Journal of Peripheral Nerve Surgery (Volume 2, No. 1, July 2018) 90-93

CASE REPORT

# Hemangioma of the Scalene Muscle Presenting as a Neurogenic Tumor

**Warade AG[1], Churi O[2], Desai K[3]**

## Introduction

Hemangiomas are benign lesions accounting for 7% of all soft tissue tumors. The etiology is unknown, possibly congenital in origin. The head and neck region attributes to 20% of the lesions[1,2,3,4]. Intramuscular hemangiomas (IMHs) are extremely rare accounting for 0.8% of all hemangiomas[2,5]. IMH in scalene muscle as an entity is extremely rare with this being only the fifth case reported in literature[6,7,8]. They commonly mimic other supraclavicular neck lesions. Hence predicting them preoperatively is a diagnostic dilemma owing to their rarity and non-specific clinical and radiological findings. In this case it mimicked a neurogenic tumor arising from the brachial plexus. We discuss the clinicopathological findings and treatment options of this rare entity.

## Case Report

### *History and Examination*

A 37 -year old female presented with 1-year history of progressively worsening pain on the right half of the neck radiating to the right upper limb with associated severe paraesthesias and restriction of shoulder movements. On examination she had a localized non- tender swelling in the right posterior triangle of neck. Neurological examination was unremarkable. Magnetic resonance imaging (MRI) scan revealed a well-defined lesion in the supraclavicular region on the right side. The lesion was isointense on T1 weighted and hyperintense on T2 weighted sequences. Following Gadolinium contrast administration the lesion exhibited intense homogenous enhancement (Fig1 A-E). An Ultrasonography (USG) guided fine needle aspiration cytology (FNAC) was done twice at other institutions. It revealed the lesion to be benign peripheral nerve sheath tumor like neurofibroma or a schwannoma.

✉ AG Warade
+91 9224874632
abhi.w82@gmail.com

[1,2,3] Department of Neurosurgery, P.D. Hinduja Hospital & Medical Research Centre,Veer Savarkar Marg, Mahim, Mumbai, India

Right brachial plexus was explored by supraclavicular approach. The right C5-6 roots to upper trunk and C7 root to middle trunk were exposed. The C8-T1 roots to lower trunk were not clearly visible and were displaced infero-medially (Fig 2A). However, there was no evidence of any tumor involving the brachial plexus. This was really puzzling as no mass lesion was found during surgery. The intraoperative impression assessed a more medial location of the lesion. An interim computed tomography scan (CT) of the right side of neck with angiogram revealed the lesion involving the scalene anterior muscle with brilliant homogenous enhancement (Fig3). Hence after consulting the patient and her relatives a second surgery was planned with a more medial and wider exposure. A sternotomy was performed with proximal control of the right subclavian and carotid arteries. The C8-T1 roots were found to be severely stretched out and were displaced infero-medially. The scalene anterior muscle was bulging. The fibres were splitted longitudinally withpartial excision of tumor capsule. A profuse bleeding was encountered during partial excision of the lesion. A subtotal excision of the intra muscular vascular lesion was performed.

The post operative course was uneventful with no obvious neurological deficit. The histopathological examination revealed the lesion to be hemangioma within the scalenus anterior muscle (Fig 2 B,C). The patient was advised sclerotherapy treatment at a later date for the residual hemangioma.

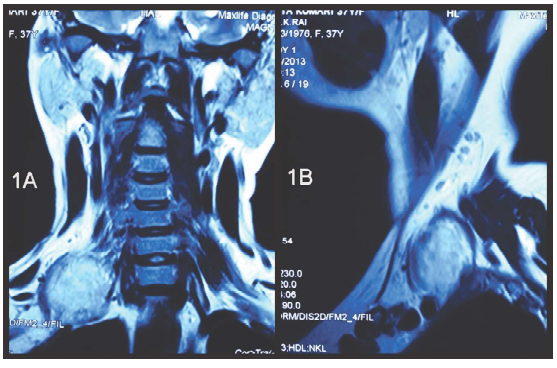


**Fig. 1 (A&B)** T2- weighted coronal and sagittal images showing hyperintense lesion in the right supraclavicular region of the neck.

