Intramuscular Neck hemangioma - A Case Report

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ABSTRACT

Intramuscular hemangiomas are rare neoplasms of blood vessel origin located inside muscles, which may not be clinically apparent at presentation. We present one such interesting case which was deceiving enough to remain unnoticed on initial short clinical examination and produced a misleading cytological diagnosis up front. High resolution ultrasound gave a clue to the diagnosis of the tumor. More specific radio-labelled RBC scan confirmed its presence, while fusion imaging pin-pointed its location.

Key words: **Intramuscular cavernous hemangioma, ^{99}mTc-labelled RBC scan, HR ultrasound.**

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INTRODUCTION

Hemangiomas are relatively rare benign neoplasms of blood vessels seen mainly in children, 70% of which resolve by the age of 7 years (1). Intramuscular hemangiomas make up for about 0.8% of all hemangiomas and most commonly present with swelling and/or pain (2), though some may remain relatively asymptomatic even in adult life. The case presented here reports a man in his early thirties who complained of swelling in neck only apparent on lying down in right lateral position and immediately on rising up. This bizarre presentation prompted us to examine the patient using neck ultrasonography applying specific technique. The findings then guided us to use ^{99}mTc-labelled RBC scan with SPECT-CT acquisition to confirm the presence and to locate the hemangioma within a neck muscle. CT angiography, digital subtraction angiography or MRI of soft tissue may also be used for confirming diagnosis of hemangiomas and identifying their feeding vessels.

CASE REPORT

A 31 years old man attended the otolaryngology OPD with complaints of swelling on right side of neck, only

Figure 1: Image collage showing posture related swelling in neck at presentation.

apparent on lying down in right lateral position and just after sitting / standing up from that position, for few minutes (Figure 1). He had this swelling since his childhood, which was initially firm, globular and rather persistent. Later it became softer, elongated and slightly painful when pressed; but there was no history of trauma to the neck. As there was no visible swelling at presentation, only an ill-defined mass was palpable, cervical lymphadenopathy was suspected initially. Patient underwent FNAC without imaging guidance, that too in sitting position, revealing fatty and fibrofatty tissue containing mature adipocytes- suggesting a lipoma.

Then, high resolution neck ultrasonography was done using a 4-15 MHz linear transducer. As patient described about the swelling being prominent on lying in right lateral position for few minutes, he was asked to adopt such a decubitus for about 10 minutes. After the mass became apparent, the patient was turned supine and his neck was quickly examined, as the swelling promptly disappeared in about 3 minutes. Sonographic features (Figure 2) were suggestive of a possible cavernous hemangioma in the belly of the right sternocleidomastoid muscle.

