Research Paper

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Histocytological Correlation Study of Breast Lesions: A study of 150 cases

Medical science

KEYWORDS : Breast lesions, FNAC, histopathology

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ABSTRACT

Background: The aim of this study was to evaluate the efficacy of fine-needle aspiration cytology (FNAC) in the diagnosis of breast mass and to correlate cytological findings with histopathology findings. Methods: A study was carried out in the cytology and histopathology laboratory of Pathology Department at P.D.U. Medical College, Rajkot. In this study, patients with palpable breast masses were selected, starting from 1st Jan 2011 to 30th June 2013. Total 150 breast aspirates were done in Cytology and all cases were followed by histopathological examination (H & E Stain). Results: The sensitivity, specificity and accuracy of FNAC in diagnosis of breast lesions were 98.36%, 100% and 99.33% respectively. Conclusion: The findings were comparable with the results carried out by other workers. FNAC is an effective and valid tool as the first line diagnostic modality in the preoperative diagnosis of both benign and malignant lesions.

INTRODUCTION

Fine needle aspiration cytology is a widely accepted diagnostic tool[1]. Breast cancer is the leading cause of morbidity & mortality worldwide[2,3]. Breast being a surface organ, is easily palpable and accessible for aspiration. Hence, diagnoses of various breast lesions are often done by FNAC. It has become an integral part of the diagnostic modalities of breast lump along with other clinical & radiological techniques[4]. Like histopathology, the diagnostic cytology is also a useful tool for the oncologist, who deals with undiagnosed palpable and non-palpable masses[5]. The need for frozen section diagnosis is reduced by fine needle aspiration[6].

The aim of present study was to diagnose benign and malignant breast lesions as well as to evaluate the efficacy of FNAC by correlating it with the histopathological findings.

MATERIALS AND METHODS

A study was carried out in the cytology and histopathology laboratory of Pathology Department at P.D.U. Medical College, Rajkot. In this study, patients with palpable breast masses were selected, starting from 1st Jan 2011 to 30th June 2013. Total 150 breast aspirates were done and all cases are followed by histopathological examination. Out of 150 patients 145 were female and 5 were males. Prior to performing FNAC, detailed clinical history of the patient was taken and local examination of the mass was done. For deep seated or poorly localized lesion, USG or CT guided FNAC was done after giving Inj. atropine 0.6 mg IM half an hour before the procedure. The smears were immediately fixed with 90% ethyl alcohol. After wet fixation, the smears were stained with haematoxylin & eosin stain and few air dried smears were also stained with May- Grunwald Giemsa (MGG) stain. Breast specimens for histopathology were fixed in 10% formalin. After standard tissue processing, paraffin block preparation and cutting by microtome, histopathological sections were stained with haematoxylin and eosin stain. Slides were dried and mounted with D.P.X. and then reported.

Cytological findings were correlated with histological findings and cytological diagnoses were assessed by sensitivity, specificity and accuracy from false negative and false positive, true negative values.

RESULT

The maximum incidence of breast lesions were in the range of 31-40 years of age i.e. 37cases (24.66%). Out of 150 cases of breast aspirate, 91 cases (60.66%) were benign, 56 cases (37.33%) were malignant, 2 cases (01.33%) were suspicious and only 1 case (00.66%) was unsatisfactory (Table No. 1). Out of 91 benign cases, 68 cases (74.72%) were fibroadenoma, 07 cases (07.69%) were phylloides tumor, 04 cases (04.39%) were acute mastitis, 05 cases (05.49%) were chronic mastitis, 02 cases (02.20%) were fibrocystic disease and 05 cases (05.49%) were gynaecomastia. Table no.2 shows the cytohistopathological correlation of all the 150 cases of breast lesions. There were 91 cases of benign lesions, out of them 90 cases (98.90%) were confirmed histopathologically. 1 case (01.10%) was diagnosed as malignancy. So 1 false negative case was found.

There were 56 cases diagnosed as malignant lesions cytologically. They all were confirmed histopathologically (Table No. 3). Total 60 cases were diagnosed as malignant by histopathological examination. 2 cases of suspicious were diagnosed as malignant histopathologically. 1 case of unsatisfactory smear was diagnosed as malignant. 1 case of fibroadenoma was diagnosed as malignancy. So no false positive case was found.

