Case Report

Curious case of a median nerve cystic schwannoma in antecubital fossa: Case report

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Abstract

Schwannomas are benign tumourarising from nerve sheath of peripheral nerves. Over prolonged time period these schwannomas may undergo cystic and degenerative changes showing nuclear pleomorphism. Due to their cystic appearance, they may be confused with other benign cystic lesions of peripheral nerves or malignant neoplasms and result in extensive excision of the nerve causing unnecessary functional impairment to the patient. Median nerve is not very commonly affected. Here we present anunusual case of a median nerve cystic schwannoma in the antecubital fossa which presented as a swelling along with paraesthesia along median nerve distribution. On exploration it was found to be eccentric tumour and was resected with preservation of the nerve. Hence, careful clinicalanalysis and radiological examination is important to avoid extensive nerve excision and functional impairment.Also to prevent post op complications since it's a tumour involving the nerve sheath and when it is present in the antecubital fossa it's in close proximation to the brachial artery and thus unnecessary surgical intervention can cause vascular injury.

Introduction

Peripheral neural sheath tumours comprise 12% benign and approximately 7-8% of malignant soft tissue tumours[1]. Neurofibromas and Schwannomas are benign tumours as compared to malignant counterparts of peripheral nerve sheath tumours, having an incidence of 5% among adults[2,3]. Schwannomas usually are asymptomatic. However, they may cause paraesthesia and mild pain. Ultrasound and MRI are the commonly employed diagnostic modalities[4]. Histologically they contain Antoni type A and B tumour cells arranged within[5]. Schwannomas over prolonged period can undergo cystic degeneration comprising 0.8% of soft tissue neoplasms[6]. These cystic schwannomas are also known as "ancient schwannomas" and were initially delineated by Ackerman and Taylorin the year 1951. Histologically they show nuclear atypia and may resemble malignancy thus creating diagnostic confusion[7].

Here we have an unusual case of diagnosed to be cystic schwannoma of median nerve in the antecubital fossa. We further discuss the approach to such tumour along with diagnostic

Case report

A middle aged man came to the surgery OPD with history of a swellingfor 6 years in the antecubital fossa giving complaint of mild discomfort.On examination a mass mesuring~6.5x 4cm non mobile swelling having cystic-firm consistency was noted with Tinel's sign being positive. The patient was experiencing paraesthesia in the distribution of the median nerve, however there were no motor symptoms noted. There were no cutaneous lesions.