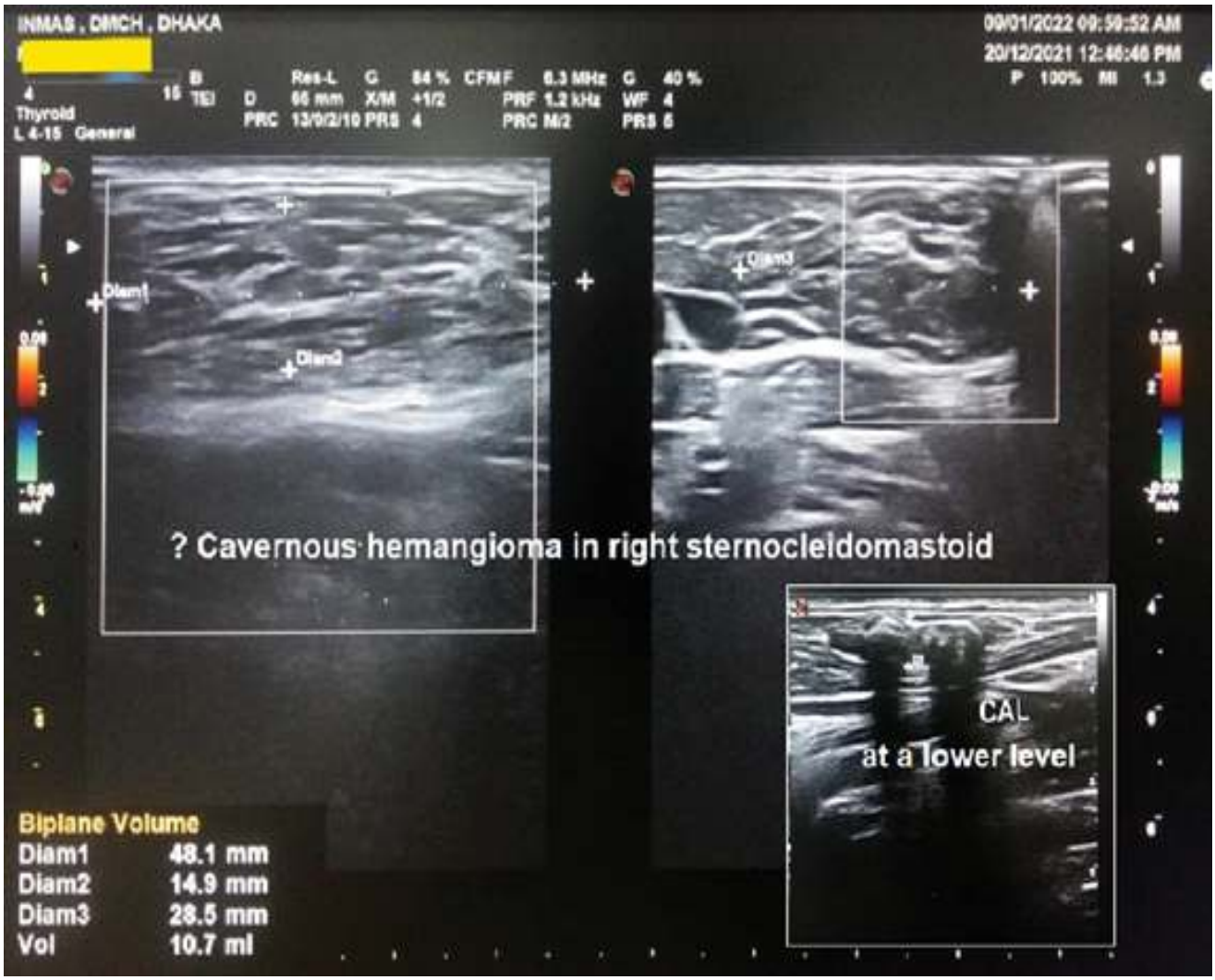

Figure 2: High resolution neck ultrasound image showing an ill-defined mass of worm-like tortuous channels, occupying middle third of right sternocleidomastoid muscle (measuring at least ~4.8 x 1.5 x 2.9 cm), lined by thin echogenic outer covering. A neighboring area of the muscle at a lower level contained at least two bright echogenic shadow casting calcified areas (on average ~5mm in diameter). On Doppler absent to minimal flow was noted in supine position.

Subsequently, ^{99}mTc-labelled RBC scan was employed; injecting Pyrophosphate followed 30 minutes later by 15mCi ^{99}mTc-pertechnetate injection IV. Then dynamic flow images of neck were taken in anterior posterior projections at 4 seconds / frame for 4 minutes. Just after perfusion, blood pool static images were taken at 5 minutes interval for up to 40 minutes at anterior posterior & lateral projections. Then after 2 hours, delayed planner images were taken with SPECT-CT acquisition. The features (Figures 3a-d) confirmed an intramuscular cavernous hemangioma in belly of the right sternocleidomastoid muscle.

