

Intramuscular Lipoma of Pectoralis Major- A Rare Case Report and A Brief Review of Literature

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ABSTRACT

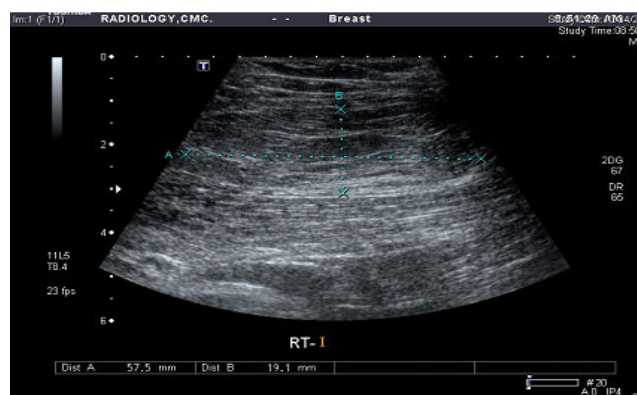
Lipomas are common benign mesenchymal neoplasm of adipocytes. They commonly occur in the extremities and trunk in the subcutaneous plane. Rarely, they are found to arise from the intra or intermuscular plane. Intramuscular lipoma generally occurs in the extremities and location within the

pectoralis major is very rare. Only few published reports are found in the literature. Here we report a case presented with right sided breast mass in which the diagnosis of intramuscular lipoma arising from the pectoralis major was made based on the radiological and pathological examination.

Keywords: Breast mass, Intramuscular, lipomatous lesion

CASE REPORT

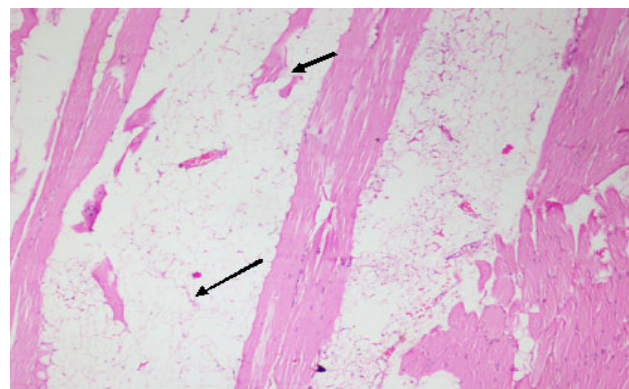
64 year old female presented with a two month history of lump in the right breast. She was otherwise well and there was no history of pain, fever, nipple discharge or skin changes. There was no family history of breast carcinoma. Clinical examination revealed a firm lump in the upper outer quadrant of the right breast measuring 6x3cm. Ultra sonogram of the right breast revealed an isoechoic lesion in the subcutaneous plane with a thin capsule, measuring 57.5x19.1mm [Table/Fig-1]. There were no heterogenous areas. Excision of the lesion was planned to rule breast lesions, after taking proper informed consent from the patient. Intraoperative findings were a 3x4cm firm mass with partial intramuscular extension in the upper outer quadrant of right breast.



[Table/Fig-1]: USG of breast: Isoechoic lesion in the subcutaneous plane with a thin capsule, measuring 57.5x19.1mm

On sectioning the mass, a yellowish glistening and greasy lobulated cut surface was seen. Focally, at one pole of the mass, a few skeletal muscle fibres were seen. Microscopically, a tumour composed of lobules of mature adipocytes separated by thin fibrovascular septa displaying mild variation in shape and size was seen. A few sections showed skeletal muscle fibres infiltrated by the tumour cells [Table/Fig-2]. There was no evidence of nuclear atypia, increased mitotic activity or malignancy.

Taking into account the clinical history, radiological findings and most importantly, the histopathological findings, a diagnosis of benign lipomatous lesion, consistent with intramuscular lipoma was made.



[Table/Fig-2]: Long thin arrow: Lobules of mature adipocytes separated by thin fibro vascular septa. Short thick arrow: Infiltration of the tumour into skeletal muscle fibres

The differential diagnosis that are to be considered in this scenario include fibroadenoma which is the most common benign lesion of the breast and fibrocystic disease of the breast, although it commonly presents with cyclical mastalgia rather than a mass lesion. With a clinical history of a lump in the breast for a short duration in an elderly female, one would also think of carcinoma. However, the imaging findings of a capsulated isoechoic lesion and the subcutaneous location are in favour of a lipoma over other lesions. This has been confirmed histologically. Patient was followed up for a year and confirmed of no recurrence.

