



ISSN (P): 2617-7226  
ISSN (E): 2617-7234  
[www.patholjournal.com](http://www.patholjournal.com)  
2024; 7(3): 185-187  
Received: 18-05-2024  
Accepted: 26-06-2024

**Dr. Devanshi Jayeshkumar Darji**  
Resident Doctor, Department of Pathology, Narendra Modi Medical College & Sheth L.G. General Hospital, Maninagar, Ahmedabad, Gujarat, India

**Dr. Swati Biren Parikh**  
Professor and Head, Department of Pathology, Narendra Modi Medical College & Sheth L.G. General Hospital, Maninagar, Ahmedabad, Gujarat, India

**Dr. Biren Jitendra Parikh**  
Associate Professor, Department of Pathology, Narendra Modi Medical College & Sheth L.G. General Hospital, Maninagar, Ahmedabad, Gujarat, India

**Dr. Kartavya Jatin Mistry**  
Resident Doctor, Department of Pathology, Narendra Modi Medical College & Sheth L.G. General Hospital, Maninagar, Ahmedabad, Gujarat, India

**Dr. Khushi Biren Parikh**  
MBBS Doctor, Smt. N.H.L. Municipal Medical College, Ahmedabad, Gujarat, India

**Corresponding Author:**  
**Dr. Devanshi Jayeshkumar Darji**  
Resident Doctor, Department of Pathology, Narendra Modi Medical College & Sheth L.G. General Hospital, Maninagar, Ahmedabad, Gujarat, India

## Fine needle aspiration cytology of male breast lesions: A study at tertiary care hospital in Gujarat

**Dr. Devanshi Jayeshkumar Darji, Dr. Swati Biren Parikh, Dr. Biren Jitendra Parikh, Dr. Kartavya Jatin Mistry and Dr. Khushi Biren Parikh**

**DOI:** <https://doi.org/10.33545/pathol.2024.v7.i3c.601>

### Abstract

**Background:** Fine needle aspiration cytology is a quick, accurate and cost-effective method in the diagnosis and management of various lesions. Studies related to male breast lesions are rare. Gynecomastia is the most common cause of benign masses in the male breast. Male breast cancer is extraordinarily rare and it is associated with an aggressive clinical course.

**Aims and Objectives:** The aim of the study is to evaluate the spectrum of male breast lesions, to determine age distribution of male patients presenting with breast swellings and to correlate FNAC findings with histopathology.

**Materials and Methods:** A hospital based observational study was conducted in the Department of Pathology; Narendra Modi Medical College & Sheth L.G. General Hospital, Ahmedabad from January 2017 to May 2024. The study population included male patients with palpable breast lesions. FNAC of patients that yielded inadequate material was excluded from the study. A total of 40 male patients with palpable breast lesions were included. FNAC was done from these palpable lesions of male breast by using 10ml syringe and 22/23 gauge needles. Smears were stained with Haematoxylin and eosin. Demographic data of patients were noted.

**Results:** Total 40 patients of palpable breast swellings were studied, out of which 34 cases had gynecomastia, 4 had benign proliferative breast lesions and 2 had malignancy. Among 40 cases, 24 patients had lesions on left, 12 had lesions on the right and 4 patients had bilateral lesions. Oldest male having breast lesion was of 80 years, while youngest male was of 12 years.

**Conclusion:** FNAC is a reliable, sensitive and specific diagnostic tool for the assessment of breast masses in male patients.

**Keywords:** Male breast, FNAC, gynecomastia, diagnostic

### Introduction

Fine-needle aspiration cytology (FNAC) is a thoroughly used method in the management of breast lesions in women. This technique is simple, quick, safe and inexpensive and good results are attainable with minimum trauma and high specificity [1, 2]. The modern method of FNAC was introduced by Martin and Ellis in 1930 and now it has become a popular procedure in assessment of various palpable lumps [3]. FNAC is highly appropriate for debilitated patients because of low risk of complications, speedy results and painless procedure. Morphologically, the male breasts consist of glandular and adipose tissues in which glandular units are composed of ducts only, which are typically circumscribed underneath the nipple-areola complex [4]. FNAC procedure is done very less often in men, mainly because breast masses in males are less frequent. Gynecomastia is the most common diagnostic entity encountered in men with breast lumps. It is caused by hypertrophy and hyperplasia of the ductal and stromal component of the breast [5]. Clinically, carcinoma resembles gynecomastia as well as any other benign pathological lesions associated with male breast enlargement. Therefore, urgent discrimination of these two contrasting pathological entities is necessary [6]. Studies show that use of fine needle aspiration cytology (FNAC) can allow diagnosis to be made with a sufficient degree of confidence which can spare the patient an invasive surgical procedure [7].

### Aims and Objectives

The aim of the study is to evaluate the spectrum of male breast lesions, to determine age distribution of male patients presenting with breast swellings and to correlate FNAC findings with histopathology.

