



RESEARCH ARTICLE

FOUR YEAR STUDY OF FINE NEEDLE ASPIRATION CYTOLOGY OF MALE BREAST LESIONS

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ABSTRACT

Fine Needle Aspiration cytology plays a pivotal role in the management of palpable swelling. Breast swelling being easily accessible provides ideal ground for aspiration cytology. Although these swellings are more common in females, males are also prone to breast lesions because of change in dietary and lifestyle habits in India. The present study is undertaken to determine the prevalence of various spectra of male breast lesions diagnosed by FNAC and to assess the expression of hormone receptor in carcinoma breast by immunocytochemistry.

Materials and Methods: Four year retrospective study was conducted in department of pathology in a tertiary care Hospital in southern India between May 2013 and May 2017. Male patients with palpable breast masses were subjected to fine needle aspiration cytology in the outpatient department of our central laboratory. The smears were interpreted by cytopathologist and results were analyzed. Immunocytochemistry was performed in a single case of carcinoma breast in FNAC smears.

Results: Gynecomastia was the most common lesion encountered accounting for 80.6% (25 /31) of cases. Majority of them presented in the third decade. Two cases of (6.4%), Carcinoma Breast were seen presenting in the sixth decade. Single case of Granulomatous mastitis (3.2%) and three cases of breast abscess (9.6%) were also encountered in the present study.

Conclusion: Fine Needle Aspiration cytology plays an important role in the diagnosis and management of male breast lesions. Histopathological examination remains the Gold Standard method in establishing the diagnosis of breast lesions. Ancillary techniques such as Immunocytochemistry aids in predicting the prognosis as well as the management of carcinoma breast cases.

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INTRODUCTION

Fine needle aspiration cytology is an accurate, cost effective and established method of investigation of choice of palpable swellings. Though this technique was introduced in 1930 by Martin and Ellis (Martin, 1930), its utility and widespread use in diagnosis started increasing in early 1990's in India. Breast swellings being easily accessible provides ideal ground for aspiration cytology and FNAC plays an important role in the management of both benign and malignant breast disease. Gynecomastia is the most common cause for male breast swelling. Carcinoma of male breast is a very rare disease accounting for 1% of all breast carcinomas (Marcelo Madeira, 2011). The aim of the present study is to determine the prevalence of various spectra of male breast lesions diagnosed by FNAC and to assess the expression of hormone receptors in a case of carcinoma breast.

MATERIALS AND METHODS

The FNAC smears of male breast masses performed for a four year period from may 2013 - 2017 at our hospital were reviewed and data regarding the age and diagnosis were analyzed. The aspirations were performed in the Out Patient Department of our Central Lab using 23 gauge needle and 5 ml syringe. Smears were wet fixed in 95 % ethyl alcohol and stained with Hematoxylin and Eosin stain (H&E). For the purpose of Immunocytochemistry, H & E stained smears from carcinoma breast were destained and fixed in cold acetone. Monoclonal antibodies of ER, PR & HER-2 Neu receptors obtained from Pathnsitu company were used in the study and the expression status was analyzed.

RESULTS

Out of 350 cases of FNAC of breast performed in four year period 31 cases were of male patients accounting for 8.8%. Gynecomastia was the commonest lesion encountered

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in 80.6% (25 out of 31). Two (6.4%) cases of carcinoma breast and one case of granulomatous mastitis (3.2%) and three cases of breast abscess (9.6%) were also observed.

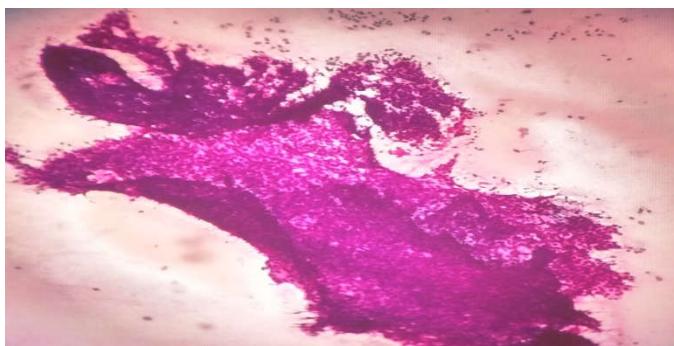


Fig. 1. Gynecomastia (10X) Figure show tightly cohesive clusters of epithelial cells in a background of bare nuclei



