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Case Report

Intramuscular intercostal lipoma in the left axillary tail: A case report and discussion ☆☆☆

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ARTICLE INFO

Article history:

Received 10 July 2023

Revised 29 August 2023

Accepted 1 September 2023

Available online 4 October 2023

Keywords:

Intercostal

Intramuscular lipoma

Left axillary tail

Benign tumor

Chest wall

Lipomatous lesion

Surgical excision

Histopathology

ABSTRACT

Intercostal lipomas are rare benign tumors that predominantly occur in the subcutaneous tissue. However, intramuscular intercostal lipomas are exceedingly uncommon and pose diagnostic challenges due to their atypical presentation. Here, we present a case report of an intramuscular intercostal lipoma located in the left axillary tail, along with a comprehensive discussion of its clinical features, diagnostic evaluation, and management options.

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Introduction

Lipomas are the most common soft tissue tumors, predominantly found in subcutaneous tissues. Intramuscular lipomas

for less than 1% of all the lipomas diagnosed [1]. Within this subset, intercostal lipomas are exceedingly uncommon. The intercostal space represents a unique anatomical region, and the presence of a lipoma in this area can lead to various clinical presentations and diagnostic complexities. This case

☆ Acknowledgments: The publication of this article was funded by Medical Research Center/ Hamad Medical corporation. During the preparation of this work, the author(s) used [Chat GPT/AI] in order to [editing the case report after complete preparation from the authors]. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

☆☆ Competing Interests: The authors declare the following financial interests/personal relationships which may be considered as potential competing interests.

Lina Alsaket reports financial support was provided by the Medical research center /Hamad medical corporation. Lina Alsaket reports a relationship with Medical research center /Hamad medical corporation that includes: board membership, consulting or advisory, and funding grants.

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<https://doi.org/10.1016/j.radcr.2023.09.003>

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Fig. 1 – Mammogram Mediolateral oblique view of left breast showed partially visualized hyperdense abnormality at the most lateral part of the left axillary tail/subpectoral on mammogram (Arrow).

report aims to highlight the importance of considering intramuscular intercostal lipomas in the differential diagnosis of axillary and breast masses.

Case presentation

A 40-year-old female diagnosed with Polycystic Ovary Syndrome and currently taking Metformin (500 mg/twice a day) successfully conceived her first child at the age of 38 after multiple attempts of In vitro fertilization (IVF) in her home country. The patient has a family history of breast cancer, with her sister being diagnosed in her 30s. She presented at the primary care center in Qatar with a painless lump sensation in the outer part of her left breast near the underarm that has been present for the past 4 years. The sensation has significantly increased over the last week.

During the clinical examination, a palpable apricot-sized swelling was detected in the left axillary tail, approximately 3 cm below the axilla. No skin changes or nipple discharge were observed. Consequently, the patient was referred to the Breast Surgery clinic at a tertiary center for further evaluation.

Clinical history was obtained, and a physical examination revealed prominence over the left-side third and fourth ribs. No tenderness, redness, or suspicious findings were noted. Bilateral mammography and left breast ultrasound were ordered to investigate the abnormality.

The mammogram revealed a partially visualized hyperdense abnormality at the most lateral part of the left axillary tail (Fig. 1) was scored as BIRADS 0 and a complimentary ultrasound was done on the same day and showed a submuscular/intramuscular oval heterogeneous lesion with predominantly hyperechoic characteristics and evidence of fat content. The lesion, measuring 3.5 cm in length, was located at the most lateral part of the left axillary tail, corresponding to the site of the palpable mass. It extended into the underlying intercostal space (Fig. 2), findings were BIRADS 3 (Likely benign finding).

Based on these findings, a left axillary MRI with intravenous contrast injection was recommended by the breast

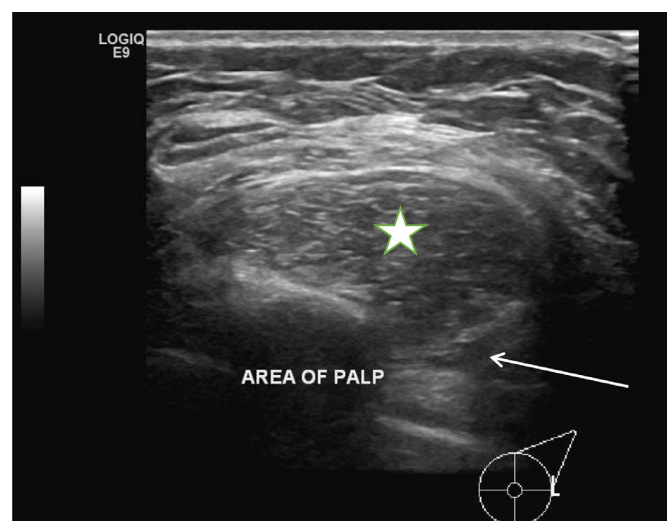


Fig. 2 – Left breast ultrasound showed submuscular/intramuscular oval heterogeneous mainly hyperechoic with a fat content lesion (Asterisk) at the most lateral part of the left axillary tail, at the site of a palpable mass, with extension into the underlying intercostal area (Arrow).

