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Original Research Paper

Pathology

A CLINICOPATHOLOGICAL STUDY OF VARIOUS BREAST LESIONS BY FINE NEEDLE ASPIRATION CYTOLOGY (FNAC)

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ABSTRACT **Background:** Breast lumps comprise a considerable amount of surgical cases in women coming to outpatient departments, & majority of them are benign. FNAC is simple to carry out, cost effective, well accepted by the majority of patients, involves minimal discomfort to the patient and can be performed on an outpatient basis. The present study was intended to study the frequency distribution of different breast lesions by FNAC examination at a tertiary hospital. **Material and Methods:** Present study was single-center, prospective, observational study, conducted in cases of breast lumps/lesions which were referred for FNAC. **Results:** In present study, majority were women (93 %), most of from 21-30 years age group (34 %) followed by 21-30 years age group (34 %) & > 60 years age group (11 %), In present study, majority of lesions were benign (81 %) & 19 % lesions were malignant on FNAC examination. Fibroadenoma (41 %) was most common benign lesion , followed by fibroadenosis (13 %), inflammatory lesions (8 %), gynecomastia (7 %), fibrocystic disease (5 %), galactocele (5 %) & cellular fibroadenoma with mild dysplasia (2 %). Among malignant lesions infiltrating duct carcinoma (17 %) was most common, others were lobular carcinoma (1 %) & metastatic carcinoma (1 %). **Conclusion:** FNAC is a safe, cost-effective, and reliable technique for the preoperative evaluation of palpable breast lumps.

KEYWORDS : Fine needle aspiration cytology; Breast lump; fibroadenoma; Malignant breast lesions

INTRODUCTION

Breast lumps comprise a considerable amount of surgical cases in women coming to outpatient departments, & majority of them are in benign. Differentiating benign lumps from malignant preoperatively for definite treatment is necessary.[1,2] Breast cancer is the second most common cancer in Indian women. The incidence of Breast cancer in India is increasing slowly and has bad prognosis if detected in late stages. But, its incidence can be decreased if its detection is made at earliest stages, i.e. in the preinvasive stage.

Evaluation of breast lumps involves the rational use of a detailed history, clinical breast examination, imaging modalities and tissue diagnosis & fine needle aspiration cytology (FNAC) is an ideal initial diagnostic modality in breast lumps.[3] FNAC is simple to carry out, cost effective, well accepted by the majority of patients, involves minimal discomfort to the patient and can be performed on an outpatient basis.[4]

The present study was intended to study the frequency distribution of different breast lesions by FNAC examination at a tertiary hospital.

MATERIAL AND METHODS

Present study was single-center, prospective, observational study, conducted in Department of Pathology, at XXX medical college & hospital, XXX, India. Study duration was of 6 months (July 2020 to December 2020). Study was approved by institutional ethical committee.

INCLUSION CRITERIA

- Cases of breast lumps/lesions which were referred for FNAC
- Exclusion criteria
- Inconclusive smears, nondiagnostic/inconclusive reports
- Diagnosed cases of breast pathology
- Clinical details were collected by history taking & physical examination of all the palpable swellings, by the pathologist performing the FNAC also. Study was explained & written informed consent was taken for participation.

FNACs were done using 20 or 22 gauge needles with or without the gun. Both air dried and alcohol-fixed smears were prepared. All the air dried smears were stained with May-Grunwald Giemsa stain, and the alcohol-fixed smears were stained with hematoxylin and eosin and Papanicolaou stains. Few of the smears were heat fixed and stained with Zeihl Neelsen (ZN) stain. The adequacy of the diagnostic material and the results of FNAC were reported the same day.

Data was collected and compiled using Microsoft Excel & statistical analysis was done using descriptive statistics.

RESULTS

In present study, majority were women (93 %), most of from 21-30 years age group (34 %) followed by 21-30 years age group (34 %) & > 60 years age group (11 %),

Table 1- Age & gender distribution

Age (in years)	Male	Female	Total
0-10	0	1	1
11-20	2	8	10
21-30	0	34	34
31-40	2	26	28
41-50	0	9	9
51-60	1	6	7
>60	2	9	11
Total	7	93	100

Majority of patients were presented as lump in breast (89 %), other complains were nipple discharge from right & left breast, swelling over anterior aspect of neck, swelling in left axillary tail, growth over right nipple.

