

FNAC of breast: An institutional experience

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Abstract

Introduction: Fine needle aspiration cytology is fast becoming preoperative method of choice for diagnosis and management of various breast lesions since few decades. It is one of the component of triple test done for preoperative diagnosis of breast lump along with clinical examination and mammography. It helps clinician to decide mode of treatment in most cases in both non-neoplastic and neoplastic disorders. The aim of our study was to assess utility of FNAC in the diagnosis and management of breast lesions, age and sex distribution of these lesions and to find out the various cytomorphological patterns of breast lumps.

Materials and Methods: The present study was done during the period between December 2015 and March 2018 in the department of pathology (central clinical laboratory), Koppal Institute of medical sciences, Koppal. 10ml syringe and 23/24 gauge needles were used for the procedure. Material obtained was expressed on slide and smears were made by standard smearing technique. Both wet and air dried smears were made. Wet smears were stained with Haematoxylin and Eosin stain and dry smears with Leshman stain and Giemsa stain.

Results: We assessed 103 cases with 106 lesions of breast. We got satisfactory aspirate in most cases. Fibroadenoma (49%) was the most common lesion. Metastatic carcinomas were common after 30yrs age group.

Conclusion: Fine needle aspiration is simple, rapid and cost effective method for preoperative assessment of breast lumps. Fibroadenoma is the most common breast lesion and most common tumor. It significantly reduced unnecessary surgical biopsy for diagnosis of breast lump in our study.

Keywords: FNAC, Breast.

Introduction

Fine needle aspiration cytology (FNAC) is simple, fast, cost effective and well established diagnostic cytological method used for preoperative diagnosis of breast lumps. Most cases of breast lumps are benign in nature and Fibroadenoma being the most common pathology. FNAC is the initial investigation done for determining various pathologies in breast.¹ USG guided FNAC has proven to be the most accurate and cost-effective way of management. It is one of the component of triple test done for preoperative diagnosis of breast lump along with clinical examination and mammography.^{1,2} In many cases definitive diagnosis can be made except in cases of microcalcifications despite its controversial inadequate rates and suboptimal accuracy in inexperienced hands.³ This method evolved over time with better techniques with radiological guidance methods for better sensitivity and specificity and addition of ancillary tests like immunocytochemistry like ER, PR study and cytogenetic studies made it even more useful. In many cases it helps in deciding the treatment avoiding time consuming, more complex, costly surgical excision and histopathological assessment and unnecessary hospitalisation in most breast lump cases.

Objectives of present study were to assess and determine causes, morphological patterns of breast lumps and age and sex distribution of lesions using cytological method in this underdeveloped area which was out of reach of better healthcare facilities till now until medical education institution was established.

Materials and Methods

The present study was done during the period between December 2015 and March 2018 in the department of pathology (central clinical laboratory), Koppal institute of medical sciences, Koppal. All the cases of breast lumps referred from out patient department and wards of district hospital attached to Koppal institute of medical sciences were included in the study. Clinical details were obtained and proper aseptic precautions and consent were taken before the procedure.

10ml syringe and 23/24 gauge needles were used for the procedure. 10ml syringe creates good negative pressure and 23/24 gauge needles provide good material with minimal blood. While fixing the swelling between two left fingers needles were introduced in the lump and to and fro motion was done three to four times with creation of negative pressure in the syringe simultaneously to obtain material. Material obtained was expressed on the slide and smears were made by standard smearing technique. Both wet and air dried smears were made. Wet smears were stained with Haematoxylin and Eosin and dry smears with Leshman stain and Giemsa stain.

Smears were studied in the clinical context and categorised cytologically as follows as per National Institute of Health Consensus Development Conference reporting system.

1. Unsatisfactory
2. Benign
3. Atypical
4. Suspicious
5. Malignant

These were subcategorised and diagnosed into specific disease wherever possible.

