



Spectrum of Male Breast Lesions – Cytological Review

Authors

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Abstract

Introduction: *Fine needle aspiration cytology is a quick, reliable, effective and well established method in the evaluation of breast lumps and is being widely used in assessment of breast lesions. Breast cancer in males is relatively uncommon, accounting for <1% of all breast cancers. Due to this rarity of the disease; screening, diagnosis, and further management is a big challenge. Further adding on to the challenge, breast masses in males is rarely aspirated and hence there is limited cytopathologic experience.*

Aims and Objectives: *To determine the efficacy of FNAC in the study of male breast lesions and to analyze the cytological spectrum of these lesions.*

Materials and Methods: *This study was conducted over a period of 1 year between January 2018 to January 2019. All the cases of male breast FNAC done were documented. FNAC diagnosis were categorized as benign, malignant, suspicious for malignancy and inadequate or unsatisfactory.*

Results: *A total of 30 male patients with breast lump were encountered, out of which 23 cases (76.66%) were Gynecomastia, 04 cases (13.33%) were Malignancy, 02 cases (6.66%) were Suspicious for malignancy and 01 case (3.33%) was unsatisfactory.*

Conclusion: *FNAC is accurate and reliable tool for diagnosis of male breast lesions. However, it is more sensitive and specific if the cellularity is adequate. To avoid unnecessary surgical biopsies, we conclude that FNAC should be performed as a standard procedure in the clinical evaluation of male breast masses.*

Keywords: *Fine needle aspiration cytology (FNAC), Gynecomastia, Male breast lesions.*

Introduction

Fine needle aspiration cytology is a quick, reliable, effective and well established method in evaluation of breast lumps and is being widely used in assessment of breast lesions. FNAC remains a critical diagnostic modality in the work up of breast masses, both in males and females in developing countries.¹

Gynecomastia is the most common abnormality encountered in male breast lesions. It is defined as enlargement of the male breast due to proliferation of both glandular and stromal elements.²

Breast cancer in males is relatively uncommon, accounting for <1% of all breast cancers and it is associated with aggressive clinical course.³ Due to this uncommonness of the disease screening, diagnosis and further management is a big challenge. Further adding on to the challenge, breast masses in males is rarely aspirated and hence there is limited cytopathologic experience.⁴ Although histologic examination is a sure means of distinguishing gynecomastia from carcinoma, it is both impractical and unnecessary to perform a biopsy on all patients with gynecomastia.⁵ This

study shows that use of fine needle aspiration (FNA) can allow diagnosis to be made with a sufficient degree of confidence which can spare the patient an invasive surgical procedure.⁶

Aims and Objectives

To determine the efficacy of FNAC in the study of male breast lesions and to analyze the cytological spectrum of these lesions.

Material and Method

Study Design: This study included all male patients clinically presenting with breast lesions referred to the Department of Pathology, Mysore Medical College and Hospital for FNAC and study was conducted from January 2018 to January 2019.

Data Collection and Analysis

All aspirates were performed using 23-25gauge needle and five ml syringe. Fixation done and

stained by the H&E. The smears were classified into four major diagnostic categories:

- i. Unsatisfactory
- ii. Benign
- iii. Suspicious of malignancy
- iv. Malignant

Results

Over a 1year period, 30 male patients with palpable breast lumps underwent Fine needle aspiration (FNAC) at our hospital. Out of 30 male patient 26 had unilateral breast lumps, and 4 patients had bilateral breast lumps. Out of the patients having unilateral breast lumps, 15 patients had left breast lump and 11 had right breast lump. Overall, the aspirates were each categorized into the following groups as shown in Table 1. The age of the patients ranged from 10 years to 80 years with a mean age of 45years (Table 2). Distribution of male breast lesion according to cytological diagnosis is shown in Table 3.

Table 1: Categorization of male breast sample

Categories	No. of cases	Percentage
Benign	23	76.66
Suspicious of malignancy	02	6.66
Malignancy	04	13.33
Unsatisfactory	01	3.33

Table 2: Age incidence of male breast lesions

Age	Benign	Malignant	Suspicious of malignancy	Unsatisfactory	No.
10-20	04	-	-	-	04
21-30	01	-	-	-	01
31-40	05	-	-	01	06
41-50	04	-	01	-	05
51-60	04	-	01	-	05
61-70	04	03	-	-	07
71-80	01	01	-	-	02
Total	23	04	02	01	30

Table 3: Distribution of cases according to cytological diagnosis

Cytology Diagnosis	No. of cases
Benign Neoplasms Gynecomastia	23
Malignant Neoplasms Suspicious of Malignancy	02
Malignancy	04
Unsatisfactory	01

Cytomorphologic features of the lesions in our study

The most common diagnostic entity encountered in our study was gynaecomastia (23 cases). Smears showed variable amount of cellular material, ranging from hyper cellular smears to moderately cellular with numerous crowded tissue fragments. However, more commonly a moderately cellular smear pattern was noted.

