

# Analysis of Fine Needle Aspiration Cytology in Diagnosing the Patients with Breast Lump: A Prospective Study

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## Abstract

**Background:** Fine Needle Aspiration Cytology (FNAC) is an important tool for triple assessment (clinical examination, imaging, FNAC) of palpable breast lumps. The place where nature of breast lump is difficult to determine by clinical examination FNAC has its role. **Aim:** To determine the importance of FNAC and correlate it with clinical diagnosis to identify the types of benign breast diseases and their clinical presentation. **Methods:** 102 women presenting with the complaints of breast pain and lump were included in the study for a period of 6 months followed by physical examination and FNAC. **Results:** The highest incidence of age group was found between 15-25 years, The most affected side of breast is right side 62 (60.7%), The most patients affected with upper quadrant of breast with 48 patients (47.058%), The most patients with signs and symptoms of lump in the breast of 40 patients (39.215%) On clinical diagnosis 58 patients accounted with fibroadenoma but upon FNAC only 44 were diagnosed with fibroadenoma followed by fibroadenosis, breast abscess, Intraductal papilloma. **Conclusion:** The fine needle aspiration cytology is an essential and important test in diagnosing and managing a patient presenting with lump breast. It is easy to perform, more reliable, repeatable and a simple test to diagnose patient presenting with lump breast.

**Key words:** FNAC, Breast pain, Breast lump, Fibroadenoma, Fibroadenosis.

## INTRODUCTION

Female breasts are specialized organs consisting of glands which grow and develop during puberty and maturation leading to anatomical changes in breast. Majority of breast lesions are found to be benign than malignant. Benign breast diseases are most common and can occur at any time during the life cycle of a female.<sup>[1-3]</sup>

Out of all cancers, breast cancer stands 2<sup>nd</sup> after the cervical cancer and is the most common cause of cancer in women. It is estimated that by 2020, 70% of world cancer cases are reported from poor countries. The Indian Council of Medical Research released an analysis of cancer cases among women in various parts of country from 1982-2005, showing that about 10 years ago 10 per 1,00,000 women got breast cancer, compared with 23 per 1,00,000 women now<sup>[4,5]</sup> Fine needle aspiration cytology as become predictable diagnostic tool for identifying different breast masses. Fine needle aspiration cytology is considered to be most secure, prompt and simplest method which is cost effective, less invasive and as sensitive as biopsy. Diagnosing benign lesions reduces the need for open biopsy. Fine needle aspiration cytology is used to determine the nature of breast which therefore helps in identifying whether the breast lump is benign or malignant.<sup>[6-13]</sup>

This study aims at analysing the importance of Fine needle aspiration cytology

and correlate it with clinical diagnosis to identify the types of benign breast diseases and their clinical presentation.

## METHODOLOGY

This is a prospective study conducted at Sai Shree Cancer Hospital, Warangal, Telangana, India. Patients presenting with breast pain and breast lump were examined (Informed consent was obtained from the patients to perform Fine Needle Aspiration Cytology). Patients aged greater than 14 years presenting with complaints of breast pain and breast lump were included in the study. Patients less than 14 years of age who are not willing to perform Fine Needle Aspiration Cytology and patients previously diagnosed with Benign breast diseases and men were excluded in the study. A detailed demographic detail from the patients were obtained using case profile form designed and

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authenticated by local IEC. A complete clinical examination was performed, and patient was informed about the benefits and risk of the procedure.

**RESULTS**

A total of 102 breast lump cases were collected along with their complete details and clinical findings. The FNAC report was correlated with the clinical diagnosis. The highest incidence among the 102 cases was found between the age group of 15-25 (Table 1). In this study the lump in right breast was involved in 62 patients left in 34 and both in 6 patients respectively (Table 2).

