

DIABETIC MASTOPATHY: A DIAGNOSTIC DILEMMA

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ABSTRACT

The lymphocytic mastitis and stromal fibrosis occurring in men as well as women suffering from long standing Type 1 or Type 2 diabetes is known Diabetic mastopathy. Features seen on various imaging modalities are not specific and often create doubts about possibility of underlying malignancy ultimately leading to biopsy. Timely diagnosis can reduce the stress and strain on doctor as well as patient, especially so when these lesions recur as they are known to. Hence we present a case of diabetic mastopathy which truly is a diagnostic dilemma to the one who is ignorant of this entity.

Key words: Breast Imaging; Diabetic mastopathy; Diabetes; Breast cancer; Breast mass; Mastopathy; Lymphocytic mastitis.

Introduction

The entity now known as 'Diabetic mastopathy' (DMP) was first described by Soler and Khardori in 1984 as a combination of clinical and imaging features that were found in patients of diabetes having breast masses.¹ It contributes to less than 1% of benign breast lesions.² Patients of long-standing Type 1 or Type 2 diabetes Mellitus are affected by it.^{3,4,5}

Patients often ignore their multiple palpable breast masses as they are slowly growing and typically are painless. On X-ray mammography, focal or diffuse dense glandular tissue are seen which on the Sonomammogram shows diffuse posterior acoustic shadowing.⁶

To a novice in this field, as this combination of clinico-radiological findings is not very specific for any single etiology a histopathological confirmation is sought for and the patient is summarily subjected to biopsy which eventually confirms the benign nature of this entity.

diabetes, presented with a painless palpable lump in her left breast which she had noticed recently. There was no other significant personal or family history.

Physical examination revealed a firm, irregular, mobile, painless nodule in her left breast. No nipple discharge, skin abnormalities or any axillary lymphadenopathy was present.

On X-ray mammogram there was a nodule in the left breast in addition to the heterogeneous dense breast parenchyma, suspicious of malignancy. No abnormal micro calcifications, masses, or architectural distortions were evident. The skin over it was neither thickened nor was the nipple puckered (Fig.1).

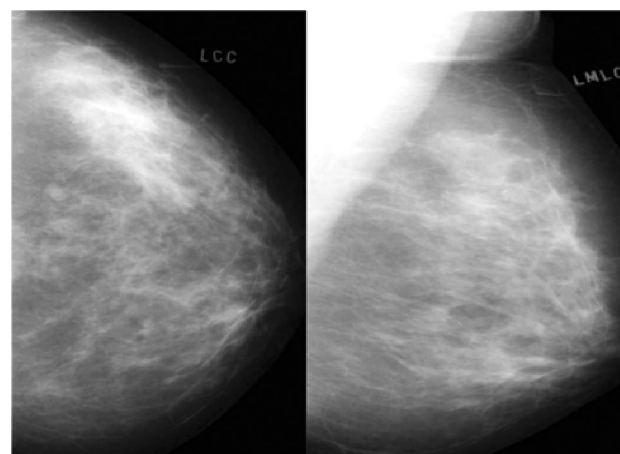


Figure 1: Left breast X-ray mammograms show a heterogeneous radio-opacity suspicious of malignancy.

Case Report

A 29 year-old female, with 5 year history of type 2

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Sonomammogram of the left breast showed a heterogeneous predominantly hypoechoic solid mass with irregular contours measuring 2.9 x 3.5 cm; parts of which demonstrated posterior acoustic shadowing (Fig.2).

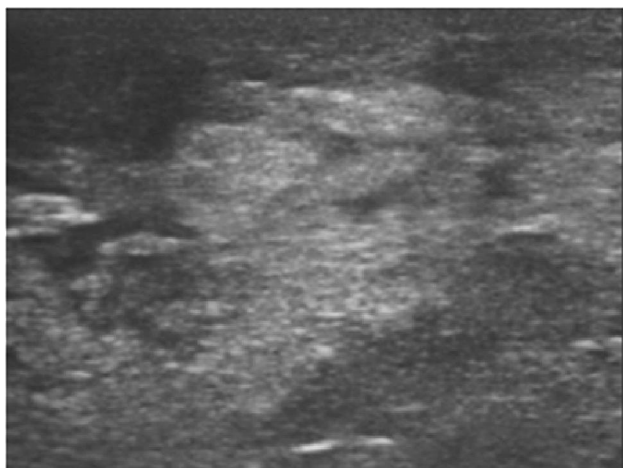


Figure 2: Sonomammogram of left breast shows an irregular mixed echogenicity lesion.

Breast MRI could not be performed due to its local unavailability and patients in affordability.

