Surgery Section

Profile of Breast Diseases in Post Pubertal Women Assessed By Clinical Breast Examination – A Community Based Study in Rural Pondicherry

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ABSTRACT

Introduction: Breast diseases in women, whether benign or malignant, are very commonly encountered. Benign diseases are under reported and cancer is one of the leading causes of mortality in women. This study was undertaken with an aim to study the profile of various breast disease in the community.

Materials and Methods: In this observational study all the post pubertal women residing in the selected village (n=1000) were included. The study was done from September 2013 to August 2015. A thorough history taking was done with the help of a predesigned proforma followed by a clinical breast examination and further investigation at our hospital if necessary.

Results: It was found in this study that mastalgia, both cyclical and non-cyclical as well as lumps were a common finding in the general population. Significant proportions of women were found to be in the peri-menopausal age group. Median age of menarche was 13 years; menopause was 45 years. The average age at first childbirth was 21 years with 1 year being the median duration of breast-feeding. A total of 128 women

(1 in 8) had positive symptomatology with 94 (1 in 11) of them having a breast disease on examination. One was diagnosed with breast cancer. The prevalence of cyclical mastalgia was 1 in 11, non-cyclical mastalgia 1 in 34, fibroadenosis 1 in 23 and fibroadenoma 1 in 100. The awareness regarding risk factors and the availability of screening program was very poor. The average age of presentation of mastalgia was 34 years; fibroadenosis was 35 years and fibroadenoma 29 years. None of the women interacted with or had consulted a practitioner regarding mastalgia as it was not perceived to be a sign of malignancy and did not cause any significant discomfort.

Conclusion: It was thus concluded from this study that benign breast diseases are a common occurrence in the general population. Breast cancer continues to be diagnosed only at later stages owing to lack of awareness and inadequately structured screening program. The concept of self-breast examination seems to be poorly understood. CBE is more fruitful with subsequent radiological and histopathological investigation, if warranted.

Keywords: Benign breast diseases, Cancer breast, Screening programs, Self-breast examination, Triple test

INTRODUCTION

Women presenting with breast complaints, especially lumps is a common finding and a cause of significant anxiety in view of extensive public awareness [1]. It therefore becomes imperative for a surgeon to distinguish benign from malignant conditions and its prevalence [2]. A 200,000 breast disorders are identified annually [3] and it is noted that most of the palpable lesions are benign [4]. Knowledge regarding risk factors in the development of breast cancer helps in developing targeted risk reduction strategies [5]. The prevalence of cancer has been on a slow decline in developed countries in contrary to their increasing prevalence in developing and under developed countries [6,7].

Cancer forms a significant portion of non- communicable diseases and breast cancer is the most common malignancy affecting women worldwide [8,9]. In-spite of significant morbidity caused by cancer in India and the availability of screening tools, no effective screening program has been implemented yet [10]. Screening reduces breast cancer mortality [11]. The different screening methods are – self-examination, clinical examination and radiological assessment [12]. According to a study by Thomas et al., it has been concluded that self-examination did not reduce breast cancer-associated mortality [13]. Biopsy cannot be performed based on self-examination findings alone. This must be followed by clinical examination and a mammographic evaluation. Hence, the role of self-examination in prevention and early detection of cancer breast remains doubtful [14]. Clinical examination and mammography remain to be the

standard screening tools for breast cancer [15]. Clinical breast examination still continues to be the tool of choice in areas where facilities for mammographic studies are unavailable [16]. If the clinical examination of the breast lump points towards malignancy, a histopathological examination must be arranged, otherwise it is better to avoid unindicated biopsy since women undergoing biopsy for benign conditions are at a higher risk of developing malignancy in the future [17].

Benign Breast Diseases (BBD) are the most common breast condition affecting women of the reproductive age group and is known to affect approximately half the women population [18-25]. Approach to a patient with breast complaints includes performing a "Triple test" which comprises of clinical breast examination, imaging of bilateral breast and a tru-cut biopsy/FNAC.

The aim of screening is to aid detection of early cancer thus reducing morbidity and mortality. Cancer is diagnosed at a much earlier stage in developed countries due to the presence of screening programs [14,26].

Based on the above background information we have under taken a community based study on profile of breast diseases in post pubertal women assessed by clinical breast examination.

AIM

To use Clinical Breast Examination (CBE) as a method of screening for the detection of breast diseases in post pubertal women in rural Pondicherry, to take a detailed history in all women screened as

per proforma focusing on the risk factors for breast carcinoma and to identify abnormalities in the breast of post-pubertal women by Clinical Breast Examination.

