Correlation Between Fine-Needle Aspiration Cytology And Histology of Palpable breast lumps to find out The accuracy of FNAC results.

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Study Designed: *Review Article and meta-analysis*

Abstract: *Palpable breast lump is a common presenting complaint so diagnostic evaluation is mandatory. The aim of this review paper is to study the cytomorphological patterns of palpable breast lumps and correlate the findings with histopathological examination and to find out the diagnostic accuracy of FNAC.*

FNAC is the first line investigation for diagnosis in resource limited settings but histopathology is more valuable for confirmatory diagnosis. According to National Institute of Cancer guidelines in 1996 FNAC of breast is classified into 5 categories that would allow clinicians to easily interpret the data. In this paper we reviewed seven published articles which met this criteria.

Keywords: *Breast, FNAC, Cytology, Correlation, Palpable lumps, Histology.*

I.   Introduction:

FNAC is a rapid, reliable and safe and cost effective initial diagnostic tool used for both benign and malignant lesions of breast. It has a high sensitivity , specificity and diagnostic accuracy. Thus FNAC has reduced the number of open breast biopsies. It has high accuracy of as high as 98.9% in some series. It can be further increased when combined with cell block preperations approaching to 100% in a particular study making it more reliable. The primary aim of cytological examination is to separate malignant lumps which require radical treatment from benign which can be managed conservatively. Although exact incidence is not known, the most common benign lesion is Fibroadenoma while the most common malignant lesion is Infiltrating ductal carcinoma.

II.   Materials And Methods:

We conducted a thorough research in PUBMED, SAGE and Google scholar database using keywords "FNAC", "accuracy", "cytology", "breast lumps", "correlation with histopathology". Single case reports were not included. References from the articles were aslo checked for additional studies. The published articles which included the histolopathology and cytolopathology correlation were only studied for meta-analysis. FNAC of breasts were categorized into inadequate(C1); benign(C2); atypical, probably benign(C3); suspicious for malignancy (C4); malignant(C5) according to National Institute of Cancer(NCI) guidelines.The final diagnosis were recorded and compared with the results of histopathology to calculate the accuracy of FNAC.

III.   Results:

In these published articles detailed clinical history including duration of the lump, pain , tenderness, discharge, ulceration , menstrual and family history were noted. The examination of the lesion included size , exact location of the lump, mobility, fixation to skin and underlying tissue and lymph node involvement. After taking the consent of the patient FNAC was performed under all aseptic conditions. Standard technique of the procedure was followed. FNAC was performed using 10cc syringe and 22 gauge needle to aspirate the material. The material was aspirated on the glass slide and smears made, fixed with alcohol, stained with H&E, Geima and Papanicolaou stains. Cytological features were studied in detail and categoried into 5 tier system as C1 to C5. The results were correlated with histopathology to find out the sensitivity and specificity of FNAC.

Table 01:

Author Study	Sensitivity	Specificity
Rajshri P. Damle et al	100%	97.7%
Mulazim et al	98%	100%
Dharmakanta et al	98.7%	99.38%
Singh et al	86.67%	93.33%
Adetola O. Daramola et al	99.2%	88.9%
Sharif et al.	91.11%	100%

Table: 02

Author	Total Cases	Cytological Diagnosis		Histopathology Diagnosis	
		Malignant	Benign	Malignant	Benign
Rajshri P. Damle et al	273	45	141	45	141
Mulazim et al	338	131	171	131	171
Dharmakanta et al	314	153	161	152	159
Singh et al	30	14	16	13	14
Daramola et al	394	27	367	26	365
Sharif et al	95	41	54	41	54

IV.   Discussion:

Breast cancer is one of the major health problems worldwide. Categoring the lesions into 5 tier system (C1 to C5) makes the understanding of the pathologists and clinicians better and thus the management easier. The main aim is to find out whether the lump is benign or malignant. Nowadays more patients are diagnosed at an early stage because of both awareness and the better compliance of FNAC for the patient.

Comparing the results of all the articles, the diagnostic accuracy of FNAC is found to be very high. The specificity is overall above 90% and specificity above 95%. This study shows that FNAC helps in preoperative evaluation of breast lesions without surgical interventions. Thus it is concluded that FNAC should be used as the first line investigation because of better compliance and its correlation with histopathology results.

Rajshri et al the results of cytology correlated very well with histopathology with a sensitivity of 100% and specificity of 97.7%.

Mulazim et al the diagnosis made of cytology matched with the results of histopathology with a sensitivity of 98% and specificity of 100%.

Dharmakanta et al showed a little variation in the results. Out of 153 cases diagnosed as malignant on cytopathology 1 was found out to be benign on histopathlogy. Also out of 161 diagnosed as benign on cytolology, 2 came out to be malignant on histology. Sharif et al the results showed a sensitivity of 91.11% and specificity of 100%.

Singh et al proved some variation in the results. Out of 14 cases diagnosed as malignant on FNAC came 1 came out to be benign on histology. While 2 came out to be malignant out of 16 diagnosed as benign on FNAC. Adetola O. Daramola et al showed a very less specificity of 88.9% and sensitivity of 99.1%.

V.   Conclusion:

Thus our study proves that FNAC is a very reliable first line investigation in palpable breast lumps. The results of FNAC correlates very well with histopathology.

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