

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

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## SUMMARY

*One hundred female patients with breast lump underwent FNA of the lump followed by open biopsy for comparison in female surgical "B" Ward of Lady Reading Hospital, Peshawar. This study was conducted from July 1997 to June 1999. The age range was 15-70 years. Majority was in their third decade of life. The vast majority had unilateral disease while 6 had bilateral lumps. The lump size was 1 to 2 cms in 80% of patients. Out of 20 malignant histologies on paraffin section, FNA picked 16 correctly, 2 were misdiagnosed as benign making false negative to be 10%, and 2 were suspicious. Out of 80 benign histologies the FNA was correct in 66 cases, where misdiagnosed as suspicious or unsatisfactory in 4 and 10 cases respectively.*

## INTRODUCTION

Breast lumps are fairly common presenting feature in outpatients department. Because of the increased awareness of cancer in the general public, this presenting feature has become even more common and also very demanding on the part of clinician to diagnose it correctly and speedily.

Until recently clinical impression, ultrasound scan and mammography alone or in combination have been relied upon to diagnose the true nature, whether benign or malignant. These have got

their own fallacies and pitfalls. In contrast tissue biopsy whether open, core or fine needle aspiration biopsy and cytology yields tissue for direct histological examination.

FNA cytology is a simple rapid and economical procedure. Patient's compliance is good and it is relatively free of complications. Its diagnostic accuracy, sensitivity and specificity has shown to be more than 90% in various studies. It is gaining importance as a primary tool in the diagnosis of breast lumps and is a reasonable alternative to open biopsy.

## AGE DISTRIBUTION

Age (Years)	No. of Patients	Total
15-19	2	2
20-29	75	75
30-39	12	12
40-49	5	5
50-59	5	5
60-69	1	1

TABLE - 1

## MATERIALS AND METHODS

All the female patients presenting with breast lump, either solitary or multiple, unilateral or bilateral, admitted to surgical B unit LRH Peshawar. The first consecutive 100 patients so admitted were included in the study. There were no age restrictions. The patients were prepared for the next operating day in a routine fashion. Each patient underwent FNA followed by open biopsy.

## Technique of FNA

After cleaning and draping the lump being held in left hand's index finger and thumb, the needle attached to a 5cc disposable syringe with 1-2cc of air already sucked in, is inserted into the lump, following which drives are made in various directions with continuous suction maintained. Suction is released before the needle is taken out. The aspirate is sprayed on 2 slides, fixed in 95% alcohol and sent for

## SIZE OF LUMPS

Size in Cms	No. of Patients	Total
1-2	80	80
3-5	15	15
More than 5	5	5

TABLE - 2

## DISTRIBUTION OF TISSUE HISTOLOGY

Diagnosis	No. of Cases	Percentage	Total
<b>MALIGNANT</b>			
Invasive Ductal CA	19	95	
Lymphoma	1	5	
Total	20		20
<b>BENIGN</b>			
Fibroadenoma	48	60	
Fibrocystic Disease	17	21.25	
Duct Ectasia	6	7.5	
Abscess	5	6.25	
Galactocoele	2	2.25	
Tuberculosis	2	2.25	
Total			80

TABLE - 3

cytology. The procedure was followed by open biopsy in the same sitting. General anesthesia was used in majority (92) cases. The patients were retained in the ward for minimum of 24 hours.

## RESULTS

100 cases of either solitary or multiple lumps admitted to surgical B unit were included in the study. The age range was 15-69 years (Table 1) and majority were of between 20 to 29 years. Ninety-four patients had solitary lumps and the remaining had bilateral breast lumps. Majority (80) of the lumps were 1-2 cms in diameter, the range being 1 to 5 cms. (Table 2)

The results of histology and cytology are shown in table 3 and 4. Out of 20 malignant cases diagnosed on histopathology, FNA picked 16 cases correctly, while 2 were diagnosed as suspicious and the remaining 2 were misdiagnosed as non-malignant (thus false negative being 2 out of 20, i.e 10%). Out of the 80 benign lesions diagnosed on histopathology, FNA correctly picked the

