

## Diabetic Fibrous Mastopathy

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### ABSTRACT

Diabetic fibrous mastopathy is an uncommon self-limiting fibroinflammatory disease of the breast that is seen predominantly in premenopausal women with long standing type I (insulin dependent) diabetes mellitus. In this report, we present a 29 years old female with uncontrolled diabetes mellitus presenting with bilateral breast masses which were irregular and hypoechoic on ultrasound, gradual enhancement on MRI and diagnosed as diabetic fibrous mastopathy on histopathology. It is quite difficult to distinguish it from malignancy on mammographic and ultrasonographic features or clinical findings. Correlation of the pathological features may help to make the correct diagnosis for this disease.

**Key Words:** Diabetes. Mastopathy. Breast. Hypoechoic mass. Painless mass. MRI enhancement.

### INTRODUCTION

Diabetic fibrous mastopathy (DFM) is a rare breast disease. Soler and Khardori first described this disease in 1984 in 12 of 88 women with long-standing type I insulin dependent diabetes mellitus (IDDM), and clinically recognized breast nodules.<sup>1,2</sup> Although they are usually seen in premenopausal women with long-standing IDDM, cases have been reported with autoimmune disorders as well. These patients present with rocky, hard, painless, irregular mass of the breast. Mammography usually shows only dense glandular tissue, and ultrasonographic findings are hypoechoic and irregular masses with marked acoustic shadowing. The clinical presentations and radiological features of this disease can easily be confused with breast carcinoma.<sup>3</sup> DFM is a disease with multiple and recurrent lesions. Because of this, there has been a trend towards close observation of these lesions following core biopsy, in order to avoid repeated excisions that may exacerbate the condition for these patients.<sup>4</sup>

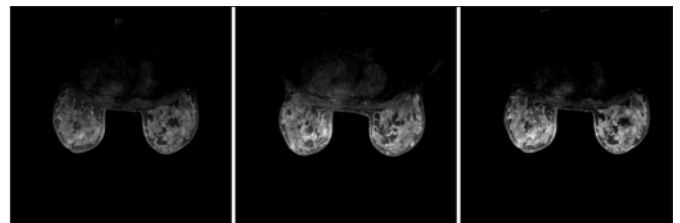
### CASE REPORT

A 29-year-old woman with a 6 months history of bilateral breast lumps was referred to our clinic. The lumps were painless but she noticed an increasing discomfort in the lump during menstruation. She had type I diabetes for the past 19 years and was treated with insulin injection once daily with poor diet control and poor glycaemic

control. She had a secondary complication of diabetic nephropathy requiring peritoneal dialysis. She had undergone a thyroidectomy because of multinodular goitre 8 years ago. She had no family history of breast cancer and no history of previous breast or autoimmune disease.

Physical examination showed rocky-hard, irregular, painless and mobile masses under the areolae of both breasts, without nipple discharge or skin abnormality. No axillary lymphadenopathy was identified. Mammography showed dense fibroglandular breast tissue without focal mass. Neither microcalcification nor architectural distortion were noticed. Ultrasonography of the breast appeared as bilateral irregular hypoechoic mass corresponding to the palpable mass. It was determined posterior acoustic shadowing in the upper quadrant and retroareolar area. MR imaging demonstrated that three-dimensional fast low-angle shot images (subtraction) after contrast material injection showing poor enhancement of mass in early phase (A), a gradual increase in enhancement (B), and heterogeneous spotty enhancement (C) in delayed phase (Figure 1).

The physical and sonographic examinations of the breasts were completely normal 6 months ago. We performed a core biopsy under ultrasound guidance. It demonstrated the histologic evidence of lymphocytic ductitis or lobulitis, collagenous stroma with keloidal fibrotic features, and perivasculitis on breast biopsy, but



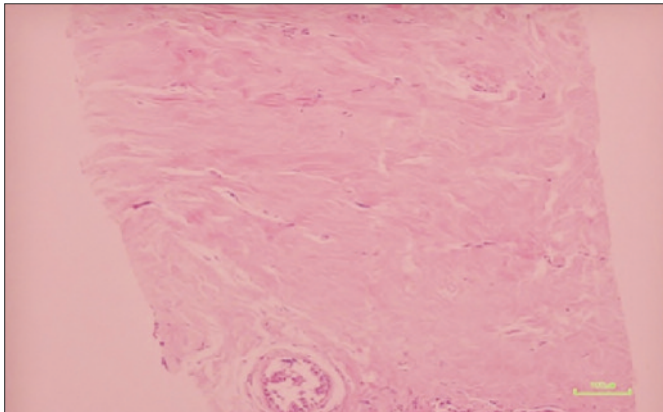
**Figure 1:** Three-dimensional fast low-angle shot images (subtraction) after contrast material injection show poor enhancement of mass in early phase, gradual increase in enhancement, and heterogeneous spotty enhancement in delayed phase.

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**Figure 2:** Histologic evidence of lymphocytic ductitis or lobulitis, collagenous stroma with keloidal fibrotic features, and perivasculitis on breast biopsy.

no evidence of malignancy (Figure 2). The pathologic diagnosis was consistent with diabetic mastopathy. In view of the MRI appearances and benign histology, it was decided that the patient should undergo standard clinical follow-up and there was no significant change in the lesion during 3 months of follow-up.

