



RELEVANCE OF ULTRASOUND IN MASTALGIA: EXPERIENCE AT A PERIPHERAL HOSPITAL

General Surgery

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ABSTRACT

Mastalgia is amongst the most frequent reason for breast consultations in general practice. Despite the commonality of presentation, the etiology may remain obscure. Sonomammogram can be a critical investigation to derive a conclusive diagnosis and can facilitate specific treatment modality especially in a resource limited hospital. **Aim & Objective** - To determine the relevance of ultrasound imaging in patients with mastalgia. **Methodology**: This cross sectional retrospective study was carried out at Departments of Radiology, Pathology, Surgery at Military Hospital Mathura from Oct 16 to June 18. The study included female patients with complaints of mastalgia of more than one month duration. After history and relevant examination, patients were advised sonomammogram. FNAC was carried out in relevant cases. **Results**: A total of 163 female patients, aged 18-60 years, were included. USG findings showed fibrocystic disease in 77 (47.2%), focal lesions in 54 (33.1%) and no significant abnormality in 32 (19.6%) cases. Malignancy was found in 06 cases (3.6%). **Conclusion**: Ultrasound helps to determine the cause so that treatment for the etiology may be ascertained especially in a resource compromised peripheral hospital.

KEYWORDS

Mastalgia, Sonomammography, Fine Needle Aspiration Cytology.

INTRODUCTION

Mastalgia is amongst the most frequent reason for breast consultations in general practice. (1) It is estimated that almost 50% to 80% of women experience mastalgia at some point in their life. (2) Despite the commonality of presentation, the pathological basis may remain obscure and ill understood. Mastalgia, if severe, can be a bane to different aspects of life (social, sexual and professional) and can affect the usual daily activities. Imaging, with special emphasis on ultrasound (USG), has been a very important adjunct to clinical examination in evaluation of patients with mastalgia in determining the exact cause of pain and to rule out sinister pathologies. (3-8) Other modalities including mammography and MRI play a pivotal role in assessment of various breast pathologies. However, mammography and MRI may not be easily available in a peripheral hospital. USG, thus becomes a very useful adjunct in assessment of breast pathologies owing to its wider availability and cost effectiveness. Moreover, USG has a critical role in detecting malignancy in younger subset of patients which can present as mastalgia in rare cases. (3,4,10,11). The high NPV makes it a useful screening tool for malignant lesions. (21,24). However, few studies (9,16) have concluded that the role of imaging is more for reassurance than specific diagnosis especially in younger patients (<30 yrs of age) without any significant family history and normal clinical examination. In these subsets, medical therapy can be started directly after the patient is informed.

This study was designed to determine the relevance of USG in patients with mastalgia in determining specific cause and to aid in relevant treatment, especially in a set up of resource limited peripheral hospital. There are limited studies on the relevance of USG in determination of specific etiology of mastalgia.

METHODOLOGY

This retrospective cross-sectional study was conducted at the Military Hospital Mathura from Oct 16 to June 18. All females presenting to OPD with complaint of breast pain were included after informed consent. Breast pain was assessed by visual analog score (VAS) of 1-10. Patients from 18-60 year of age, with any marital status, parity and duration of breast pain of more than one month duration were enrolled. Pregnant women, those using hormonal therapy and previously diagnosed and treated cases of breast cancer, were excluded. After taking history and breast examination, patients were advised sonomammogram. Findings of history, examination and ultrasound were recorded on a proforma. Frequency and percentages were computed for categorical variables like ultrasound findings (normal, benign cyst, fibrocystic changes, fibroadenoma, malignancy, duct ectasia and abscess), FNAC findings, type of mastalgia and parity. Chi-

square tests were used for statistical analysis of accuracy of USG for encountered fibroadenoma and malignant lesions.

RESULTS:

The demographical variables of the patients are given as follows:

Table 1

S.No	Demographic Data	n (%)
1.	Age (<25 years)	12(7.3)
	(25-45 years)	141(86.5)
	(>45 years)	10(6.1)
2.	Marital status (married)	115(70.5)
	(unmarried)	48(29.4)
3.	Parity. (nulliparous)	4(2.4)
	(primiparous)	42(25.7)
	(multiparous)	117(71.7)
4.	Type of mastalgia(cyclical)	27(16.5)
	(non cyclical)	136(83.4)
5.	Duration of Mastalgia(<3months)	20(12.2)
	(>3months)	143(87.7)
6.	Location (localized)	61(37.4)
	(diffused)	102(62.5)

The patients were advised USG following clinical examination which was carried out on LOGIQ 3 PRO machine using high frequency probe (4-7 MHz). The reporting included description of lesions with Breast Imaging And Data Reporting System (BIRADS) grading. The USG findings are given in table 2.