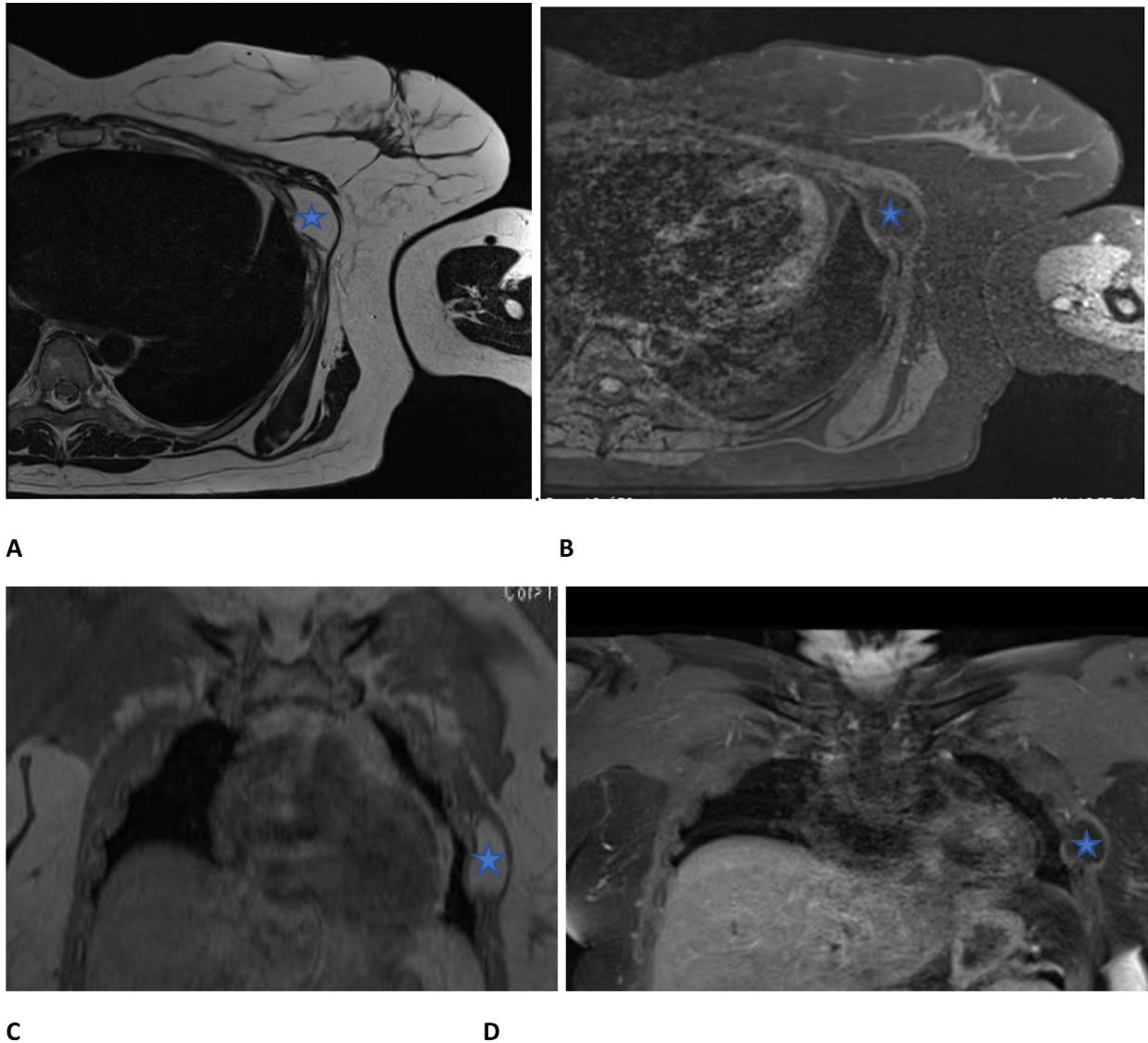


Fig. 3 – Illustrates the findings from an MRI examination of the left axilla. The images provide valuable information about an hourglass fat signal lesion located at the upper mid-lateral aspect of the left chest wall. The lesion is mildly insinuating between the lateral aspect of the left fourth and fifth ribs, with intercostal extension. A noncontrast T2 axial image (A) reveals a fat signal lesion (marked with an asterisk) in the described location. This image helps visualize the extent and distribution of the lesion within the chest wall. A noncontrast T1 fat-saturated axial image (B) demonstrates a suppressed fat signal (asterisk), confirming its adipose tissue composition. This image aids in differentiating the lesion from other non-fatty structures. A noncontrast T2 coronal image (C) provides an additional perspective of the fat signal lesion (asterisk) within the upper mid-lateral aspect of the left chest wall. This image contributes to a comprehensive evaluation of the lesion's location and relationship to surrounding structures. Finally, a postcontrast T1 fat-saturated axial image (D) shows a thin, smooth enhancing rim surrounding the suppressed fat signal lesion (asterisk). This enhancement pattern indicates vascularity within the lesion, which can be useful in further characterization.

