ISSN: 0975-8585

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Study On Distribution Of Palpable Benign (Neoplastic And Non-Neoplastic) Breast Lesions In Thanjavur Medical College Based On FNAC Findings With Histopathological Correlation.

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ABSTRACT

Most of the lesion that occur in the breast are benign. The term "benign breast diseases" has been reported to constitute a heterogeneous group of diseases including developmental abnormalities, inflammatory lesions, epithelial and stromal proliferations and neoplasms**.** Breast diseases are more common in females compared to males and their presentation varies among different countries and ethnical groups. The main aim of the study is to study the incidence and distribution benign breast diseases in both females and males in Thanjavur medical College and hospital and also to study the accuracy of FNAC in diagnosing palpable benign breast diseases which may be very much useful for treating the patient. This is a retrospective study done over a period of 1 year (Jan 2023-Dec 2023), Total of 560 needle aspiration cytology were done during this 1 year period, of which 183 patients were diagnosed with benign breast disease and their subsequent histopathological samples received and were correlated and results were tabulated. Of the 183 patients, The youngest patient was 14 years and the oldest 80 years respectively, females comprises 174 cases (95.1%) and males comprises 9 cases (4.9%). Of the 183 cases, 91 patients (52.3%) are of age group between 31-40 years. In males gynaecomastia was the only lesion found in all 9 patients. The common cytohistological correlation in females was 66.6% for fibroadenoma which is the most common finding among females, 12.0% for fibrocystic disease, 6.7% for benign phyllodes, 6.8% for breast abscess, 3.3% for galactocele and 1.6% for duct ectasia respectively. By studying the distribution of breast disease offers critical views into public health patterns, enabling evidence-based decision-making for prevention, treatment, and resource allocation and betterment in early diagnosis and treatment of breast diseases.

Keywords: Benign breast lesions, fibroadenoma, cytology, histopathology.

https://doi.org/10.33887/rjpbcs/2025.16.3.4

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ISSN: 0975-8585

INTRODUCTION

The vast majority of the lesions that occur in the breast are benign. Benign breast disease is the most common cause of breast problems; up to 30% of women may suffer from a benign breast disease requiring treatment at some point of time in their lifetime [7]. The term "benign breast diseases" has been reported to constitute a heterogeneous group of lesions including developmental abnormalities, inflammatory lesions, epithelial and stromal proliferations and neoplasms [1]. Breast diseases are more common in females compared to males and the presentation pattern varies among different countries and ethnical groups [3]. The incidence of benign breast lesions begins to rise during the second decade of life and peaks in the fourth and fifth decades, as opposed to malignant diseases, for which the incidence continues to increase after menopause, although at a less rapid pace [2]. In a women in whom breast disease is suspected, it is important for the examiner to determine the patient's age at menarche, age at menopause, and previous history of pregnancies including age at first full term pregnancy [8]. Conditions favouring excessive circulating oestrogen in females plays a major role in the development of both benign and malignant breast diseases [2]. Fine needle aspiration cytology (FNAC) has become popular as a valuable tool in preoperative assessment of breast masses, and it shows high accuracy, sensitivity, and specificity [2]. It has gained popularity due to its fast and easy approach, being inexpensive, and can be performed with little complications. To differentiate benign from malignant lesions is one of the major goals of FNAC [8]. Cytological reporting categories are used to objectively describe their features in cytological terms and to incorporate the groups with uncertainties.

The most commonly used categorization is a five-tier system using IAC YOKOHAMA system.

This includes,

C1 Inadequate
C2 Benign
C3 Atypia probably benign
C4 Suspicious of malignancy
C5 Malignant

Aims and objectives

- The main aim of the study is to study the incidence and distribution of benign breast diseases in both females and males in Thanjavur medical College and hospital.
- We also studied the accuracy of FNAC in diagnosing palpable benign breast diseases which may be very much useful for treating the patient.

MATERIALS AND METHODS

This is a retrospective study done in Thanjavur medical college and hospital where FNAC report of 560 palpable breast lump patients who were previously seen in general surgical outpatient department were collected for a period of 1 year from January 2023-December 2023, Of 560 needle aspiration cytology that were done during this 1 year period, 183 patients were diagnosed with benign breast disease and their subsequent histopathological samples received and were correlated and results were tabulated. Of the remaining 386 patients, 309 patients were lost to follow up and 77 patients were diagnosed with carcinoma breast and excluded from the study.