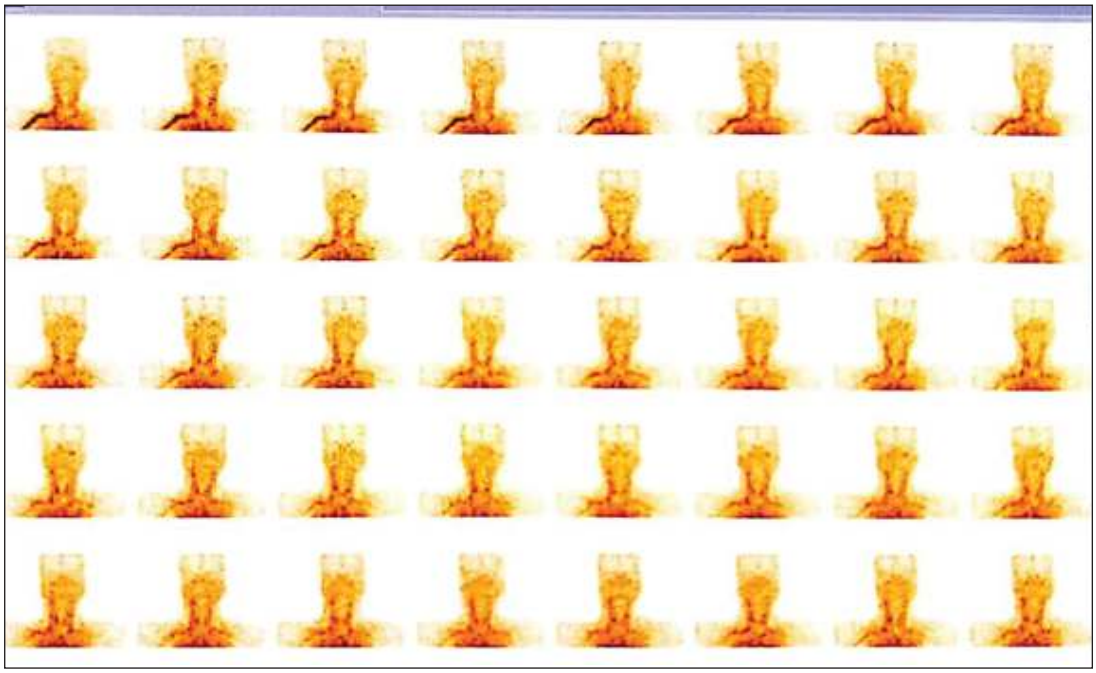

Figure 3a: ^{99m}Tc-labelled RBC scan dynamic flow images show normal radiotracer flow into major neck vessels.

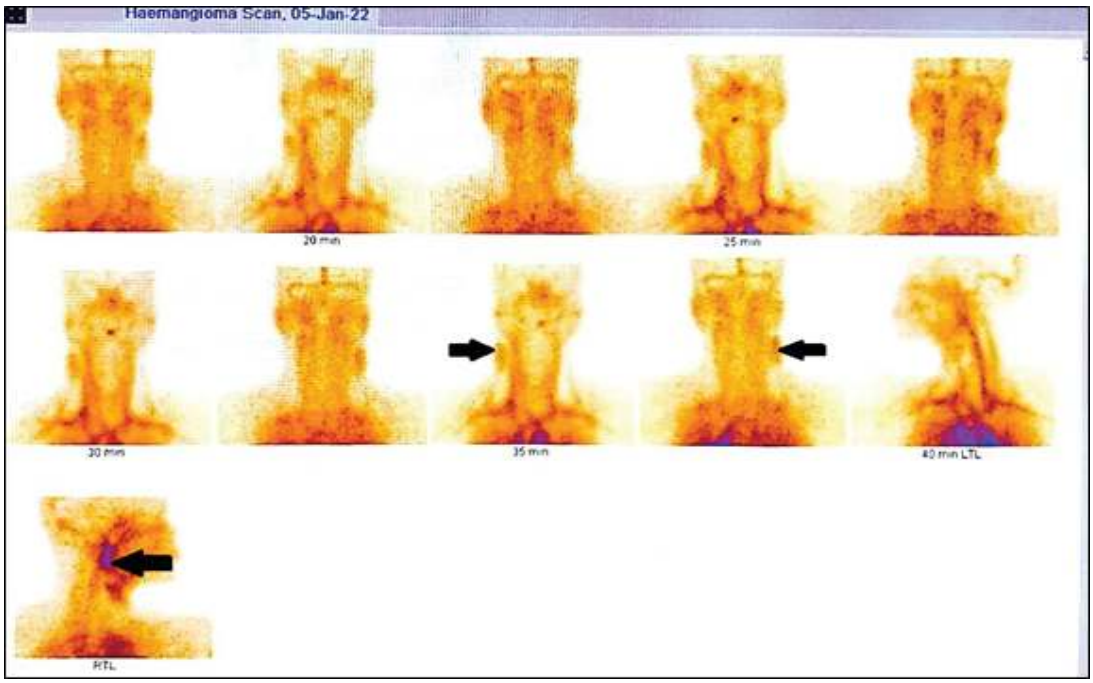

Figure 3b: ^{99m}Tc-labelled RBC scan sequential blood pool images show gradual increase in focal radiotracer activity on right side of middle part of neck, lateral to major neck vessels.

