



SPECTRUM OF CYTOMORPHOLOGICAL FINDINGS OF MALE BREAST LESIONS IN A TERTIARY CARE CENTRE- A FIFTEEN YEAR STUDY

Pathology

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ABSTRACT

Introduction: Fine needle aspiration cytology (FNAC) has a well-established role in management of palpable breast lump. However male breast lesions are aspirated rarely so there is limited cytopathologic experience. **Aim:** To study the various cytomorphological patterns of male breast lesion. **Materials And Methods:** This is a retrospective cross sectional study from January 2009 to December 2023. Cases were retrieved from the files of Department of Pathology, Regional Institute of Medical Sciences, Imphal. Inclusion criteria is all male patients presenting with breast masses during the study period. FNAC diagnosis of the male breast lesions were categorized according to Yokohama System for Reporting Breast Cytopathology (YSRBC). **Result:** Out of 2840 cases undergoing breast FNAC, 215 cases were aspirated from male breast lesion. Majority of male patients had unilateral lesion (95%). The commonest lesion was Gynaecomastia (82%). **Conclusion:** FNAC is a reliable technique for the diagnosis of male breast lesion. Gynaecomastia is the most common cause of unilateral and bilateral breast masses in male. Malignancy of male breast is extremely rare. FNAC can serve as a useful technique for early diagnosis of male breast lesions including malignancy and helps in instillation of early treatment

KEYWORDS

FNAC, Gynaecomastia, Male Breast

INTRODUCTION

In males, the breast tissue is composed of a nipple and rudimentary branching duct system composed of glandular epithelial elements in a stroma of collagen and adipose tissue.¹ However, in contrast to the female breast, there is no lobule.^{2,3} The Cooper's ligaments are also absent in male breast and the presence of terminal duct lobular unit is rare which is the main site of origin of female breast lesions.⁴ The male breast is susceptible to the same disease entities that occur in the female breast, although at lower incidences.

Gynaecomastia is the most common cause of benign breast lesions of male.^{5,6,7,8} It most often results from imbalance between androgen and estrogen ratio. Breast cancer is rare in males as the ductal cells in male breast are less well developed as compared to females. According to cancer incidence estimates for 2022 and projection for 2025: Result from National Cancer Registry Programme India, 5649 cases of male breast cancer cases were reported.¹⁰

FNAC being a simple and cost effective method, is of great value in the diagnosis of breast lesions in both males and females. However, male breast lesions are uncommon leading to limited cytopathologic experiences. So, research and data on male breast lesions from our area are also limited. Our aim is to study the various cytomorphological patterns of male breast lesions in our region.

MATERIALS AND METHODS

A cross sectional study was conducted from January 2009 to December 2023 where data of all male patients who have undergone FNA during the study period for breast lesions were reviewed from the archives. All the cytology slides were retrieved and studied extensively by two senior pathologist in the cytology section of Pathology Department in Regional Institute of Medical Sciences, Imphal. Both clinical and

cytological findings were collected and Yokohama System for reporting breast cytopathology (YSRBC) was used for reporting the cases. Descriptive statistics like mean, percentage were used.

RESULTS AND OBSERVATION

A total of 2840 aspirations from breast lesions were performed during the study period. Out of 2840 cases, 215 (7.5%) were of male breast lesions. (Figure 1)

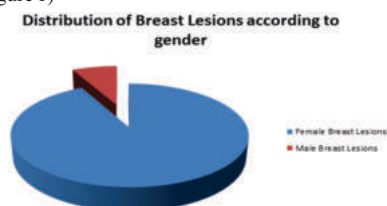


Figure1: Distribution of Breast Lesion Between Males and Females

Majority of the male breast patients had unilateral lesions (94.8%). (Figure2)



Figure2: Distribution of Male Breast Lesion According to Laterality

The male breasts lesions were categorized according to the Yokohama system of reporting breast cytopathology (YSRBC). Maximum cases were in the Benign category with 201 cases (93%), followed by Atypical Category with five (2.5%) cases, Insufficient with four (2%) cases, Malignant with three (1.5%) cases and Suspicious with the least cases of two (1%). (Table1)