Inclusion Criteria

Both Female and Male patients of 11-80 years with a palpable breast lump were included in the study

Exclusion Criteria

Patients diagnosed with malignant breast disease were excluded from the study and patients with history of chest or breast irradiation, chemotherapy for breast cancer, mastectomy scars or pregnant women were not included.

Procedure

All Fine needle aspirates report of 183 patients done during the period of January 2023-December 2023 (1 year) were collected at the department of pathology, Thanjavur medical college and hospital. These includes those who were previously admitted in general surgical wards with a palpable breast lump, evaluated adequately and had undergone surgeries. The FNAC reports of 183 patients who were diagnosed as benign breast diseases were further correlated with corresponding postoperative histopathological report collected from department of pathology, Thanjavur medical college and hospital since the histopathological finding is considered as gold standard in diagnosis. Based on the findings, distribution of benign palpable breast diseases in thanjavur medical college is studied.

RESULTS

Totally 183 Benign breast disease patient' FNAC Reports were studied which included both females and males, age group ranging between 10-80 years. These FNAC reports were clumped and categorised into Five tier groups using IAC YOKOHAMA system (Table 1). Most common category among these 5 groups is Benign constituting of 142 patients (77.6%), the common disease being fibroadenoma. The FNAC report came to be insufficient in about 6.9% of cases (13 patients).

Hence all these FNAC findings were correlated with histopathological findings and further proceeded.

Among 183 patients,9 patients were found to be male patients that comprises about 4.9% and remaining 95.1% are female patients (Table 2). Of the 9 male patients, all FNAC reported as Gynaecomastia commonly and the age group of male patients are between 15-35 years, the youngest being 15 years and the oldest 34 years respectively.

The age of female patients ranged from 10-80 years, The youngest female was 14 years and the oldest 80 years respectively. About 52.3% of females were between 31-40 years comprising 91 patients (Table 3).22.4% of female patients were between 41-50 years (39 patients). The least among these age wise group is between 71-80 years comprising of 0.6% that includes 1 patient of 73 years.

Of the 174 female patients, the most common disease is found to be fibroadenoma breast comprising of 116 patients covering about 66.6% of total cases (Table 4). Of the 116 patients,73 patients are between the age group of 31-40 years (Table 5). Fibrocystic disease is seen in 21 patients (12.0 %),10 patients between 41-50 years (Table 4 and 5). The least common conditions are found to be Inflammatory lesion, Traumatic fat necrosis, Granulomatous disease comprising of 1.0% each (Table 4).

The distribution of different benign breast diseases among 174 patients varies with age (Table 5). Fibroadenoma is found in 73 patients of total 91 patients of 30-40 years age group (80.2%) and also 70% of patients of 20-30 years had fibroadenoma breast.10 of the total 21 patients of Fibrocystic disease are between 40-50 years (Table 5). Half the patients of Benign phyllodes tumor are between 40-50 age group. In addition to this, sensitivity and specificity of Fine needle aspiration cytology were also calculated by comparing with postoperative histopathological finding and considering HPE as gold standard. FNAC shows 100 % specificity in diagnosing breast diseases (Table 6) along with sensitivity of 95.2%.

Table 1: Categorisation Of Fnac Findings

C1. Insufficient- 13 cases (6.9%)
C2. Benign- 142 cases (77.6%)
C3. Atypical- 21 cases (11.5%)
C4. Suspicious of malignancy- 7 cases (4.0%)
C5. Malignant- Nil

ISSN: 0975-8585

Table 2: Distribution Of Cases In Males And Females

Gender	No Of Cases	Percentage
Male	9	4.9%
Female	174	95.1%
Total	183	100%

Table 3: Age wise Distribution Of Number Of Cases In Females.