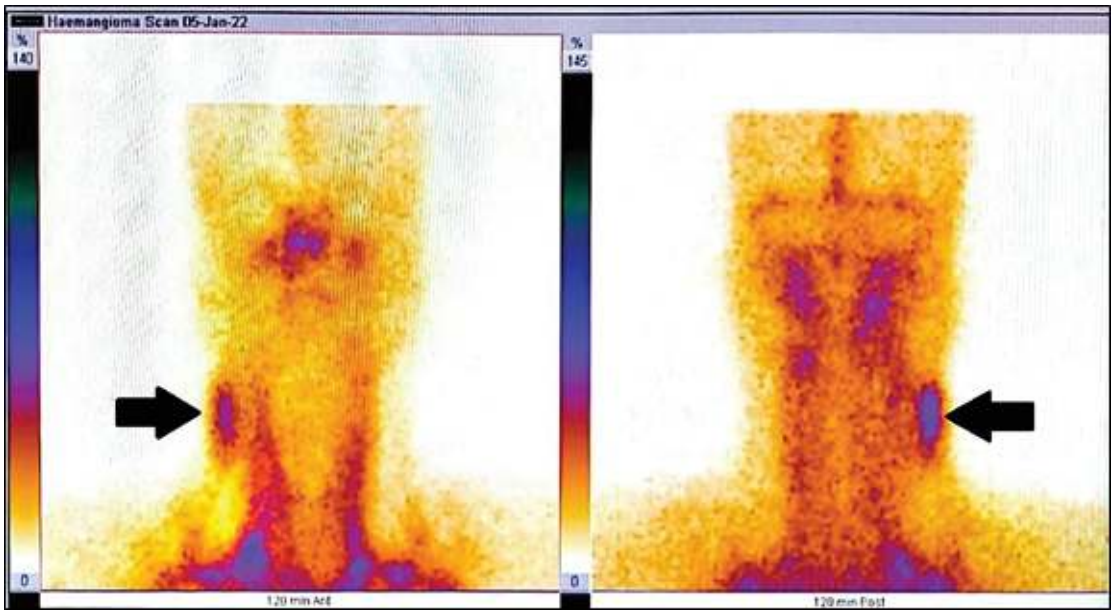

Figure 3c: ^{99m} Tc-labelled RBC scan delayed planner images show persistent focal area of tracer activity at right side of middle part of neck, lateral to major neck vessels.