Table1: Distribution of Male Breast Lesions According to YSRBC (n=215)

Diagnosis	Number of Cases (#)	Percentage (%)	Age range	Mean age
Insufficient	4	2		
Benign	201	93	11-85	48
Atypical	5	2.5	45-58	51.5
Suspicious	2	1	50-58	54
Malignant	3	1.5	55-65	60
Total	215	100		

Among the Benign category in the Yokohama System of Reporting Breast Cytopathology, the most common male breast lesion was found to be Gynaecomastia having 181(82%) cases which is followed by Acute suppurative mastitis with 10 (5.5%) cases while the least number of cases were of Chronic mastitis, Usual ductal hyperplasia, Fat necrosis and Fibroadenoma accounting for one (0.5%) cases each during the study period. (Table2)

Table2: Distribution of Cases in Benign Category of Yokohama System for Reporting Breast Cytopathology (n=215)

Benign	No. of cases (#)	Percentage (%)
Gynaecomastia	181	82
Acute Suppurative mastitis	10	5.5
Lipoma	4	2.5
Chronic mastitis	1	0.5
Usual Ductal Hyperplasia	1	0.5
Fibrocystic Lesion	2	1
Fat necrosis	1	0.5
Fibroadenoma	1	0.5
Total	201	93

Figure3 shows the photomicrograph of a case of gynaecomastia in scanner view displaying benign ductal cells in monolayer sheets, some with finger like projections in a background of bare nuclei. In the 400X view in figure4 of the same case, there is monolayer sheets of benign ductal cells admixed with myoepithelial cells.

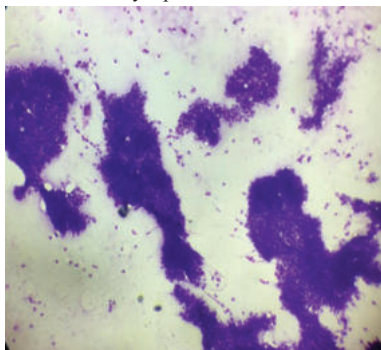


Figure3: Smear Showing Benign Ductal Cells in Monolayer Sheets, Some with Finger Like Projections in Background of Bare Nuclei in a Case of Gynaecomastia 40X (Giemsa Stain)

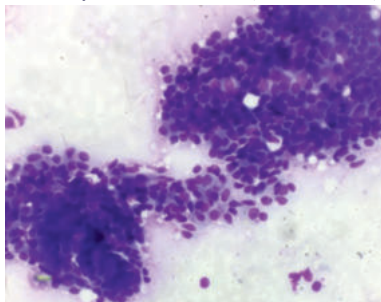


Figure4: Smear Showing Monolayer Sheets of Benign Ductal Cells Admixed with Myoepithelial Cells in a Case of Gynaecomastia 400X (Giemsa Stain)

There were five (2.5%) cases reported under the atypical category, two (1%) cases under suspicious category and three (1.5%) cases under malignant category. (Table3)

Table3: Distribution of Cases of Atypical, Suspicious and Malignant Category of Yokohama System for Reporting Breast Cytopathology (n=10)

	No. of cases (#)	Percentage (%)
Atypical	5	2.5
Suspicious	2	1
Malignant (Invasive Duct carcinoma)	3	1.5
Total	10	5

Figure5 shows a case of Invasive ductal carcinoma in which the malignant tumor cells are seen to be arranged in loosely cohesive clusters with few singles and the tumors cells are large and the nuclei show pleomorphism, hyperchromatism and prominent nucleoli with scant amount of cytoplasm and no bare nuclei in the background

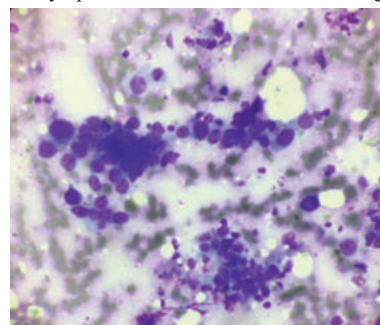


Figure5: Smears Showing Malignant Tumor Cells in Loose Cohesive Clusters in a case of Invasive ductal carcinoma 100X (Giemsa stain)

DISCUSSION

FNAC is a minimally invasive, rapid, cost effective tool for diagnosing lesions of the breast. However, due to rarity of male breast lesions, they are seldom aspirated as compared to female breast lesion which is reflected in the present study, where the number of male breast lesion who came for FNA was only 7.57%. Similarly in other studies also, the number of male breast lesions showed lower percentages with Singh et al¹¹, Siddiqui et al¹², Pailoor et al¹³, Chide et al¹⁴ having 5.89%, 4.3%, 3.6%, 2.4% cases of male breast lesions respectively in their studies.