Smears showed large, tightly cohesive epithelial fragments often appearing as flat monolayered sheets. Mixed biphasic population of epithelial and stromal fragments were also seen. Scattered

bipolar to oval myoepithelial nuclei were seen in the background of the smears (Figure 1 & 2).

We had 4 cases of carcinoma. Smears were hypercellular with tumour cells in discohesive sheets and dispersed singly. The cells were relatively large, with pleomorphic, eccentrically placed, round to oval nuclei and had abundant eosinophilic cytoplasm (Figure 3 & 4).

In present study 2 cases were diagnosed as Suspicious of malignancy. Smears were cellular with many epithelial cells in sheets, clusters and cribriform pattern and few of these cells showed significant crowding, overlapping and cellular atypia with few bipolar cells in the background.

Table 4: Results of the present study in comparison with other studies

Result	MacIntosh et al. ¹	Wauters et al. ¹⁶	Kirana Pailoor et al. ¹⁷	Ganguly S et al. ¹⁸	Present Study
Year	2008	2009	2014	2015	2019
No. benign cases	-	-	36(90%)	29 (76.3%)	23(76.66%)
No.of malignant cases	11(7.9%)	15 (10.2%)	1(4.16%)	4 (10.5%)	4(13.3%)
No.of unsatisfactory cases	46(33.3%)	45 (30.6%)	0	1 (2.6%)	1(3.33%)

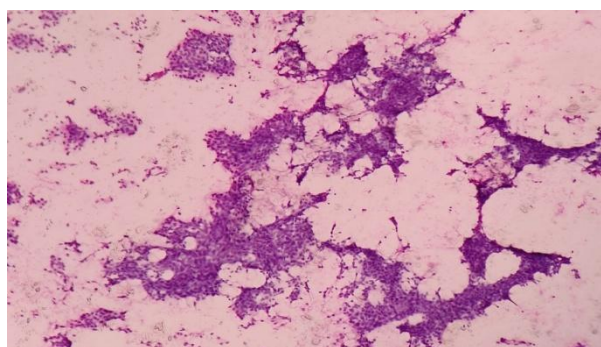


Figure 1: Gynaecomastia; Smear show cohesive groups of benign ductal cells with stromal fragments and bare bipolar nuclei (10x, H&E).

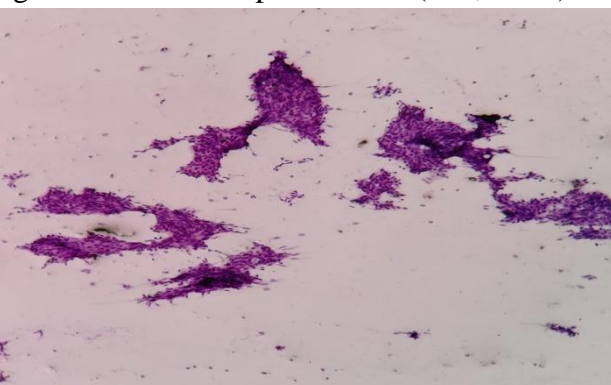


Figure 2: Gynaecomastia; Smear showing cohesive clusters of bland cells in a case of Gynecomastia (10x, H&E).

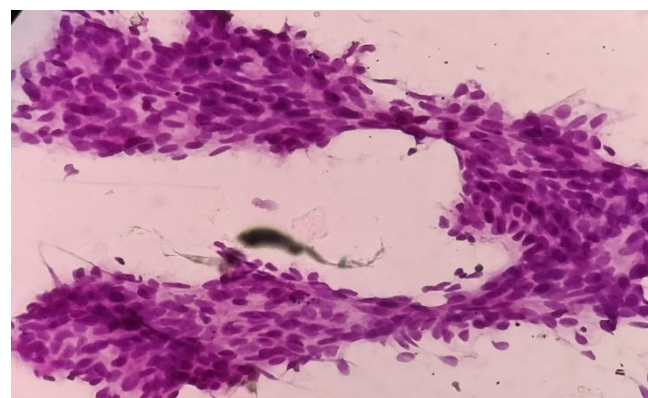


Figure 3: Smear showing dyscohesive sheets of cells. (40x H&E).