BREAST CONDITION	NO OF CASES	PERCENTAGE
Fibroadenoma	116	66.6%
Fibrocystic disease	21	12.0%
Benign phyllodes	10	6.7%
Breast abscess	12	6.8%
Galactocele	6	3.3%
Duct ectasia	3	1.6%
Granulomatous mastitis	2	1.0%
Inflammatory lesion	2	1.0%
Traumatic fat necrosis	2	1.0%
TOTAL	174	100%

Table 4: Distribution Of Benign Breast Diseases In Female Patients As Per FNAC In Correlation With HPE

Age Group	No Of Cases	Percentage
11-20	3	1.7%
21-30	30	17.3%
31-40	91	52.3%
41-50	39	22.4%
51-60	6	3.4%
61-70	4	2.3%
71-80	1	0.6%
TOTAL	174	100%

Table 5: Common Benign Conditions In Particular Age Group In Females As Per FNAC In Correlation With HPE

BREAST DISEASE	11-20	21-30	31-40	41-50	51-60	61-70	71-80	Total
FIBROADENOMA	3	21	73	19	-	-	-	116
FIBROCYSTIC DS.	-	1	7	10	3	-	-	21
BENIGN PHYLLODES	-	1	3	5	1	-	-	10
BREAST ABSCESS	-	3	4	4	1	-	-	12
GALACTOCELE	-	4	2	-	-	-	-	6
DUCT ECTASIA	-	-	-	1	1	1	-	3
MASTITIS	-	-	1	-	-	1	-	2
INFLA. LESION	-	-	-	-	-	1	1	2
FAT NECROSIS	-	-	1	-	-	1	-	2
TOTAL	3	30	91	39	6	4	1	**174**

Table 6: Based on post operative histopathological report, Sensitivity and specificity of FNAC in diagnosing benign breast diseases are calculated.

SENSITIVITY	95.2%
SPECIFICITY	100%

DISCUSSION

Based on the findings of this study, Fibroadenoma is the most common benign breast disease among females and occurs most commonly between the age group of 20-40 years which includes 73 patients between 30-40 years and 21 patients between 20-30 years respectively. Similarly the common age group to be affected with benign breast disease according to our study were between 30-40 years. All the male patient in this study are diagnosed as Gynaecomastia and shows that the most common breast disease among males is Gynaecomastia [4-9].

CONCLUSION

By studying the distribution of breast disease offers critical insights into public health patterns, enabling evidence-based decision-making for prevention, treatment, and resource allocation[4]. It also helps in identifying vulnerable populations, evaluating health interventions, and contributing to research on risk factors and causal mechanisms, ultimately improving health outcomes and reducing disease burden in the community[5]. FNAC of breast is simple, cost effective and less traumatic method for diagnosis of breast lump. It is highly sensitive and specific also, and can reduce the needs for open biopsies. FNAC could be considered an ideal initial diagnostic modality in breast lumps recognized clinical examination/imaging techniques[6].In experienced hands it is not only give as safe, cost effective, rapid and presumptive diagnostic method but also limits unnecessary testing and procedures. Eventhough we are studying only the benign breast diseases in this study, FNAC is found to be the only diagnostic tool to rule out malignancy in the fastest way in general female population.

REFERENCES

[1] Tanaka K, Shoji T, Tominaga Y, Nakagawa H, Yamamoto D, Kawanishi H, Sakaida N, Okamura A, Hioki K. Statistical analysis of diagnostic failure of fine needle aspiration cytology (FNAC) in breast cancer. J Surg Oncol. 2001 Feb;76(2):100-5. doi: 10.1002/1096-9098(200102)76:2<100::aid-jso1019>3.0.co;2-v. PMID: 11223835.

[2] Guray M, Sahin AA. Benign breast diseases: classification, diagnosis, and management. Oncologist. 2006 May;11(5):435-49. doi: 10.1634/theoncologist.11-5-435.PMID: 16720843.

[3] Aslam HM, Saleem S, Shaikh HA, Shahid N and Mughal A. Clinicopathological profile of patients with breast diseases. Diag Cytopathol 2013; 8:77

[4] Mendoza P, Lacambra M, Tan PH, Tse GM. Fine needle aspiration cytology of the breast: the nonmalignant categories. Patholog Res Int. 2011;2011:547580.

[5] Mitra S, Dey P. Fine-needle aspiration and core biopsy in the diagnosis of breast lesions: A comparison and review of the literature. Cytojournal. 2016 Aug 31;13:18.

[6] Berner A, Davidson B, Sigstad E, Risberg B. Fine-needle aspiration cytology vs. core biopsy in the diagnosis of breast lesions. Diagn Cytopathol. 2003 Dec;29(6):344-8.

[7] Bailey and love's Short Practice Of surgery,21th edition.

[8] Sabiston Textbook of Surgery International edition-21st edition.

[9] Schwartz's Pronciples Of Surgery-10th edition.