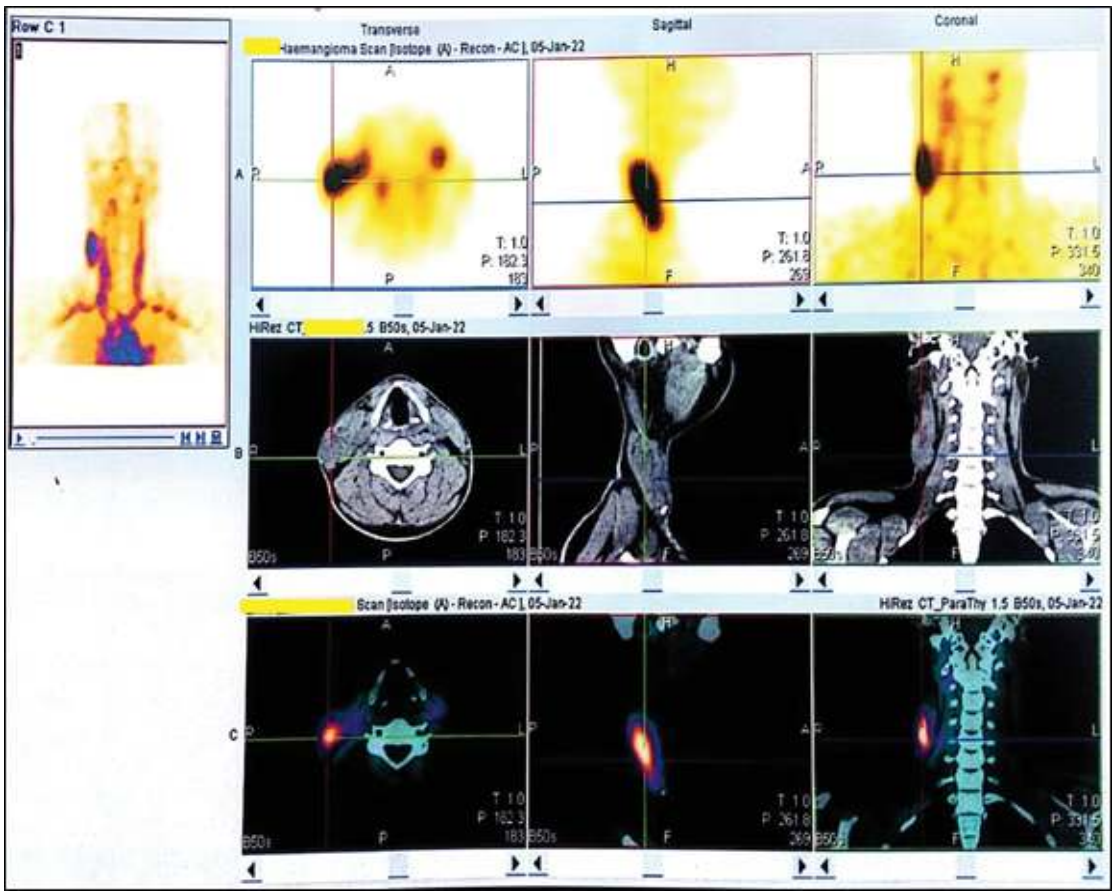

Figure 3d: SPECT-CT fusion: CT scan of the neck revealed thickened belly of the right sternocleidomastoid muscle (~2.4 cm thick), showing an elongated hypodense lesion with lobulated appearance (dimensions: ~5.6 x 2.2 x 2.3 cm) on its lateral aspect and multiple tiny calcifications below that; while the left sternocleidomastoid muscle appeared normal. In fused images the focal area of intense tracer activity corresponds to the hypodense lesion in the belly of right sternocleidomastoid muscle.

DISCUSSION

Hemangiomas of skeletal muscle (i.e. sternocleidomastoid) may be of capillary or cavernous type, though most common form is a tumor with infiltrative margins composed of both large and small vessels (3). Contrary to the capillary variety, cavernous hemangiomas may be destructive to adjacent neurovascular or other structures by pressure effect, despite being benign. They frequently contain calcifications or phleboliths (4). Though subject to operator's skill, ultrasonography remains a convenient initial imaging modality to diagnose hemangiomas (5) and 99mTc-labelled RBC scan farther strengthens the diagnosis. Scintigraphy is cost effective, non-invasive and when combined with CT imaging may pinpoint the location of the tumor (6). Hemangiomas do not always undergo spontaneous regression, so treatment of choice is total excision, which is associated with 9–28% recurrence rate (7). Sclerotherapy and angiographic embolization also have roles when excision is not possible (8).

CONCLUSION

Even if no swelling is apparent at first glance, careful history taking and examining with patience may prompt a physician to undertake a meticulous ultrasound examination with optimum technique, which may raise a possibility of a hemangioma. While CT angiography or MRI of soft tissue is suitable for confirming diagnosis in most cases, in difficult cases (like this one presenting with posture related swelling), scintigraphy may prove to be a judicious cost effective and non-invasive confirmatory investigation to employ.

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REFERENCES

1. Greenbaum, A. and Chan, C., 2018. Bailey and Love's Short Practice of Surgery. 27th ed. Boca Raton, FL: CRC press, p.612.
2. Wild, A., Raab, P. and Krauspe, R., 2000. Hemangioma of skeletal muscle. Archives of Orthopaedic and Trauma Surgery, 120(3-4), pp.139-143. Doi: 10.1007/pl00013761
3. Iannotti, J. and Parker, R., 2013. The Netter Collection of Medical Illustrations: Musculoskeletal System, Part III: Biology and Systemic Diseases, Volume 6. 2nd ed. Philadelphia, PA: Saunders, Elsevier Inc., p.259.
4. Melman, L. and Johnson, F., 2008. Intramuscular cavernous hemangioma. The American Journal of Surgery, 195(6), pp.816-817. Doi:10.1016/j.amjsurg.2007.08.064.
5. Yang, W., Ahuja, A. and Metreweli, C., 1997. Sonographic features of head and neck hemangiomas and vascular malformations: review of 23 patients. Journal of Ultrasound in Medicine, 16(1), pp.39-44. https://doi.org/10.7863/jum.1997.16.1.39
6. Oh, S., Roh, D., Ahn, S., Park, H., Lee, S., Kang, C., Kim, J. and Lee, C., 2022. Usefulness of 99mTc-labeled RBC scan and SPECT in the diagnosis of head and neck hemangiomas. [online] Journal of Nuclear Medicine. Available at: <https://jnm.snmjournals.org/content/50/supplement_2/2106> [Accessed 7 January 2022].
7. Skoulakis, C.E., Maistrou, D., Drivas, E.I., Fericean, A., Hadjileontis, C. and Valagiannis, D.E., 2007. Intramuscular haemangioma of the orbicularis oculi muscle of the orbit. Acta otorhinolaryngologica italica, 27(5), p.263. https://doi.org/10.1007/s00405-003-0626-7
8. Uslu, M., Beşir, H., Turan, H., Bozkaya, H. and Erdem, H., 2014. Two Different Treatment Options for Intramuscular Plantar Hemangioma: Surgery Versus Percutaneous Sclerotherapy. The Journal of Foot and Ankle Surgery, 53(6), pp.759-762. https://doi.org/10.1053/j.jfas.2014.06.008