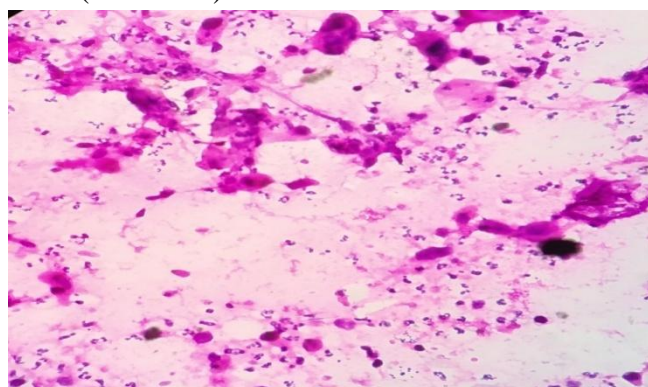


Figure 4: Smear shows pleomorphic cellin discohesive sheets and dispersed singly (40x, H&E).

Discussion

Diagnosis of palpable breast masses by FNAC has gained world-wide acceptance⁷. The incidence of male breast cancer has increased, approximately about 26% over the past 25 years, similar to the trend seen in women over the years.^{8,9}. In view of more cases of male breast cancer, there is increasing interest in this disease worldwide.¹⁰. Therefore, this study was done to analyze the cytological spectrum of male breast lesions.

This study included total 30 male patients who underwent FNAC for the assessment of a breast lump. 23 out of 30 cases (76.66%) were gynecomastia. This was similar to the studies conducted by Ganguly S et al.¹⁸, Pratik Mohanrao Chide et al.¹² who observed more number of gynecomastia cases. Gynecomastia was bilateral in 4 cases (17.39%) and more frequent in the left side than right side (15 cases were left sided). This was similar to the studies conducted by Das et al.⁶ and Martin-Bates et al.¹¹ who observed it more in the left breast.

The maximum cases were in the age group of the third and sixth decade. This was similar to the study conducted by Pratik Mohanrao Chid et al.¹² who observed maximum cases in the age group of third and sixth decade and to Russin et al, observed bimodal peak in the third and seventh decades.¹³ The youngest patient in this study was 16 year male and oldest was 73 year old man.

Gynecomastia is the most common cause of masses in the male breast and is defined as the enlargement of the male breast due to proliferation of both glandular and stromal elements. The FNAC features of gynecomastia include three components such as cell poor to cell-moderate, cohesive sheets or groups of bland cells, bipolar bare nuclei and single, tall columnar cells. Mild to moderate cellularity was observed in 86% of cases by Russin and associates¹³, in 96.2% of cases by Das et al.,⁶ and 95.65% in the present study. However, Gupta et al.¹⁴ observed rich cellularity in 79.1% of cases. Mild nuclear atypia was observed in two cases (6.66%) in our study

whereas, it was seen in 5.3% and 9.3% of cases in Das et al and Gupta et al respectively.^{6,14}

We had four cases of male breast carcinoma. This was in contrast to other studies done by Siddiqui², Westend¹⁵, MacIntosh¹ and Wauters et al.¹⁶ Kirana Pailoor et al.¹⁷ Ganguly S et al.¹⁸ who had less number of cases. [Table- 4]

The number of unsatisfactory cases ranged from 11.7% to 33.3% in various studies. In present study we had only one unsatisfactory case that is 3.33%. [Table- 4]

The male breast carcinomas were easily distinguished on cytology from gynecomastia on the basis of high cellularity, dyscohesive cell groups with nuclear piling and anisonucleosis⁶. These features were observed in almost all cases of carcinoma of male breast. Absence of bipolar bare nuclei was an important clue and only two cases of carcinoma showed benign cells accompanying malignant cells. In the present study, we found that there were four cases of carcinoma and two cases suspicious of malignancy. In our study 13.3% cases were carcinoma which is more when compared to Wauters et al. (10.2%)¹⁶ and Westend et al. (9.8%)¹⁵.

Conclusion

FNAC is accurate and reliable tool for diagnosis of male breast lesions. However, it is more sensitive and specific if the cellularity is adequate. To avoid unnecessary surgical biopsies, we conclude that FNAC should be performed as a standard procedure in the clinical evaluation of male breast masses.

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