Table 2

S.No	USG Findings	Total no of cases (n)	% of cases
1.	Fibrocystic lesions	77	47.2%
2.	Focal lesions	54	33.1%
3.	Normal	32	19.6%

The focal lesions were also given a probable diagnosis (with BIRADS grading). The results assessed as per probable diagnosis were as follows

Table 3

PROBABLE DIAGNOSIS	BIRADS CAT	NO OF CASES (%)
FIBROCYSTIC DIESASE	BIRADS 2	77 (47.2)
FIBROADENOMA	BIRADS 2	32 (19.6)
SIMPLE CYST	BIRADS 2	8 (4.9)
COMPLEX CYST	BIRADS 3	2 (1.2)
DUCT ECTASIA	BIRADS 3	2 (1.2)
MALIGNANT	BIRADS 4 , 5	8 (4.9)

The focal lesions were evaluated for histopathological examination by FNAC. The results of the same are given as follows:

Table 4

S.No	Histopathologic findings	Total no of cases(n)	% of cases	% cases (overall)
1.	Fibroadenoma	35	64.8%	21.4%
2.	Fibrocystic changes	12	22.2%	7.3%
3.	Malignancy	6	11.1%	3.6%
4.	Atypical ductal hyperplasia	1	1.8%	0.6%

The commonest lesion (64.8% of focal lesions ; 21.4% of total cases) detected were Fibroadenoma on FNAC. All of these lesions were given BIRADS 2 grading on USG. There were 6 cases (3.6% of total cases) which turned out to be malignant on FNAC and one case showed atypical ductal hyperplasia. Fibrocystic changes were seen on FNAC in 12 cases (22.2%). The statistical analysis for most common benign lesion (fibroadenoma) and malignant lesions detected on USG was carried out. Details are given in Tables 5 & 6.

Table 5

Fibroadenoma on Ultrasound	Fibroadenoma on FNAC	
	Yes	No
Yes	32 (TP)	0 (FP)
No	3 (FN)	20 (TN)

Sensitivity of USG = TP/ (TP+FN) = 32/(32+3) = 91.42%
 Specificity of USG = TN/(TN+ FP) = 20/(20+0) = 100%
 PPV = TP/(TP+FP) = 32/(32+0) = 100%
 NPV = TN/(TN+FN) = 20/ (20+3) = 86.95%
 Accuracy = (TP+TN)/ Total no of case = (32+20)/ 55 = 94.54%

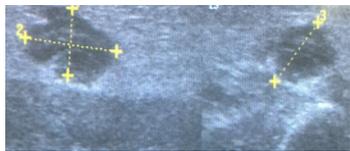


Fig 1 : Fibroadenoma (BIRADS 2) on Sonomammogram

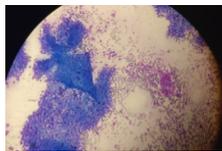


Fig 2 : Fibroadenoma on FNAC

Table 6

Malignancy on Ultrasound	Malignancy on FNAC	
	Yes	No
Yes	6 (TP)	2 (FP)
No	0 (FN)	47 (TN)

Sensitivity of USG = TP/ (TP+FN) = 6/(6+0) = 100%
 Specificity of USG = TN/(TN+ FP) = 47/ (47+2) = 95.91%
 PPV = TP/(TP+FP) = 6/(6+2) = 75%
 NPV = TN/(TN+FN) = 47/(47+0) = 100%
 Accuracy = (TP+TN)/ Total no of case = (6+47)/ 55 = 96.36%

DISCUSSION:

Breast pain is a common symptom in women presenting to surgical OPD frequently affecting quality of life. Ultrasound is a useful adjunct for evaluating breast diseases including breast pain. The most frequent finding in our study was fibrocystic disease of the breast (n = 77; 47.2%) which was managed with reassurance, simple analgesics ,

drugs like tamoxifen/ danazol and follow up. Similar findings have been seen in other studies (15,18). Fibroadenoma has been the most frequent benign lesion found in our study which also shows consistency with similar studies(14,15,18). The commonest benign lesion in was Fibroadenoma. The sensitivity of ultrasound in detecting fibroadenoma was 91.4% and specificity of 100%. The results of the study are in agreement with similar studies. (19,20,21). This study resulted in detection of malignancy in 3.6% of cases (11.1% of focal lesions). The incidence of malignancy in mastalgia has shown considerable variability ranging from 0.3-18%(16,17). The sensitivity and specificity of ultrasound was 100% and 95.9%. This shows moderate consistency with other similar studies. (22, 23). This could be explained by small number of overall malignant cases in our study. Importantly, the NPV was also 100%. The high NPV is in consistency with other studies (21,24) and that further emphasises the role of USG as screening tool for suspected malignant pathology. These cases were further evaluated and managed at higher surgical centres. In our study 19.6% cases showed no significant abnormality. This is in concordance with other studies (14),18). However, few studies(16,17)have shown much higher incidence of normal findings (<70%) and have recommended imaging mainly for reassurance. Patients who needed surgical intervention included patients having abscess, larger fibroadenoma and malignancy . This emphasises the importance of doing USG in mastalgia so that patients can be managed medically or surgically as appropriate. The limitations in our study were relatively smaller sample size, non availability of mammography and advanced therapeutic support being a peripheral hospital.

CONCLUSION

Ultrasound played a crucial role in determining the exact cause amidst varied aetiologies of mastalgia and facilitated devising specific treatment approach especially in a resource challenged peripheral hospital.

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