### Materials and Methods

A hospital based observational study was conducted in the Department of Pathology; Narendra Modi Medical College & Sheth L.G. General Hospital, Ahmedabad from January 2017 to May 2024. The study population included male patients with palpable breast lesions. FNAC of patients that yielded inadequate material was excluded from the study. A total of 40 male patients with palpable breast lesions were included. After explanation of procedure, informed consent from each individual was taken. FNAC was done from these palpable lesions of male breast by using 10ml syringe and 22/23 gauge needles. About three or four smears were prepared. Smears fixed in 95% alcohol were stained with Hematoxylin-Eosin stain. The stained slides were mounted by DPX and examined under light microscope and reported. The stained smears were then classified into five major diagnostic categories after screening and interpretation by applying the probabilistic approach<sup>[8]</sup>: These were C1 (Non diagnostic or unsatisfactory), C2 (Benign), C3 (Atypical /indeterminate), C4 (Suspicious) and C5 (Malignant). Whenever possible, final diagnosis was rendered.

### Results

During the period of study, total 40 patients of palpable male breast lesions were included, out of which gynecomastia (85%, n=34) was the commonest male breast lesion followed by benign proliferative breast lesion (10%, n=4), and carcinoma (5%, n=2). (Table 1)

In present study, male breast lesions were unilateral in 90% of the cases (n=36), in which lesions were observed more frequently on left side (60%, n=24) than right side (30%, n=12), whereas 10% (n=4) of total male breast lesions were found to be bilateral. (Table 2)

Most common age group affected (75%, n=30) among male breast lesions was less than 30 years in which youngest male having breast lesion was of 12 years. The least common affected age group included patients with age beyond 70 years in which the oldest male was of 80 years of age. (Table 3)

Out of 40 patients, 30 cases that underwent FNAC had their biopsies/specimens sent in histopathology department for their confirmatory diagnosis. When observed retrospectively, out of 2 malignant cases reported on HPE, 1 case was false negative and another was true positive on FNAC. In present study, 28 true negative cases with one case each of true positive and false negative were reported. (Table 4)

The sensitivity of FNAC to detect male breast lesions was 50% whereas specificity was 100%. Accuracy of FNAC to correctly detect male breast lesions was 96.6%. Positive predictive value was 100% whereas Negative predictive

value was 96.5%. (Table 5)

### Discussion

The present study was carried out over a period of 7 years in the hospital to find out frequency in variety of pathology of male breast lesions. In present study, benign breast lesions were 95% and malignant breast lesions were 5%. Benign lesions are more than malignant lesions. This is in concordance with studies conducted by Westend *et al*<sup>[9]</sup>, Siddiqui *et al*<sup>[10]</sup>, MacIntosh *et al*<sup>[11]</sup> and Wauters *et al*<sup>[12]</sup>. (Table 6)

The age at presentation was variable with the greatest number of patients belonging to age less than 30 years. The peak age was second decade in present study. Russin *et al*<sup>[13]</sup> observed bimodal peak in the third and seventh decades. The contrast in findings can be explained by smaller sample size in present study.

Studies done by Westend<sup>[9]</sup>, Siddiqui<sup>[10]</sup>, MacIntosh<sup>[11]</sup> and Wauters *et al*<sup>[12]</sup> reported majority of male breast carcinoma beyond 50 years. This is similar to present study in which two cases of male breast carcinoma that were reported on FNAC had age beyond 50 years.

One case of false negative was reported which was diagnosed as male breast carcinoma on histopathological examination but was diagnosed as benign proliferative lesion on FNAC. This can be explained by inability to take sample from various areas of lump due to patient's non-compliance during FNAC procedure.

Table 7 shows comparison of diagnostic parameters of present study with other studies

The difference in diagnostic parameters between present study and other studies may be due to differences in methods of aspiration of breast lumps. These differences might also be explained by variability in sample size.

**Table 1:** Spectrum of male breast lesions:

Spectrum of lesions	No of cases	Percentage
Gynecomastia	34	85%
Benign proliferative breast lesions	4	10%
Malignancy	2	5%
Total	40	100%

**Table 2:** Site-wise distribution of male breast lesions:

Site	No of cases	Percentage
Left	24	60%
Right	12	30%
Bilateral	4	10%
Total	40	100%

**Table 3:** Age-wise distribution of male breast lesions:

Age (years)	No of cases	Percentage
<30	30	75%
30-50	3	7.5%
50-70	5	12.5%
>70	2	5%
Total	40	100%

**Table 4:** Cyto-histopathological Correlation of Male breast lesions:

Spectrum of lesions	FNAC Diagnosis (No of cases)	Histopathology Diagnosis (No of cases)
Benign lesions	29	28
Malignant lesions	1	2
Total	30	30

**Table 5:** Diagnostic Parameters of Male breast lesions:

Diagnostic Parameters	Sensitivity	Specificity	Positive predictive value (PPV)	Negative predictive value (NPV)	Accuracy
Benign	-	100%	-	100%	100%
Malignant	50%	-	100%	00%	50%
Total Lesions	50%	100%	100%	96.5%	96.6%