## CYTOLOGY RESULTS (FNA)

Total	Malignant	Benign	Suspicious	Unsatisfactory
100	16	68	6	10

TABLE - 4

duct ectasia (6), abscess (5), galactocoele (2), and tuberculosis (2). Out of 48 fibroadenomas on histopathology, FNA correctly picked 41 (the remaining 7 being reported as either unsatisfactory-5 or suspicious-2). Out of 17 cases diagnosed as fibrocystic disease on histopathology, FNA picked only 10 cases correctly. The 2 other cases which were reported as fibrocystic disease of FNA turned out to be malignant on histopathology. The remaining 7 cases of fibrocystic disease diagnosed on H/P were either reported as unsatisfactory (5) or suspicious (2) on FNA. (Table 5).

## DISCUSSION

FNA has been widely accepted as a rapid, simple and cost-effective diagnostic tool in the management of breast lumps. Besides having a high patient compliance rate it can be performed as an outpatient procedure. Although this is a very small study nevertheless the results are fairly comparable to other studies. In the literature the sensitivity ranges from 80-90 % and the

## FINE NEEDLE ASPIRATION VS HISTOPATHOLOGY

	HISTOPATHOLOGY		
	Benign	Malignant	
Benign	68	66	2
FNA Unsatisfactory	10	10	0
Suspicious	6	4	16
Malignant	16	0	16
False Negative	100%		
False Positive	0%		

TABLE - 5

specificity may be upto 100%.<sup>1</sup> In the literature the false positive rate ranges from 0-2 %, and in our study it was 0%. The false negative for malignancy on the other hand ranges from 0.7 to 22%, in our study it was 10%.<sup>1</sup>

Small tumor size and some tumor types (e.g lobular carcinoma, mucinous tubular or medullary carcinomas) and paucicellularity may also contribute to false negative results.<sup>2</sup> In our study the reason for false negative could be due to the lack of experience in performing the FNA, its fixation technique and the relatively little experience of the cytologist. The suspicious cytology reports can be due to gynaecomastia papillomas, fat necrosis and some reactive fibroadenomas besides malignancy, which cannot be commented upon definitely.<sup>1</sup> In literature the suspicious reports range from 4-18 %, in our study it was 6%. Out of these 2 turned out to be malignant and 4 benign on subsequent histopathology. The unsatisfactory results in our study were largely due to inexperience and the majority of these were reported in the early part of the study, few slides were haemorrhagic and few were acellular. Although aspiration combined with ultrasonography imaging is an affective alternative to incision drainage,<sup>3</sup> we did not embark upon the therapeutic aspect of needle aspiration. Comparing FNA with other investigative procedures it can be commented that diagnostic FNA has a pivotal role in the management of breast lumps. USS can only differentiate solid from cystic lesions.<sup>4</sup> Its sensitivity specificity and accuracy in differentiating benign from malignant lesions is quite low.<sup>5</sup> However it can be used as guidance for FNA cytology in case of small breast lumps.<sup>6</sup> Mammography has its own advantages, disadvantages and limitations. Its disadvantages being

- High cost
- Radiation exposure
- Painful at times

- Difficulty in performing procedure on dense breasts
- Non-specific<sup>4</sup>  
Its advantages are
- Can pick up smaller lesions and before a lump becomes palpable
- Can detect other associated masses in the same or contralateral breast
- Can be used as a screening procedure
- Stereotactic needle biopsy can be performed on mammography lesions

Trucut biopsy needs some form of anesthesia and the complication rate is high<sup>7</sup> as compared to FNA. However in cases of negative cytology trucut biopsy can be conclusive.<sup>8</sup> Open biopsy is the best in terms of diagnosis but has its own disadvantages.

- Risks of anesthesia
- Dissemination of tumor
- Cost
- Complications like bleeding, haematoma, infection.<sup>9</sup>

In short FNABC is safe, cheap easy and accurate procedure. It is relatively free of complications. Its sensitivity and specificity is fairly high and is as good alternative to open biopsy. However in cases of clinically and mammographically suspicious breast masses, open biopsy is recommended if cytology is negative.<sup>10</sup>

If physical examination, FNA and mammography are combined together, the need for open biopsy may be avoided.<sup>11</sup>

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