

Retrospective Study of Fine Needle Aspiration Cytology of Clinically Palpable Breast Lumps

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ABSTRACT

Introduction: Breast carcinoma is the second most common malignant tumor and leading cause of death in women. The fine needle aspiration cytology of breast lump is a rapid, safe, cost effective and good screening method. It is important tool for initial diagnosis and management of palpable breast swellings. The aim of this study is to identify the common benign and malignant tumors of the breast lump.

Materials and methods: A retrospective longitudinal study was carried out in the Department of Pathology, Pokhara Academy of Health Sciences over one year period. Procedure was done using 10 ml disposable syringe. The air-dried smear and wet smear was stained with Giemsa stain, papanicolaou stain respectively for morphological study.

Results: Out of 95 cases, 93 were females. Breast lumps were most common in 20 to 40 years of age group i.e. 48.42 % (n=95). Benign lesions were found in 91%. In 22.10% (n=95) of cases, fibroadenoma was seen followed by benign chronic inflammatory lesion (18.94%). In malignant tumor, ductal carcinoma was diagnosed mostly in 40 -80 years age group.

Conclusion: Our study concluded that fine needle aspiration cytology is the early diagnostic tool for diagnosis of benign and malignant tumor. Fibroadenoma was the common benign tumor and invasive ductal carcinoma was the common malignant tumor.

Keywords: Cytology; tumor; fibroadenoma

INTRODUCTION

Breast cancer is one of the leading causes of cancer related death in females and accounts for 29% of all cancers diagnosed each year worldwide. It is responsible for about 19% of cancer related mortality in women worldwide¹⁻³. Breast lump is a common clinical manifestation among women which often brings fear of malignancy among them. Due to increasing awareness, there has been a recent

increase in the number of fine needle aspiration cytology (FNAC) of breast. Triple test includes physical examination, mammography and FNAC.⁴⁻⁶ All breast lesions may not be cancer and all the benign lesions do not progress to cancer. It is a reliable, rapid, cost-effective, complication free and an accurate diagnostic modality for the evaluation



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of breast lumps.⁶⁻⁸ FNAC reduces the number of open breast biopsies. It is a preliminary diagnostic and screening procedure. This study was designed to study the role of FNAC in palpable breast lumps.

MATERIALS AND METHODS

A retrospective longitudinal study was carried out at Pokhara Academy of Health Sciences (PoAHS). Over a one year period, 95 patients with clinically palpable breast lumps were referred to the Department of Pathology, PoAHS for FNAC. The case history, nipple discharge, ulceration of nipple, and duration of lesion were recorded. Examination of breast lump was done. Size, site of lump and consistency of lump were noted. Consent was taken prior to the procedure. FNAC was done by using 21 gauge needle attached to 10 cc disposable syringe. The sample was obtained by techniques with minimum passes to minimize hemorrhage. To exclude metastasis regional (axillary) lymph nodes were also aspirated. Wet fixed smears were stained with papanicolaou stain .Data was taken which included age of patient, site of involvement, size of lesion, cytological diagnosis and presence of metastasis in case of malignancies.

RESULTS

In this study, total number of cases were 95, among which 93 (97.89%) were female and 2 (2.11%) were male. Maximum patients were of age group 20-40 years.

Age wise distribution of patients

Our results showed maximum number of patients in age group 20-40 years (48.42%) and minimum number of patients in age group >60 years (6.32%).

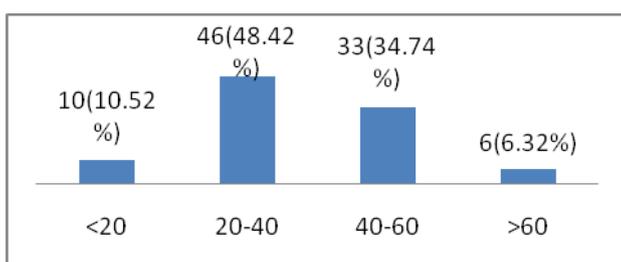


Figure 1: Age wise distribution of patients

Benign and malignant lesion

Benign lesion was the common findings in our study (91%).

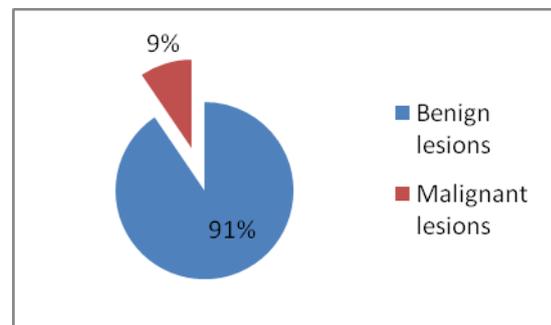


Figure 2: Benign and malignant lesions

Fine needle aspiration cytology of breast lumps

According to our study, maximum number of cases were of fibroadenoma (22.11%) followed by lipoma (17.90%). There was one case of gynecomastia.

Table 1. Diagnosis of breast lumps

Diagnosis	Cases (n=95)	
Abscess	4(4.21%)	
Atypical ductal hyperplasia	5(5.26%)	
Benign chronic inflammatory lesion	18(18.95%)	
Ductal carcinoma	9(9.50%)	
Infected epidermal cyst	6(6.30%)	
Fibroadenoma	21(22.11%)	
Fibroadenosis	4(4.21%)	
Fibrocystic changes	3(3.2%)	
Galactocele	7(7.36%)	
Gynecomastia	1(1.0%)	
Lipoma	17(17.90%)	
Total	95(100%)	

Benign chronic inflammatory lesion, infected epidermal cyst, fibroadenoma, galactocele were more common in patients of age group 20-40 years.

