Original article

Fine needle aspiration cytology of granulomatous mastitis: an experience at a rural tertiary care academic hospital

1Dr. Anil Munemane, 2 Dr. Kunal Torane, 3 Dr. Ravindra Karle

Department of Pathology, Rural Medical College, Pravara Institute of Medical Sciences (Deemed University), Loni, Maharashtra, India
Corresponding author: Dr. Anil Munemane

Abstract

Introduction: Granulomatous mastitis (GM), the uncommon lesion of breast clinically and radiologically resembles carcinoma. The histopathological characteristic feature of GM is well described as non-caseating granuloma formation within parenchyma of breast, lobulitis and neutrophilic microabscess may be present or absent. The fine needle aspiration (FNAC) features of GM have been rarely discussed in the literature.

Methodology: The patients presenting with breast lump were included in the study. These patients were subjected to fine needle aspiration cytology (FNAC). The aspiration cytology smears were stained by Papnicolaou, May Grunwald-Giemsa and Ziehl Neelsen stain.

Results: A total of 364 cases of breast lump underwent FNAC. Out of which cytological examination revealed GM in 16 (4.4%) cases. Cytomorphologically all cases showed discrete, well formed, multiple epitheliod granulomas with necrotic and acute inflammatory background.

Conclusion: FNAC is a good tool to diagnose GM. The cytological diagnosis of GM is difficult because the features overlap with other etiologies, including tuberculosis. Diagnosis of granulomatous mastitis should be considered when high number of epitheliod histiocytes is seen in smears in the absence of granulomas.

Key words: Granulomatous mastitis, fine needle aspiration cytology, differential diagnosis, histopathology.

Introduction

Granulomatous mastitis (GM), the uncommon lesion of breast clinically and radiologically resembles carcinoma. (1) This breast lesion was first described by Kessler and Woolloch (1972). (2) GM is granulomatous inflammation of breast. Most of the cases are idiopathic but can also occur in tuberculosis (TB), sarcoidosis, and parasitic infection. (1) GM is a morphological distinct lesion from duct ectasia/ plasma cell mastitis and various other commoner forms of granulomatous breast diseases. The histopathological characteristic feature of GM is well described as non-caseating granuloma formation within parenchyma of breast, lobulitis and neutrophilic microabscess may be present or absent. (3)

The search through available literature on GM has revealed a dearth of information on cytological features. (4) Therefore the present study was conducted with an aim to study the cytological features of GM.

Materials and Methods

The present study was conducted for period of 2 years (December 2014 to November 2016) in the Department of Pathology, Rural Medical College and Hospital, Pravara Institute of Medical sciences (Deemed University), Loni, Maharashtra. The study design was descriptive cross sectional.

The patients presenting with breast lump were included in the study. The demographic and clinical
features of patients were recorded and analysed. These patients were subjected to ultrasound mammography and fine needle aspiration cytology (FNAC). The aspiration cytology smears were stained by Papnicoloua, May Grunwald-Giemsa and Ziehl Neelsen stain.

**Results**

During the study period, a total of 364 cases of breast lump underwent FNAC. Out of which cytological examination revealed GM in 16 (4.4%) cases. The mean age of patients with GM was 36.5 years (range 21-70 years). The rate of involvement of left and right breast was 56.3% and 43.7% respectively. Lower outer quadrant of breast was more frequently involved. The mean duration of symptom was 45 days (range 3 days to 90 days). The lump was soft to firm to hard in consistency. The smallest lesion was 1x1 cm whereas the largest was 7x5 cm.

There was no history of recent trauma, lactation or use of oral contraceptives. Ultrasound mammography revealed BIRADS-IV category lesions, suspicious for malignancy.

Cytomorphologically all cases showed discrete, well formed, multiple epitheliod granulomas (Figure 1) with necrotic and acute inflammatory background (Figure 2 ). As acid fast bacilli (AFB) (Figure 3) was seen upon ZN staining in one case for which diagnosis of tuberculous mastitis was rendered.

![Figure 1: Photomicrograph shows epitheloid granuloma (PAP 400x)](image1)

![Figure 2: Photomicrograph shows necrosis and inflammation (HAE 400x).](image2)
Discussion

GM is characterized by abscess, fistula and a palpable breast lump. In most cases, it is presented as an ill-defined breast lump with radiographic features suggestive malignancy. The cytological criteria for diagnosis of GM remains still ill defined. Necrosis, giant cells, epitheliod histiocytes, granulomas and neutrophils in the background are the common features seen.

In the present study, all cases showed discrete, well formed, multiple epitheliod granulomas with necrotic and acute inflammatory background. Similar observation was reported by Tse et al (2003). They observed distinct appearance of histiocytes, with reniform to plump nuclei and a moderate to abundant pale cytoplasm. Various other studies have reported aggregates of epithelioid histiocytes or granulomas characteristic of GM. (1, 5, 6)

Tuberculosis is one of the most important differential diagnosis of GM in endemic regions. (1, 7) Presence of caseous necrosis, Langhan’s giant cells and epithelioid granuloma is characteristic feature of tuberculous mastitis. (1, 8) In this study, tuberculous mastitis was diagnosed in a single case where AFB was demonstrated. Contrast to our finding Fletcher et al (1982) reported no case of tuberculous mastitis in their study. (9) The differentiation of tuberculous mastitis and GM is necessary as treating tuberculosis with steroids would flare up the lesion on the other hand, treatment with antituberculosis drugs may lead to numerous side effects in GM. (1)

Among infectious causes of GM, mycotic infection is usually rare. Other non infectious differential diagnosis of GM includes sacoidosis or Wegner’s granulomatosis. However in present study these findings were not observed.

Conclusion

GM mimics carcinoma clinically and radiologically. FNAC is a good tool to diagnose it. The cytological diagnosis of GM is difficult because the features overlap with other etiologies, including tuberculosis. Diagnosis of granulomatous mastitis should be considered when high number of epithelioid histiocytes is seen in smears in the absence of granulomas.

References