The number of patients with the breast lump are 40, number of patients with breast pain were 25, number of patients with both lump and breast pain were 26 patients, number of patients with the nipple discharge were 3 patients. No of patients with the symptom of ulceration in skin were 3 patients, 2 patients with the symptoms of lump, breast pain, nipple discharge, 3 patients with the symptom of nipple retraction (Table 3). On clinical diagnosis 58 patients accounted with fibroadenoma but upon FNAC only 44 were diagnosed with fibroadenoma followed by fibroadenosis, breast abscess, Intraductal

**Table 5: Distribution of patients according to quadrant of breast**

Quadrant	Number	Percentage
Upper outer quadrant (UOQ)	48	47.058%
Upper inner quadrant (UIQ)	20	19.607%
Central	3	2.941%
Lower outer quadrant (LOQ)	29	28.431%
Lower inner quadrant (LIQ)	2	1.960%

papilloma (Table 4). The upper outer quadrant (UOQ) of the breast was found to be most common quadrant to be involved followed by lower outer quadrant (LOQ) (Table 5).

**DISCUSSION**

The application of FNAC for the diagnosis of palpable breast masses was first introduced by Martin and Ellis in 1930.<sup>[14]</sup> In our study we found FNAC of breast is an established method to determine the nature of breast lump with high degree of accuracy<sup>[15-17]</sup> and it is less traumatic highly sensitive and specific method for assessment of breast lumps similar association has shown by Tiwari M *et al.*<sup>[6]</sup> Who found that FNAC is simple, cost effective, highly sensitive, and specific method for assessment of breast lumps. So if there is extensive inflammation in FNAC, it is better to correlate the findings with clinical diagnosis and to take core biopsy to avoid misdiagnosis.

Our study stated that FNAC can decrease the number of Open breast biopsies which is similar to the study of Hindle WH *et al.* reports<sup>[7]</sup> which stated that FNAC reduce open biopsies. It is extremely beneficial in reaffirming the clinical impression of benign disease, which may not need subsequent biopsy. Furthermore, it allows more rapid diagnosis of a malignant condition in clinically non-suspicious masses.

Fine Needle Aspiration Cytology (FNAC) is an important tool for triple assessment (clinical examination, imaging, FNAC) of palpable breast lumps, similar to the reports of Kaufman Z *et al.* found that Triple approach in the diagnosis of dominant breast mass. Combination of the triple test and Open Surgical biopsy has been firmly established as highly accurate in the diagnosis of breast masses.<sup>[18,19]</sup>

In our study the most common age group presenting with benign breast diseases was 15-25 years which is similar to the reports of Irene Edwin *et al.*<sup>[20]</sup> but it is contradicts to the reports of Hussain *et al.* with the age distribution of maximum patients were seen in 31-40 years age group.<sup>[21]</sup> Our reports stated that upper outer quadrant is the commonest position of lump in the breast which is similar to the reports of Kumar *et al.*<sup>[22]</sup> In our study, the right breast was commonly involved and the upper outer quadrant was commonly involved which was comparable to study by others.<sup>[23]</sup>

Benign Breast diseases are at least 10 times more common than breast cancer in hospital clinics. Currently malignant to benign ratios of 1:10 are seen in breast clinics. At the King's College Hospital Breast Clinic, a study was conducted on breast conditions and 80% of patients with breast symptoms had breast diseases. In a case study of benign breast diseases in Greater Boston in 1968 fibroadenoma was commonest and found during the second decade of life commonly in married nullipara <sup>[24]</sup>

Our study stated that fibroadenoma was the most common benign breast disease and second most benign breast disease is fibroadenosis which is

**Table 1: Age wise distribution of patients with benign breast diseases**

Age	Number	Percentage
15-25	44	43.137%
26-35	32	31.372%
36-45	14	13.725%
46-55	8	7.843%
56-65	4	3.921%

**Table 2: Distribution of patients according to affected side of breast**

Side of breast	Number	Percentage
Right	62	60.784%
Left	34	33.333%
Both	6	5.882%

**Table 3: Clinical presentation distribution of patients**

Signs/symptoms	Number	Percentage
Lump in breast only	40	39.215%
Breast pain only	25	24.509%
Lump+breast pain	26	25.490%
Nipple discharge only	3	2.941%
Ulceration in skin	3	2.941%
Lump+breast pain+Nipple discharge	2	1.960%
Nipple retraction	3	2.941%