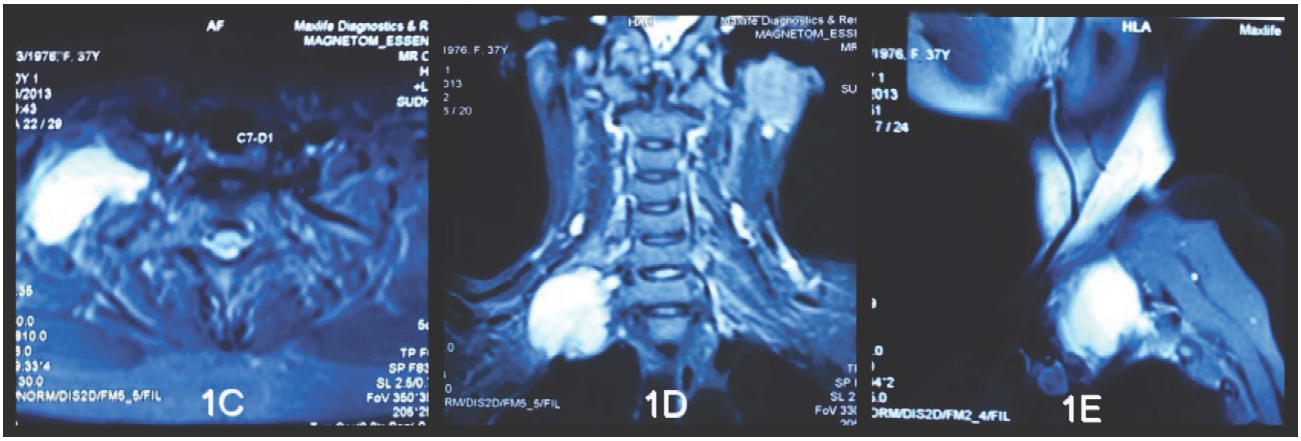


**Fig. 1 (C,D,E)** Gadolinium enhanced T1-weighted coronal image showing homogeneous brilliant enhancement of the right supraclavicular lesion.

