International Journal of Research in Medical Sciences
Singh R et al. Int J Res Med Sci. 2016 May;4(5):1711-1715
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20161255

Research Article

Pattern of breast lesions on fine-needle aspiration cytology in consecutive 70 cases: a retrospective and prospective analysis of one year

Roma Singh[1]*, Nipun Saproo[2]

[1]Department of Pathology, L.N Medical College and associated J.K Hospital Bhopal, Madhya Pradesh, India
[2]Department of Medicine Gandhi Medical College, Jammu, Jammu and Kashmir, India

Received: 12 March 2016
Revised: 13 March 2016
Accepted: 13 April 2016

***Correspondence:**
Dr Roma Singh,
E-mail: dr.roma16@gmail.com

ABSTRACT

Background: Breast lumps constitute a significant proportion of surgical cases in both developed and developing countries. In outpatient department breast lump is one of the commonest presentations, majority of them are in women and are benign. It is needed to distinguish benign lumps from malignant preoperatively for definite treatment.
Methods: The present study is a retrospective and prospective study of one year and spans duration from 1st January 2015 to 31st December 2015, a total 70 cases were studied which included 67 female patients and 03 male patient. This study is been conducted in the department of pathology, L.N medical college and Associated J.K Hospital and research centre Bhopal (Madhya Pradesh). Cytomorphological features of breast lesions were studied and correlated with clinical and histological features.
Results: The present study was conducted on 70 patients with palpable breast lump. Fibroadenoma was the most common benign breast lesion encountered and lump was the most common symptom.
Conclusion: Most of the breast lesions are benign and needs only reassurance. The FNAC gives result very fast and is accurate therefore FNAC is useful in those cases, to avoid fear of surgery, benign breast lesions commonly affect the younger age group. Fibroadenoma is the most common lesion encountered in benign breast lesions.

Keywords: Breast lump, Benign, FNAC, Cytomorphological.

INTRODUCTION

Breast lumps constitute a significant proportion of surgical cases in both developed and developing countries. In outpatient department breast lump is one of the commonest presentations, majority of them are in women and are benign. Breast mass in women causes anxiety to herself and her family member, which can be reduced by giving assurance that most of breast lumps are benign and early diagnosis by fine needle aspiration cytology.[1]

It is needed to distinguish benign lumps from malignant preoperatively for definite treatment. Clinical examination would be followed in most patients with a confirmatory diagnosis under the microscope. The advantage of the fine needle aspiration is its speed, safety, convenience, ease of repetition and cheapness. FNAC has high sensitivity, specificity and diagnostic accuracy.[3-5] The triple test which includes physical breast examination, mammography and fine-needle aspiration (FNA) and has proved a reliable tool for accurate diagnosis of palpable breast masses.[10]

FNAC is a widely accepted as a reliable technique in the initial evaluation of palpable and non-palpable breast lumps.[3] FNAC is a minimally invasive technique commonly used in breast, thyroid, and lymph nodes in neoplastic and non-neoplastic diseases. The effectiveness of the study can be maximized with help of a radiologist. This is an easy, quick-to-perform, out-patient and virtually painless procedure which became continues to be used worldwide, especially in developing countries. Hence, this study was undertaken to see Pattern of palpable breast lesions on fine needle aspiration after confirmation by final histopathology report. Scope of FNA has now extended into identifying the subtypes of benign, malignant lesions and residual disease for the purpose of planning the therapeutic protocol and eventual follow-up.[11]

Benign breast lesions encompasses a heterogeneous group of lesions .Frequently seen benign lesions of breast are inflammatory lesions, epithelial and stromal proliferative lesions and neoplasm.[2]

Normal breasts are virtually never aspirated. Thus, the configuration of normal cells is learned from aspirates of benign lesions. The most common component observed in aspiration biopsies and other sources of breast cells, such as nipple secretions and ductal lavage, is cells derived from ducts. The stroma of the breast is composed of fat and loose or fibrous connective tissue, which may be observed as tissue fragments.

