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Perimenopausal Abnormalities of the breast and Their Correlation with Mammography

KEYWORDS: Mammography, Breast, Climacteric

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ABSTRACT *Objectives: To find incidence of various breast problems in perimenopausal females and correlate them with mammography findings.*

Methods: All perimenopausal females with breast problems attending our midlife health and menopause clinic were evaluated and mammography was performed on all patients

Results: Of a total of 1600 women registered at the clinic, 310 women were noticed to have breast problems. Of these,87 (28%) had breast pain, 84 (27%) had complaint of lump breast,47 (15%) wanted a routine screening,14 (4. 5%) had nipple discharge. A total of 41 patients were positive for malignancy. Benign fibroadenoma, dense fibroglandular tissue were the other more common findings seen on mammography. Conclusions:. Mastalgia and lump breast are the commonest complaints in this age group . Maximum positive findings were seen in breast lump group. Mammography is a basic tool for evaluation in perimenopausal females because of greater risk of breast cancer.

Introduction
Breast problems are common in women and when compounded with the fear of cancer, reporting of breast problems is inevitable. It is a fact that there are millions of women all around the world who were diagnosed as breast cancer and are now celebrating 4, 5 or even 25 years of being cancer free. What do they owe this to? Chances are they will reply early detection by mammography.

Counseling patients with breast problems without compromising risk and anxiety alleviation often poses a problem for gynecologists. The doubling time of breast cancer is very variable, but in general, a tumor doubles in size every 100 days .Thus it takes approximately 10 years to grow to a clinically detectable 1-cm mass. But by this time the tumor has already progressed through thirty of the forty doublings in size which is estimated to be associated with fatal disease. Prior to mammography, the average size at tumor detection was 2.5 cm, which is associated with 50% lymph node involvement.

Along with efforts towards breast cancer prevention (1), to decrease the mortality from breast cancer, we must utilize a technique to find the tumors when they are smaller. Mammography is a means of detecting a non palpable cancer. Screening mammography reduces breast cancer mortality by about 20-35% in women aged 50-69 years and slightly less in women aged 40-49 years at 14 years of follow up (2).

Indications for Mammography are
Screening for breast cancer in females without symptoms.

Detecting breast cancer in symptomatic females. Symptoms may include a lump or thickening in breast, nipple discharge or dimpling of skin in one area of the breast.

Locating the area of suspicious breast tissue for biopsy when an abnormality is found.

Mammography uses a low dose x-ray system and high contrast, high resolution film for examination of breast. The aim is to look for synchronous lesion or non palpable calcification surrounding the palpable abnormality. Interpretation of mammography results and knowledge of their clinical correlation is now a basic requirement. Requirements for a basic screening mammogram are a mediolateral oblique and craniocaudal view with adequate breast compression.

Ultrasonography was primarily used to distinguish cystic from solid masses and hence in the differential diagnosis of palpable breast lumps (3). It is also used for direct confirmation by directing FNAC/core biopsy for manipulation and positioning of needle. Doppler imaging of internal echotexture and vascular pattern (greater vessel density & chaotic pattern in malignancies) can also be done. Now it is widely used for evaluation of clinically palpable breast cancers invisible on mammography (4). Drawbacks are that it can't detect calcification and can give false positive reading.

Fine needle aspiration cytology and tissue biopsy are used for suspicious lumps and can be carried out in the office setup (5). The negative predictive value of a normal mammogram with normal sonogram (6) is very high and studies have concluded that due to an approximate negative predictive value of 100% of a normal mammogram with normal sonogram breast biopsy can be avoided in such females (7).

As far as the other diagnostic techniques are concerned, studies of breast self examination (8) have been disappointing in their failure to demonstrate an impact on breast cancer stage of disease and mortality. Screening clinical breast examination detects some cancers missed by mammography, but the sensitivity reported in the community is lower (28% to 36%) than in randomized trials (about 54%). BSE has not been shown to be effective in reducing breast cancer mortality, but it does increase the number of breast biopsies performed because of false positives (2).

Thermography has a high rate of false positive findings,

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and at best should be considered experimental. CT scanning has two serious limitations: the x-ray dose is large and the slices are too thick to detect early lesions. MRI is not practical due to the expense and long scan times and is not routinely recommended (9).

Objectives
This study was launched with the following objectives :

- To find incidence of breast problems in perimenopausal females.
- To compare their relative incidences
- To correlate them with mammography findings

Database and Datasynthesis (Material & Methods)
This study was carried out our midlife health and menopause clinic.

Of a total of 1600 women registered in the past three years at the clinic, 310 were noticed to have breast problems **[Fig 1].**

Of these,63% i.e.203 patients presented with breast specific complaints or problems detected by breast self examination.

