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Research Article

A study on the usefulness of triple assessment in lumpy breasts in peri-menopausal women

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ABSTRACT

Background: As opposed to discrete lumps, diagnosing malignancy in ladies with lumpiness or lumpy breasts is a challenge. Often the clinician is in a dilemma whether to ignore, keep on follow up or evaluate the vague lumps that are palpable.
Methods: A prospective, observational study was conducted at Department of General Surgery, Pushpagiri Institute of Medical science & Research centre, Tiruvalla, from December 2012 to September 2014 in women of age group 35-45 years, complaining of lumpy breasts. All patients who had palpable but ill-defined lumps were included in the study. Patients who had discrete lumps or any definite clinical features of malignancy were excluded. Our objective was to correlate the clinical features, radiological, and cytology of lumpy breast perimenopausal women with the histopathological diagnosis. Hence all patients in the study underwent excision biopsy. After clinical examination, radiological assessment was done using ultrasound scan and/or mammography examination based on if patients were more or less than 40 years old. FNAC of the lump was also done using ultrasound guidance wherever feasible. Then the patients underwent excision of suspected area and specimen was subjected to histopathological examination.
Results: 63 patients were included in the study. Mean age of the study group was 40.29 (+/- 3.62). 42.8% of the patients presented with associated pain along with lumpiness. 25.4% of patient had bilateral lumpiness. There were 4 cases of malignancies and 33 cases were fibrocystic changes. Through kappa analysis, inter agreement statistics of radiological diagnosis and FNAC with histopathological diagnosis of malignancy was good but that of clinical diagnosis and histopathological diagnosis was poor.
Conclusions: These findings show that lumpy breasts should be evaluated by both radiological and cytological method before coming to a final decision in diagnosis.

Keywords: Lumpy breast, Perimenopausal, Fibrocystic change, Triple assessment

INTRODUCTION

Lumpy breast is defined as nodularity in breast where the nodules are better felt by fingers and thumb, but cannot be felt by palmar surface of fingers.[1] The commonest manifestations of Aberration of Normal Development and Involution (ANDI) are cyclical pain and nodularity. The concept of ANDI is based on the fact that there is a physiological change in the breast with each menstrual cycle i.e. with the estrogen – progesterone shifts. Mild differences from normal values will cause aberrations in the breast parenchyma. If this occurs persistently, it can lead to benign breast disorders.

Around half of all women will have a breast complaint which is usually a benign disorder. This is seen mainly in

the reproductive phase of life. Hormonal shifts are the reason for the breast development and involution. There is a decrease in benign disease after menopause due to fall in hormonal level.

Without a clear lump it is often difficult for the clinician to distinguish between benign and malignant conditions. Nevertheless its distinction by the triple assessment helps to allay the anxiety of the patient to a large extent. This study was done to compare the various factors associated with lumpy breast in peri- menopausal women and to correlate them with the histopathological diagnosis.

The aim and objectives of the study was to study the signs and symptoms associated with lumpy breast in perimenopausal women and to draw a correlation of clinical, radiological, cytological and histopathological diagnosis of lumpy breast in perimenopausal women.

METHODS

Institute ethics committee clearance was obtained for performing this prospective observational study on perimenopausal women.

All patients between 35 to 45 years complaining of lumpiness in breast to the out-patient department of General Surgery of our institute over a 2 year period (from December 2012 to September 2014) were studied. Those who had discrete lumps as well as those with clinical features of malignancy were excluded. Informed consent was taken.

A specially designed proforma was used for recording the relevant history, other features associated with the lumpy breast, and the specific findings observed on clinical examination. Size of the lump was not measurable as most of them were ill defined swellings. Radiological assessment were done by certified radiologists using ultrasound scan of both breasts for women of age < 40 years and using both ultrasound scan and mammography examination in patients of age >= 40 years of age. FNAC of the lump was also done using ultrasound guidance wherever feasible cytological examinations were done by certified pathologists. The clinical, radiological and cytological diagnoses were confirmed by histopathological examination after wide excision of the lumpy area. Histopathological examination and reporting were done by certified pathologists.

Statistical analysis - The clinical diagnosis, radiological diagnosis and cytological diagnosis were correlated to histopathological findings and the percentage of agreement and kappa statistics were calculated. Chi-square test was also done to find out the association between the findings.