The biopsy specimen from the lesion showed periductal lymphocytic infiltration without any evidence of atypia or malignancy amidst dense stromal fibrosis indicative of DMP (Fig.3).

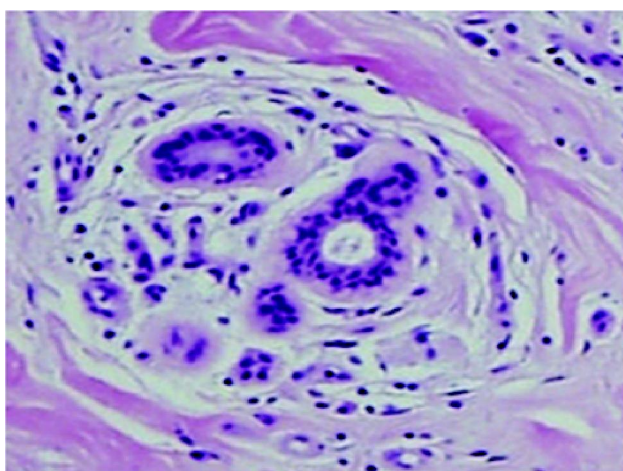


Figure 3: The biopsy from suspicious lesion shows lymphocytic infiltration around the ducts and marked stromal fibrosis on Hematoxylin &Eosin Stain at 40X power; which are the microscopic characteristics of Diabetic Mastopathy.

Discussion

Diabetic mastopathy has been seen in 0.6% to 13% in women with type 1 diabetes.^{1,2} It is a rare self-limiting

fibro-inflammatory disease of the breast. These patients are usually known to have other associated complications arising from diabetes such as retinopathy, neuropathy and nephropathy.¹ The patient reported by us had no such associated complications.

DMP has also been reported in patients with type 2 diabetes as well as those with thyroid diseases and also in men.³

Palpation demonstrates the firm, mobile, painless palpable, unilateral or bilateral breast masses suspicious of malignancy.^{1,2,5} Our patient too had firm, mobile and painless mass in her left breast.

X-ray mammogram brings out the localized increased density, with or without any distinct masses, devoid of spiculation or calcifications. Posterior acoustical shadowing from the palpable breast masses is the hallmark on Sonomammogram, which was also seen in our case. The underlying fibrotic nature of the lesions is the cause for this appearance.²

Because the imaging features are not specific of DMP, may times it is not possible to differentiate benign mass from a malignant one without biopsy.^{6,7}

On ultrasound guided fine needle aspiration cytology an unusually firm resistance experienced during the back-and-forward motion of the needle is the clue to the diagnosis of DMP.⁸ The ductal epithelium shows no signs of malignancy and characteristically has densely hyalinised fibrous tissue with paucity or even absence of cellular material as well as adipose tissue. There is a rich focal periductal, perivascular and perilobular lymphocytic infiltration with mature B-cell predominance. Epithelioid fibroblasts in the interlobular stroma may also be seen.^{5,8} Our patient too had similar pathological findings.

Contrast-enhanced Computerized Tomography Scan (CT) findings of diabetic mastopathy are a vague irregular mass that shows poor enhancement in early phase and heterogeneous spotty enhancement on delayed phase.⁹ Magnetic Resonance Imaging (MRI) in such cases also shows poor enhancement in the early phase that increases gradually so that finally, the mass shows heterogeneous spotty enhancement in the delayed phase.¹⁰ Although scirrhus cancer may show similar findings, heterogeneous spotty enhancement may be one of the typical findings of diabetic mastopathy on CT and MRI images.

Surgery should better be avoided as the entity is known to recur.² Instead, a periodic imaging follow up would be helpful to assure to the patient that all is well. It is now believed that secondary autoimmune reaction to

abnormal extracellular matrix accumulation arising from the effects of hyperglycemia on connective tissue is the underlying mechanism of pathogenesis. Glycosylation induced by hyperglycemia, increases inter-molecular cross-linkage and matrix expansion of altered quality and quantity which resists degradation. The triggered autoimmune response manifests with autoantibody production and B-cell proliferation.^{2,3,4} To the best of our knowledge regression of this entity has been a reported but malignant transformation of these lesions is never reported yet.⁵

Paucity of reports on DMP is the reason why there are no standard protocols for the long-term management of these patients. We believe that yearly follow up by imaging studies would be useful in identifying the progression and detection of other abnormalities at the earliest.

Hence it is only the knowledge about this rare entity and a careful clinico-imaging-pathological correlation in the appropriate clinical setting of diabetes can one identify this entity and avoid unnecessary surgical biopsy and diagnostic dilemma.

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