43 patients i.e. 14% wanted a checkup because of a family history of breast cancer.

64 patients i.e.20.4% had come for different menopausal problems but coincidently detected breast problems.

All patients were subjected to a definitive workup consisting of detailed history of present illness, review of prior breast problems, review of risk factors of breast cancer. A thorough physical examination of breast was carried out in all patients. They were then subjected to appropriate imaging studies.Evaluated parameters included qualitative descriptors for the physical finding, mammographic findings including density, sonographic characteristics in the area of concern, whether there was a diagnostic biopsy performed and the results thereof.

Reporting was done using BIRAD format Breast Imaging Reporting And Data System [BIRAD] created by American College Of Radiology for uniformity in mammography reporting.

- Negative i.e. Normal mammography with no abnormality detected.
- One or more than one abnormality detected but are clearly benign or normal variants such as some kinds of calcification ,obvious cysts.
- Either additional images required or abnormality seen is probably but not definitely benign.
- Suspicious for cancer.

Highly suggestive of cancer.

Basic requirements for a screening mammogram are a mediolateral oblique and craniocaudal view with adequate breast compression. Patient were made to sit or stand facing machine.

Diagnostic mammograms need additional x-rays from other angles or specific coned views.

During mammogram, a specially qualified radiologic technologist positioned the patient and imaged the breast. Breast was first placed on a special cassette & compressed with a paddle. Adequate compression is required for proper resolution.

Patients were advised to come postmenstrually; without applying deodorant or talcum powder and to bring previous mammograms if any.

Results
The mammography of all the subjects included in the study were correlated with the clinical presentation **(Table 1)**

Mastalgia remains one of the most common complaints with which a patient presents in the menopause clinic.High endogenous E2 levels is postulated to be the underlying cause. At the start, it is important to rule out pain which does not arise from the breast itself for example muscle strain, costochondritis and pleural pain. Treatment is reassurance, primrose oil, vitamin B6 with supplementation of micronutrient intake which often relieves the symptoms. Of the 87 patients of mastalgia in our study, 6.9% had malignancy, 12.6% had fibroadenoma and 21% dense fibrous tissue. 43.6% patients had no pathology.

Of the 84 patients in our study with lump breast, 29.6% were positive for malignancy, 17.2% were normal. In patients of lump breast, it is important to distinguish between solid and cystic masses. Discrete palpable masses in menopausal women are often detected on breast self examination which require evaluation. To feel comfortable making the diagnosis of lump as benign, the Triple assesment test is useful (10).This includes three parameters namely lump feels benign on examination with size less than 3cm, it is benign on imaging and it is benign on cytological examination on two separate occasions.

Patients presenting with nipple Discharge require assessment of color, amount, whether unilateral or bilateral, spontaneous or on squeezing and site of discharge.

Duct ectasia is a condition in which 1 or more ducts beneath the nipple become inflammed. It is most common in 40 - 50 years age.

Intraductal pappiloma is a small non cancerous growth that projects into milk ducts near the nipple. It is mostly seen in 35 – 55 years age group.

Fibrocystic disease presents with lumpy and tender breasts with clear yellow or light green discharge.This condition was previously called by various names such as cystic mastopathy, chronic cystic disease, mazoplasia is a common benign breast disease diagnosed on mammography or ultrasound .

Though rarely a sign of cancer breast, nipple discharge may be present in intraductal or invasive cancer. Out of our 14 patients of nipple discharge, only 7.1% were positive for malignancy.

In this age group, a significant number consists of patients who have come for screening. Of our 47 patients, 8.3% showed suspicious lesions which required further workup. Patients with a family history of breast cancer especially require serial mammography at periodic intervals.

Discussion
In our study there was a 19.27% incidence of breast presentations in the midlife and menopause health clinic.

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A study carried out by Barton et al (11) in 2400 women between 40-69 years found a rate of 22.8 presentations per 1000 person years. Females less than fifty years of age presented nearly twice as often as older women We compared our findings with similar studies conducted previously. Kerlikowski (12) and associates in a study published in annals of internal medicine 2003 who also found masses and calcification to be the most common findings on mammography. Chaudhary et al (13) in a study of 234 patients found fibrocystic disease as the most common benign breast disease with maximum age incidence in the fifth decade of life. Kamal et al found that about 65% of patients with fibrocystic disease were from 31 to 50 years of age wheras peak incidence (36%) was between 31-40 years (14).In our study, mastalgia had a normal mammogram in 43.6% case, malignancy in 6.9% and fibroadenoma in 12.6%. A study conducted by Nasreen et al (15) found mastalgia subjects to have normal imaging studies in 65%, malignancy in 1.1% and fibroadenoma in 28%. Our study showed majority of the patients to have benign breast disease. Though benign breast disease are mostly thought to be in 11-40 years age group, a study by Dunn and colleagues showed the mean age of patients with benign breast disease to be 50 years.