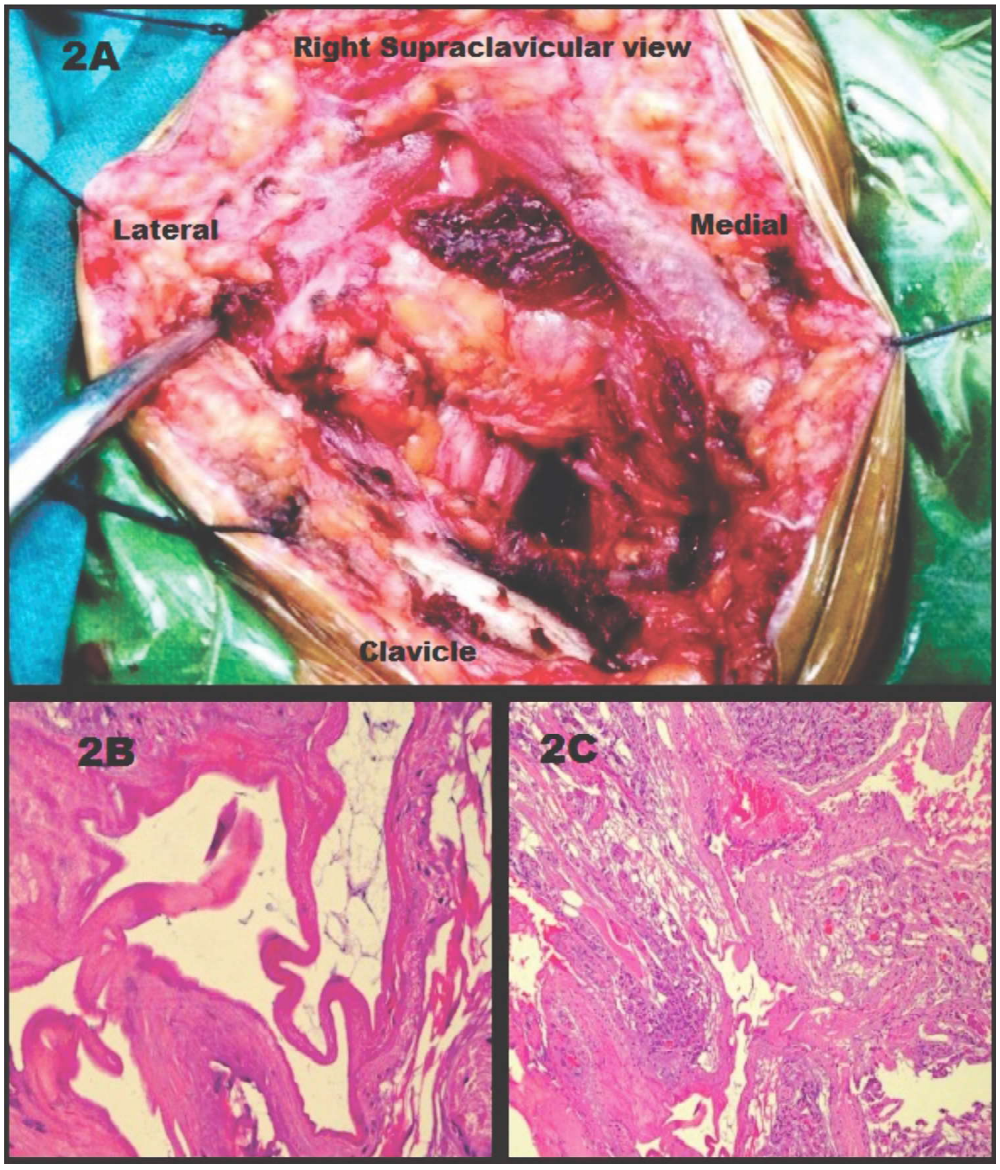


**Fig. 2 (A)** Shows the intraoperative right supraclavicular view with the suspected lesion in situ, **(B, C)** Hematoxylin and Eosin stained histopathological images of hemangioma admixed with muscle tissue**.**

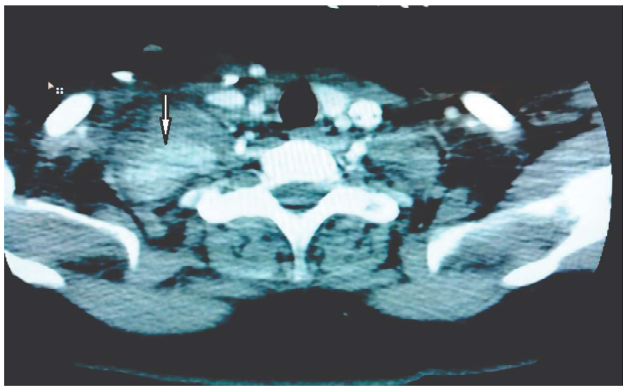

**Fig. 3** Interim CT angiogram of the neck showing contrast enhancement of the lesion with prolonged uptake.

## Discussion

Hemangiomas are benign, congenital vascular malformations with variable presentations. It can remain either asymptomatic or present as a mass lesion which isat times painful. The asymptomatic lesion can often cause cosmetic concerns[9]. Hemangiomas are more common in females. The commonest location reported for IMH is the masseter muscle[10].

IMH in scalene muscle is extremely rare with this being the fifth case reported in literature[6,7,8]. The differentials for supraclavicular neck lesions are vagal paraganglioma (VPG), glomus tumor, schwannomaor neurofibroma arising from the brachial plexus, lymphadenopathy, congenital cyst, lymphangioma, rhabdomyosarcoma, benign muscular hypertrophy, or myositis ossificans[11].

The factors which misled us preoperatively for a definitive diagnosis were: long clinical history similar to a neurogenic tumor,FNAC reports, MRI characteristics of the lesion lacking salt and pepper flow void appearance, classic for a vascular lesion like hemangioma[6], and a comparatively more common incidence of brachial plexus tumors (5%) over IMH (0.8%)[2,5,12]. The pre operative sampling during the FNAC testing was probably taken from a normal element of the brachial plexus.