The age group of our study ranges from 11 years to 85 years with a mean age of 48 years which was found to be more or less in par with other studies such as Singh et al¹¹, Siddiqui et al¹², Pailoor et al¹³, Chide et al¹⁴, Roa et al¹⁵, Mellissa O et al¹⁶.

In all the literatures that we reviewed, the commonest breast lesion was found to be gynaecomastia similar to our study. Our study found a much lower percentage of malignant breast lesion accounting for only 1.5% out of all the breast lesions studied. Similarly other studies also found lower percentage of malignant male breast lesion as compared to the benign male breast lesions. The number of malignant male breast lesions in the studies conducted by Singh et al¹¹, Siddiqui et al¹², Pailoor et al¹³ and Chide et al¹⁴ were found to be 11.18%, 5.2%, 2.5%, 7.5% respectively.

Among the malignant breast lesions, maximum cases were primary in most of the studies such as Singh et al¹¹ with 13 primary and only 1 metastasis. And in some studies such as Pailoor et al¹³, Chide et al¹⁴ including our present study there were no cases of metastasis and all the malignant cases were of primary origin in the breast. However in the study by Siddiqui et al¹², the number of metastasis exceeds the number of primary cases in the malignant category, with 17 metastasis cases and 15 primary cases, thus highlighting that metastasis is not uncommon in male breast

Table4 : Table Showing Comparison of Different Studies

Study	Singh et al ¹¹	Siddiqui et al ¹²	Pailoor et al ¹³	Chide et al ¹⁴	Present Study
No. of male FNA	119 (5.89%)	614 (4.3%)	40 (3.6%)	53 (2.4%)	215 (7.57%)

Study	Singh et al ¹¹	Siddiqui et al ¹²	Pailoor et al ¹³	Chide et al ¹⁴	Present Study
No. of male FNA	119 (5.89%)	614 (4.3%)	40 (3.6%)	53 (2.4%)	215 (7.57%)

P: Primary, M: Metastasis

When we categorized the male breast lesion according to the Yokohama System of Reporting the Breast Cytopathology, maximum cases were in the benign category with 93% cases while the atypical, suspicious and malignant cases were very low with 2.5%, 1% and 1.5% respectively and 2% cases of insufficient category. This trend was followed by other studies which we reviewed. In studies by Pailoor et al¹³, Chide et al¹⁴, Siddique et al¹², Mellissa O et al¹⁶, the percentage of cases in the benign category were 90%, 79.24%, 69.5%, 56% respectively while the no. of malignant cases were 2.5%, 7.54%, 5.2%, 1.6% respectively.

Table5: Table Showing the Comparison of Different Studies with Respect to YSRBC

YSRBC	Siddiqui et al ¹²	Pailoor et al ¹³	Chide et al ¹⁴	Mellissa et al ¹⁶	Present study
Insufficient	15.4%	0	7.54%	40%	2%
Benign	69.5%	90%	79.24%	56%	93%
Atypical	9.9%	7.5%	5.66%	0.6%	2.5%
Suspicious			0	0.7%	1%
Malignant	5.2%	2.5%	7.54%	1.6%	1.5%

*YSRBC: Yokohama System of Reporting Breast Cytopathology

CONCLUSION

FNAC is a reliable technique for the diagnosis of male breast lesion. Benign lesions are much more common than the malignant lesions with Gynaecomastia being the most common male breast lesion. FNAC should be one of the preliminary test before undergoing biopsy or surgical resection of any male breast lesion as it can serve as a useful technique for early diagnosis of male breast lesions including malignancy and helps in instillation of early treatment.

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