Rosai J and Chinoy RF mentioned recent classification of breast lesions.

Non neoplastic

Inflammatory

- Acute mastitis: Lactational mastitis, Subareolar mastitis.
- Chronic mastitis: Nonspecific mastitis: Fat necrosis, Granulomatous mastitis, mammary duct ectasia; Specific mastitis: Tuberculosis, Leprosy, Syphilis, Actinomycosis , Fungal infections, Parasitic infections, Viral infections, Sarcoidosis and Reaction to foreign body.
- Benign proliferative lesion: Fibrocystic disease, adenosis, collagenous spherulosis.
- Miscellaneous: Galactocele, Gynecomastia.

Neoplastic

Benign

Epithelial lesions: intraductal papilloma, Lactating adenoma.

Fibro epithelial lesions: Fibroadenoma, Phyllodes tumour.

- Malignant.

METHODS

The study design is a retrospective and prospective study and spans duration from 1st January 2015 to 31 st December 2015 .The present study has been conducted in the department of pathology, L.N medical college and Associate J.K Hospital Bhopal (Madhya Pradesh.).

Inclusion criteria

Women having clinically palpable breast lumps were included.

Exclusion criteria

Clinically non palpable breast were excluded.

Medical records of these patients were retrieved and reviewed. Detailed clinical history including age, sex, marital status, literacy, socio-economic status menstrual history, residence, physical examination and mammography/ ultrasonography (USG) findings were noted. A total of 70 patients, were subjected to FNAC of the breast. FNA was done with standard technique.

Material required for fine needle aspiration cytology

- Standard 10 cc disposable syringe.
- 22-23 gauge disposable needles.
- Glass slides with diamond pencil.
- Coplin jar with fixative 95% ethyl alcohol.
- Surgical rubber gloves.
- Cotton swabs soaked in sprit.

In case of diffuse swellings left and right regions were aspirated separately. In case of cystic swellings, the cyst contents were aspirated centrifuged and the slides were made from the sediment for the cytological analysis. Slides were stained with MGG, Haematoxylin and Eosin [H and E] and Papanicolaou stains. Special stains like Ziehl Neelson stain(ZN) were used wherever needed. In case, material obtained was not satisfactory, a repeat aspiration was done. In case of more than one swelling, aspiration was done from each swelling. Diagnosis of each lump was based on physical examination, FNA and/or mammography and/or USG features.

RESULTS

Table 1 and Figure 1 one reveals that maximum incidence of breast lesions was seen in the third decade, followed by fourth decade.

Table 2 and Figure 2 two reveals that most common symptom was lump (100%), followed by pain.

Table 3 and Figure 3 three reveals that most common breast lesion was fibroadenoma seen in 44.2 % cases, while the least common was galactocele.

Table 1: Association of age of the patient with various breast lesions on FNAC.

Age group (years	Female	Male	Total
0-10	0	0	0
11-20	06 (8.9%)	Nil	06
21-30	26 (38.8%)	01	27
31-40	20 (29.8%)	02	22
41-50	11 (16.4%)	Nil	11
51-60	04 (5.9%)	Nil	04
Total	67	03	70

Table 2: Signs and symptoms of the patients with various breast lesions on FNAC.

Signs and Symptoms	No. of cases (%)
Lump	100
Pain	30
Fever	18
Cyclic mastalgia	22
Nipple discharge	05