**Table 6:** Comparison of male breast lesions between present study and other studies:

Name of study	Year	Total cases	Benign	Malignant
Westend <i>et al</i> <sup>[9]</sup>	2002	153	138(90.2%)	15(9.8%)
Siddiqui <i>et al</i> <sup>[10]</sup>	2002	614	588(97.2%)	26(2.8%)
MacIntosh <i>et al</i> <sup>[11]</sup>	2008	138	127(92.1%)	11(7.9%)
Wauters <i>et al</i> <sup>[12]</sup>	2009	147	132(89.8%)	15(10.2%)
Present study	2024	40	37(92.5%)	3(7.5%)

**Table 7:** Comparison of Diagnostic Parameters of Male breast lesions:

Name of study	Year	Sensitivity	Specificity
Westend <i>et al</i> <sup>[9]</sup>	2002	100%	89%
Siddiqui <i>et al</i> <sup>[10]</sup>	2002	95.3%	100%
MacIntosh <i>et al</i> <sup>[11]</sup>	2008	95.5%	100%
Wauters <i>et al</i> <sup>[12]</sup>	2009	100%	90.2%
Present study	2024	50%	100%

## Conclusion

FNAC is a reliable, sensitive and specific diagnostic tool for the assessment of breast masses in male patients. There is no need of anesthesia and speedy results are obtained. The procedure is safe and free from complications and is well tolerated by the patients. Immediate screening of rapidly stained slides for the presence of adequate material should be encouraged. The routine use of FNAC will greatly reduce the number of unnecessary biopsies and frozen sections for histopathologic evaluation, as now, the trend is shifting towards a less invasive diagnostic procedure. Hence, it is strongly recommended to use FNAC as the first-line investigative choice and it is highly effective diagnostic procedure in the diagnosis and management of male breast lesions.

## Acknowledgement

We would like to thank and acknowledge all our senior faculties who have helped in completing our study.

## Conflict of Interest

Not available

## Financial Support

Not available

## References

- Giard RWM, Hermans J. The value of aspiration cytologic examination of the breast: A statistical review of the medical literature. *Cancer*. 1992;69(9):2104-2110.
- Collaço LM, de Lima RS, Werner B, Torres LFB. Value of fine needle aspiration in the diagnosis of breast lesions. *Acta Cytol*. 1999;43(4):587-592.
- Martin H, Ellis EB. Biopsy of needle puncture and aspiration. *Ann Surg*. 1930;92(2):169-181.
- Singh R, Sharma SM, Gangane N. Spectrum of male breast lesions diagnosed by fine needle aspiration cytology: A 5-year experience at a tertiary care rural hospital in central India. *Diagn Cytopathol*. 2012;40(2):113-117.

- Siddiqui MT, Zakowski MF, Ashfaq R, *et al*. Breast masses in males: Multi-institutional experience on fine-needle aspiration. *Diagn Cytopathol*. 2002;26(2):87-91.
- Chikaraddi SB, Krishnappa R, Deshmane V. Male breast cancers in Indian patients: Is it the same? *Indian J Cancer*. 2012;49(3):272-276.
- Das DK, Junaid TA, Mathews SB, Ajrawi TG, Ahmed MS, Madda JP. Fine needle aspiration cytology diagnosis of male breast lesions: A study of 185 cases. *Acta Cytol*. 1995 Sep-Oct;39(5):870-876.
- Pandya AN, Shah NP. Breast fine needle aspiration cytology reporting: A study of application of probabilistic approach. *Indian Med Gaz*. 2013;54:54-59.
- Westend PJ, Jobse C. Evaluation of fine-needle aspiration cytology of breast masses in males. *Cancer Cytopathol*. 2002;96(2):101-104.
- Siddiqui MT, Zakowski MF, Ashfaq R, Ali SZ. Breast masses in males: Multi-institutional experience on fine needle aspiration. *Diagn Cytopathol*. 2002;26(2):87-91.
- MacIntosh RF, Merrimen JL, Barnes PJ. Application of the probabilistic approach to reporting breast fine needle aspiration in males. *Acta Cytol*. 2008;52(4):530-534.
- Wauters CAP, Kooistra BW, Heijden IMK, Strobbe LJA. Is cytology useful in the diagnostic workup of male breast lesions? A retrospective study over a 16-year period and review of the recent literature. *Acta Cytol*. 2010;54(3):259-2564.
- Russin VL, Lachowicz C, Kline TS. Male breast lesions: Gynecomastia and its distinction from carcinoma by aspiration biopsy cytology. *Diagn Cytopathol*. 1989;5(3):243-247.

## How to Cite This Article

Darji DJ, Parikh SB, Parikh BJ, Mistry KJ, Parikh KB. Fine needle aspiration cytology of male breast lesions: A study at tertiary care hospital in Gujarat. *International Journal of Clinical and Diagnostic Pathology*. 2024;7(3):185-187.

## Creative Commons (CC) License

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.