ACCURACY OF ULTRASONOGRAPHY AND FINE NEEDLE ASPIRATION CYTOLOGY IN DIAGNOSIS OF FIBROADENOMA BREAST: OUR EXPERIENCE

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ABSTRACT

Fibroadenoma is the most common cause of discrete breast lump in young females, but carcinoma from fibroadenoma is rare. Symptomatic, progressive and atypically presenting fibroadenoma warrants surgical excision. Other than clinical breast examination, imaging and tissue diagnosis are used for the diagnosis of the fibroadenoma although the final diagnosis is made by histopathological examination. Less invasive and cost effective investigation is always attractive to rule out malignancy as well as to avoid unnecessary surgical excision of the breast lump, we have evaluated the accuracy of Ultrasonography (USG) and Fine Needle Aspiration Cytology (FNAC) in the diagnosis of fibroadenoma and compare with the final histopathology report of the excised specimen. All patients who had clinical breast lump in our out patient department were subjected to USG and FNAC of the lump and then compared with the histopathology report later from June 2013 to June 2016. A total of 40 females ranging from 13 to 50 years of age were included in the study. Only 26 (65%) were confirmed to have fibroadenoma in USG while 30 (75%) were confirmed to have fibroadenoma in FNAC. All patients underwent excision under General Anaesthesia. The histopatholgy report confirmed fibroadenoma in 34 (85%) cases. Our study has shown that USG and FNAC are effective tools in initial diagnosis of fibroadenoma breast along with clinical examination similar to various previous studies and can be used preoperatively without routine mammography.

KEYWORDS

Fibroadenoma,
fine needle aspiration cytology,
histopathology,
ultrasonography

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INTRODUCTION

Fibroadenoma is the most common cause of discrete breast lump in young females.[1,2] They are assumed to be aberrations of normal breast development or the product of hyperplastic processes, rather than true neoplasm.[3] Non-operative follow-up can be sufficient in cases of benign, asymptomatic fibroadenoma,[4] while those cases which are symptomatic, progressive and with atypical presentation may warrant surgical excision.[5] Breast cancer arising from fibroadenoma (BcaFad) is very rare, with incidence ranging from 0.02% to 0.125%.[6,7]

Evaluation of breast lumps includes rational use of detailed history, clinical breast examination (CBE), imaging modalities and tissue diagnosis. Though the final diagnosis is made by histopathological examination (HPE) of the excised tissue, routine excision of all breast lumps would not be rational, because as much as 80% of lumps are benign.[8] Thus, less invasive, cost effective, acceptable, accurate, easy to apply, reproducible and those that don't need too much of preparation kind of investigation is ideal for diagnosis of breast lumps.

Thus, given the common occurrence of breast fibroadenoma and the importance to rule out carcinoma, with non-invasive techniques without routine biopsy which is much invasive,[9] the objectives of the study is to evaluate the accuracy of ultrasonography (USG) and Fine needle aspiration cytology (FNAC) in the diagnosis of new clinically suspected fibroadenoma in comparison to the final histopathology report of the biopsied specimens among the patients presenting to General Surgery Department of Nepal Medical College.

MATERIALS AND METHODS

The study was conducted in the Department of General Surgery at Nepal Medical College and Teaching Hospital (NMCTH), Jorpati, Nepal from June 2013 to June 2016. All patients presenting to General Surgery OPD with breast lump were clinically examined (CBE), and advised for USG of both breast (radiographic imaging) and FNAC of the breast lump. CBE of the lump was done using "twelve stroke method" by the researcher with special attention to any signs of malignancy. FNAC was performed with 21 gauze needle as per the standard guidelines by the pathologists. Mammography was not carried not carried out routinely in patients.

Our present study was conducted in 40 female patients that were clinically diagnosed to have fibroadenoma then underwent ultrasonography of both breasts and FNAC of the breast lump. All of them were subjected to excision under GA and histopathological features of the lump were compared with those findings by USG and FNAC. Our study however did not intend to compare USG and FNAC for diagnosis of fibroadenoma breast nor did it attempt to prove excellence of one diagnostic modality over the other. The USG of both breasts and axilla were performed by trained radiologist, FNAC were performed by trained pathologists, and HPE were performed by the pathology department in Nepal Medical College itself. Informed and written consent was taken from patients.