Fig. 2. Granulomatous mastitis (10X) Clusters of epithelioid cells with areas of caseous necrosis

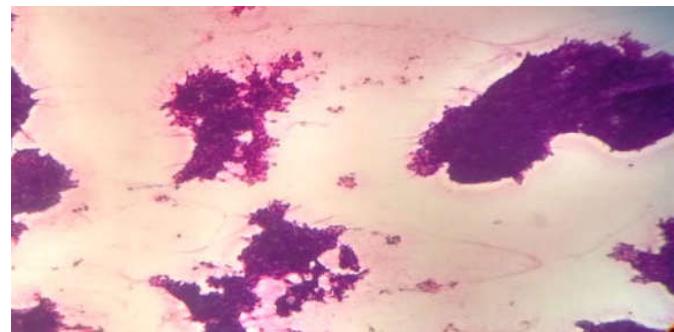


Fig. 3. Carcinoma Breast (10X) Highly cellular smear shows pleomorphic tumor cells in singles, sheets and in loosely cohesive clusters

The median age of patients with gynecomastia was 30 yrs. Both patients with Carcinoma breast were seen in sixth decade of life, whereas an abscess breast was encountered in a young male of 16 yrs of age. Immunocytochemistry was performed in single case of carcinoma breast in FNAC smears. ER, PR and HER-2 Neu expression were found to be negative. Smears from gynecomastia showed moderate cellularity comprising of cohesive sheets of epithelial cell fragments. Background shows scanty to moderate number of benign bipolar nuclei and areas of hemorrhage. Both cases of carcinoma breast showed marked cellularity with loosely cohesive cells arranged in sheets, fragments and in singles. Tumor cells exhibit marked pleomorphism with increased N:C ratio and hyperchromatic nuclei. Background lacks bare nuclei and showed areas of hemorrhage. Smear from Granulomatous mastitis exhibited areas of caseous necrosis with epithelioid cell clusters and

degenerated ductal epithelial cells in a background of chronic inflammatory cell infiltrate. Smears from abscess cases showed acute and chronic inflammatory cell infiltrates along with occasional ductal epithelial cell clusters. The age group of male breast lesions ranged from 16 to 78 Yrs. Among the gynecomastia patients age ranged from 21 yrs to 78 yrs with median age of 30Yrs. Two cases of Carcinoma breast were reported one in a 68 yr old and another in a 72 yr old whereas an abscess breast was seen in as young as 16 yr old male. Gynecomastia was most commonly seen in third decade of life and carcinoma was seen in elderly age group.

DISCUSSION

Breast lesions, both benign and malignant occur more commonly in Female population. Male breast carcinomas account for 1% of all breast carcinomas (Marcelo Madeira, 2011). In our study, gynecomastia constitute 80.6% of cases which was similar to studies done by Rao *et al.* (2015) Pailoor *et al.* (2014) and Das *et al.*, (1995). Smears from these cases show bimodal population of Ductal epithelial cells in cohesive clusters and benign bipolar nuclei. Some of the ductal epithelial cells show mild nuclear atypical features which is a well defined feature in gynecomastia. Various etiologies have been ascribed for development of gynecomastia, most common being hormonal influences. Estrogen production in males results mainly from the peripheral conversion of androgens to estradiol and estrones by the action of aromatase enzyme. Excess estrogen either from exogenous administration or due to Obesity and Cirrhosis contribute to gynecomastia (Johnson, 2009). Three cases of breast abscess (9.6%) were reported in the present study. Singh *et al.*, (Singh, 2012) also had similar finding. In our study single case of granulomatous mastitis was seen. Carcinoma breast was diagnosed in two cases (6.4%), incidence of which was almost similar to studies done by Singh *et al* (2012); MacIntosh *et al.* (MacIntosh, 2008) and Westend *et al.* (Westend, 2002). Genetic factors play a major role in etiology of carcinoma of breast most common being BRCA 2 mutation. Other risk factors associated with development of male breast carcinoma are old age, excessive alcohol use, liver disease and radiation exposure (Sharon, 2005). Immunocytochemistry performed in a case of carcinoma breast showed negative expression of ER, PR and HER- 2 Neu. We have lost follow up of case since it was referred to oncology centre for further management.

Conclusion

We conclude that FNAC of male breast lesions is mandatory in the management of both benign and malignant breast lesions. The limitations of these test in distinguishing between suspicious lesions and malignancies can be averted by application of ancillary techniques such as Immunocytochemistry.

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