Table 2- Clinical feature

Clinical feature	No. of cases
Lump in right breast	47

Lump in left breast	42
Lump in right & left breast	5
Swelling in right axillary tail	2
Nipple discharge from right & left breast	1
Swelling over anterior aspect of neck	1
Swelling in left axillary tail	1
Growth over right nipple	1

In present study, majority of lesions were benign (81 %) & 19 % lesions were malignant on FNAC examination. Fibroadenoma (41 %) was most common benign lesion , followed by fibroadenosis (13 %), inflammatory lesions (8 %), gynecomastia (7 %), fibrocystic disease (5 %), galactocele (5 %) & cellular fibroadenoma with mild dysplasia (2 %). Among malignant lesions infiltrating duct carcinoma (17 %) was most common, others were lobular carcinoma (1 %) & metastatic carcinoma (1 %).

Table 3 - FNAC diagnosis

FNAC diagnosis	No. of cases
Fibroadenoma	41
Fibroadenosis	13
Inflammatory	8
Gynecomastia	7
Fibrocystic disease	5
Galactocele	5
Cellular fibroadenoma with mild dysplasia	2
Infiltrating duct carcinoma	17
Lobular carcinoma	1
Metastatic carcinoma	1

DISCUSSION

Age is one of the important factor to determine the diagnosis and prognosis of breast lump, as the age increases the chances of malignancy increases. Balasundaram et al.,[5] in their study age group of 31 - 40 years had highest frequency of lump, but Takhellambam YS.,[6] found highest breast lump was in 36 - 45 yrs. age group. In present study similar results were noted.

Kumar M et al.,[7] observed that incidence of benign breast diseases varies in different geographical areas and are common in developing countries but due to lack of education women disregard the breast lump and do not take expert advice. Literacy, social taboo, un awareness, lack of self-breast examination knowledge may result in delayed diagnosis and management of these lesions. Such delay in diagnosis of malignant lesions is associated with poor prognosis.

Fibroadenoma was the most common breast lesion in our study constituting 41% cases. Shilpa N et al.,[8] reported 55.68% fibroadenoma followed by fibroadenosis 20.45% cases and Mallikarjuna et al.,[9] reported 72% cases of fibroadenoma. Aberrations of normal development and involution (ANDI) is a group of benign breast disorder, commonly presents with discrete lump in the breast which may be bilateral but commonly found in the upper outer quadrant. These group includes cyclical nodularity and mastalgia, cysts, fibroadenoma, duct ectasia and periductal mastitis.[10]

In study by Kazi FK.,[11] out of 50 cases, most of the aspirates were from females. There were more benign lesions (43 cases) as compared to malignant cases (seven cases). Fibroadenomas were the most benign lesion of breast. The age of malignant cases ranged from 21 to 60 years with a majority of cases in the age group of 41 - 50 years (four cases, 57.1%).

In study by Chandanwale SS et al.,[12] majority (N = 871) of patients were females with maximum (N = 566) patients between second and third decade. The 773 patients had benign breast lesions and maximum (N = 341) patients were in the second decade. Fibroadenoma was the commonest benign lesion followed by fibrocystic change and mastitis. Out of 119 malignant breast lesions, 31.93% were between 41-50 years of age, 28.57% in 51-60 years and 22.68% in between 31-40 years of age. Out of 119 malignant breast lumps and majority were infiltrating ductal carcinoma (N = 108). Cytology grading correlated maximum with histology grade in Grade I followed by Grade II and Grade III.

Hebbar AK[13] noted accuracy rate of 100% for benign lesion and 93.10% for malignant lesion with false negative rate of 6.9% and false positive rate of zero with fine needle aspiration cytology in the diagnosis of palpable breast lump. The overall sensitivity of fine needle aspiration in diagnosing the palpable breast lump is 93.10%, specificity is 100%, positive predictive value is 100% and negative predictive value is 90.47%.