imaging radiologist to assess the extent of the lesion (Figs. 3A–C). The MRI revealed an hourglass-encapsulated intramuscular intercostal fat signal lesion with no suspicious enhancement on postcontrast images. The lesion was situated along the upper mid-lateral aspect of the left chest wall, mildly insinuating between the lateral aspect of the left fourth and fifth ribs. These findings were suggestive of a lipoma with no suspicious features.

Due to persistent discomfort, the patient opted for surgical excision of the mass. Under general anesthesia, successful excision of a 3.8 cm left chest muscle lipoma that extended into the intercostal space (but not the pleural space) was performed. The patient had an uneventful recovery, experiencing neither acute nor chronic complications.

Histopathological analysis confirmed the presence of mature adipocytes within the intercostal muscle fibers,

consistent with an intramuscular lipoma. No atypical cells, mitotic figures, or signs of malignancy were observed, confirming the diagnosis of an intramuscular lipoma.

Follow-up examinations at 6- and 12-months postsurgery revealed no evidence of recurrence.

Discussion

Lipomas are the most common type of soft tissue tumors and are composed of mature adipose tissue. Benign lipomatous tumors can be divided into nine subtypes: lipoma, lipomatosis, lipomatosis of nerve, lipoblastoma/lipoblastomatosis, angiolipoma, myolipoma of soft tissue, chondroid lipoma, spindle-cell lipoma/pleomorphic lipoma, and hibernoma [2].

Intramuscular lipomas pose challenges in preoperative diagnosis due to their rarity and nonspecific clinical features. The presented case is particularly uncommon as intercostal lipomas are rarely encountered. The differential diagnosis of an axillary mass includes various benign and malignant entities such as lipoma, neurofibroma, cysts, lymphoma, and metastatic tumors. Imaging findings of a well-demarcated, homogeneous, fat-containing lesion are characteristic of lipomas. However, the intramuscular location can lead to diagnostic ambiguity.

Intramuscular lipomas are found to occur preferentially in the lower extremity, with the trunk being the next most common location, followed by the shoulder girdle and upper extremity [3]. Surgical excision is the preferred treatment for intramuscular lipomas.

Deep-seated intramuscular chest wall lipomas are rare but may exhibit infiltrating features, whereas subcutaneous lipomas generally follow a benign clinical course [4,5]. In the case of infiltrating lipomas, sharp dissection and complete removal can be challenging [6]. The reported recurrence rate for infiltrating lipomas ranges between 3% and 62.5% [7,8]. Deep-seated intramuscular lipomas may have the potential for malignancy, and distinguishing a well-differentiated liposarcoma from a poorly differentiated lipoma through chest radiographs is difficult [5].

Differentiating an intramuscular intercostal lipoma from other breast lesions, such as liposarcomas or lymph nodes, is crucial. Magnetic resonance imaging (MRI) can be considered when the diagnosis remains uncertain. Intramuscular lipomas typically exhibit high signal intensity on T1-weighted images and suppression on fat-saturated sequences. These findings, combined with the absence of enhancement or thin rim enhancement, aid in differentiation from malignant soft tissue tumors.

Given the benign nature of intramuscular intercostal lipomas, surgical excision is generally unnecessary unless the lesion causes significant discomfort or diagnostic uncertainty. Close clinical and radiological follow-up is recommended to monitor for any changes or growth over time. However, if surgical excision is chosen as the treatment modality, complete

resection is usually curative, and recurrence is uncommon. Intraoperative assessment of the lesion's extent and proximity to adjacent vital structures is crucial for achieving adequate surgical margins. Additionally, frozen section analysis may be employed to confirm the diagnosis and ensure complete excision.

Conclusion

Intramuscular intercostal lipomas within the axillary tail are exceedingly rare tumors that can present diagnostic challenges. Radiological evaluation, including mammography, ultrasound, and MRI, assists in differentiating these lipomas from other breast lesions. Histopathological confirmation is crucial for definitive diagnosis. Management should be tailored based on clinical presentation, patient factors, and symptoms. Further research and awareness of this rare entity will enhance diagnostic accuracy and guide appropriate management, thereby improving patient outcomes.

Patient consent

Written informed consent for the publication of this case report was obtained from the patient.

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