Hemangiomain the neck usually presentas a painless, smooth rubbery swelling in supraclavicular region with horizontal or side to side mobility but a restrictedvertical movement[6,13]. An accurate preoperative diagnosis of IMHs has been reported in less than 8% of cases[7,9].Contrast enhanced CT scan generally reveals a homogenously enhancing vascular tumor with delayed and prolonged contrast uptake. IMHs on MRI scan demonstrate high signal intensity on both T1- and T2-weighted images, high signal channels representing vascular spaces, focal heterogeneities and adjacent muscular atrophy.[9]

Treatment options for IMHs involve surgical resection with a margin of normal surrounding tissue as the gold standard.[6] Surgical margins and tumor size are considered important independent factors in predicting local recurrence free survival. Incomplete surgical resection leads to increased rate of recurrence due to microscopic infiltration into the surrounding muscular tissue[14]. Woff et al[11]. and Tang et al[15]. reported local relapse rates of 18% and 19 % respectively after total surgical resection.

The adjunct treatment apart from surgical excision includes intralesional steroid or sclerosant injections, cryotherapy and embolization[14].

## Conclusion

Scalene muscles IMH are exceptionally rare lesions. The clinical features and radiological findings are not always diagnostic. These lesions are often misdiagnosed as happened in this case. We suggest the possibility of scalene muscle IMH in the differential diagnosis of supraclavicular lesions.

## References


1. Choi WH, Lee CJ, Oh SH, Chung BS, Rhim JK, Kwon KW. Cavernous Hemangioma Occurred Between the Trapezius and Splenius Capitis Muscle. Korean J Spine. 2012;9(2):118-121
2. Allan PW, Enzinger FM. Haemangioma of skeletal muscle, an analysis of 89 cases. Cancer.1972;29:8-22
3. Kanaya H, Saito Y, Gama N, Konno W, Hirabayashi H, Haruna S. Intramuscular hemangioma of the masseter muscle with prominent formation of phleboliths: A case report. Auris Nasus Larynx. 2007;35(4):587-591
4. Lee SK, Kwon SY. Intramuscular cavernous hemangioma arising from masseter muscle: a diagnostic dilemma. Eur Radiol. 2007;17:854-857
5. Demir Z, Oktem F, Celebioglu S. Rare case of intramasseteric cavernous hemangioma in a three-year-old boy: a diagnostic dilemma. Ann Otol Rhinol Laryngol. 2004;113:455-458
6. Van Abel KM, Carlson ML, Janus JR, et al. Intramuscular hemangioma of the scalene musculature masquerading as a paraganglioma: a case series. Am J Otolaryngol. 2013;34(2):158-162
7. Scott JES. Hemangioma of skeletal muscle. Br J Surg. 1957;44:496–501
8. Ferlito PN, Gale N. Intramuscular hemangioma of the middle scalene muscle. Acta Otorhinolaryngol Belg. 1980;34(34):345–349

9. Rossiter JL, Herdvix RA, Tom LWCA, et al. Intramuscular hemangioma of the head and neck. J Otolaryngol. 1993;108:18-26

10. Ferri E, Pavon I, Armato E. Intramuscular cavernous hemangioma of the sternocleidomastoid muscle and unusual neck mass. Otolaryngol Head Neck Surg. 2007;137(4):682-683

11. Woff JT, Daniel F, Karuse CJ, et al. Intramuscular haemangioma of the head and neck. Laryngoscope. 1985;95:210–213

12. Rashid M, Salahuddin O, Yousaf S, Qazi UA, Yousaf K. Schwannoma of the brachial plexus; report of two cases involving the C7 root. Journal of Brachial Plexus and Peripheral Nerve Injury. 2013;8:12

13. Chaudry N, Jain A, Gudwani S, et al. Intramuscular hemangioma of the head and neck region. J Laryngol Otol. 1998;112:1199-1201

14. Ingalls GK, Bonnington GJ, Sisk AL. Intramuscular hemangioma of the mentalis muscle. *Oral Surg Oral Med Oral Pathol*. 1985;60:476-481.

15. Tang P, Hornicek FJ, Gebhardt MC, Cates J, Mankin HJ. Surgical treatment of hemangiomas of soft tissue. *Clin OrthopRelat Res*. 2002;399:205-210.