesion in left supraclavicular region measuring 3x2.8cm, abutting antero-lateral aspect of left 1st rib. No calcifications and no erosion of underlying bone. On contrast, mild heterogeneous enhancement of the mass with central nectrotic area. Left external jugular vein is seen antero-lateral aspect of the mass lesion. The mass is lateral to left sternocleidomastoid muscle. Features of the above mass were consistent with schwannoma.

On through pre operative evaluation, planned for excision of tumour. Patient underwent enucleation of tumour lesion under general anaesthesia. The lesion excised by horizontal incision over supraclavicular area after carefully separated from underlying nerves and other structures without injury to vital structures. The specimen sent for histopathology. The HPE report section studied shown cells arranged in two patterns of hypercellular and hypocellular. Hypercellular areas composed of spindle shaped cells arranged in a palisading fashion and organoid arrangement- Antoni A cells. Hypocellular areas composed of cells separated by edematous fluid- Antoni B cells. No mitotic figures seen on HPE. The above features are consistent with Schwannoma.

Postoperatively patient improvement was uneventful. The symptoms of patient improved gradually. On follow up of patient for 2 years duration is asymptomatic with no complications.

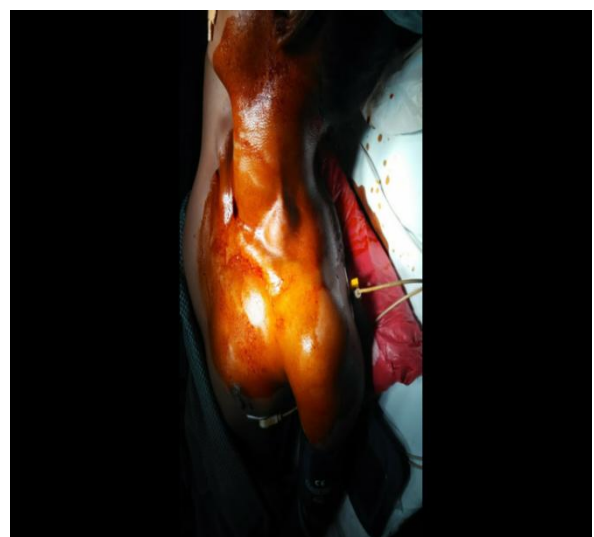


Figure 1.Left supraclavicular mass

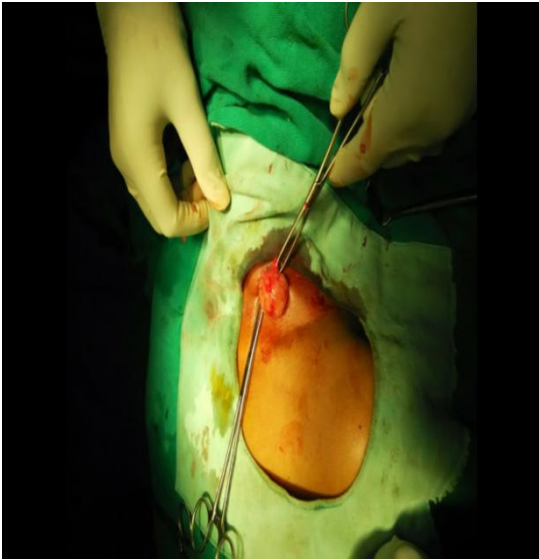


Figure 2. Operative picture of excision of ma



Figure 3. CT scan neck, left supraclavicular mass

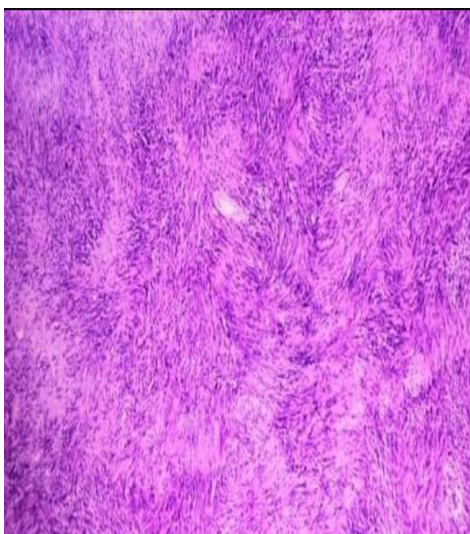


Figure 4 Histopathology specimen of schwannoma

Discussion

Primary tumors arising in the brachial plexus are rare⁽⁶⁾. These neoplasms may manifest as pain in the shoulder or upper limb, sensory/motor disturbances or an asymptomatic swelling. Among these primary tumors, schwannoma and neurofibromatosis are the two most common neoplasms and both of which are benign and eccentrically arise from neural sheath⁽⁶⁾. Although schwannomas typically present as a solitary tumor, neurofibromas usually occur in the context of neurofibromatosis type I⁽⁷⁾. Grossly these tumors are round, oval or plexiform and may appear yellow or gray⁽⁸⁾. The eccentric position of the tumor in the nerve is probably contributing to the reason why the majority of cases with schwannoma, as in our case, are neurologically spared. Most tumours originating from the glossopharyngeal, vagus, accessory and hypoglossal nerves and sympathetic chain are located in the medial aspect of the neck. Laterally, they arise from the cutaneous or muscular branches of the cervical plexus or from the brachial plexus⁽⁹⁾. To establish a firm diagnosis of primary brachial plexus tumor in the supraclavicular region in the absence of a cervical mass is challenging⁽¹⁰⁾. Pain radiating to the arm is seen in 44% of these patients⁽¹¹⁾. Our patient had a supraclavicular-located painless mass. In order to achieve the best result, an accurate preoperative planning, using imaging techniques such as MRI or CT scan is highly recommended. We could not find any published evidence regarding the precise incidence of postoperative neurological complications; however, the review of the reported cases shows that temporary sensory or motor deficit frequently occurs after surgical resection of the schwannoma⁽¹²⁾. Complete resection of these tumors with preservation of surrounding nerves should be the goal.

Conclusion

Supraclavicular schwannoma rare entity in patients presenting with supraclavicular mass. However it arises from brachial plexus nerve

roots, in our case it is indistinguishable from lymphnode of ectopic thyroid lobe mass. Proper diagnosis of lesion is necessary before surgery as it can be easily mistaken for lymphnode and may lead to iatrogenic injury to nerves and other vital structures. Hence patient presenting with supraclavicular mass, differential diagnosis of schwannoma should be included for the proper management of patient.

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