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Case Report

Massive Localized Lymphedema: A Case Report

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Abstract

Massive localized lymphedema (MLL) is a rare condition typically observed in morbidly obese individuals, characterized by the formation of large, pedunculated masses, often located at the root of the thigh. We present the case of a 39-year-old obese female (BMI = 60.5 kg/m²) with a one-year history of a progressively enlarging, painless mass at the root of the left thigh. Clinical examination revealed a pedunculated mass with overlying skin changes consistent with an "orange-peel" appearance. Imaging studies, including ultrasound and magnetic resonance imaging (MRI), demonstrated a large, fatty mass with internal fibrillary structures and no involvement of adjacent fasciae or muscles. The MRI findings, including hypointense T1 and hyperintense T2 signals with mild gadolinium enhancement, were consistent with massive localized lymphedema. This case highlights the diagnostic challenges of MLL, which can mimic other soft tissue tumors such as liposarcoma or angiosarcoma. The importance of thorough imaging and clinical correlation is emphasized, particularly in distinguishing MLL from malignant conditions. Early recognition and accurate diagnosis are crucial to guide appropriate management and avoid unnecessary interventions.

Keywords: Massive localized lymphedema, pseudo sarcoma, obesity, MRI, soft tissue tumors.

INTRODUCTION

Massive localized lymphedema (MLL) typically presents as a pedunculated mass, most commonly located at the root of the thigh in obese patients. Imaging studies reveal a large pedunculated mass with fatty content, without involvement of the fasciae or muscles (Goldblum *et al*., 2014).

CASE REPORT

We report the case of a 39-year-old female, with no significant medical or surgical history, who is obese (Weight = 155 kg, Height = 160 cm, BMI = 60.5 kg/m²). The patient presented with a one-year history of a progressively enlarging mass at the root of the left thigh. On clinical examination, a large pedunculated mass was observed at the root of the left thigh. The mass was painless, but the overlying skin exhibited an orange-peel appearance, with no signs of inflammation. An ultrasound of the mass revealed a hyperechoic formation with anechoic, confluent loculations, which did not show color Doppler signal, consistent with edematous infiltration of fatty tissue (Fig 1). No distinct tissue or cystic lesions were identified within the mass. The magnetic resonance imaging (MRI) of the mass exhibited heterogeneous signal intensity, with an internal fibrillary structure arranged in a lace-like pattern, and appeared to originate from the inguinal fat near the quadriceps fascia. The mass measured 25 x 14 x 13 cm. The fibrillary component (lace-like) showed hypointense signal on T1-weighted images (Figure 2), hyperintense signal on T2-weighted images, no suppression on STIR sequences (Figure 3), and mild enhancement after gadolinium injection. The peripheral component was fatty, with signal characteristics consistent with fat on all sequences. There was skin thickening, measuring up to 9.8 mm, with mild enhancement after gadolinium administration (Figure 4). The mass remained distant from muscular structures and fasciae. The findings were consistent with a massive localized lymphedema of the left thigh.