**Table 4: Correlation of clinical diagnosis with FNAC diagnosis in benign breast diseases**

Type of benign breast diseases	Clinical diagnosis	FNAC
Fibroadenoma	58	44
Fibroadenosis	36	25
Breast abscess	3	2
Intraductal papilloma	3	1
Fibrocystic disease	2	0

like the studies reports. In their study they found most common benign breast diseases was fibroadenoma.<sup>[25-28]</sup> Internationally, Jamal reported that fibroadenoma was the common breast lesion in their population in Jeddah, where it was present in 47% of females .but our studies stated that fibroadenosis was the most common breast lump.<sup>[17]</sup> Kumar R *et al.* reports stead that Fibroadenoma is not common breast lesion, present in female patients which are similar to our reports<sup>[29]</sup>

The patients were broadly classified into 5 groups depending on their symptoms such as Breast lump, Breast pain, Nipple discharge, Ulceration inn skin, Nipple retraction. Our study stated that the most common symptom in most of the patients is breast lump which is similar to the study of Sonia *et al.* reports.<sup>[30]</sup>

Although benign breast lumps are most common than malignant ones, females who present to the private medical center with complaints of breast lump suffer anxiety due to the fear of it turning out to be the malignant lesion. Thus, it is important to investigate these patients according to standard protocols to relieve their stress.<sup>[31]</sup> Khan *et al.* also noted in their study that lump in the breast was more common on the left side with 57.5% of their patients than on the right side, i.e.42.5% but our reports are contradiction to Khan *et al.* reports our reports stated that lump in the breast was more common the right side with 60.784% of their patients than the left side, i.e.33.333%.<sup>[32]</sup>

## CONCLUSION

Thus we conclude from this study that the commonest benign breast disease encountered in the clinical practice is fibroadenoma followed by fibroadenosis .The most common age group affected was 15-25 years. The most common site of involvement is right side of breast (60.784%). The commonest mode of presentation in patients with benign breast diseases was lump (39.215%) followed by pain (24.509%) in breast. The FNAC is an essential and important test in diagnosing and managing a patient presenting with lump breast. It is easy to perform, more reliable, repeatable and a simple test to diagnose patient presenting with lump breast and highly accurate preoperative method for diagnosis of breast lesions.

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## ABBREVIATIONS

**FNAC:** Fine needle aspiration cytology; **BBD:** Benign breast diseases; **UOQ:** Upper outer quadrant; **LOQ:** Lower outer quadrant; **LIQ:** Lower inner quadrant; **UIQ:** Upper inner quadrant.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## REFERENCES

1. Srivatsava A, Dhar A. Benign breast disease: A neglected entity. Recent Advances in surgery. 2006;10:175-201.
2. Santen RJ, Mansel R. Benign breast disorders. N Engl J Med 2005;353:275-85.
3. Shashikala V, Sonia Rani P.B, Alister J Victor. Clinical pathological study of

