International Journal of Medical and Pharmaceutical Research

Online ISSN-2958-3683 | Print ISSN-2958-3675
Frequency: Bi-Monthly
Available online on: https://ijmpr.in/

Research Article

Clinico-Pathological and Imaging Correlation in Benign Breast Lumps Among Reproductive-Age Females: Focus on Fibroadenoma Management

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OPEN ACCESS

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Received: 14-08-2025
Accepted: 31-08-2025
Available online: 15-09-2025

ABSTRACT

Background: Benign breast diseases (BBDs) are more prevalent than malignant conditions in reproductive-age women. Fibroadenoma is the most common BBD.[1]
Objectives: To analyze clinical, pathological, and imaging features of BBDs with a focus on management strategies for fibroadenoma.
Methods: A prospective observational study of 100 female patients aged 15–49 presenting with breast lumps was conducted. Clinical evaluation, imaging (USG/mammography), and histopathology (FNAC/core biopsy) were performed.
Results: Fibrocystic disease (37%) and fibroadenoma (33%) were the most common BBDs. There was a strong clinico-radiological and pathological correlation [2,3]. Conservative management of fibroadenoma was successful in most cases, with 76% showing reduction in lump size over six months.
Conclusion: Triple assessment is essential for accurate diagnosis of BBDs. [4,5] Fibroadenoma in young women can often be managed conservatively with close follow-up.

Keywords*: Benign breast disease, fibroadenoma, triple assessment, reproductive-age females, breast imaging, FNAC, conservative management.*

INTRODUCTION

Benign breast diseases (BBDs) encompass a spectrum of non-malignant disorders.[6] Fibroadenomas, traditionally regarded as tumors, are now recognized as hyperplastic lobular growths.[7] Accurate diagnosis using clinical exam, imaging, and cytology allows for effective conservative management and avoids unnecessary surgery.[8]

METHODS

- **Study Design:** Prospective observational study
- **Setting:** Medical College & Hospital, Kolkata (2019–2020)
- **Sample:** 100 women (age 15–49) with benign breast lumps
- **Tools:** Clinical examination, USG/mammography, FNAC/core biopsy
- **Inclusion/Exclusion:** Excluded malignancy, trauma, pregnancy, abscess
- **Statistical Analysis:** Pearson correlation, chi-square test, descriptive statistics

RESULTS

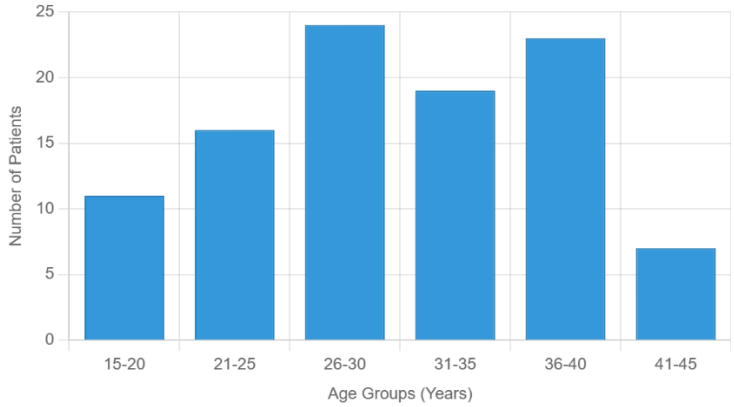

Figure 1; Age distribution of Benign breast disease

Table 1: Distribution of Benign Breast Diseases (N=100)

Diagnosis	Number (n)	Percentage (%)	Mean Age (years)	Age Range (years)
Fibrocystic Disease	37	37.0	34.0	22-42
Fibroadenoma	33	33.0	25.7	16-42
Duct Ectasia	6	6.0	27.4	21-30
Granulomatous Mastitis	5	5.0	26.4	19-38
Phyllodes Tumor	4	4.0	31.25	22-40
Lipoma	3	3.0	36.0	28-42
Normal Study	3	3.0	-	-
Others*	9	9.0	-	-

**Others include: Galactocele (2), Hemangioma (2), Duct Papilloma (2), Neurofibroma (2), Sebaceous Cyst (1)*

Table 2: Diagnostic Correlation Analysis

Correlation Parameters	Pearson Coefficient (r)	P-value	Statistical Significance
Clinical vs Radiological Diagnosis	0.98	<0.0001	Highly Significant
Clinical vs Pathological Diagnosis	0.98	<0.001	Highly Significant