Results

There were total of 103 cases of breast lumps with 106 lesions. Most lesions are seen in females predominantly compared to males. We have seen 8 lesions in male patients out of 106 lesions. Most of the lesions were benign in nature in both males and females. Right and left distribution of lesions was almost same. Most common benign lesion was Fibroadenoma followed by benign breast disease category and fibrocystic disease. Fibroadenoma constituted about 56% of all benign tumors and 49% of all breast lesions. It was most common in the age group between 15-30 years. In one case fibroadenoma was bilateral and in one case fibroadenoma was seen in accessory breast tissue in axillary region. Benign lesions which cannot be categorised into specific disease were classified as benign breast disease category. The term 'benign breast diseases' encompasses heterogeneous group of lesions that may present wide range of symptoms or as incidental microscopic findings and includes all non-malignant lesions of breast including benign tumors, mastalgia, mastitis, nipple discharge, gynecomastia and trauma etc. Fibroadenoma and other benign lesions were more common among young individuals between 15-30 years where as incidence of malignancy increased after 30 years. In three cases more than one pathology was found i.e. fibroadenoma with fibrocystic change. There were 3 cases of Gynecomastia and 2 cases each of fat necrosis, galactocele, abscess and granulomatous mastitis. One galactocele lesion was associated with reactive lymphadenitis of axillary lymphnodes. One case of epidermal cyst was also seen. Two cases were labelled as atypical breast lesion and one as suspicious for malignancy.

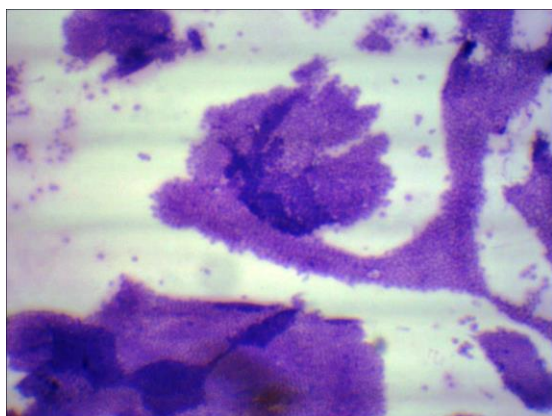


Fig. 1: Fibroadenoma (5x, Giemsa stain)

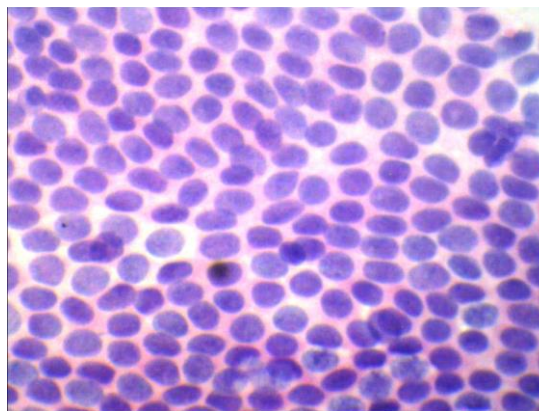


Fig. 2: Fibroadenoma (100x, Giemsa stain)

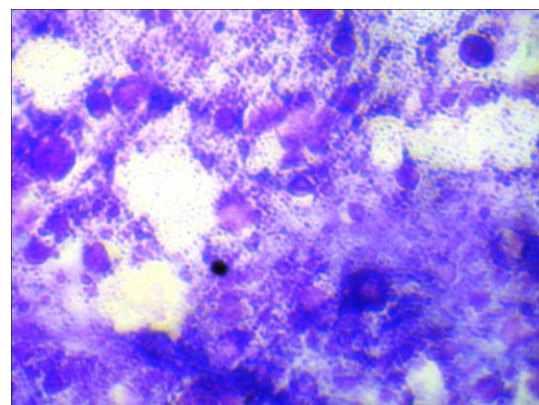


Fig. 3: High power view of galactocele (Giemsa stain)

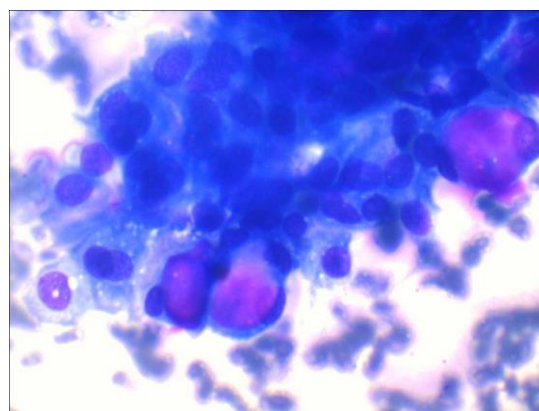


Fig. 4: High power view of intraductal carcinoma (Giemsa stain)