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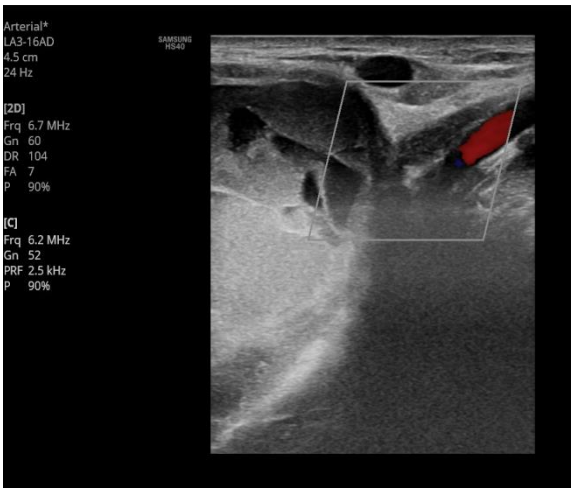
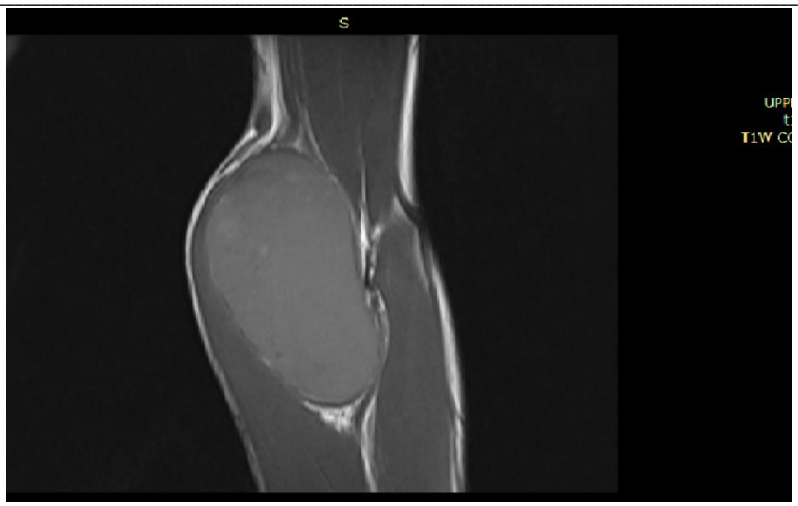
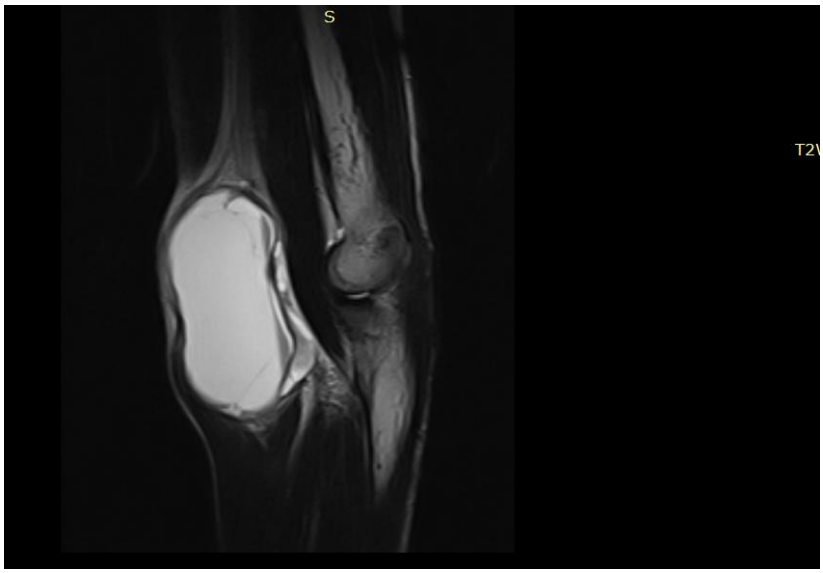
Following this the patient taken for an ultrasound examination which revealed a large cystic lesion measuring~6.8x4.3cm, arising from the median nerve showing internal echoes and multiple septations along with few areas of necrosis. On using colour doppler, brachial artery was visualized running in close proximity to the lesion and the median nerve.