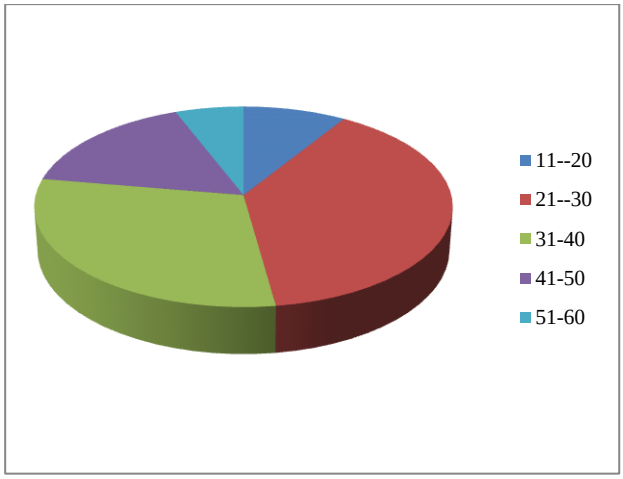

Figure 1: Association of age of the Patient with various breast lesions on FNAC.

Table 3: FNAC diagnosis of 70 breast lesions.

FNAC diagnosis	No. of cases (N= 70)	Percentage (%)
Fibroadenoma	31	44.2%
Fibrocystic disease	21	30 %
Breast abscess	03	4.2%
Tubercular mastitis	03	4.2%
Galactocele	02	2.8%
Gynecomastia	03	4.2 %
Invasive ductal carcinoma	07	10 %
Total	70	100 %

Table 4: Benign lesions of breast.

Benign lesions	Percentage (%)
Fibroadenoma	31 (49.2 %)
Fibrocystic disease	21 (33.3%)
Galactocele	02 (3.17%)
Tubercular mastitis	03 (4.7%)
Breast abscess	03 (4.7%)
Gyanecomastia	03 (4.7%)
Total	63 (100%)

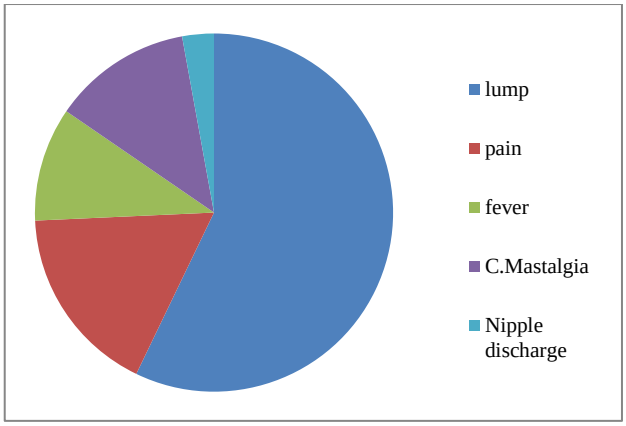

Figure 2: Signs and symptoms of the patients with various breast lesions on FNAC.

Table 4 and Figure 4 four reveals that among a total of 63 benign breast lesions maximum cases were of fibroadenoma (49.2%).

The FNAC and histopathological correlation revealed that the total no. of invasive ductal carcinoma was 09 on histopathology in contrast to 07 cases on FNAC. And 03 cases were diagnosed as atypical ductal hyperplasia.(ADH) on histopathology which were not diagnosed on FNAC.

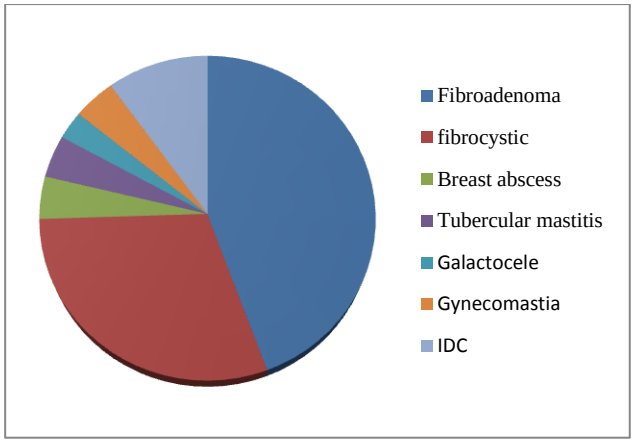

Figure 3: FNAC diagnosis of 70 breast lesions.

