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Original Research Article

Granulomatous mastitis-Can fine needle aspiration cytology avoids unnecessary biopsy?

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Abstract: The study aimed to establish the role of FNAC in diagnosing Idiopathic granulomatous mastitis and thus avoid unnecessary biopsy. A retro prospective study of the number of breast aspirations over a period of three years was done. The details of cases of granulomatous mastitis were taken from the requisition forms of the patients and the slides were reviewed. Data was analyzed according to age, parity, and site and with respect to period since last child birth. Maximum patients were between 20-30 yrs of age. Majority had breast fed less than five years ago and belonged to para2 group. Surprisingly three of the patients were postmenopausal. On microscopy not all cases showed well-formed granulomas. The study showed that FNAC is sufficient to make a diagnosis of granulomatous mastitis and biopsy is not needed.
Keywords: FNAC, granulomas, biopsy.

INTRODUCTION

Idiopathic granulomatous mastitis (IGM) is a rarely observed, chronic inflammatory breast disease of unknown etiology. Its diagnosis becomes important both to the pathologist as well as to the surgeon as it can clinically and radiologically mimic breast carcinoma [1]. It is usually a diagnosis of exclusion. The diagnosis of IGM is made only after other potential causes like granulomatous panniculitis, Wegner's granulomatosis, giant cell arteritis, rheumatoid nodule, tuberculosis, sarcoidosis, fungal infections and foreign body reaction to implants have been excluded [2]. Clinically the commonest presentation is as a breast lump although it may also be seen as nipple retraction, an inflammatory lesion with erosion of the skin or a sinus [3]. Although various explanations have been given, the exact etiology of IGM has yet not been elucidated. Though an autoimmune etiology had also been proposed due to its positive response to steroid therapy, but it failed to support the existence of immune mediated basis of IGM [7].

MATERIAL AND METHOD

The record of 19 female patients diagnosed as IGM at the Department of Pathology at Government Medical College, Haldwani from January 2013 to December 2015 were analyzed retro prospectively. Details of age, parity, period from last child birth, whether lactating or none lactating and site of involvement were taken from the requisition forms. Smears were retrieved from the records and reviewed. A minimum of four smears were seen for each case comprising of H&E, PAP and MGG. In all cases acid fast bacilli was not seen on Ziehl Neelsen staining.

RESULTS

There were 666 breast aspirations done over a period of three years, out of which 2.8% (n=19) were reported as granulomatous mastitis. All patients were above 20 yrs of age, the youngest being 23 yrs. Maximum number of cases were between 20 to 30 yrs (n=10) whereas only one patient was in the age group of 51 to 60 yrs (fig1). Mean age in our study was 34 yrs, ranging from 23-55 yrs. Only three patients were post menopausal. All patients had history of breast feeding. Period of breast feeding varied from 9 months to 2 yrs. Maximum patients had last child birth $\leq$ 5 yrs ago (n=11) (Table 1). Four patients were lactating at the time of aspiration.

Most of the women came with the complaint of unilateral breast lump, only one case with pus

discharging from a sinus. Majority of the cases were involving the left breast (n=10).

With regard to parity maximum number of cases was seen in para 2 and minimum were seen in para4 (figure 2).

Table 1: Number of cases with relation to last child birth

Last child birth	Number of patients
≤ 5 yrs	11
5-10 yrs	4
≥10 yrs	4

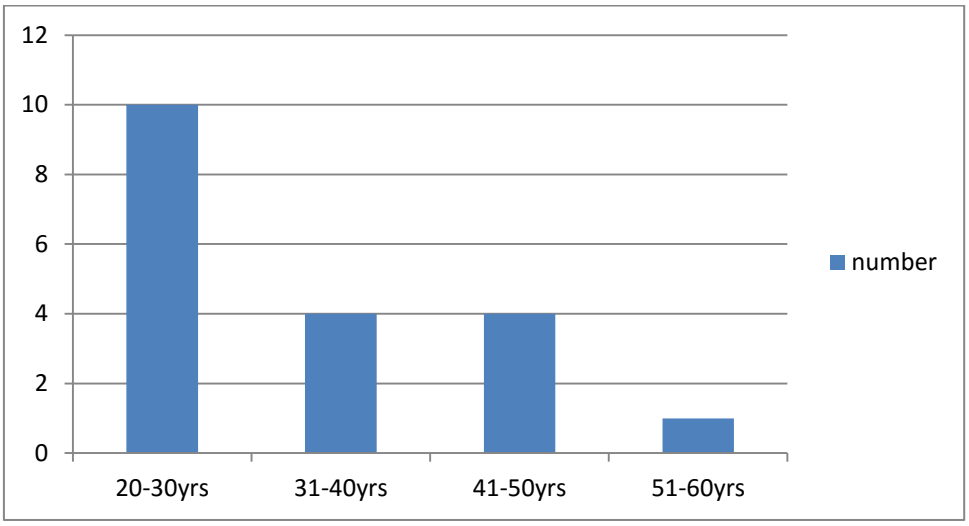

Fig 1: Distribution of cases according to the age.

