



PROSPECTIVE STUDY TO CORRELATE FINE NEEDLE ASPIRATION CYTOLOGY WITH HISTOPATHOLOGY IN CLINICALLY PALPABLE BREAST LUMPS

KEYWORDS

FNAC; Sensitivity; Specificity; negative predictive value; positive predictive value; diagnostic accuracy.

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ABSTRACT

Background Palpable breast lump is a common presentation among women and cause for a state of anxiety but most of the cases are benign, hence it is necessary to reassure them reduce their anxiety as well as to minimize delay in diagnosis, FINE NEEDLE ASPIRATION CYTOLOGY plays a very important role.

Objective To analyze diagnostic accuracy of FNAC in palpable breast lumps with histo-pathological correlation.

Methods: The findings obtained from FNAC of palpable breast lumps in our department from February 2012 to October 2014 were retrieved and correlated with findings on histology of excisional biopsies.

Results 20 months prospective study on 100 was carried out in our hospital. In that fine needle aspiration cytology revealed benign in 79 patients, malignant in 19 and inadequate sample in 2 patients with false negative results of 2 and false positive zero. The overall sensitivity of fine needle aspiration cytology in diagnosing the palpable breast lump in our study was 90.47%, specificity was 100%, positive predictive value of 100% and negative predictive value of 97.46%. diagnostic accuracy is 97.95%.

Conclusion: FNAC is a very important preliminary diagnostic test in palpable breast lumps and the results show a high degree of correlation with the final histopathology report.

Introduction

FNAC is one of the important components of TRIPLE APPROACH which has been widely accepted for preoperative diagnosis of breast lesions (1)

It is sometimes difficult to differentiate a benign lump from a malignant one through just clinical examination, therefore a definitive method of assessment on outpatient basis is needed .FNAC is a simple, quick to perform, economical, friendly op procedure (2, 3). This method reduces health care costs and psychological stress to the patients (4). It has been shown that, FNAC can reduce the number of open breast biopsies (5)

FNAC for the diagnosis of palpable breast masses was introduced first by Martin and Stewart and later by Godwin. FNAC, is a routine procedure in patho-morphological diagnostics, is used for tumors that are accessible by needle, such as thyroid, breast or peripheral adenopathies.

Present study was aimed to see how well a FNAC in palpable breast lump correlated with final histopathology.

MATERIALS & METHODS:

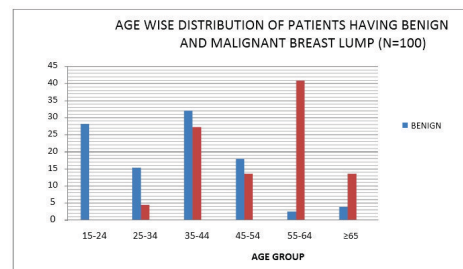
100 female patients who were having palpable breast lump attending MEDICAL TRUST HOSPITAL KOCHI formed subject of study Between February 2012 to October 2014. Study was reviewed by ethical committee of institution and was approved .informed consent was obtained from the patient before subjecting to fine needle aspiration cytology of the breast lump. The standard procedure was followed, making use of a 10ml syringe bearing a 23-gauge needle. The specimen was expressed on to a glass slide. It was then immersed in a fixative 95% methyl alcohol. The slides were then sent for interpretation by the cytopathologist.

The patients were followed up for mastectomy or biopsy. Histopathological findings were noted. The statistical analyses were done to find the ability of FNAC to detect the presence of malignancy in the breast in comparison to histopathology. For this sensitivity, specificity, positive and negative predictive value and accuracy were calculated.

TABLE 1: AGE WISE DISTRIBUTION OF PATIENTS HAVING BENIGN AND MALIGNANT LUMPS (N=100) (BASED ON HISTOPATHOLOGY REPORT)

AGE GROUP IN YEARS	BENIGN		MALIGNANT	
	FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE
15 - 24	22	28.20	0	0
25 - 34	12	15.38	1	4.54
35 - 44	25	32.05	6	27.27
45 - 54	14	17.94	3	13.63
55 - 64	2	2.56	9	40.90
≥65	3	3.84	3	13.63
TOTAL	78	100	22	100

Table 1 shows that the most common age group for benign lesions was between 35 to 44 years (mean age = 36.14 years, SD = 12.87 yrs) and for the malignant lesion was 55 to 64 years (mean age 53.36, SD = 11.56 years)



RESULTS

In the hundred consecutive women selected for our study, the age ranged from fifteen years to seventy five years with a mean age of 39.93 years. We found that most common age group for benign lesions was 35 to 44 and with malignant lesions the most common age group was 55 to 64. The commonest pathology found in our patients was fibro adenoma in 48 patients among 78 benign lesions, followed by fibrocystic disease. Among the malignant lesions all 22 cases reported to be invasive ductal

carcinoma. This study documented the fact that the benign lesions of breast are the most common lesions.

Of the 79 cases of benign as reported by Fine needle aspiration cytology 77 were confirmed by histopathology. False negative were 2 cases which were benign on FNAC but malignant on histopathology and among the two cases which were reported as unsatisfactory (inadequate) sampling, one revealed to be fibroadenoma by histopathology so making a total of 78 cases confirmed to be benign on histopathology.