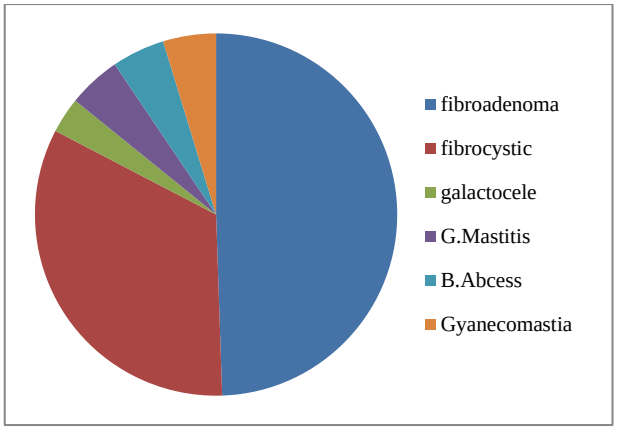

Figure 4: Benign lesions of breast.

Table 5: FNAC & histopathology correlation.

FNAC		Histopathology							
		Fibroadenoma	Fibrocystic disease	Breast abcess	Galactocele.	Gynecomastia	T.Mastitis	Invasive ductal carcinoma	Others.
Fibroadenoma	31	29	18	03	02	03	03	09	03
Fibrocystic disease	21	-	-	-	-	-	-	-	-
Breast abcess	03	-	-	-	-	-	-	-	-
Galactocele	02	-	-	-	-	-	-	-	-
Gyanecomstia	03	-	-	-	-	-	-	-	-
Tubercular mastitis	03	-	-	-	-	-	-	-	-
Invasive ductal carcinoma	07	-	-	-	-	-	-	-	-

DISCUSSION

FNA is widely accepted as a reliable technique in the initial evaluation of palpable breast lumps. It is simple, safe, cost-effective, minimally invasive, rapid and as sensitive as biopsy.[3-5] Primary goal of FNA is to separate benign lesions from malignant lesions for the purpose of planning the therapeutic protocol and uneventful followup.[10-12]

The most common age group in our study was from 21-30 years. Which is also supported by Farkhanda and co-authors and Echejoh et al in their study.[14] However in contrast to study by Haque et al 30-40 years of age was the most common age group in their study.[15]

The most common diagnosis on FNAC in our study was fibroadenoma (44.2%) followed by fibrocystic disease (30%). Similar results were observed by Farkhanda and coauthors and Tiwari.[14] Majority of patients of fibroadenoma in our study were in 3rd decade (21-30), while majority of patients of fibrocystic disease were in the 4th decade. Similar results were observed by Farkhanda and coauthors.[14]

In our study 3 cases (4.2%) of tubercular mastitis were diagnosed. FNA diagnosis was based on presence of epithelioid cells, caseous necrosis with or without acid-fast bacilli (AFB).

Tuberculous mastitis is relatively rare with reported incidence varying from 3-4.5% in developing countries like India. Few reports, including our dealing with cytomorphologic features have been published in the past. Clinical and radiological features are not diagnostic and easily can be confused with breast cancer or pyogenic abscess, majority presented with painless, firm mass and remaining patients had hard lump.[12]

In our study all the patients presented with lump in the breast. The next most common symptom was pain. Cyclical mastalgia was seen mostly in fibrocystic disease, while axillary lymphadenopathy was seen mainly in

infiltrating duct carcinoma. Similar findings were corroborated by Echejoh and co-workers.

Gynaecomastia accounted in 4.2% (N = 03) patients between 21-40 years. Gynaecomastia in young age is related to hormonal pubertal changes where as in later years, it may be caused by hormonally active tumors, cirrhosis or medications. Similar observations were made in our study.

Infiltrating duct carcinoma occurred mainly in the sixth decade. Reports from western world state that breast cancer in women occur predominantly in fifth and sixth decades patients.

