

# ROLE OF FINE NEEDLE ASPIRATION CYTOLOGY IN EVALUATING THE BREAST LUMPS

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## ABSTRACT

**Background:** Fine needle aspiration cytology is an evaluation tool for the breast lumps. This study was conducted to evaluate the results of fine needle aspiration cytology in comparison with open biopsy.

**Material & Methods:** This was a comparative study conducted at Saidu Teaching Hospital, Swat, from July 2007 to December 2010. Total 210 patients were included in the study, who presented with breast lump to outpatients department. Fine needle aspiration cytology and open biopsy (excisional/incisional) were performed simultaneously under local or general anesthesia.

**Results:** The diagnostic yield of fine needle aspiration cytology was 95.2% (200/210 cases) accurately diagnosed compared with results of open biopsy 100%. The results of 3 cases were suspicious and 7 were unsatisfactory on fine needle aspiration cytology.

**Conclusion:** Fine needle aspiration cytology is a sensitive and specific test for evaluation of the breast lumps. It should be the first line investigation in evaluating the breast lumps.

**KEY WORDS:** Breast lump, Fine needle aspiration cytology, Open biopsy.

## INTRODUCTION

Breast lesions mainly present as lump / lumps. Though these conditions are quite common, yet mostly benign but associated with stress and anxiety, particularly in women who think every symptom in breast as cancer,<sup>1</sup> compelling them to seek medical advice.<sup>2</sup> Cytological /histological assessment is of paramount importance to establish the diagnosis.<sup>3</sup> A confident diagnosis can be established in more than 95% cases using triple assessment (Examination, Imaging and Cytological/ Histological) studies.<sup>4,5</sup>

Fine needle aspiration cytology (FNAC) is well established as evaluation tool for the breast lumps because of high diagnostic yield and safety.<sup>1,2</sup> It has been shown that FNAC has reduced the number of open biopsies because of its high diagnostic sensitivity and specificity,<sup>6</sup> while still in some centers open biopsy is preferred due to lack of expert cytologists.

FNAC for the diagnosis of palpable breast masses was first introduced by Martin and Ellis in 1930 and since then, it has been established as an important tool for the evaluation of breast lesions.<sup>7</sup>

This study was conducted to evaluate the results of FNAC in comparison with open biopsy.

## MATERIAL AND METHODS

Patients with breast lump /lumps who presented to surgical outpatient department from July 2007 to December 2010 were included in the study. After getting informed consent FNAC and open biopsy (incisional /excisional) were performed simultaneously. Aspirate for FNAC was obtained using the 22 gauge needle with 10 ml disposable syringe and smeared on glass slides, fixed in alcohol, labeled and sent to laboratory. At the same time open biopsy was obtained placed in formalin 10% and sent for histopathology.

Patients were either discharged on the same day or kept in the ward depending upon the condition. Results were recorded on proforma when received back from pathologist.

## RESULTS

Among 210 patients, 42 were diagnosed malignant on open biopsy while FNAC showed 40 cases as malignant. One case was suspicious and one was non-malignant (False negative one out of 42 (2.3%).

Ninety-five cases were diagnosed as fibroadenoma both on open biopsy as well as FNAC.

Forty-eight cases were found fibrocystic disease on FNAC out of these 2 were malignant on open biopsy, false negative of FNAC was 4.16%.

Thirteen cases were diagnosed as duct ectasia, 6 abscess, 4 galactocele and 2 tuberculosis both on FNAC and open biopsy. (Table 1)

**Table: Results of FNAC and Open biopsy (n=210).**

Diagnosis	FNAC	Open Biopsy
Malignant	40	42
Suspicious	1	0
False benign	1	0
Total benign	166	170
Fibro-adenoma	95	95
Fibrocystic disease	48	46
False negative	2	0
Duct ectasia	13	13
Abscess	6	6
Galactocele	4	4
Tuberculosis	2	2

For statistical significance and difference between the two procedures, t test was applied, showing p-value >0.05 i.e. the difference between the two procedures is statistically not significant.

## DISCUSSION

In this study FNAC is compared with open biopsy in the evaluation of breast lumps. FNAC is accurate, simple, easy to perform, reproducible and carries minimal complications. The results are obtained in short possible time. The procedure is performed in outpatient department and the patients are usually able to resume their activities soon after the procedure<sup>8</sup> where as open biopsy is highly accurate, free of false positive and allows greater understanding of the biology of the diseases<sup>3</sup> yet associated with much complications, still indeed it is a practical option for the accurate pre operative diagnosis of palpable breast lumps.<sup>9</sup>

In our study we performed FNAC in 210 patients followed by open biopsy. Forty cases were malignant both FNAC and open biopsy while one case was suspicious and another was benign on FNAC, Both were turned out to be malignant on open biopsy. The sensitivity and specificity of FNAC in our study for malignant lumps is 95.23% and 99.2% while in another study made by Waqar<sup>1</sup> it is 92.6% and 98.48%. Similarly in the study of Isaac it was 96.5% and 96.4%<sup>10,11</sup> another study

from United States showed the sensitivity and specificity as 86.9% and 78.6%.<sup>12</sup> Overall this ranges from 80-98% and specificity may be up to 100%.<sup>13</sup> FNAC of breast lump is an important part of triple assessment (clinical examination, imaging and FNAC) of palpable breast lumps and also a recommended modality of investigating the palpable breast lumps.<sup>6,14</sup>

Clear cut diagnosis was established in 40 cases out of 42 cases, there was no false positive, while false negative was 2.38%, while in other studies false positive ranged 0-2% and false negative ranged from 7-22%.<sup>1,13</sup> This may be explained as sampling error, microscopic errors and interpretative errors by the cytologists.<sup>12,13</sup> Small size lumps and certain tumors (lobular, tubular, mucinous and inflammatory carcinomas) may also contribute to the false negative results.<sup>15</sup> FNAC is the simplest and easiest modality to evaluate the breast lumps; the results are mostly dependent upon the size of the lesion, proficiency of the individual performing the procedure and the experience of the cytologist.<sup>16</sup>

The role of FNAC has been very much established in the management of breast lumps in the West and is considered to have high rate of accuracy.<sup>17-19</sup>

## CONCLUSION

Fine needle aspiration cytology is a sensitive and specific test for evaluation of the breast lumps. It should be the first line investigation in evaluating the breast lumps.

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