RESULTS

A total of 40 female cases with age ranging from 13 to 50 years (among which 80% constituted 13-30 years of age) were included in this study. Four cases (10%) were bilateral and 36 cases (90%) were unilateral. All cases were clinically diagnosed as fibroadenoma and all cases were subjected to USG of both breast and axilla and FNAC of breast lump. Only 26 cases were confirmed to have fibroadenoma in USG and 30 cases were confirmed in FNAC. Other findings were lipomas, fibromas and few were suspicious of malignancy ; so excisional biopsy were advised. (Table- 1) All patients were subjected to excision of lump under GA.

Table 1: Results of USG versus FNAC in clinically diagnosed cases of fibroadenoma of breast

Diseases	USG	%	FNAC	%
Fibroadenoma	26	65	30	75
Lipoma	3	7.5	4	10
Fibroma	3	7.5	2	5
Susp.of malignancy	8	20	4	10
Total	**40**	**100**	**40**	**100**

Fibroadenoma was confirmed in 26 cases (65%) in USG and 30 cases (75%) in FNAC where as the histopathological report confirmed 34 cases (85%) (Table-2) while 4 cases (10%) were diagnosed as tubular adenoma and 2 cases (5%) were intraductal carcinoma.

Table 2: Results of USG, FNAC and Histopathology of clinically diagnosed cases of fibroadenoma (N=40)

	USG	FNAC	Histopathology
Positive	26 (65%)	30 (75%)	34 (85%)
Negative	14 (35%)	10 (25%)	6 (15%)
Total	40 (100%)	40 (100%)	40 (100%)
Sensitivity	65%	75%	85%

From our study we can conclude that the sensitivity of USG is 65% and the sensitivity of FNAC is 75% while the sensitivity of histopatological examination is 85% in clinically diagnosed cases of fibroadenoma of breast.(Table-2)

Hematoma occurred in 3 cases (7.5%) on immediate follow-up while wound infection occurred in 4 cases on follow-up (10%). Recurrence was seen in 2 cases

(5%) in 1st year of follow-up.

DISCUSSION

Breast lump is the most common complaint a patient comes within our OPD including all major hospitals. This complaint is almost always accompanied by the anxiety of a possible malignancy. This demands for a quick and easier workup of the breast lump. Considering patients comfort, lack of requirement of anaesthesia, rapid analysis and reporting, and an absence of false positive results makes USG and FNAC an ideal initial diagnostic modality in breast fibroadenoma.[11] For the diagnosis of fibroadenoma or any other breast lump, excision biopsy is the gold standard.

In 40 patients the age ranged from 13 to 50 years of age which were similar to Khemka A *et al*[10] Hussain MT,[11] Tiwari *et al*[12] and Ariga *et al*[13] Ultasonography results are always operator dependent and also interpretation of FNAC are dependent of the experience and expertise of the person performing and interpreting the results. Since we included only palpable breast lumps, no image guidance was required to perform fine needle aspiration.

Sonography of breast is as accurate imaging test in women 45 years or younger with breast symptoms and may be an appropriated initial investigation.[14] Franco *et al*[15] in his study of 300 patients on the utility of FNAC, reported a positive predictive value of 100% and a negative predictive value to be 92%. Another study of 1297 patients by Choi *et al*[16] on correlataion of FNAC and histopathology reports found the positive predictive value to be 98.4% and negative predictive value of 88%.

We conclude from this study that USG and FNAC are effective tools in initial diagnosis of fibroadenoma breast along with clinical examination. USG is one of the best screening investigation while FNAC can be more effective for preoperative tissue diagnosis and also one of the reliable methods to rule out malignancy thus affecting our mode of approach to the disease accordingly. There are limitations of each technique and the choice of investigation should be individualized. However, excision biopsy is the gold standard for pathological diagnosis.

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