Fat Necrosis in Axillary Lipoma after FNAC - A Case Report

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INTRODUCTION

Lipomas are benign soft tissue tumours having mature adipose tissue. These lesions are the most common soft tissue tumours, accounting for approximately 50 % of all soft tissue tumours.[1] Lipomas are mostly located within the superficial soft tissues of the extremities, back, and neck. These lesions are asymptomatic, but due to the superficial location these lesions, they commonly present less than 5 cm in size.[2] Lipomas deep to the superficial fascia also occur, but are rare. These lesions may be intramuscular or intermuscular and mostly occur in the lower extremity. Following accidental trauma fat necrosis can be seen, and the patient presents with pain at the site of lipoma with discoloration of skin. It can be confidently diagnosed on ultra-sonography, without further need of any investigation. Here, we are discussing USG, Doppler and Strain Elastography imaging findings in a middle-aged lady having fat necrosis within axillary lipoma. Lipoma are relatively common benign lesions and can arise from anywhere in the body. Fat necrosis is common following accidental trauma.

PRESENTATION OF CASE

This is a case of a female patient aged 45 years, presenting with swelling in right axilla which was mobile and FNAC was done. She developed pain and discoloration of adjacent skin along with a palpable slightly tender nodule. For which she was advised ultrasonography which showed a heterogeneously hypoechoic mass with soft consistency on elastography.

DISCUSSION

Lipoma on sonography are seen as well-defined, oblong, echogenic mass without posterior acoustic enhancement. In the larger lesions, fine linear striations may be seen parallel to the skin.[3] Deep Lipomas are isoechoic or hyperechoic to the adjacent muscle with posterior acoustic enhancement due to the greater acoustic transmission within fat compared to muscle. Lipomas are commonly located in a subcutaneous fatty layer but can locate anywhere, including the intramuscular areas of the axilla and the echogenicity is somewhat variable 4. On non-contrast CT, the classic appearance of a lipoma is a well-defined, circumscribed, homogeneously low (fat) density mass ranging from −120 to −65 Hounsfield units.[5] Similarly, the characteristic lipoma is an encapsulated lesion having isointensity to the subcutaneous fat on all MRI sequences.[6] Intramuscular lipoma may not be encapsulated and instead may insinuate within the skeletal muscle. Many lipomas demonstrate thin internal septa. These septa are usually non-enhancing in benign lipomas compared to marked enhancement in well-differentiated liposarcomas.[7] Though the septa are usually less than 2 mm, thick and nodular septa have also been reported.

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Fat necrosis within lipoma should be suspected when there is history of trauma. The sonographic appearance of fat necrosis is varied and reflect the degree of fibrosis. Fat necrosis may present as any of the following, a solid mass, a complex mass with mural nodules, a complex mass with echogenic bands, an anechoic mass with posterior acoustic enhancement, an anechoic mass with shadowing,[8] or an isoechoic mass.[9] The margins range from well circumscribed to indistinct or can be speculated. A mass with echogenic internal bands that shift in orientation with changes in patient position has been described as a characteristic sonographic indicator of fat necrosis.

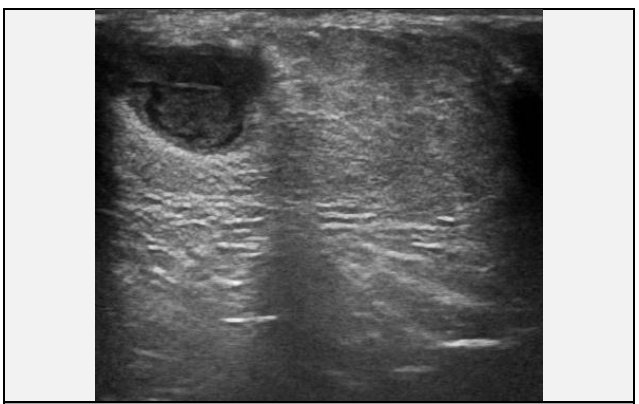

Figure 1. Gray Scale Ultrasonography Image Showing Heterogeneously Hyper Echoic Well Defined Circumscribed Mass Lesion with Internal Hyper-Echoic Strands Suggestive of Lipoma. There is a Heterogeneously Hypo Echoic Nodule within the Lesion Suggestive of Fat Necrosis. Patient had History of FNAC Taken from That Site

