Diabetic Mastopathy: An Entity Clinically Mimicking Malignancy; Review of a Series of Three Cases

Abstract

Diabetic mastopathy is an unusual lesion affecting the breast of patients with longstanding diabetes mellitus (DM). This lesion presents as large hard masses, leading to clinical suspicion of malignancy, and may result in unnecessary surgeries. It is characterized histopathologically by sclerosing lymphocytic mastitis. During 1-year period from January 2016 to December 2016, we came across three cases of sclerosing lymphocytic mastitis. All were females with longstanding DM and presented with palpable, nontender, hard breast masses. Clinical impression was malignancy. They underwent imaging studies, fine needle aspiration cytology, and core needle biopsies before excision biopsy. The specimens consisted of firm-to-hard fibrotic masses with a grayish-white cut surface. Histopathology showed characteristic keloid-like sclerosing fibrosis, dense perilobular and intralobular lymphocytic infiltrates. Clinicopathological correlation will resolve these cases in most instances and aid in preventing radical surgical procedures. Imaging studies however may not be helpful in all cases.

Keywords: *Diabetic mastopathy, malignancy, mimicker, sclerosing lymphocytic mastitis*

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Introduction

Diabetic mastopathy (DMP) was first described by Soler and Khardori as early as 1984.[1] They described it as a dense fibrous stromal proliferation of the breast in women with longstanding Type I diabetes mellitus (DM). It is an unusual breast lesion of probable immune-mediated pathogenesis. DMP is typically seen associated with longstanding diabetes and is characterized histopathologically by sclerosing lymphocytic mastitis. The keloid-like fibrosis imparts a hard consistency which may result in erroneous clinical diagnosis of malignancy. Seidman *et al*. described the histopathological features of this condition which consisted microscopically of dense intralobular, perilobular, and perivascular lymphocytic infiltrates associated with lobular atrophy and sclerosis.[2] Ultrasound evaluation may be useful to analyze the masses, and ultrasound findings range from marked acoustic shadowing to vague hypoechoic area without shadowing.[3] Valdez *et al*. based on molecular and immunophenotypic studies suggested that lymphocytic mastitis and DMP do not carry a risk for the development of lymphoma, despite the marked B-cell infiltrates and the frequent presence of lymphoepithelial lesions.[4] We report three cases of DMP that we came across in our cancer center during 1-year period.

Case Reports

Three patients with DMP were identified over a period of 1 year. The patients presented to our surgical oncology clinic with a lump in the breast, which was not associated with skin changes or nipple discharge. In all the three cases, the clinical impression was malignancy. All these cases underwent imaging studies. They also underwent fine needle aspiration cytology (FNAC) and core needle biopsies (CNBs) before undergoing excision biopsy under frozen section guidance.

Case 1

A 64-year-old female, a known diabetic, on insulin and oral hypoglycemic agents for the past 20 years presented with right-sided breast lump of 1-month duration. On examination, she had a 6 cm × 5 cm lump. Clinical impression was malignancy. She had a mammogram done outside which showed Breast Imaging Reporting and Data System (BIRADS) categorization IV lesion. A review at our center showed only focal

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asymmetries. FNAC was nondiagnostic, and CNB showed breast tissue with fibrosis. Excision biopsy was done under frozen coverage. Frozen section showed characteristic microscopic picture of DMP; dense intralobular, perilobular, and perivascular lymphocytic infiltrates associated with lobular atrophy and keloid-like sclerosis. Final histopathology also confirmed the diagnosis [Figure 1a and b].

Case 2

A 58-year-old female, a known diabetic, on insulin for the past 15 years presented with bilateral breast lumps of 10 years' duration. On examination, she had 5 cm × 6 cm lump in the right breast and 6 cm × 4 cm lump in the left breast. Clinical impression was carcinoma involving both breasts. Her mammogram and ultrasonography showed suspicious lesion in both breasts. FNAC was inconclusive. CNB showed fibrosis and periductal lymphocytic collections. However, since there was clinical and radiological suspicion of malignancy, the patient was taken up for surgery. Intraoperative frozen section picture was compatible with that of DMP. Final histopathology confirmed the diagnosis.

Case 3

A 62-year-old female, a known diabetic, on oral antidiabetic therapy for the past 8 years presented with a left breast lump of 2 months' duration. On examination, she had a 3 cm × 2 cm mass. Clinical impression was carcinoma. Mammogram done outside showed BIRADS categorization IV lesion. Mammogram reviewed at our center showed heterogeneously dense breast with focal asymmetry in the upper outer quadrant. Ultrasound done at our center showed irregular hypoechoic mass with microlobulations. FNAC was inconclusive. CNB showed fibrosis and periductal lymphocytic collections. The patient was taken up for excision biopsy under frozen coverage. Frozen section and final histopathology confirmed DMP.

Discussion

Sclerosing lymphocytic mastitis is an unusual breast lesion seen in patients with longstanding DM, and hence, the synonym DMP is used for this lesion.

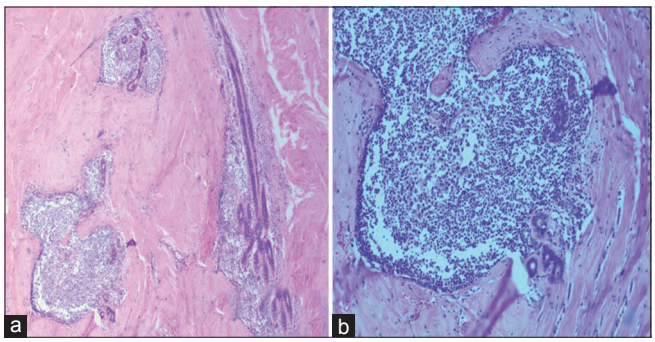

Figure 1: (a) Breast tissue showing keloid-like fibrosis, periductal lymphocytic collection (H and E, ×40). (b) Higher power view of lymphocytic mastitis (H and E, ×400)

Tomaszewski *et al*. hypothesized that these fibroinflammatory lesions are due to extracellular matrix expansion secondary to increased collagen production and decreased degradation, resulting from hyperglycemic state in diabetes.[5] The role of autoimmunity in the cause of DMP was first suggested by Soler and Khardori.[1] They observed a link between diabetes, thyroid disease, and connective tissue abnormalities. HLA-DR3, HLA-DR4, and HLA-DR5 that are expressed in autoimmune diseases were also seen in their cases of DMP. This may be the reason why the inflamed lobules in DMP closely resemble lymphoepithelial lesions seen in Hashimoto thyroiditis and Sjögren syndrome.

Patients present with large firm-to-hard lumps as a result of the keloid-like fibrosis. This often results in an erroneous diagnosis of malignancy. Most often, there is history of a lump of long duration in patients with longstanding DM. Mammogram and ultrasonography often do not detect any definite lesions. The most characteristic imaging findings can be seen in ultrasound as irregular hypoechoic masses with marked posterior acoustic shadowing.[6] Magnetic resonance imaging findings are inconsistent with features ranging from decreased diffuse contrast material enhancement to rapid, intense enhancement that is indistinguishable from breast carcinoma.[7]

FNACs are noncontributory as the keloid-like fibrosis gives only scanty yield of cells.[8] FNAC can however be used to monitor patients with recurrent lesions.[9] CNB in some instances is diagnostic. Unwarranted surgery, such as excisions, should be avoided. This is important as some authors are of the opinion that excision of the lumps may increase the chance of recurrence.[10]

DMP should be considered in the differential diagnosis of breast lump in patients with longstanding diabetes. While an awareness of this entity is appreciable, it should be kept in mind that malignancy can arise in the background of DMP.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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