Of the 19 cases of malignant reported by Fine needle aspiration cytology all the cases were confirmed to be malignant on histopathology. One inadequate sample was also reported to be malignant and there were 2 false negative cases (reported as benign in FNAC but malignant on histopathology) hence making total of 22 cases of malignant lumps reported on histopathology.

Among 2 cases of false negative, one case of right breast lump was diagnosed as fibroadenoma in a 42 year old female. On local excision biopsy, the histopathology confirmed as infiltrating ductal carcinoma.

In another case of right breast lump in a 33 year female which was diagnosed as fibroadenoma, on local excision biopsy of that breast lump histopathology confirmed to be infiltrating ductal carcinoma.

In our study 2 cases were reported as inadequate/unsatisfactory though the FNAC was unsatisfactory due to discordance with clinicoradiological findings, excision was done which revealed to be infiltrating ductal carcinoma, she later underwent modified radical mastectomy.

Other case of unsatisfactory /inadequate sample was of a 44 yr female having right breast lump, in view of discordance with clinicoradiological findings, excision was done which revealed to be fibroadenoma.

The overall sensitivity of fine needle aspiration cytology in diagnosing the palpable breast lump in our study was 90.47%, specificity was 100%, positive predictive value of 100% and negative predictive value of 97.46%. diagnostic accuracy is 97.95%.

DISCUSSION:

FNAC of breast lump is an accepted and established method to determine the nature of breast lump with high degree of accuracy. Our present study was conducted on 100 female patients with a palpable breast lump each of whom underwent a fine-needle aspiration cytology of the lump followed by excisional surgery either in the form of a lumpectomy or a definitive surgical procedure like a mastectomy, depending on the diagnosis at aspiration cytology. The aspiration cytology findings were then matched with the final histology report to see as to how accurate FNAC was as compared to biopsy. None of our patients was subjected to a core biopsy and its correlation with FNAC was not a part of the study. Our study also did not attempt to draw any conclusions as to whether one diagnostic modality could replace the other.

Patients who did not follow up after FNAC were not included in this study. Every Patient included in this study was admitted and underwent a definitive surgical procedure as demanded by the FNAC report. It varied from excision biopsy or incision and drainage to a modified radical mastectomy.

The sensitivity of a particular test is a statistical index of the diagnostic accuracy of that particular test. In the context of FNAC, it implies that if FNAC is positive, it definitely means presence of the disease but if it is negative, it does not rule out the disease. The specificity of a particular test on the other hand is the ability of a test to identify those individuals who do not

have the disease. To give a wider spectrum to our interpretation of the results. We calculated the specificity of FNAC as a diagnostic test for malignant lesions. I.e. how specific is FNAC as test in the diagnosis of malignancy in a breast lump. The positive predictive value of a test indicates the probability of a patient with a positive result to have the disease. Hence, it shows the diagnostic power of the test while the negative predictive value of a test on the other hand indicates the probability of a patient with negative result not to have the disease. Analysis of the cytological reports in various series confirms the very high diagnostic accuracy of fine needle aspiration cytology.

The use of fine needle aspiration cytology as the main and direct indicator for mastectomy remains controversial. The major concern is the danger of a false positive diagnosis leading to unwarranted mastectomy. Since the false positive report is very rare (in our study it was zero).

In the centers where the surgical staff is accustomed to performing mastectomy on the basis of fine needle aspiration cytology for diagnosis of cancer. There is necessary for a high level of confidence in and rapport with the cytopathologist.

This study indicates that FNAC is a highly reliable tool in the assessment of breast masses for the differential diagnoses of benign from malignant.

CONCLUSION

FNAC has a great importance in the initial evaluation of the clinical situation, as well as allowing the planning of surgical treatment. Thus we have no hesitation in concluding that FNAC is a very important preliminary diagnostic test in palpable breast lumps and the results show a high degree of correlation with the final histopathology report.

References:

1. Kocjan, G., Bourgain, C., Fassina, A., Hagmar, B., Herbert, A., Kapla, K., ... Schmitt, F. (2008). The role of breast FNAC in diagnosis and clinical management: A survey of current practice. *Cytopathology*, 19(5), 271–278. doi:10.1111/j.1365-2303.2008.00610.x
2. Rubin, M., Horiuchi, K., Joy, N., Haun, W., Read, R., Ratzler, E., & Fenoglio, M. (1997). Use of fine needle aspiration for solid breast lesions is accurate and cost-effective. *The American Journal of Surgery*, 174(6), 694–698. doi:10.1016/s0002-9610(97)00192-x
3. Neil, S., Castelli, M., Gattuso, P., Kluskens, L., Madsen, K., & Aranha, G. (1997). Fine-needle aspiration of 697 palpable breast lesions with histopathologic correlation. *Surgery*, 122(4), 824–828. doi:10.1016/s0039-6060(97)90093-3
4. Wallis, M., Tarvidon, A., Helbich, T., & Schreer, I. (2006). Guidelines from the European society of breast imaging for diagnostic interventional breast procedures. *European Radiology*, 17(2), 581–588. doi:10.1007/s00330-006-0408-x
5. Hindle, W. H., Payne, P. A., & Pan, E. Y. (1993). The use of fine-needle aspiration in the evaluation of persistent palpable dominant breast masses. *American Journal of Obstetrics and Gynecology*, 168(6), 1814–1819. doi:10.1016/0002-9378(93)90695-f