Cytohistological correlation revealed that all the cytologically diagnosed malignant lesions proved to be malignant on histology.[8,13]

FNAC has certain limitations as it is difficult to subtype breast malignancies.[6,7,9]

CONCLUSION

FNAC is a safe outpatient procedure, which is cost effective. Our study shows most of the breast lesions are benign and needs only reassurance and early diagnosis to prevent patients discomfort and anxiety. The FNAC gives result very fast and is accurate therefore FNAC is useful in those cases, to avoid fear of surgery, benign breast lesions commonly affect the younger age group. Fibroadenoma is the most common lesion encountered in benign breast lesions.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: None

REFERENCES

1. Vaidyanathan L, Barnard K, Elnicki DM. Benign breast disease: When to treat, when to reassure, when to refer. Cleve Clin J Med. 2002;69:425-32.
2. Guray M, Sahin AA. Benign breast diseases: Classification, diagnosis, and management. Oncologist. 2006;11:435–49.
3. Chaiwun B, Settakorn J, Ya-In C, Wisedmongkol W, Rangdaeng S, Thorner P. Effectiveness of fine-needle aspiration cytology of breast: Analysis of 2375 cases from northern Thailand. Diagn Cytopathol. 2002;26:201-5.
4. Nguansangiam S, Jesdapatarakul S, Tangjitgamol S. Accuracy of fine needle aspiration cytology from breast masses in Thailand. Asian Pac J Cancer Prev. 2009;10:623-6.
5. Cobb CJ, Raza AS. Obituary: "Alas poor FNA of breast — We knew thee well!" Diagn Cytopathol. 2005;32:1-4.
6. Orell SR, Miliauskas J. Fine needle biopsy cytology of breast lesion: A review of interpretative difficulties. Adv Anat Pathol. 2005;12:233-45.
7. Zagorianakou P, Fiaccavento S, Zagorianakou N, Makrydimas G, Stefanou D, Agnatis NJ. FNAC: Its role, limitations and perspective in the preoperative diagnosis of breast cancer. Eur J Gynaecol Oncol. 2005;26:143-9.
8. Muddegowda PH, Lingegowda JB, Krupad R, Konapur PG, Shivarudrappa A, Subramaniam P. The value of systematic pattern analysis in FNAC of breast lesions: 225 cases with cytohistological correlation. J Cytol. 2011;28:13-9.
9. 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.
10. Kaufman Z, Shpitz B, Shapiro M, Runa R, Lew S, Dinbar A. Tripple approach in the diagnosis of dominant breast masses: Combined physical examination, mammography and fine needle aspiration. J Surg Oncol. 1994;56:254-7.
11. Rosa M, Mohammadi A, Masood S. The value of fine needle aspiration biopsy in the diagnosis and prognostic assessment of palpable breast lesion. Diagn Cytopathol.2012;40:26-34.
12. Chandanwale SS, Buch AC, Gore CR, Ramanpreet KC, Jadhav P. Fine needle aspiration cytology in breast tuberculosis: Diagnostic difficulties- study of eleven cases.Indian J Tuberc. 2012;59:162-7.
13. Ariga R, Bloom K, Reddy VB, Kluskens L, Francescatti D, Dowlat K, et al. Fine needle aspiration of clinically suspicious palpable breast masses with histopathologic correlation. Am J Surg. 2002;184:410-3.
14. Farkhanda JD, Muhammad SA, Ahsan AL, Noor MK, Imtiaz S, Zulfiqar IM. An early diagnosis of benign breast diseases. Journal of Surgery, Pakistan. 2010;15(4):74-8.
15. Haque, Tyagi, Khan, Gahlut. Breast lesions: a clinicohistopathological study of 200 cases of breast lump. JAMA. 1980;150:1810-4.

Cite this article as: Singh R, Saproo N. Pattern of breast lesions on fine-needle aspiration cytology in consecutive 70 cases: a retrospective and prospective analysis of one year. Int J Res Med Sci 2016;4: 1711-5.