

Cytology of Idiopathic Granulomatous Mastitis : A Report of a Case Masquerading as Carcinoma

Shubhangi V Agale*, Yasmin A Momin*, Wasif Ali Khan**

Abstract

Idiopathic granulomatous mastitis is a rare condition of unknown aetiology, affecting women of childbearing age. Although many conditions mimic granulomatous mastitis, the cytologic pattern of epithelioid cells, multinucleated giant cells, neutrophils, macrophages and reactive epithelial cells, in absence of caseation necrosis and foam cells should prompt a diagnosis of granulomatous mastitis.

We report a case of idiopathic granulomatous mastitis diagnosed by fine needle aspiration cytology in a woman of reproductive age group, who presented with breast lump, and clinically diagnosed as carcinoma of the breast.

Introduction

Idiopathic granulomatous mastitis (IGM), also known as chronic lobular mastitis and granulomatous mastitis, is a benign, chronic, inflammatory disorder of uncertain aetiology.¹⁻¹⁰

Only parous women are affected and it is hypothesized that the disease is a hypersensitivity reaction mediated by prior alterations in lobular epithelium during childbirth. The disease frequently has the clinical characteristics of breast carcinoma.^{2,4,8}

Clinically half the published cases were considered malignant or suspicious for carcinoma.^{2,4,8}

A case of IGM was diagnosed by fine needle aspiration cytology and confirmed with biopsy.

Case Report

A young woman of 32 year presented with a lump in left breast of 2 months duration. There was no history of any other disorder. Examination revealed an irregular, slightly tender, firm to hard, 3 x 2 x 2 cm lump in the upper outer quadrant of the left breast.

*Associate Professor, Department of Pathology;

**Lecturer; Grant Medical College, Mumbai - 08

No axillary nodes were palpable. A clinical diagnosis of carcinoma was rendered with an advice of immediate aspiration and report. Fine needle aspiration was done by cytopathologist by using 22 gauge needle and 10 ml syringe. The smears were fixed in alcohol and also air dried and stained with Papanicolaou and MGG stain.

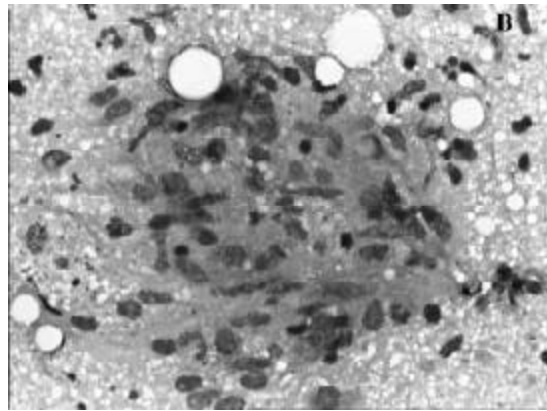
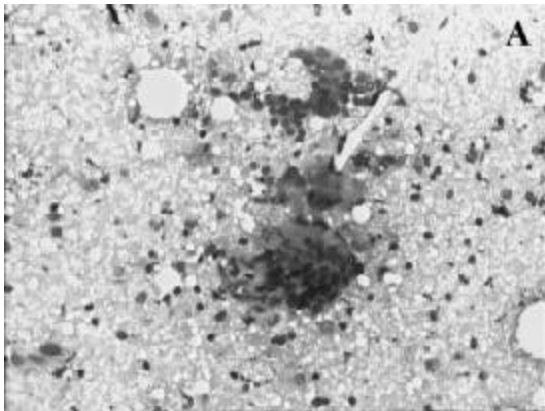
Cytopathologically clusters of epithelioid cells, a varying number of multinucleate giant cells, polymorphs, lymphocytes and plasma cells were observed [Fig. 1a and 1b]. There was no caseation necrosis or foam cells or fatty tissue.

Cytological diagnosis of granulomatous mastitis was rendered. Based on this diagnosis detailed investigations were performed. Chest roentgenography and computed tomography were normal. The excision biopsy was performed. The received surgical specimen was an ill-defined, 3 x 2 x 2 cms, firm to hard mass with homogeneous, grey-white cut surface. Microscopically the granulomatous inflammation centred on the breast lobules consisted of epithelioid cells, multinucleated giant cells (foreign body and Langhans type), histiocytes, neutrophils, lymphocytes, and plasma cells. There was absence of caseation necrosis, foam cells, and calcification. The ductal epithelial cells showed mild atypia. The special stains carried out did not reveal any organisms (Fig. 2).

Discussion

Granulomas in the breast are caused by

Bombay Hospital Journal, Vol. 51, No. 1, 2009



Figs. 1a and 1b : FNA of granulomatous mastitis showing ductal epithelial cells, multinucleate giant cell and epithelioid cell granuloma (MGG, X 100, X 400).