- benign breast diseases. Int J Biomed Adv Res. 2016;7(9):424-427.
4. Conchran RA, Singhal H. Monympenny IJ, Sebster DJ, Lyone K, Mansel RE. Evaluation of general practitioner referrals to a specialist breast clinic according to the UK national guidelines. Euro J Surg Oncol.1997;23(3):198-201.
5. Priya Shetty. World Report India faces growing breast cancer epidemic. The lancet 2009;379:992-3.
6. Tiwari M. Role of fine needle aspiration cytology in diagnosis of breast lumps. Kath Uni Med J. 2007;5(2)18:215-217.
7. Hindle WH, Payne PA, Pan EY. The use of fine needle aspiration in the evaluation of persistent palpable dominant breast masses. Am J Obstelstics Gynaecol,1993;168(6):1814-8.
8. Komal Joshi,Nandita Mehta,Hansa Goswami.Utility of Fine needle aspiration cytology in evaluation of benign breast lesions. Nat J Basic Applied Sci. 2016;8(1):1-6.
9. Saifur Rahman, Manzoor Ali, Yasir Khalili, Anwar Ali, Amreek Lal. Role of fine needle aspiration cytology in evaluating the breast lumps. Gomal J Med Sci. 2011;9(1):59-61.
10. Koss LG. The palpable breast nodule: A cost effectiveness and analysis of alternative diagnostic approaches : The role of the needle aspiration biopsy. Cancer.1993;72:1499-502.
11. Rubin M, Horiuchik, Joy N, Haun W, Read R, Ratzer E, Fenoglio M. Use of fine needle aspiration for solid breast lesions is accurate and cost effective. Am J Surg.1997;174(6)694-8.
12. O Neils, Castelli M, Gattuso P, Kluskens L, Madsen K, Aranha G. Fine needle aspiration of 697 palpable breast lesions with histopathologic correlation. Surgery 1997;122(4):824-8.
13. Chaiwan B, Settakorn J, Ya In C. Effectiveness of fine needle aspiration cytology of breast: Analysis of 2,375 cases from northern Thailand. Daign Cytopathol, 2002;26:201-5.
14. Martin HE, Ellis EB. Biopsy by needle puncture and aspiration. Ann surg 1930;92:169-81.
15. Purasiri P, Abdalla M, Heys SD, Ah-see AK, Mc Kean ME, Gilbert FJ, *et al.* A novel diagnostic index for use in the breast clinic. J Royal College of Surgeons of Edinburgh. 1996;41:30-4.
16. Dehn TCB, Clarke J, Dixon JM, Crucioli V, Greenall MJ, Lee ECG. Fine needle aspiration cytology with immediate reporting in the outpatient diagnosis of breast disease. Ann R Coll Surg Engl. 1987;69:280-2.
17. Dixon MJ, Anderson TJ, Lamb j, Forest AMP. Fine needle aspiration cytology in relationship to clinical examination and mammography in the diagnosis of solid breast mass. Br J Surg. 1984;71:593-6.
18. Kaufman Z, Shpitz B, Shapiro M, *et al.* Triple approach in the diagnosis of dominant breast mass: Combined Physical examination, mammography and fine needle aspiration. J Surg Onco,1994;56:254-7.
19. Negri S, Bonetti R, Cpitano A, Bonzanini M. Preoperative diagnostic accuracy of fine needle aspiration in the management of breast lesions: Comparision of specificity and sensitivity with clinical examination, mammography, Echonography and thermography in 249 patients. Diagn Cytopathol.1994;11:4-8.
20. Irene Aruna Edwin. The fine needle aspiration cytology with post-operative histopathology correlation of lump breast. Int J Sci Study. 2017-228;(10).
21. Hussain MT. Comparision of FNAC with excision biopsy of breast lump. J Coll physicians Surg Pak. 2005;15(4):211-4.
22. Shantha kumar P. Anbalgan, V Udhayasankar. Clinical Study of Benign Breast Diseases. J Evolution Med Dent Sci. 2017;6(2):2278-4748.
23. Chakrabarti I. FNAC Versus CNB: Who Wins the Match in Breast Lesions?. J Cytol. 2018; 35(3): 176–178.
24. Cole P, Mark Elwood J, Kaplan SD. Incidence rates and risk factors of benign

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- breast neoplasms. *Am J Epidemiol.* 1978;108(2):112-20.
25. Amr SS, Abdul Rahman, M Sadi, Fazallahi, SS Sheik. The spectrum of breast diseases in Saudi arab females: A 26 year pathological survey at Dhahran Health Center. *Ann Saudi Med.* 1995 Mar;15(2):125-32.
  26. Kulkarni S, Vora IM, Ghorpade KG, Shrivastava S: Histopathological spectrum of breast lesions with reference to uncommon cases. *Indian J Pathology Oncology.* 2009;59(5):444-452.
  27. Malik MAN, Salahuddin O, Azhar M, Dilawar O, Irshad H, Sadia, Salahuddin A. Breast diseases. spectrum in w ah cantt; pof hospital experience. *Professional Med J.* 2010;17(3):366-372.
  28. Rosai Jaun, Breast in: Rosai and ackermans surgical pathology. 1659-1770.
  29. Kumar R. A Clinicopathologic study of breast lumps in Bhairahwa, Nepal. *Asian Pac J Cancer Prev* 2010;11:855-8.
  30. Sonia Rani P. Clinicopathological study of benign breast diseases. *J Clin Diagn Res.* 2016;7(9):424-427.
  31. Ahmed I, Nazir R, Chaudhary MY, Kundi S. Triple assessment of breast lump. *J Coll Physicians Surg Pak.* 2007;17:535-8.
  32. Khan ZM, Jamal S, Khaliq T. The frequency of various causes of breast lumps in females presenting to surgical OPD in tertiary care hospital. *Ann. Pak. Inst. Med. Sci.* 2013;9:26-9.

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