ROLE OF FINE NEEDLE ASPIRATION CYTOLOGY AND CORE BIOPSY IN THE DIAGNOSIS OF BREAST LUMPS

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ABSTRACT

Objective: To evaluate diagnostic importance of fine needle aspiration cytology and core biopsy in breast lumps.

Material and Methods: A study of eighty patients was carried out from April 2003 to March 2004 at Khyber Teaching Hospital Peshawar with age ranging from 20 to 60 years. They were managed by triple assessment in the out patients department which included clinical examination/imaging and pathological examination by fine needle aspiration cytology and core biopsy.

Results: Out of the 80 patients, 50 patients had conclusive results while 30 patients with equivocal results were subjected to core biopsy. Twenty patients with equivocal were reported benign and 10 patients turned out to be malignant.

Conclusion: Fine needle aspiration cytology and core biopsy are the most effective non invasive techniques with little morbidity and no mortality and surgery for breast lumps can be based safely on the result of FNAC and core biopsy.

Key Words: Breast Lumps, FNAC , Core Biopsy.

INTRODUCTION

Patients with breast problems constitute 15-20% of referrals to the surgical outpatients clinics. Of which 4% suffer from malignant breast diseases. The detection of a lump in a breast is a common occurrence. Although most lumps are not caused by cancer, the possibility of cancer must always be considered. Malignant lumps constitute 24-26% of the breast lumps and benign about 75-80%. Thus from the moment a lump or a suspicious change in the texture or resistance is felt in some part of the breast, a series of decisions must be taken to exclude or establish the diagnosis of cancer because early diagnosis is the key to survival. The aim of my study was to show the efficacy of fine needle aspiration cytology and core biopsy in the prompt and accurate diagnosis of benign or malignant nature of breast lumps and their early management.

MATERIAL AND METHODS

This study was carried out in the surgical department of Khyber Teaching Hospital Peshawar between April 2003 and March 2004. The patients were evaluated in outpatient department by triple assessment.

After initial examination and imaging fine needle aspiration cytology was done with 21-23 G needle attached to 20 ml syringe by a two hands technique with continuous negative pressure applied while the tip of the needle is moved up and down in the mass several times. The syringe is then withdrawn and needle detached. The fluid in the hub was spread on slide. The smear was immediately air-dried and fixed in 95% alcohol. All smears were reviewed by cytologist and reported as benign, malignant or equivocal.

Suspicious or equivocal cases were subjected to core biopsy. The aim of the core biopsy was to use a percutaneous technique under local anaesthesia and remove a piece of tissue for formal histological assessment. 14-18G Chiba needle was used for this purpose and two to three samples were
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removed from the lump.

All patients underwent surgery according to the results in the form of lumpectomy, simple mastectomy or modified radical mastectomy.

RESULTS

Eighty consecutive female patients presenting to the surgical outpatient department of Khyber Teaching Hospital Peshawar with breast lumps were evaluated by triple assessment, which included

a) Clinical examination
b) Imaging by ultrasound or mammography
c) Pathological examination by fine needle aspiration cytology or core biopsy.

Clinical examination was performed in the outpatient department and the patients were categorized on the basis of age. Patients included in this study were in the age group 20-60 years. The mean age was 35 years. Fifty patients had features of malignancy on clinical exam and they were staged into:

1. Localized disease: 30 cases.
2. Regional Disease: 25 cases.
3. Metastatic disease: 10 cases.

The imaging was done only in patients with local or regional disease. Ultrasound was done in patients under 35 years of age and mammography was performed in patients over 35 years of age.

Pathological examination was the mainstay of the workup. The tissue for pathological exam was retrieved by either

1. Fine needle aspiration or
2. Core biopsy

Fine needle aspiration cytology was performed in all the eighty cases. In fifty cases it was conclusive and in thirty cases it was equivocal which were then subjected to core biopsy.

Out of 50 cases, 40 (80%) were reported as malignant and 10 (20%) cases were benign. There was no false positive case because no benign case turned out to be malignant after histopathological examination and no false negative case as no malignant was reported as benign after histopathological examination.

The 30 cases, which were equivocal, underwent core biopsy of which 20 (66.7%) were reported as benign and 10 (33.3%) turned out to be malignant.

![FIGURE-2]

Similarly no false or false negative case was reported in these patients after histopathological examination.

The combined sensitivity of fine needle aspiration cytology and core biopsy is 100% and they were complementary in the accurate diagnosis of breast cancer.

![FIGURE-3]
DISCUSSION

Guthrie was the first surgeon who used the technique of fine needle aspiration cytology in the carcinoma breast in 1921. However Martin and Ellis were accredited with introducing fine needle cytology for breast lumps in 1922.

Fine needle aspiration cytology is not only used for breast lumps but also for tumors of thyroid, pancreas and lymph nodes. It is based upon the principle that tumour cells lose the property of cohesiveness so that it is easy to aspirate them. Fine needle aspiration cytology is a non-invasive technique for the early detection of malignancy so that the disease can be treated at its inception with better chances of cure.

Carcinoma breast is one of the commonest malignant tumours of females. According to the PMRC report of 1985-1986, it is a leading cause of death in women both in Pakistan as well as internationally. Pakistan is a poor country and it is not possible for the patients to afford costly investigations e.g., mammography which is not 100% accurate. Fine needle aspiration cytology is an economical, simple and very sensitive procedure because it avoids the two step procedure of excision biopsy followed by mastectomy and gives positive diagnosis in majority of cases.

It provides diagnostic and therapeutic tool for all the strata of the society.

State of the art core biopsy is almost as accurate as surgical biopsy. Core biopsy requires local anaesthesia but has less morbidity than excisional biopsy and the rate of infection or haematoma formation requiring surgical or medical intervention is only 0.1%.

In our study FNAC was performed in all 80 cases. In 30 cases further investigation with core biopsy was carried out for the following reasons;

1. In 20 cases the result was equivocal which on core biopsy turned out to be benign tumours.
2. In 10 cases core biopsy was performed to differentiate between ductal carcinoma in situ or invasive ductal carcinoma.

There was no morbidity or mortality associated with core biopsy. FNAC and core biopsy can be even image guided though this was not utilized in the study.

Oschner's objection to FNAC was the possibility of implantation of tumour cells in the needle track which was disproved by the study of Resemond on mastectomy specimen on which FNAC had been done.

A study conducted at Stewart Memorial Hospital concluded that FNAC was expeditious for the diagnosis of breast lumps.

FNAC is both diagnostic and therapeutic in cystic swellings.

Core biopsy has several advantages as it provides specific information about a tumour such as whether it is in-situ or invasive. It is accurate, quick, relatively inexpensive, mildly uncomfortable and almost non-invasive technique. The larger piece of tissue obtained with its preserved architecture is helpful in confirming the diagnosis short of surgical removal.

In almost all the 80 cases admitted to the surgical department with breast lumps in our study, the strategy of triple assessment was employed which included clinical examination/imaging (ultrasound/mammography) and pathological examination by FNAC and core biopsy. This triple assessment was carried out in the out patient department.

Management of breast lumps with wide local excision/lumpectomy, simple mastectomy or modified radical mastectomy was based in all cases almost exclusively on the results of aspiration cytology and core biopsy.

CONCLUSION

Fine needle aspiration cytology and core biopsy are accurate for decision making in the management of breast lumps because they avoid the two-step procedure of excision biopsy followed by mastectomy. Moreover these procedures can be carried out in a single visit and frequent visits to the hospital from far flung areas in the province are avoided where the facilities for these investigations are not available.

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