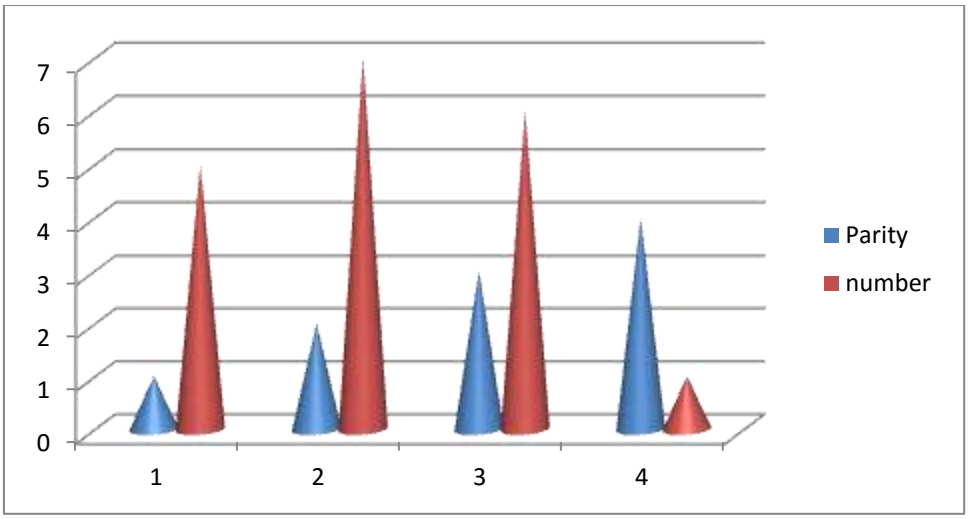

Fig 2: Number of cases with respect to parity

On microscopy eleven cases showed granulomas comprising of epitheloid histiocytes accompanied by lymphocytes and plasma cells with giant cells in the background. Rest of the cases did not show well-formed granulomas but displayed numerous scattered epitheloid histiocytes and giant cells along with ductal epithelial cells and inflammatory cells comprising of neutrophils, lymphocytes and occasional eosinophil (Fig 3). Necrosis was not seen in any case. The giant cells had nuclei ranging from 5 to 20 arranged either irregularly or in a horse shoe shaped manner. In four patients a biopsy was done and histological confirmation was made of granulomatous mastitis after doing a Ziehl Neelsen stain on the sections.

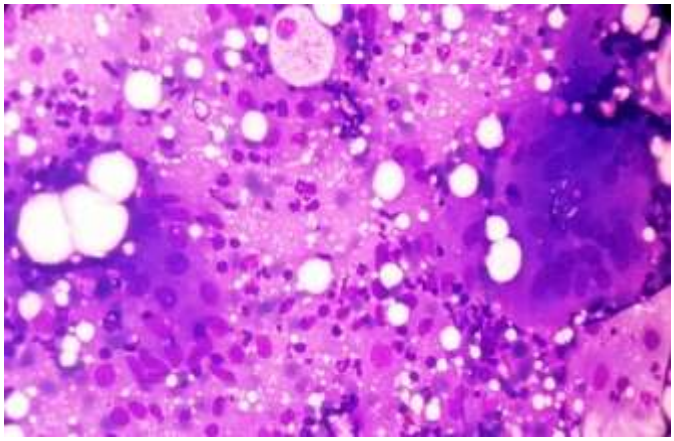

Fig 3: FNA smear showing multinucleated giant cells against an inflammatory background containing foamy macrophages and epitheloid histiocytes (H&E x 400X)

DISCUSSION

Granulomatous mastitis proves a diagnostic challenge for the clinician as it closely mimics breast carcinoma both clinically and radiologically. Mammographic findings often describe it as "suspicious", [4], leaving the surgeon perplexed whether to interpret it as a benign or malignant lesion. Therefore, there is need for a fine needle aspiration and/or biopsy to plan the further course of treatment for the patient. The disease resolves slowly and the course is often punctuated with abscess formation or discharging sinus.

This distinct but uncommon pathogenic process was first described by Kessler and Wallooch [2]. It virtually always affects parous women. This leads to the assumption that it is a cell mediated reaction to one or more substances in mammary secretion. Added to this, it's usually good response to steroids has strengthened its immune mediated etiology. In our study also all the 19 patients were parous and maximum cases had their last child birth less than five years ago.

The age at diagnosis is wide and ranges from 17-42 years, with a mean age of 33 years. In our study the mean age was 34 years. However we also had three patients who were post menopausal. Handa P has reported this disease in post-menopausal asymptomatic women [5]. This disease has been described in literature as being associated with young women in reproductive age group and either occurs during or shortly after lactation. In our study granulomatous mastitis was seen in patients who had breast fed even more than five years ago. The role of FNAC has been disputed in making the diagnosis of granulomatous mastitis. Some authors believe that a FNAC is good enough to make the diagnosis while other say that FNAC is not sufficient for differentiation from other causes of granulomatous inflammation [6]. The diagnostic cytological criteria for GM still remains rather poorly defined .This could be a major hindrance in giving a confident diagnosis of this disease on cytology and therefore resulting in a biopsy for a definite diagnosis. Since surgical intervention has no place in the treatment of the disease, biopsy would be an unnecessary procedure both for the surgeon and the patient.

CONCLUSION

With the increasing use of FNAC as the initial investigation for palpable breast lesions, more cases will probably be encountered by the cytopathologist. Therefore an increased awareness of this rare disease entity is now necessary. The cytological diagnosis of granulomatous mastitis is difficult because there are no specific features and it is a diagnosis of exclusion with features overlapping with other granulomatous etiologies. Our study brought the following features about this disease to light.

- Granulomatous mastitis is a disease not confined exclusively to younger women in reproductive age group only. It should be considered in the differential diagnosis of breast lumps in elderly post menopausal women too.
- The presence of granulomas is not mandatory but suggestive of granulomatous mastitis. Their absence therefore does not rule out its diagnosis.
- The absence of caseous necrosis in smears rules out infective etiology of granulomatous inflammation. This is especially important for tuberculosis since its endemic in our country.
- A good clinical history coupled with cellular smears displaying epitheloid histiocytes, multinucleated giant cells in an inflammatory background and a negative microbiological investigation ruling out other infective causes are suffice to make a cytological diagnosis of granulomatous mastitis . This would avoid unnecessary biopsies in breast lumps.

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