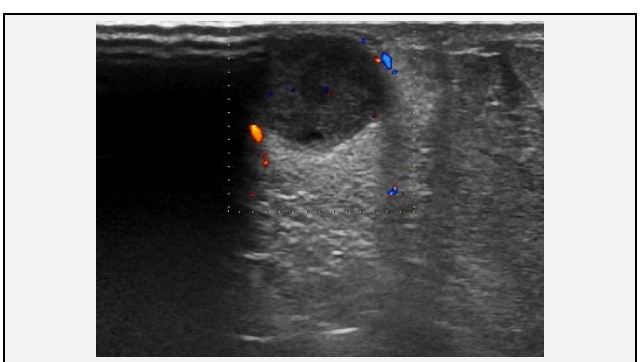

Figure 2. Colour Doppler of the Lesion Shows Minimal Peripheral Vascularity, No Vascularity is Seen with the Hypo Echoic Nodule

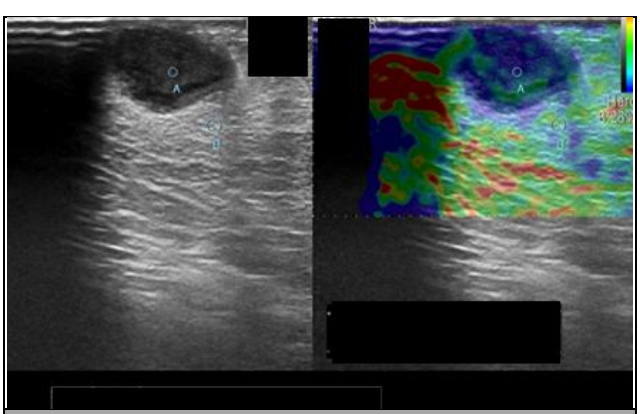

Figure 3. Elastography of the Mass, Showing a Score of 2 Having a Strain Ratio of 6.82 with Mosaic Pattern in the Hypoechoic Lesion

These bands mostly represent the interface between the lipid and the serous–haemorrhagic components of fat necrosis.[10] On mammography features of lipoma with central fat necrosis are characteristic. Lipoma appears as a round or oval radiolucent mass with well-defined thin capsule. Mammography is the most accurate diagnostic tool in early fat necrosis.[11] It appears more often as unique or multiple, round or oval, smooth-bordered lucent mass with a thin rim that may show eggshell calcifications. Fat-fluid levels are due to oil and sero-sanguinous fluid layering. The benign lucent-centered calcification is a characteristic feature in late stages. It may show spiculated margins and cause retraction of the skin.[12]

On elastography Itoh et al described a scoring system for soft tissue masses. A score of 1 indicated even strain for the entire hypo echoic lesion, the entire lesion was evenly shaded in green. A score of 2 indicates strain in most of the hypo echoic lesion, with some areas of no strain, the hypoechoic lesion had a mosaic pattern of green and blue. A score of 3 indicated strain at the periphery of the hypoechoic lesion, with sparing of the center of the mass - the peripheral part of lesion was green, and the central part was blue. A score of 4 indicated no strain in the entire hypoechoic lesion - the entire lesion was blue, but its surrounding area was not included. A score of 5 indicated no strain in the entire hypoechoic lesion or in the surrounding area.[13] In this case, the lesion showed mosaic pattern with the central part showing blue and green areas suggestive of score of 2. On MRI, fat necrosis can show variable enhancement, depending on inflammatory process. The high signal of fat interferes with detection of enhancing lesion. Thus, it is important to identify regions of fat necrosis on fat suppressions sequences on MRI.[10]

CONCLUSIONS

Fat necrosis in a lipoma is unusual but it follows trauma. USG and elastography are sensitive modalities for the diagnosis and management of this condition.

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