The role of FNAC in diagnosing the malignant cases is very effective. In present study 17% cases of were infiltrating duct carcinoma. In study by Poudel S et al.,[14] sensitivity and specificity of FNAC in diagnosing malignant lesions was 100% and 85.7% respectively. There were no false positive cases while false negative cases accounted for 14.3%.

A triple assessment, which is done by a clinical examination imaging like ultrasonography or mammography and a pathological examination—FNAC, during the initial consultation allows a majority of the patients with discrete breast lumps an immediate reassurance. The routine use of FNAC would greatly reduce the number of unnecessary biopsies and frozen sections for histopathologic evaluation, especially in case of suspected malignancies. It is also less invasive and less traumatic procedure, and better results are obtained in the hands of an experienced pathologist.

However, FNAC is a procedure with sampling error, sometimes being unable to substitute histopathology. Final confirmation of disease is obtained by histopathological evaluation.

CONCLUSION

FNAC is a safe, cost-effective, and reliable technique for the preoperative evaluation of palpable breast lumps. FNAC features are more informative when combined with physical and radiology features. Clinical breast examination and mammography screening should be encouraged in female subjects for the early detection of breast carcinoma.

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REFERENCES

1. Bhargava V, Jain M, Agarwal K, Thomas S, Singh S. Critical appraisal of cytological nuclear grading in carcinoma of breast and its correlation with ER/PR expression. J Cytol 2008;25:58–61.\
2. Joshi A, Maimoon S. Limitations of fine needle aspiration cytology in subtyping breast malignancies—a report of three cases. J Cytol 2007;24:203–6.
3. Khemka A, Chakrabarti N, Shah S, Patel V. Palpable breast lumps: fine-needle aspiration cytology versus histopathology: a correlation of diagnostic accuracy. The Internet Journal of Surgery. 2009;18.
4. Pradhan M, Dhakal HP. Study of breast lump of 2246 cases by fine needle aspiration. JNMA J Nepal Med Assoc. 2008;47(172):205-209.
5. Balasundaram, Nilavazhagan A. A comparative study with clinico-pathological correlation between ultrasonography, mammography and fine needle aspiration cytology in evaluation of breast lumps in coastal population of Karaikal. IAIM 2019;6(9):21-27.
6. Takhellambam YS, Lourembam SS, Sapam OS, et al. Comparison of ultrasonography and fine needle aspiration cytology in the diagnosis of malignant breast lesions. Journal of Clinical and Diagnostic Research 2013;7(12):2847-2850.
7. Kumar M, Ray K, Harode S, Wagh DD. The pattern of benign breast diseases in rural hospital in India. East Central African J Surg. 2010;15(2):59-64.
8. N Shilpa and SH Shridevi. Cytological Correlation of Benign Breast Diseases with Histopathology. jmscr, 2016;04:13256-13259.
9. Mallikarjuna and Maralihalli S. Clinicopathological study of benign breast disease" Indian Journal of Basic and Applied Medical Research 2015;4:39-46.

10. Bailey and Love; Benign breast disease. Short practice of surgery. 27th edition. CRC Chapter 53; 2018.
11. Kazi Farzana Khanam, Nasima Akter, et al "A clinicopathologic study of various breast lesions by Fine Needle Aspiration Cytology (FNAC) in a tertiary medical college hospital of Bangladesh", International Journal of Current Research, 10, (08), 72249-72252
12. Chandanwale SS, Gupta K, Dharwadkar AA, Pal S, Buch AC, Mishra N. Pattern of palpable breast lesions on fine needle aspiration: A retrospective analysis of 902 cases. J Mid-life Health 2014;5:186-91.
13. Hebbar AK, Iyanna H. Prospective study of fine needle aspiration cytology of clinically palpable breast lump with histopathological correlation. Int J Res Med Sci 2013;1:257-62.
14. Poudel S, Ranabhat S, Parajuli B, Pun G, Evaluation of Breast Lump by Fine Needle Aspiration Cytology, Journal of Gandaki Medical College-Nepal, 9 (2), July-December 2016