## DISCUSSION

In 1987, the combination of stromal fibrosis and lymphocytic vasculitis in 36 patients was subsequently described as mastopathy in insulin-dependent diabetics by Byrd *et al.*<sup>5</sup> Logan and Hoffman first described the criteria for clinical and radiographic diagnosis of diabetic mastopathy in 1989.<sup>6</sup> According to Camuto's review with 109 cases of DFM, the duration of diabetes mellitus was ranging from 4 to 43 years. Forty of them had complications of diabetes mellitus, including nephropathy. The mean age at onset of the first breast mass was 39 years ranging from 32.2 to 62.0 years. Forty eight patients had multiple or bilateral lesions.<sup>7</sup> Similarly, the patient had diabetic history for 19 years with bilateral breast masses and diabetic nephropathy.

Although there were a small number of men having gynecomastia reported as DMP, it is widely reported that this condition occurs in premenopausal women. A summary of the data in the literature shows that approximately 63% of lesions are bilateral or recurrent or both.<sup>7</sup>

The most common mammographic findings are dense glandular tissue without a discrete mass, architectural distortion, microcalcification or spiculation. Some patients may have mammographic findings simulating desmoplasia of carcinoma. So there is no specific feature to make an absolute differential diagnosis of DFM and excluding malignancy with mammogram alone.<sup>8</sup>

The insufficiency of the conventional imaging modalities about differential diagnosis of DMP and breast cancer are known. MRI features of DFM show absence of

enhancing mass with non-specific stromal enhancement as opposed to carcinoma where there is a presence of an avidly-enhancing focal mass with irregular margins.<sup>9</sup> Tunçbilek *et al.* mentioned about the effect of dynamic contrast-enhanced magnetic resonance imaging (DCE-MRI) [an application to determine tumour angiogenesis and the level of malignancy] for the differential diagnosis of this disease with breast carcinoma.

Although there are several radiological methods to suggest DMP for an absolute diagnosis, pathological examination is essential. Core biopsy for initial diagnosis, following mammography and ultrasound, are recommended. It is quite difficult to perform fine-needle aspiration as in our case and to get enough material because of the fibrous tissue of the lesion.<sup>10</sup>

This condition is neither premalignant nor malignant. There have only been 3 cases reported of malignancy in patients with DFM. These findings are likely to be coincidental, diabetic mastopathy has not been linked to subsequent development of mammary carcinoma or stromal neoplasia. As a result, a minimum routine annual follow-up of patients with diabetic mastopathy is recommended. With a high index of suspicion in the proper clinical setting, the diagnosis of diabetic mastopathy can usually be made on core biopsy, with avoidance of unnecessary surgical procedures that may actually exacerbate the condition.<sup>7</sup> If the cytologic and clinical findings are consistent with diabetic mastopathy, conservative clinical management could be considered.

With this report, we aimed to draw attention to this rare breast disease that is easily misdiagnosed as breast carcinoma. The personal history, clinical examination, radiological imagings and finally histopathological findings are useful for the diagnosis. It is very important to keep this disease in mind in appropriate clinical setting to avoid overtreatment. It is not a premalignant lesion and if one is sure about the diagnosis, clinical and radiological follow-up is enough for the management of this disease.

## REFERENCES

1. Soler NG, Khardori R. Fibrous disease of the breast, thyroiditis and cheiroarthropathy in type I diabetes mellitus. *Lancet* 1984; **1**:193-5.
2. TuncbilekN, Ha Karakas HM, Okten O. Diabetic fibrous mastopathy: dynamic contrast-enhanced magnetic resonance imaging findings. *Breast J* 2004; **1**:359-62.
3. Mak CW, Chou CK, Chen SY, Lee PS, Chang JM. Case report: diabetic mastopathy. *Br J Radiol* 2003; **76**:192-4.
4. Murakami R, Kumita S, Yamaguchi K, Ueda T. Diabetic mastopathy mimicking breast cancer. *Clin Imaging* 2009; **33**: 234-6.
5. Byrd BF Jr, Hartmann WH, Graham LS, Hogle HH. Mastopathy in insulin-dependent diabetics. *Ann Surg* 1987; **205**:529-32.

6. Logan WW, Hoffman NY. Diabetic fibrous breast disease. *Radiology* 1989; **172**:667-70.
7. Camuto PM, Zetrenne E, Ponn T. Diabetic mastopathy: a report of 5 cases and a review of literature. *Arch Surg* 2000; **135**:1190-3.
8. Sabaté JM, Clotet M, Gómez A, De Las Heras P, Torrubia S, Salinas T. Radiologic evaluation of uncommon inflammatory and re-active breast disorders. *Radiographics* 2005; **25**: 411-24.
9. Lakshmanan R, Clarke MJ, Putti TC. Diabetic fibrous mastopathy. *Singapore Med J* 2007; **48**:579.
10. Andrews-Tang D, Diamond AB, Rogers L, Butler D. Diabetic mastopathy: adjunctive use of ultrasound and utility of core biopsy in diagnosis. *Breast J* 2000; **6**:183-8.