Discussion

Many studies have been done till now about FNAC and its utility in the management of breast lesions. But no such studies have been done in this particular geographical area. Breast diseases occurring predominantly in females compared to males is in accordance with most literature. Benign lesions are predominant compared to malignant ones is also in accordance with most literature. Fibroadenoma is most common lesion and most common benign lesion which is similar to findings of Choudhary PK et al,² Manas Madan⁴ Naik P,⁵ Shirish Chandanwale et al,⁶ Tiwari M,⁷

Khanzada TW et al.⁸ In most of the cases fibroadenomas usually present as single mass. However the presence of multiple fibroadenomas can be seen in 15–20% of the patients.⁹ Except few case reports and case series not much literature is found about bilateral fibroadenomas.^{10,11} Supernumerary breast tissue is well known fact in the medicine and polymastia is one of its most common presentations. However, reports of benign and malignant tumors in supernumerary breasts are rare.¹² Fibroadenomas occurring in ectopic breast tissue is rare entity.^{13,14} We have seen one such case. It can be confused clinically with lymphadenopathy or lipoma in the axillary region. Occurrence of Fibrocystic change is similar to findings of Khanzada TW et al, Shirish Chandanwale et al, Naik P which are studies involving only benign lesions. But carcinoma was the second most common lesion of all lesions in the study conducted by Manas Madan similar to our finding. Occurrence of gynecomastia, fat necrosis and galactocele are similar to Khanzada TW et al. Tiwari M, Shirish Chandanwale et al and Naik P. Occurrence of breast abscess is similar to findings of Naik P, Tiwari M and less in comparison to studies of Choudhary PK et al, Khanzada TW et al., Manas Madan. Granulomatous mastitis finding is similar to those of Khanzada TW et al, Shirish Chandanwale

et al, Manas Madan, Choudhary PK et al. Epidermal cyst in breast is a rare entity and only around 90 cases have been reported in the literature.¹⁵⁻¹⁷ Its importance lies in the fact that it is associated with potential complications like squamous cell carcinoma rarely. Some authors say that it is not that rare as this lesion is not reported easily by patients because of painless benign nature of lesion.¹⁸

Many developments are happening in the area of breast FNAC. Some centres worldwide particularly in developed world are using liquid based cytopathology principles in breast FNA specimens with its own pros and cons. Ancillary methods like immunocytochemistry, molecular study and cytogenetic studies are increasingly being used. Though National Institute of Health Consensus Development Conference reporting system is widely and internationally accepted reporting system, the IAC breast group developed its own new reporting system recently which takes into account various factors like cytological pattern recognition, diagnostic features and local availability of diagnostic infrastructure facilities.¹⁹ However IAC breast group reporting system is still in evolving process which needs international acceptance.

Table 1: Age distribution of breast lesions

Lesion	0-14yr	15-30yr	31-50yr	51-70yr	>70yr	Total
Benign breast disease		8	5	1		14
Fibroadenoma	4	41	7			52
Fibrocystic change	1	5	4	1		11
Abscess		1	1			2
Granulomatous mastitis		2				2
Galactocele		2				2
Fat necrosis		2				2
Epidermal cyst			1			1
Gynecomastia	1	1	1			3
Atypical breast lesion			2			2
Suspicious of malignancy				1		1
Duct carcinoma			6	7	1	14
Total	6	62	27	10	1	106

Table 2: Sex distribution of breast lesions

Lesions	Male	Female	Total
Benign breast disease	3	11	14
Fibroadenoma	0	52	52
Fibrocystic change	0	11	11
Abscess	0	2	2
Granulomatous mastitis	1	1	2
Galactocele	0	2	2
Fat necrosis	0	2	2
Epidermal cyst	0	1	1
Gynecomastia	3	NA	3
Atypical breast lesion	0	2	2
Suspicious of malignancy	1	0	1
Duct carcinoma	0	14	14
Total	8	98	106

Conclusion

FNAC is a simple, rapid and cost effective method for pre-operative assessment of breast lesions. Benign lesions are predominant lesions compared malignant lesions with Fibroadenoma being the most common benign tumor. It significantly reduced unnecessary surgical biopsy for diagnosis of breast lump in our study.

Conflict of Interest: None.

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