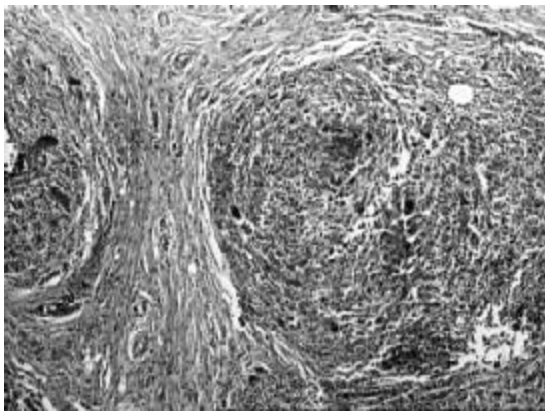


Fig. 2 : Biopsy specimen showing granulomatous inflammation and multinucleate giant cells involving breast lobules (H and E, X 40).

wide variety of diseases, all present in fewer than 1% of all breast biopsies.¹ Originally described by Kessler² and Wolloch in 1972, idiopathic granulomatous mastitis often mimics infection or malignancy and remains a diagnosis of exclusion.³⁻⁷

Idiopathic granulomatous mastitis is common in young women of reproductive age group with a frequent association with recent childbirth.³⁻⁵ The most common clinical presentation is a unilateral firm, discrete breast mass often associated with inflammation of the overlying skin.⁴⁻⁸

Our patient was 32 year young woman, who had irregular, firm to hard lump in the left breast with normal overlying skin. Fine needle cytological features of idiopathic granulomatous mastitis have been described in the literature.³⁻⁹ The typical cytology is a cellular smear composed predominantly of epithelioid cells, multinucleated giant cells of foreign body and Langhan's type, neutrophils and epithelial cells with absence of foamy cells and caseation necrosis. This characteristic cytomorphology was observed in this case.

Cytologically granulomatous mastitis has to be differentiated from specific granulomatous mastitis such as tuberculosis and mycoses, fat necrosis, and sarcoidosis. Primary Tuberculous mastitis is rare¹ but has to be differentiated from IGM, especially in country like India where tuberculosis is rampant. Abundance of neutrophils is a rarity in tuberculous mastitis, which characteristically has epithelioid cells, Langhans' giant cells and caseation.^{3,4,9} Caseation is consistently absent in granulomatous mastitis, with negative Acid Fast stain and culture.¹

Fungal mastitis is uncommon^{3,4} but has to be considered in a case of suppurative

granulomatous lesion. The diagnosis of fungal mastitis is based on demonstration of fungi by special stains or culture.

Fat necrosis is characterized by presence of abundant foamy cells and absence of epithelial cells which are present in IGM.⁴ In sarcoidosis the smears show epithelioid cells with lymphocytes and without neutrophils or necrosis.³ Rarely carcinomas and lymphomas elicit granulomatous response and carcinomas with giant cell stroma must also be considered.

Cytologically it is some times difficult to distinguish IGM from carcinoma of the breast.^{4,5,8}

Combining the cytologic features seen in the aspiration biopsy material with the histologic appearance of the lesion led us to favour the diagnosis of IGM. We also excluded all the other causes of granulomas in the breast, using clinical, radiological and laboratory findings. Complete surgical resection is the treatment of choice^{6,10} which was done in our patient.

So to conclude idiopathic granulomatous mastitis, although rare and infrequently reported, appears to have rather characteristic cellular features of epithelioid cells, multinucleated giant cells, neutrophils, macrophages and reactive epithelial cells, and absence of caseation necrosis and foam cells, which would allow its recognition.

References

1. Elsiddig KE, Khalil EA, Elhag IA, Elsafi ME, Sulciman GM, Elkhidir IM, Hussein AM, EL-Hassan AM. Granulomatous mammary disease

ten years experience with Fine Needle Aspiration Cytology. *Int.J Tuberc Lung Dis* 2003; 7(4) : 365-69.

2. Kessler E, Wolloch Y, Granulomatous mastitis: a lesion clinically simulating carcinoma. *Am J Clin Pathol* 1972; 58 : 642-46.
3. Kumarasinghe MP. Cytology of granulomatous mastitis. *Acta Cytol* 1997; 41 : 727-30.
4. Kaur AC, Dal H, Muezzinoglu B, Parksoy N. Idiopathic granulomatous mastitis. Report of a case diagnosed with fine needle aspiration cytology. *Acta Cytol* 1999; 43 : 481-84.
5. Tuli R, O'Hara BJ, Hines J, Rosenberg AL. Idiopathic granulomatous mastitis masquerading as carcinoma of the breast: a case report and review of the literature. *Int Semin in Surg Oncol* 2007; 4: 21doi:10.1186/1477-78004-21.
6. Azlina AF, Ariza Z, Arni T, Hisham AN. Chronic granulomatous mastitis: diagnostic and therapeutic consideration. *World J Surg* 2003; 27 : 515-18.
7. Kobayashi TK, Sugihara H, Kato M, Watanabe Shinsuke. Cytologic features of granulomatous mastitis. Report of a case with fine needle aspiration cytology and immuno-histochemical findings. *Acta Cytol* 1998; 42 : 716-20.
8. Erhan Y, Veral A, Kara E, Odemir N, Kapkac M, Ozdedeli E, Yilnraz R, Koyuncu AM, Ozbal O. A clinicopathological study of a rare clinical entity mimicking breast carcinoma: idiopathic granulomatous mastitis. *Breast* 2000; 9 : 52-56.
9. Tse GMK, Poon CSF, Law BKB, Pang LM, Chu WCW, Ma TKF. Fine needle aspiration cytology of granulomatous mastitis. *J Clin Pathol* 2003; 56 : 519-519.
10. Asoglu O, Ozmen V, Karanlik H, Tunaci M, Cabioglu N, Igci A, Selcuk UE, Kecer M. Feasibility of surgical treatment in patients with granulomatous mastitis. *Breast J* 2005; 11(2) : 108-14.