RESULTS

A total of 63 patients were included in the study. Ages of the participants were ranging from 35-45 years with a mean age of 40.29 (+/- 3.62). Minimum duration of symptom was 1 month and maximum 120 months. Majority (43 out of 63) presented within 6 month of duration of symptoms. Twenty seven out of 63 (42.8%) presented with pain along with lumpiness. Bilateral involvement was seen in 16 out of 63 patients. Upper outer quadrant of breast was the most involved area (25 out of 63) followed by lower outer quadrant (18 out of 63). Only 5 out of 63 had associated nipple discharge. Majority were diagnosed clinically as fibroadenoma (37 out of 63) followed by fibrocystic changes (22 out of 63), Duct Ectasia (3/63) and chronic mastitis (1/63) (Figurer 1).

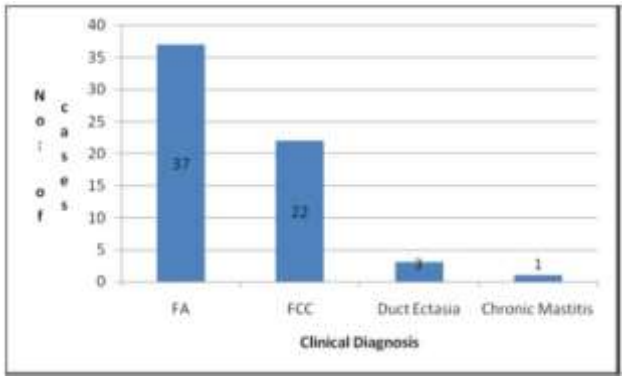

Figure 1: Different clinical diagnoses made (N=63), FA-fibroadenoma, FCC- fibrocystic change.

Radiologically (using USG for <40 years age and USG + Mammogram for =>40years age) majority were diagnosed to have fibroadenoma (37/63) followed by fibrocystic changes (17/63). 3 were diagnosed to have malignancy and rest 6 to have other benign conditions like cyst, duct ectasia, mastitis & abscess (Figure 2).

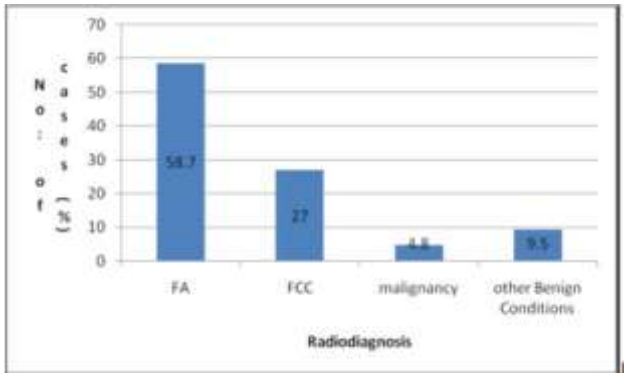

Figure 2: Different radiological diagnoses made (N=63).

FNAC was able to give a diagnosis only for 30 out of 63 cases as it was difficult to perform on such an ill distinct lump even after using USG guidance. And that too some

reports were inconclusive due to inadequate specimen. Out of the diagnosed cases by FNAC majority were fibroadenoma (15 out of 15) followed by fibrocystic changes (9 out of 30). 4 out of 30 were found to have atypia (Figure 3).

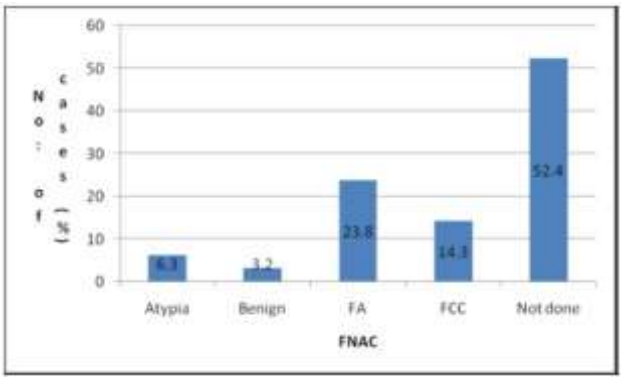

Figure 3: Diagnoses as per FNAC (N=63).

Final diagnosis was obtained by histopathological examination. Majority were fibrocystic changes (33 out of 63) followed by fibroadenoma (21 out of 63). 4 out of 63 were found to have malignancy (Infiltrating duct carcinoma). Remaining 5 cases were of benign breast conditions like Duct ectasia (2 cases); Phyllodes tumor (1 case), Granulomatous lobular mastitis (1 case) & Inflammatory infiltrate (1 case) (Figure 4).