Table 3: Fibroadenoma Management Outcomes (N=33)

Parameter	Conservative (n=22)	Surgical (n=11)	Statistical Test	P-value
Treatment Distribution	**66.66%**	**33.33%**	**-**	**-**
Size Reduction at 6 months	**16/21 (76.19%)**	**N/A (excised)**	**-**	**-**
Pain Relief at 6 months	**12/21 (57.14%)**	**7/10 (70%)**	**$\chi^2 = 1.4053$**	**0.704**

The age distribution of benign breast diseases (Figure 1) showed a predominance in the second and third decades of life, with fibroadenomas more common in younger women and fibrocystic changes occurring at slightly older ages.

Among the 100 patients studied, fibrocystic disease (37%) and fibroadenoma (33%) were the most frequent diagnoses, while less common conditions included duct ectasia, granulomatous mastitis, phyllodes tumor, and lipoma; rare entities such as galactocele, hemangioma, duct papilloma, neurofibroma, and sebaceous cyst were also documented (Table 1).

Diagnostic accuracy was excellent, with near-perfect correlation between clinical, radiological, and pathological findings ($r = 0.98$, $p < 0.001$), confirming the reliability of triple assessment in benign breast disease evaluation (Table 2).
Focusing on fibroadenoma management, two-thirds of patients were treated conservatively and one-third surgically; notably, 76% of conservatively managed cases demonstrated significant lump size reduction over six months, and pain relief was comparable between groups without statistical significance ($p = 0.704$), reinforcing conservative management as a safe and effective approach in selected patients (Table 3).

DISCUSSION

This prospective study of 100 reproductive-age women with benign breast lumps highlights important epidemiological and clinical patterns within the Indian context. Fibrocystic disease (37%) and fibroadenoma (33%) were the two most frequent entities. While some studies report fibroadenoma as the predominant lesion (42%) [9,10], others, such as Memon et al., observed a higher prevalence of fibrocystic disease (66.3%). [11] Our findings therefore align more closely with regional variations where fibrocystic changes are more frequent in slightly older women, whereas fibroadenomas predominate in younger patients. The mean age of fibroadenoma cases in our cohort (25.7 years) matched well with classical descriptions by Haagensen, who noted that the majority occur between 16–30 years. [12]

Similarly, fibrocystic disease presented predominantly in the fourth decade, in keeping with the ANDI classificatio n. [13] Clinical presentation trends were also consistent, with mastalgia being a common symptom in fibrocystic disease, while fibroadenomas were mostly painless, as reported by Hughes et al. [14]
Diagnostic accuracy was excellent, with near-perfect correlation between clinical, radiological, and pathological assessments ($r = 0.98$, $p < 0.001$). This reinforces the established role of triple assessment as the gold standard for breast lump evaluation, as supported by prior studies. [9,10]

Management outcomes for fibroadenoma provide an important contribution to existing literature. Conservative management was offered to two-thirds of patients, with 76% showing spontaneous size reduction over six months. These findings support earlier recommendations by Cant et al. [6] and Greenberg et al. [15] advocating non-operative management in selected cases.

The comparable pain relief in conservative and surgical groups, without significant statistical difference, further challenges the need for routine excision in all fibroadenomas. Overall, our results validate established diagnostic approaches while adding quantitative evidence for the efficacy of conservative fibroadenoma management in an Indian tertiary care setting. With appropriate patient selection and systematic follow-up, non-operative strategies can reduce unnecessary surgical burden while maintaining favourable outcomes.

CONCLUSION

This study provides valuable addition to the literature on benign breast diseases in reproductive-age women, particularly in the Indian context. The findings largely corroborate existing knowledge while providing new insights into conservative management outcomes. The excellent diagnostic correlations validate current assessment protocols, while the successful conservative management outcomes support evidence-based practice evolution.

The results suggest that with appropriate patient selection and systematic follow-up, conservative management of fibroadenomas can achieve favourable outcomes, potentially reduce healthcare burden while maintain quality of care. This evidence contributes to the growing body of literature supporting personalized, risk-stratified approaches to benign breast disease management.

Study Limitations

1) Small sample size (n=100)
2) Single-center study
3) Non-blinded, non-randomized design
4) Observer bias potential
5) Only fibroadenoma cases followed up systematically

Conflict of Interest

None

Ethical Approval

Approved by Institutional Ethics Committee. Informed consent obtained ref no MC/KOL/IEC/NON_SPON/318/02-2019

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