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Intramuscular Schwannoma: Ultrasound Imaging Findings

SHAIK ISHMA MUSTAFA[1], JATIN NEHRA[2], SANGAVI JEYARAJ[3], SENTHIL KUMAR AIYAPPAN[4]

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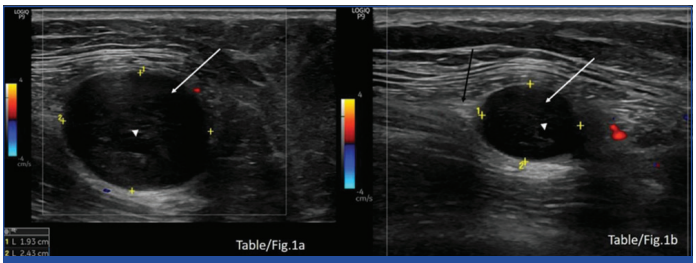
A 48-year-old female who was asymptomatic until two months ago, presented with a solitary swelling over the lower left anterior arm, which was gradual in onset, progressive in nature, and attained the present size of ~ 3×2 cm with no complaints of pain or discharge. There was no history of trauma. Past history and family history was unremarkable. On examination, the patient was conscious, oriented, and afebrile. Vitals were normal. On inspection, fullness was noted over the lower left anterior arm, with a smooth surface and no visible skin changes, scars, or discharge. On palpation, the swelling was soft with a well-defined edge. The swelling was firm, non-pulsatile, and mobile in all directions. Skin over the swelling was pinchable. No tenderness or warmth over the swelling was noted, and there were no palpable left axillary lymph nodes. The laboratory investigations revealed a haemoglobin level of 11.6 g/dL and a total leukocyte count of 7,140/cu mm, with neutrophils constituting 67.4% and lymphocytes 26.3%. Renal and liver function tests were within normal limits. The patient underwent an ultrasound examination for the swelling. A well-defined, round hypoechoic intramuscular lesion of approximately ~ 2.4×1.9 cm was noted in the left anteroinferior deltoid muscle with no internal vascularity or surrounding inflammation. A few tiny cystic areas were noted within the lesion, suggestive of cystic degeneration. Fat was noted in the upper pole of the lesion [Table/Fig-1]. USG-guided FNAC of the swelling revealed features suggestive of a benign spindle cell neoplasm. Excision biopsy of soft-tissue swelling showed features compatible with schwannoma with cystic degeneration. The patient is doing well and is on follow-up.

Schwannomas are benign, encapsulated tumours that arise from Schwann cells, which form the myelin sheath around peripheral nerves. They occur in the second to fifth decades of life, with a prevalence of 5% among all benign soft-tissue neoplasms [1]. These tumours are most often associated with the cranial nerves and usually originate from the eighth cranial nerve [1]. However, extracranial peripheral schwannomas are rare [1]. Intramuscular schwannomas are rare and typically present as a slow growing mass or swelling and they rarely cause motor weakness, as they typically arise from small motor nerve branches within the muscle [2,3]. The lack of clinical findings makes the diagnosis of intramuscular schwannoma more challenging [3].



[Table/Fig-1]: Ultrasound image of the local swelling shows a well-defined round, hypoechoic intramuscular lesion in the left anteroinferior deltoid muscle with no internal vascularity or surrounding inflammation (white arrow). Few tiny cystic areas were noted within the lesion, suggestive of cystic degeneration (arrow head). Fat was noted in the upper pole of the lesion (black arrow).

General imaging features of schwannomas include well-circumscribed masses that displace adjacent structures without direct invasion, with cystic and fatty degeneration commonly noted. The presence of fat at the poles of mass and the direct and central continuity with a small nerve branch gives rise to “tail sign” that can be seen on both ultrasound and MR imaging [4]. In a case reported by Khamlichi H and Mailleux P, tail sign was present in intramuscular schwannoma [4]. In the present case, a tail sign was not observed, which added to the confusion in the diagnosis. The presence of fat at the upper and lower poles of a lesion refers to the “split fat” sign, which is frequent in benign peripheral nerve sheath tumours, but is not specific [5]. In the present case, fat was noted in the upper pole of the lesion.

Though an intramuscular schwannoma in the lower anterior arm is rare, it should be considered even in the absence of neural symptoms. Imaging can suggest but not confirm a diagnosis. Histopathological examination remains the gold standard for definitive diagnosis.

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PARTICULARS OF CONTRIBUTORS:
1. Junior Resident, Radio Diagnosis, SRM Medical College Hospital and Research Centre, SRM IST, Kattankulathur, Chengalpattu, Tamil Nadu, India.
2. Junior Resident, Radio Diagnosis, SRM Medical College Hospital and Research Centre, SRM IST, Kattankulathur, Chengalpattu, Tamil Nadu, India.
3. Junior Resident, Radio Diagnosis, SRM Medical College Hospital and Research Centre, SRM IST, Kattankulathur, Chengalpattu, Tamil Nadu, India.
4. Professor and Head, Radio Diagnosis, SRM Medical College Hospital and Research Centre, SRM IST, Kattankulathur, Chengalpattu, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Senthil Kumar Aiyappan,
Professor and Head, Radio Diagnosis, SRM Medical College Hospital and Research Centre, SRM IST, Kattankulathur, Chengalpattu-60033, Tamil Nadu, India.
E-mail: asenthilkumarpgi@gmail.com

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