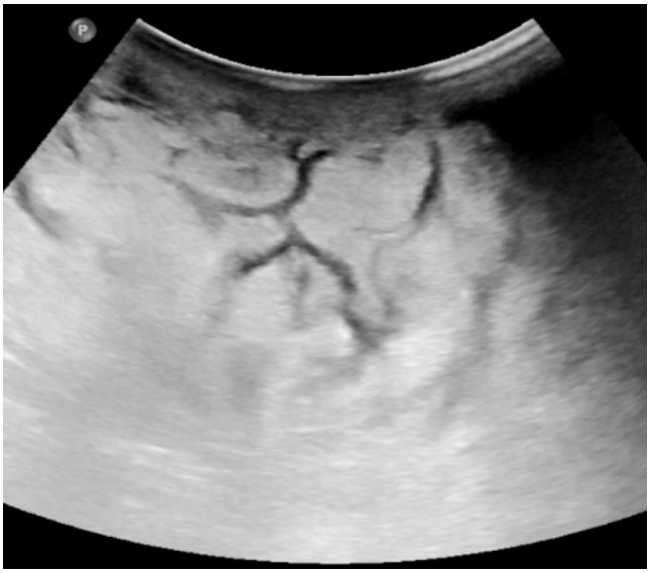

Figure 1: Axial ultrasound image showing edematous infiltration of fatty tissue

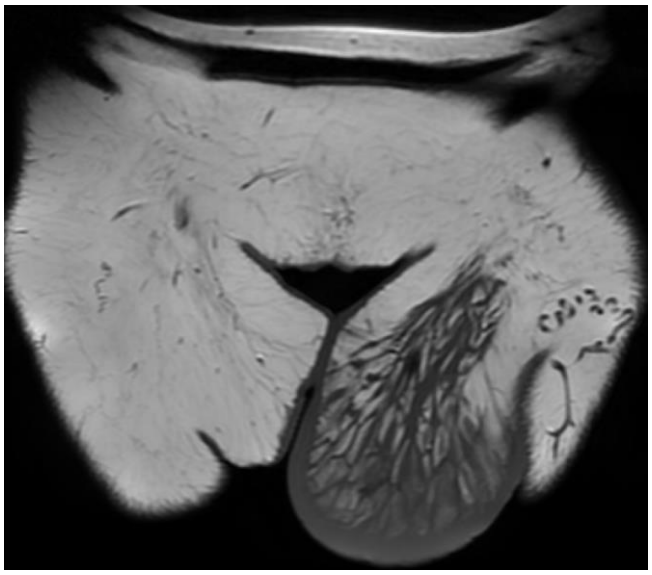

Figure 2: Coronal T1-weighted MRI image

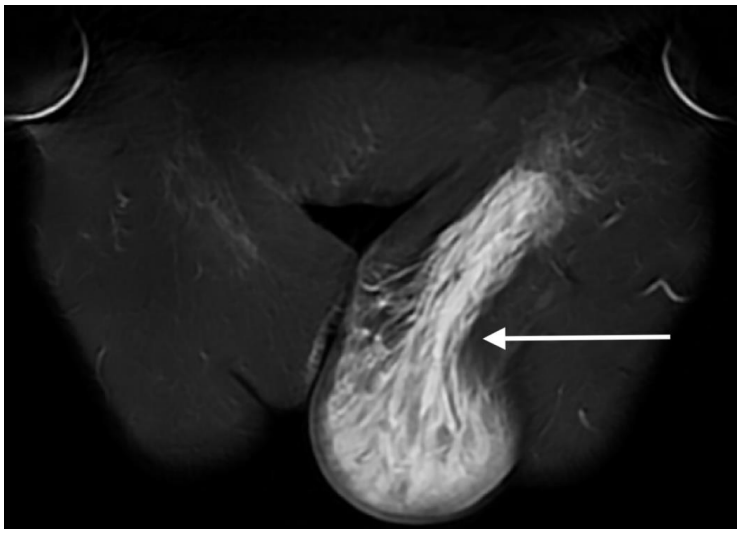

Figure 3: Coronal STIR MRI image, showing the internal fibrillary "lace-like" component (white arrow)

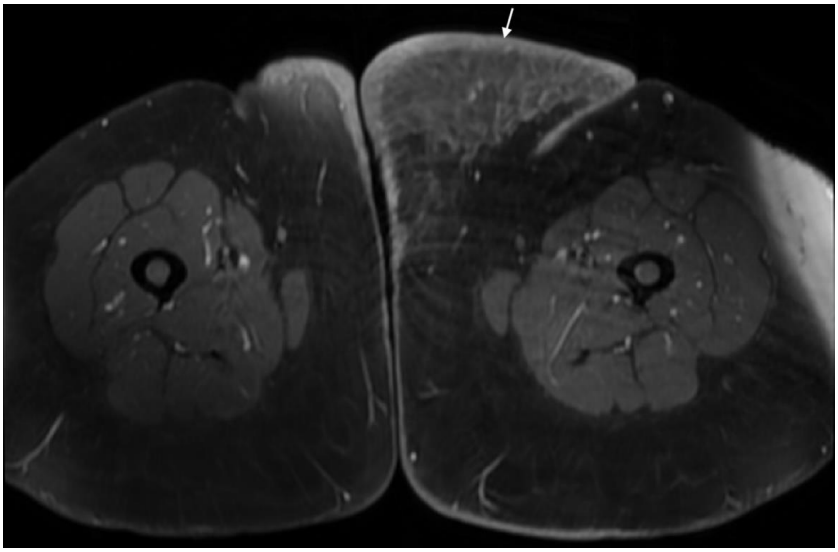

Figure 4: Axial T1-weighted MRI image with contrast enhancement, showing the skin thickening (white arrow)

DISCUSSION

Massive localized lymphedema, also referred to as pseudosarcoma, is observed in middle-aged adults with morbid obesity. Since its initial description in 1998, the etiology remains unclear, although associations with trauma, surgical interventions, and hypothyroidism have been reported (Kurt *et al*., 2016). Farshid *et al*., reported a female predominance in their series, with involvement of the proximal segments of the extremities (12 thighs; 2 arms). They attributed the development of this swelling to lymphatic obstruction caused by the massive presence of adipose tissue as the primary etiological factor (Farshid & Weiss, 1998). Massive localized lymphedema continues to pose a diagnostic challenge, as a variety of differential diagnoses may be considered (e.g., lipoma, lipomatosis, desmoid-type fibromatosis, angiomatosis, lymphangiomatosis, angiomyoma, angiosarcoma, low-grade fibroblastic neoplasm, and myxoid liposarcoma) if one is not familiar with this condition. A history of morbid obesity and significant skin changes, particularly induration and "orange-peel" appearance due to congested dermal lymphatics, aid in reaching the correct diagnosis. In challenging cases, a biopsy with immunohistochemical studies or fluorescent in situ hybridization may be performed to clarify the diagnosis (Porrino & Walsh, 2016). On imaging, both computed tomography (CT) and MRI reveal a large pendulous mass of fatty tissue without fascial or muscular involvement, directly corresponding to histopathological findings of dermal fibrosis, edema, and fat partitioned by fibrous septa. Specifically, the edema extends along lace-like or lace-like fibrous septa and is accompanied by dermal thickening. Following contrast administration, the dermis shows only mild enhancement, as is typical in lymphedema (Khanna *et al*., 2011; Petscavage-Thomas *et al*., 2015). A clinical case reported in the literature (7) involved a 70-year-old obese woman with a BMI of 58, who presented with massive localized lymphedema associated with cellulitis refractory to treatment. MRI revealed multiple lobulated masses, hypointense on T1-weighted images and hyperintense on T2-weighted images, associated with skin thickening and dilation of lymphatic channels. CT also clearly demonstrated the mass within the background lymphedema. A biopsy was performed, which revealed an angiosarcoma (Dyroff *et al*., 2020). Therefore, the identification of a nodule or mass within an area of massive localized lymphedema is crucial, and any nodule or mass identified should be considered suspicious for sarcoma.

CONCLUSION

Massive localized lymphedema is a condition affecting young, obese adults, with a female predominance. Its imaging appearance is quite characteristic; however, the identification of a nodule or mass within the lymphedema is essential to rule out angiosarcoma.

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