Table 2. Age-wise distribution of breast lumps (n=95)

Diagnosis	<20 Years	20-40 Years	40-60 Years	60-80 Years
Abscess	1	1	1	1
Atypical ductal hyperplasia		1	4	
Benign chronic inflammatory lesion		10	7	1
Ductal carcinoma			7	2
Infected epidermal cyst	1	4	1	
Fibroadenoma	7	12	1	1
Fibroadenosis		2	2	
Fibrocystic changes		1	2	
Galactocele	1	6		
Gynecomastia				1
Lipoma		7	8	2

DISCUSSION

Breast cancer is one of the commonest cancers that leads to high burden of mortality and morbidity worldwide^{1,2}. Breast lump is the common clinical presentation in female. FNAC of breast lump helps to prevent unnecessary surgery. Our study is only limited to FNAC. Trucut is more reliable than FNAC, but we did not perform, because it is more painful procedure

Our study showed, 93 patients out of 95 patients were female which is supported by Choudhary P et al. i.e. 97.41% female and 2.59 % male⁴. Our study showed that benign conditions like fibroadenoma and chronic inflammatory lesion were found to be common clinical presentation which was supported by Badge S et al. and Pathak S et al^{8,9}.

According to our study, fibroadenoma was the commonest benign tumor and ductal carcinoma was the common malignant tumor, which is supported by Article O et al¹⁰ Fibroadenoma can present a

management challenge in adolescent population and can be managed conservatively without surgery but symptomatic masses increasing in size require surgical excision.^{5, 11}

According to this study, 3 cases had fibrocystic changes. The exact mechanism behind fibrocystic changes is still unknown, but it is believed that hormones play a major role in development of fibrocystic changes.^{5,4,9}

Lipoma is benign tumor composed of mature fat and is usually encapsulated. Majority of them are small and slow growing and are derived from mesenchymal tissue. 17 cases of lipoma was diagnosed in our study which is supported by Choudhary P et al.⁴. In FNAC, breast lipoma can be misdiagnosed as carcinoma, fibroadenoma, phyllodes tumors, and duct papilloma.¹²

Mastitis is an inflammation of the breast tissue and can be treated with antibiotics. In our study, we had 18 cases of chronic inflammatory lesions. Badge S et al. showed 12 cases had chronic inflammatory lesion⁸. Causes of mastitis are cracking of nipple and invasion with microbiota of skin or babies' mouth.

Atypical ductal hyperplasia was diagnosed in 5 cases in this study which is in contrast to one case in study done by Chaurasiya, A. K et al¹³. It is not a form of breast cancer. It is a marker for that may have a risk factor for developing breast cancer in the future.

Galactoceles are common benign cystic lesions of breast that commonly occur in pregnant and lactating females and can be confused radiologically as breast abscess, fibroadenoma and carcinoma¹⁴. In present study 7 cases were diagnosed as galactocele. This condition occurs because of precipitation of inspissated milk secretion.

Fibroadenosis can be misdiagnosed as fibroadenoma but it is due to the influence of sex hormones in reproductive ages (25-35yrs), which varies with menstrual cycle and has symptoms of pain and nodularity. Fibroadenosis was diagnosed in 4 cases in this study which is in contrast to 17 cases in study

done by Chaurasiya AK et al.¹³ According to this study, 4 cases were diagnosed as abscess. Breast abscess develops as a complication of lactational mastitis and is common in smokers, obese females, diabetics. This is because of recurrent infections¹⁵. Early diagnosis helps in early management and prevention of complications¹⁶.

An epidermal cyst of the breast is a rare condition caused by the accumulation of epithelial and keratinous debris within the dermis, resulting in a lamellated keratin-filled cyst¹⁷. If the diagnosis is accurate, asymptomatic small-sized lesions (<2 cm diameter) do not require treatment but large ones causing psychological discomfort will require surgical excision¹⁸. Infected epidermal cyst was diagnosed in 6 cases in this study which is in contrast to 3 cases in study done by Gupta R. et al¹¹. According to this study, ductal carcinoma was seen in patients of 73 years female. Glaser R reported in 80 yrs female¹⁹. Among 2 male patients, 1 case showed ductal carcinoma and another reported as gynecomastia. Breast cancer in males is rare and represents less than 1% of all malignancies²⁰. Both male and female breast cancer are caused by the clinical disorders related to hormonal imbalances, some occupational exposures, environmental exposures and a family history of breast cancer^{21,22}. Ten percent of breast cancer cases are thought to be hereditary, and about 25% of these are caused by inherited variants in the tumor suppressor genes BRCA1 and BRCA2^{23,24}.

The peak age group for breast lump was 20-40 years. This study was a retrospective study, so it is based on only feature of FNAC. We recommend new studies using core biopsy, excision biopsies and tumor grading.

CONCLUSION

We concluded that FNAC is a reliable diagnostic tool in breast lumps. Being a cheap and fast diagnostic tool as highlighted by previous studies, we recommend that clinicians should continue to use this diagnostic technique in the investigation of

breast lumps.

Ethical Approval

This research was approved by the Institutional Review Committee of Pokhara Academy of Health Sciences, Nepal. Letter of approval (Ref number 1.2077/078) was obtained after submitting the proposal to the committee.

Conflict of Interest

The authors declare that they have no conflict of interests.

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