Screening mammography had increased sensitivity and specificity in females above 50yrs age. Apart from our study being primarily for females in their climacteric, we also found poorer resolution in fatty elderly and younger dense breasts. A Medline search study including mammography reports from 1966 to 2003 (12) found higher likelihood ratios for cancer diagnosis in nonpalpable lesions than palpable abnormalities (LR 9.4 vs 5.6). They also recommended highly suggestive lesion reporting to be followed by biopsy; borderline lesions needing additional imaging evaluation were followed by diagnostic mammograms and ultrasound. Probably benign lesions were advised a 6 monthly follow up. We also followed similar protocols in our study.

Conclusions

Mastalgia and breast lump are the main breast problem presentations of women in early climacteric transitions. Mammography categorises and grades a mass as benign, suspicious or malignant.

However it does not rule out the need for biopsy of palpable lesion.Poor resolution is seen in dense breasts eg in young pts.

USG and FNAC are recommended as first diagnostic test of palpable breast abnormality to distinguish simple cyst from solid mass.

Mammography has a false negative rate of 5-10%. Mammography cannot and should not replace examination by patient and clinician.

A mass requires biopsy regardless of the mammographic picture.

Although this is an issue that has been debated, the overall results indicate increased survival with tumors detected by screening mammography .

Mammography not only lowers mortality, but it also decreases morbidity because less radical surgery is necessary for smaller lesions.

More research studies are warranted to further correlate the breast problems with stages of menopause and use of menopause hormone replacement therapy.

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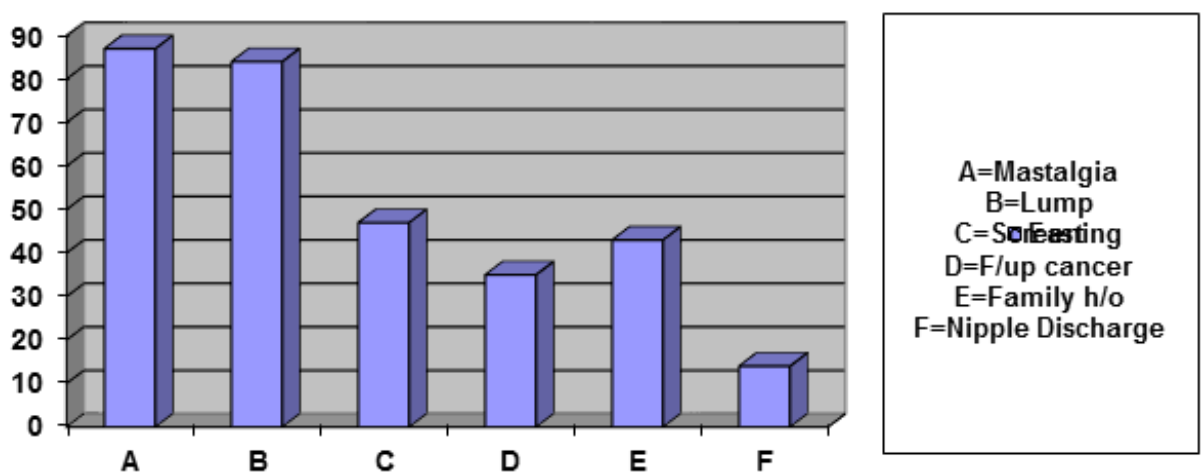
Figure1.Presenting breast complaints of patients in menopause clinic.
Bars show number (Y axis) of patients for the respective complaint (X axis).



Clinical presentation (no.of patient)	Malignancy %	Normal %	Fibroadenoma %	Dense fibro glandular tissue %	Others %
Mastalgia (87)	6.9	43.6	12.6	21	Lymph.Node 12.6
Lump (84)	29.6	17.2	19.1	17.6	Cyst 14.2

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Screening (47)	8.3	66.5	12.3	7.7	Lymph.Node 5.2
Follow/up Ca (35)	29.1	54.9	10.2	2.8	Lymph.Node 2.8
Family h/o (43)	16.3	61.7	14.1	4.6	Lymph.Node 4.6
Nipple Dsch (14)#	7.1	---	7.1	14.4	Papilloma 28.6 D.Ectasia 42.8*

Table 1.Clinical presentations and their mammography results.# =Nipple discharge. * = Duct Ectasia.

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