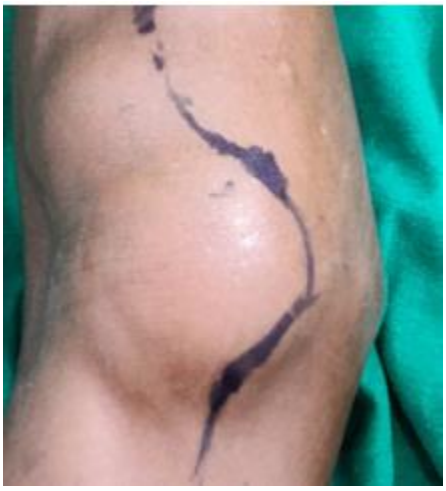


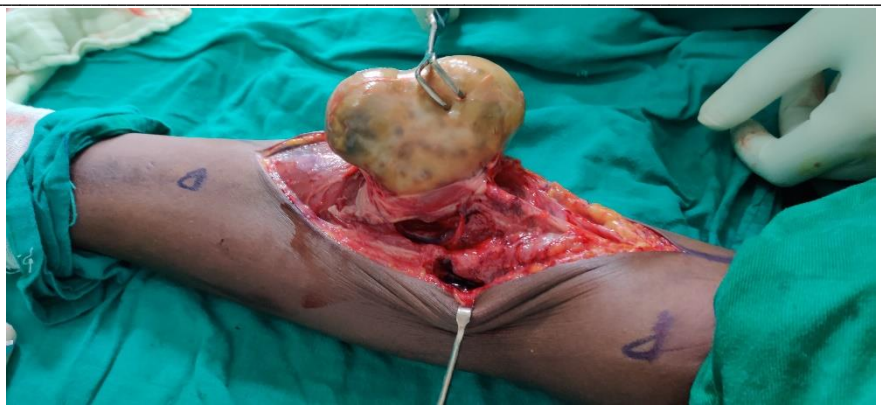
Later an MRI examination was conducted which showed a relatively homogenous hypointense lesion on T1W image in the intermuscular plane, in the antecubital fossa seen arising from the median nerve. Split fat sign was positive with fat noted at upper and lower poles of the lesion.

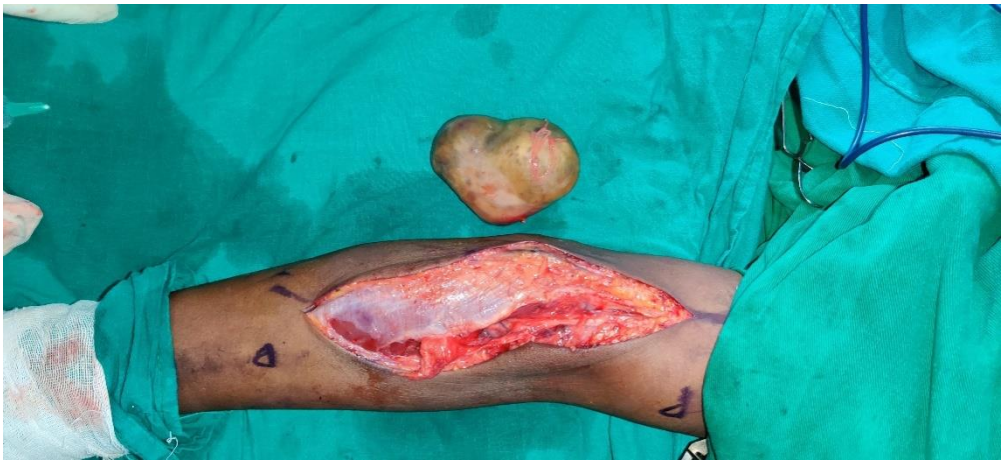




T2W MRI revealed a homogenous hyperintense lesion which did not supress on stir images thus revealing its cystic nature. There was no surrounding muscle atrophy/ peritumoral edema.







Ultimately patient was taken for surgical exploration under general anaesthesia where S shaped incision was given (fig-1) and surgeons found a lobulated well encapsulated eccentrically placed mass which wasattached to the median nerve (fig-2). This mass was dissected and nerve sheath was repaired.

Post surgeryhistopathological examination of the specimen was conducted which revealed morphology of a schwannoma. Post op period was uneventful and complete recovery of the nerve function was attained.

Discussion

Schwannomas are encapsulated, gradually progressive, benign tumours of the neural sheath[8]. If long standing these schwannomas can undergo degenerative changes and are called as ancient schwannomas which show nuclear atypia, xanthomatous changes, stromal oedema and fibrosis[9,10].

Neurofibromas on the other hand are not encapsulated and arise from the centre of the nerve which was not seen in this case. Also on MRI there was no fasicular sign or target sign.

Nerve distribution pattern may help in categorizing the lesion into benign which usually involves deep or cutaneous nerves or malignant which is usually seen along a major trunk of nerve[11].

Schwannomas are composed of areas of Antoni A and Antoni B patterns[6]. Antoni A areas arecomprised of verocay bodies and spindle cells, while Antoni B areas are composed of a myxoid matrix and vascular degeneration caused in cystic schwannomas is usually attributed to Antoni B areas[12].

On MRI imaging schwannoma appear usually T1W isointense and T2W hyperintense[13]. Features suggesting schwannoma include nerve exiting sign, split fat sign[11]. Both malignant lesions and cystic schwannomas may show heterogenous pattern however, malignant lesions are usually associated with perilesional edema or infiltration[14].