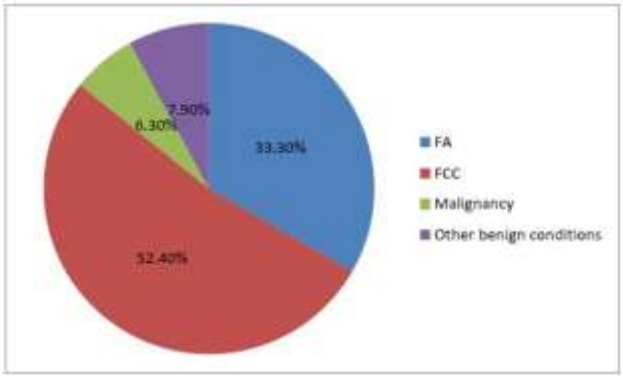

Figure 4: Final histopathology of 63 cases (%).

Statistical analysis (using the chi square test) was done to find if there is any significant association with the histopathological diagnosis. Sides of breast, nipple discharge, and intrinsic mobility were some features that showed significant association with the HPR (histopathological report).

Discharge from nipple correlated with histopathological diagnosis was found to be significant with a p value of 0.001.

Out of 5 cases presenting with nipple discharge 2 were Duct ectasia, 1 was granulomatous lobular mastitis, 1 case of malignancy & 1 case of fibrocystic changes.

Intrinsic mobility of the swelling correlated with final diagnosis and found to be significant with a p value of 0.005.

18 out of 33 cases of fibrocystic disease, 18 out of 21 fibroadenoma and 2 out of 5 other benign conditions of breast had a swelling with intrinsic mobility in relation to breast tissue.

Clinical diagnosis was correlated to histopathological diagnosis and found to be significant.

Only 15 out of 33 case of fibrocystic changes were clinically diagnosed correctly, 17 cases were diagnosed as fibroadenoma and 1 case diagnosed as chronic mastitis.

18 out of 21 fibroadenoma were clinically diagnosed correctly and 3 were diagnosed as fibrocystic changes.

Malignancy was not diagnosed clinically and 3 out of 4 cases were clinically diagnosed as fibrocystic changes. 1 case was diagnosed as duct ectasia.

2 out of 2 case of duct ectasia was clinically diagnosed correctly. 1 phylloides tumor and 1 case of inflammatory infiltrate were clinically diagnosed as fibroadenoma. 1 case of granulomatous lobular mastitis was clinically diagnosed as fibrocystic changes.

Radiological diagnosis was correlated to histopathological diagnosis and found to be significant with a p value of 0.001.

11 out of 33 cases of fibrocystic changes were radiologically diagnosed correctly, 19 cases were diagnosed as fibroadenoma and 3 were diagnosed as other benign conditions like cyst.

17 out of 21 case of fibroadenoma were radiologically diagnosed correctly and 4 were diagnosed as fibrocystic changes.

3 out of 4 cases of malignancy were radiologically diagnosed correctly and 1 was diagnosed as mastitis.

2 cases of duct ectasia were radiologically diagnosed correctly and other 3 case were diagnosed as fibroadenoma and fibrocystic changes.

FNAC diagnosis correlated to histopathological diagnosis was found to be significant with a p value of 0.001.

Only for 30 out of 63 case FNAC was able to do or give a conclusive diagnosis.

Out of 33 cases of fibrocystic changes FNAC performed correctly on 10 cases. Within that 9 case were diagnosed correctly and 1 case showed atypia.

Out of 21 case of fibroadenoma FNAC performed correctly on 16 cases. Within that 14 cases were diagnosed correctly & for 2 cases FNAC could comment that the lesion is benign.

Out of 4 cases of malignancy FNAC performed correctly on 2 cases and both reports gave clue for malignancy as atypia.

Out of 5 other benign conditions of breast FNAC performed correctly on 2 cases. 1 case of phylloides tumor was diagnosed by FNAC as fibroadenoma and 1 case of inflammatory infiltrate showed atypia.

FNAC showed 4 cases of atypia out of which 2 were malignancy on histopathological examination.

Of 33 cases of fibrocystic changes majority (51.5%) were nonproliferative, followed by proliferative without atypia (45.5%) and only one case (3%) showed proliferation with atypia.

Kappa statistical analysis

Inter agreement between various method of diagnosis and histopathological diagnosis was calculated using kappa statistics.

Inter agreement between clinical diagnosis and histopathological diagnosis was found to be 30% which is poor

Inter agreement between radiological diagnosis and histopathological diagnosis was found to be 29%, which is poor but for diagnosing malignancy it was found to be 84% which is good.