The sensitivity, specificity and accuracy of FNAC in diagnosis of breast lesions is 98.36%, 100% and 99.33% respectively (Table No. 4)

DISCUSSION

FNAC is a simple, safe, time saving, inexpensive and fairly reliable investigating procedure. It is one of the most valuable tools for the diagnosis of the breast lumps and it has high sensitivity, specificity and diagnostic accuracy as also found in our study. For the staining, haematoxylin and eosin was chosen because of its familiarity and easily discernible cytomorphology. In the present study, two cases were diagnosed as suspicious of malignancy i.e. they were not confirmatory for malignancy but they suggest the need of further investigations like core biopsy or excision biopsy. In various studies carried out from year 1975 to 2003, sensitivity ranges from 85 to 100%. The sensitivity of present study was 98.36%, which was correlated well with the study of Bijal et al, Shrestha et al, Bukhari et al[6] and Upadhyay et al.

The specificity of various studies range from 98 to 100%. The specificity of present study was 100%, which was correlated with the study of Bell et al[7], Patra et al, Shazia et al and Bukhari et al[6]. The accuracy of various studies range from 90 to 100%. The accuracy of present study was 99.33%, which was correlated well with the other studies. Dutta and workers[8] concluded that the combination of FNAC and imprint cytology gave a diagnostic accuracy of 96% and thus proving their value in the rapid diagnosis of breast lesions.

CONCLUSION

The findings were comparable with the results carried out by the other workers. FNAC is an effective and valid tool as the first line diagnostic modality in the preoperative diagnosis of both benign and malignant lesions. FNAC has superseded the use of frozen section examination in the diagnosis and management of patients with breast cancer. In the elderly patients breast lumps are often malignant, and FNAC provides least traumatic, yet the most specific, sensitive & accurate method of diagnosis.

TABLE NO. 1:- SHOWING THE FREQUENCY OF INDIVIDUAL BREAST LESIONS CYTOLOGICALLY (150 CASES)

CYTOLOGICAL DIAGNOSIS	NO. OF CASES	PERCENTAGE (%)
Benign	91	60.66
Acute mastitis	04	04.39
Chronic mastitis	05	05.49
Granulomatous mastitis	00	00.00
Fibrocystic disease	02	02.20
Fibroadenoma	68	74.72
Phylloides tumor	07	07.69
Gynaecomastia	05	05.49
Suspicious	02	01.33
Malignancy	56	37.33
Unsatisfactory	01	00.66

TABLE NO. 2 : SHOWING THE CYTOLOGICAL AND HISTOPATHOLOGICAL CORRELATION OF THE BREAST LESIONS IN THE PRESENT STUDY (150 CASES)

LESIONS	CYTOLOGICAL DIAGNOSIS		HISTOPATHOLOGICAL DIAGNOSIS	
	No. of cases	(%)	No.of cases	(%)
Benign	91	60.66	90	60.00
Acute mastitis	04	04.39	04	04.44
Chronic mastitis	05	05.49	04	04.44
Granulomatous mastitis	00	00.00	01	01.11
Fibrocystic disease	02	02.20	04	04.44
Fibroadenoma	68	74.72	64	71.11
Phylloides tumour	07	07.69	08	08.88
Gynaecomastia	05	05.49	05	05.55
Suspicious	02	01.33	-	-
Malignancy	56	37.33	60	40.00
Unsatisfactory	01	00.66	-	-

TABLE NO.3 : SHOWING THE FREQUENCY OF INDIVIDUAL BREAST LESIONS HISTOPATHOLOGICALLY (150 CASES)

HISTOPATHOLOGICAL DIAGNOSIS	NO. OF CASES	PERCENTAGE (%)
Benign	90	60.00
Acute mastitis	04	04.44
Chronic mastitis	04	04.44
Granulomatous mastitis	01	01.11
Fibrocystic disease	04	04.44
Fibroadenoma	64	71.11
Phylloides tumour	08	08.88
Gynaecomastia	05	05.55
Malignancy	60	40.00

TABLE No. 4: SENSITIVITY, SPECIFICITY AND ACCURACY OF FNAC

VALUE	FORMULA	PERCENTAGE
Sensitivity	TP(60)/TP(60)+FN(01)x100	98.36
Specificity	TN(90)/TN(90)+FP(00)x100	100
Accuracy	TP(60)+TN(90)/ TP(60)+FP(00)+TN (90) +FN (01) x 100	99.33

TP: True negative, FP: False positive, FN: False negative

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