DISCUSSION

Lipomas are seen in 2% of the population and they represent about 50% of the soft tissue tumours of the musculoskeletal system [1]. By definition, they are benign tumours of mature white adipocytes. They occur most commonly in obese individuals in the age group of 40 – 60 years.

Lipoma can be classified into superficial and deep based on the tissue plane in which they occur. The conventional lipomas are superficial and present as well demarcated soft tissue masses in the subcutaneous plane of the upper back, neck and shoulder. Deep seated lipomas are rare and can be intramuscular, intermuscular, visceral, paraosteal (on the surface of a bone) or interosseous.

Among the deep lipomas, muscular lipomas are important clinically because of their large size, infiltrative pattern of growth and tendency to recur. These lipomas become more prominent with muscle contraction. Intramuscular lipomas occur most commonly in the skeletal muscles of the trunk, head and neck and extremities such as thigh or shoulder. Uncommon sites of intramuscular lipomas include the subscapularis, biceps brachii, sternocleidomastoid etc, [2-4].

Clinically, lipoma present as a discrete mobile soft tissue mass without any symptoms. However, pain and tenderness, nerve compression leading to paresthesia, enlargement of the extremity and limitation of range of movements has been reported [5]. The deep lipomas are usually asymptomatic and therefore present at a larger size at the time of detection.

Sonographically, lipomas are well demarcated homogeneously echoic lesions. However, CT and MR imaging are usually required for deep lipomas to rule out any heterogenous component in the mass to rule out the possibility of a liposarcoma. According to Kransdorf et al., the presence of thickened septae within the mass, irregular nodular and globular masses of non-adipose tissue within the mass amounting to >25% are considered to be features of liposarcoma, rather than a lipoma [5]. These features should be correlated in conjunction with the age, site and size of the lesion. The Hounsfield units for lipomas range from -65 to -120, although variation can be seen with respect to the location of the mass [6]. In these circumstances, ideal would be to compare the mass with the density of the subcutaneous adipose tissue in that region and this remains as the cornerstone in the diagnosis of lipomas [1]. The subcutaneous

and intermuscular lipomas are encapsulated and exhibit a thin capsule with the same density of the surrounding muscle, whereas intramuscular lipomas cannot be identified separately from the muscle as they interdigitate and infiltrate the skeletal muscle fibres, giving rise to a striated gross appearance [Table/Fig-3]. On this account, they are appropriately labelled as infiltrating lipomas [2].

	Intramuscular Lipoma	Intermuscular Lipoma
Origin	Within a muscle	In between two muscles
Location	Trunk, head and neck and extremities	Anterior abdominal wall
Gross	Infiltrative usually May be circumscribed	Circumscribed
Histopathology	Mature adipocytes infiltrate and encase the skeletal muscle fibers	Adipocytes present in-between the muscle fibers
Recurrence	3-60%	0-1%

[Table/Fig-3]: Featuring the differences between intra and intermuscular lipoma

Intramuscular lipoma of pectoralis major are very rare tumours and often mimic malignancy clinically and rarely radiologically. Mammographically, when a mediolateral oblique view is taken to include the pectoralis muscle, they cause anterior displacement of the muscle [7]. This also provides evidence to the sub mammary location of the mass. Occasionally, the displacement of the pectoral muscle is not obvious on mammography, especially if the mass is very large. The large size with a firm to hard consistency can also be mistaken for a malignancy clinically as reported by Gopal et al., [8]. There are only three cases of intramuscular lipomas of pectoralis muscle in literature [8-9].

On gross examination, gradual replacement of the skeletal muscle by adipose tissue is seen which can also extend into the perimuscular connective tissue plane. Histologically, lobules of mature adipocytes diffusely infiltrating the skeletal muscle fibres are diagnostic. Sampling every 1cm of the lesion is important as it becomes important to rule out well differentiated liposarcomas. The recurrence rate of these tumours range from 3% to 62.5% and hence the treatment involves complete excision of the mass with a cuff of normal tissue [10]. The complete resection of deep lipomas is also dependant on the surrounding structures like neurovascular bundles and muscular tissues, any damage to which may lead to functional compromise.

CONCLUSION

Intramuscular lipomas of the pectoralis muscle are uncommon tumours of the chest wall region which may mimic malignancy, especially when it presents as a large mass lesion. However, this tumour can be diagnosed with certainty by various imaging modalities, which to a certain extent can also differentiate

it from well differentiated liposarcomas. Complete surgical resection is recommended for these lesions since they have a high rate of recurrence.

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