Surgical exploration should be done when the schwannoma is clinically and radiologically proven and eccentrically placed and could be excised completely in order to avoid unnecessary radical excision. Also since post operatively patients can develop nerve dysfunction as schwannomas are neural sheath tumors and the corresponding fascicle is always involved. Also since longitudinal incision in the nerve sheath can cut small fasciclespresent over the tumour mass and intact fasciculi can get compressed during the surgical procedure[15].

Conclusion

Cystic schwannoma in the antecubital fossa are unusual and such masses should be carefully examined clinically, following which imaging work up using ultrasound and MRI as the main imaging modalities should be done in order to confirm the diagnosis and prevent unnecessary surgical exploration which may lead to nerve damage and cause functional impairment to the patient.

Also to prevent post op complications since it's a tumour involving the nerve sheath and when it is present in the antecubital fossa its in close proximation to the brachial artery and thus unnecessary surgical intervention can cause vascular injury.

References

1. Kransdorf MJ, Murphey MD. 2nd ed. Philadelphia, PA: Lippincott Williams and Wilkins; 2006. Imaging of Soft Tissue Tumors; pp. 329–80. [1]
2. Kransdorf MJ. Benign soft-tissue tumors in a large referral population: Distribution of specific diagnoses by age, sex and location. *AJR Am J Roentgenol.* 1995;164:395–402.[2]

3. C. L. Forthman and P. E. Blazar, "Nerve tumors of the hand and upper extremity," *Hand Clinics*, vol. 20, no. 3, pp. 233–242, 2004.[3]
4. Deepak H, Raadhika R, Sreeramulu PN. Giant median nerve schwannoma a one of its kind case in a rural tertiary care centre. Surg Case Rep. 2019;3(1):4-5.[4]
5. Robbins Basic Pathology 9th Edition Peripheral nerve sheath tumors. pp: 807.[5]
6. Weiss SW, Goldblum JR, Enzinger FM (2001) Benign tumours of the peripheral nerves. In: Weiss S, Goldblum JR (eds) Enzinger and Weiss's soft tissue tumours, 4th edn. Mosby, St. Louis, pp 1111–1208. [6]
7. Ackerman LV, Taylor FH (1951) Neurogenoustumors within the thorax: a clinicopathological evaluation of 48 cases. Cancer 4:669–691 [7]
8. 4. Chang J, Klein MB. Ulnar-nerve schwannoma. New England J Med. 2002;347(12):903.[8]
9. Dahl I. Ancient neurilemmoma (schwannoma). Acta PatholMicrobiolScand Sect A 1977;85:812–818. 11. Argenyi ZBM, Balogh K, Abraham AA. Degenerative (''ancient'') changes in benign cutaneous schwannoma. [9]
10. A light microscopic, histochemical and immunohistochemical study. J Cutaneous Pathol1993;20:148–153.[10]
11. Kakkar C, Shetty CM, Koteshwara P, Bajpai S. Telltale signs of peripheral neurogenic tumors on magnetic resonance imaging. Indian J Radiol Imaging. 2015;25(4):453-458. doi:10.4103/0971-3026.169447.[11]
12. Vilanova JR, Burgos-Bretones JJ, Alvarez JA, et al. Benign schwannomas: a histopathological and morphometric study. *J Pathol.* 1982;137:281–286. doi: 10.1002/path.1711370403. [12]
13. T. E. J. Hems, P. D. Burge, and D. J. Wilson, "The role of magnetic resonance imaging in the management of peripheral nerve tumours," *Journal of Hand Surgery*, vol. 22, no. 1, pp. 57–60, 1997.[13]
14. Yuk Kwan Tang, C., Fung, B., Fok, M., & Zhu, J. (2013). Schwannoma in the upper limbs. BioMed Research International, 2013. [14]
15. T. Sawada; M. Sano; H. Ogihara; T. Omura; K. Miura; A. Nagano (2006). The relationship between pre-operative symptoms, operative findings and postoperative complications in schwannomas.[15]

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