Inter agreement between diagnosis by FNAC and histopathological diagnosis was found to be 73% which is good, as well as with respect to malignancy & benign it was 63% which is also good.

DISCUSSION

Lumpy breasts are sometimes very difficult to characterize clinically and majority of the times it is associated with benign disease as our study showed (93.6%). 25 out of 63 had solitary swelling on examination, whereas majority (60.3%) had multiple swellings. Bilateral and multifocal involvement is a feature of fibrocystic changes.[2]

In India, the strategies for prevention of breast cancer are required as breast cancer incidence is increasing among women in many regions and has overtaken cervix cancer. The average age of the patient at presentation is between 45 and 50 years. The peak age of breast cancer is 60-70 years in western countries and 40-50 years in Asian countries. [3]

Combining the three modalities to diagnose i.e the triple assessment, the chance of missing a malignancy is low. In the case of lumpy breasts, more than clinical diagnosis, radiological and FNAC diagnosis seem to be much better to diagnose a malignancy. In this study it has been found that evaluation of lumpy breasts in perimenopausal women with imaging and FNAC in combination has a good diagnostic value with 100% sensitivity in detecting malignancy and 66.66% specificity. Though FNAC was not able to be done correctly due to small lesion even after using USG guidance, a good diagnostic value was found in benign as well as malignant lesions.

The limitation of our study was that FNAC could not be done in 33 of the cases due to inability to localize the area.

Benign breast diseases vary widely in presentation. They can present as a discomfort, lumpiness, discrete lump or incidentally picked up on imaging. Most cases will undergo at least an FNAC if not a core needle biopsy. If there is a high risk lesion or the features are disconcordant, excision biopsy is advised.[4]

It was Hughes who first used the term ANDI (Aberrations of normal development and Involution) of breast. This widely accepted concept helps to explain the normal as well as abnormal changes of the breast as a spectrum of events.[5] The disease is characterized by cyst formation, fibrosis, hyperplasia and papillomatosis. Cysts are very common and of differing sizes. There is loss of normal elastic tissue and replacement with fibrosis amidst chronic inflammatory cells. The hyperplasia occurs in the lining epithelium of ducts and acini. If this hyperplasia is extensive it can form papillae within the ducts and this feature is called papillomatosis.

Nipple discharge-Discharge from nipple correlated with histopathological diagnosis was found to be significant with a p value of 0.001.

Out of 5 cases presenting with nipple discharge, 2 were Duct ectasia, 1 was granulomatous lobular mastitis, 1 case of malignancy & 1 case of fibrocystic changes.

Duct ectacia is the 2nd most pathological cause for nipple discharge (1st being duct papilloma), then come malignancy.[6] We also got a comparable result though duct papilloma was not there in our list.

A study by Urban showed 11.8% of women with nonlactational nipple discharge had breast cancer. The more common pathological causes for nipple discharge is intraductal papilloma and mammary duct ectasia.[7]

FNAC is cheap and effective for initially investigating benign breast diseases. Dixon et al reports that FNAC has slowed the decision to excise in a case of benign breast disease.[8]

FNAC has a near cent percent positive predictive value. Still using it as a single standing test for malignancy is not advisable as its false negative results can be anywhere between 5 to 25%.[9] A false negative cytology result is more likely to occur with small lesions (<2cm), those with low cellularity and those with an uncommon histological subtype.[10] Excision biopsy is considered definitive in a breast mass. But can the same be stated for lumpiness?

One approach would be to keep the patient on follow up for at least '2 menstrual cycle' period. Reassess in a different phase of her menstrual cycle. This can render the patient less anxious.[11] Triple assessment results pointing to benign nature can help clinician decide to wait than to do an excision biopsy. Biopsy procedures also have morbidities like residual lump and persistent pain at scar site.[12]

In our study, 33 cases of fibrocystic changes: majority (51.5%) were non-proliferative, followed by proliferative without atypia (45.5%) and only one case (3%) showed proliferation with atypia. Dupont et al reported that presence of proliferation and atypia had 1.9 and 5.3 times risk of developing cancer respectively.[13]

CONCLUSION

A rising incidence of breast cancer in the Indian subcontinent has made clinical breast examination as well as triple assessment method all the more relevant. The difficult clinical situation of breast lumpiness can be surmounted to a large extent by including sono-mammogram and guided FNAC modalities and an early decision to excise and biopsy especially in the perimenopausal women.

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