MATERIALS AND METHODS

Screening for breast diseases was done for those post pubertal women attending the rural health center in Seliamedu, Pondicherry during CBE camps. Women not attending the health centre were examined by door-to-door visits. Total of 1000 women were included by this method.

Subjects in whom there is evidence of breast lump or risk factors, as per Modified Gail model – NCCN 2013 [27-29] shown in [Table/Fig-1], were counselled and referred to our medical college hospital for further evaluation and management. Following a detailed history from the subject, a thorough physical examination was conducted with emphasis on clinical breast examination as per Velpeau's method [30,31]. Characteristics of lump noted were its consistency, mobility, surface, associated skin changes and presence of any axillary lymphadenopathy. Bilateral breast examination was completed as per standard examination protocol [31]. Findings are interpreted as shown in [Table/Fig-2]. Following history and examination, women were counselled depending upon the findings. If a normal study was noted, women were reassured, advised regarding self breast-examination and availability of screening, and were educated regarding possible risk factors as a part of primary prevention. If any positive findings on either history or examination were noted, those women were explained about their condition accordingly and were advised admission in our medical college hospital for further evaluation and management.

Serial number	Risk factor
1	Current age
2	Age at menarche
3	Age at first live birth or nulliparity
4	Number of first-degree relatives with breast cancer
5	Number of previous benign breast biopsies
6	Atypical hyperplasia in a previous breast biopsy
7	Race

[Table/Fig-1]: Risk factors used in Modified Gail Model.

Sign	Examination Finding
Mastalgia	Tenderness in that particular quadrant
Mastitis	Diffuse erythema and tenderness
Breast abscess	Localised erythema and tenderness
Fibroadenoma	Discrete, non-tender, lump palpable which moves freely within the breast tissue
Fibroadenosis	Vague, firm nodularity palpable
Breast Cancer	Hard lump, not mobile, with nodular surface

[Table/Fig-2]: Interpretation of signs on CBE.

Clinical data collected as explained above was entered into a Data Collection Proforma Sheet and Microsoft Excel sheet. Other biographical and demographic data were also collected. Data collected so far were studied as per percentage and ratio analysis.

RESULTS

Total of 1000 women subjected to CBE were included in the study. Their demographic data were collected and recorded as described below. Age wise distribution revealed most women between the age groups of 21–60 years [Table/Fig-3]. Menopausal status is an important factor as every postmenopausal woman, irrespective of her history and examination needs to undergo further evaluation as per NCCN guidelines [29] and more so if high risk factors are identified in history. The menopausal status of the women in our study is shown in [Table/Fig-4]. The pre-designed proforma made

Age group	Number	Percentage
Up to 20	25	2.5
21-30	213	21.3
31-40	228	22.8
41-50	180	18
51-60	213	21.3
Above 60	141	14.1

[Table/Fig-3]: Age wise distribution.

Age group	Number	Percentage
Pre menopausal	580	58
Post menopausal	420	42

[Table/Fig-4]: Menopausal status.

Parameter	Mean
Age at menarche	13.6 years
Age at menopause	45 years
Age at first child birth	21 years
Duration of breast feeding	One year

[Table/Fig-5]: Calculated mean of various parameters.

Risk factors based on history	Number
H/O previous breast surgeries	I & D –2, Fibroadenoma excision–2
Family History of breast lumps	2
Nulliparity	38

[Table/Fig-6]: Risk factors based on history.

Complaints	Number
Pain	122
Lump	4
Nipple discharge/ Retraction	2

[Table/Fig-7]: Symptomatology in the study population.

Signs	Number
Tenderness	40
Lump	54 (Fibroadenosis: 43, Fibroadenoma: 10 and Carcinoma: 1)
Nipple discharge/ Retraction	Nil

[Table/Fig-8]: Signs elicited in the study population.

Factor	Number
Breast related complaints	128
Signs elicited	94
Lumps detected	54
Complaints with clinically detected lumps	15
Asymptomatic lumps	39

[Table/Fig-9]: Correlation of Symptoms and signs.

Factor	Prevalence
Symptoms	1 in 8
Signs	1 in 11

[Table/Fig-10]: Prevalence of symptoms and signs.

as per guidelines described in NCCN 2013, which included various factors such as menstrual history, age at first childbirth and history of breast-feeding was used in our study. Women with previous surgeries on the breast were also noted down. Calculated mean of various parameters is shown in [Table/Fig-5]. Number of women with risk factors based on history is shown in [Table/Fig-6]. In the studied population, 128 out of 1000 had symptoms related to breast pathology [Table/Fig-7]. Most of the women complained of

Diagnosis	Number	Percentage
Cyclical mastalgia	93	9.3
Non cyclical mastalgia	29	2.9
Fibroadenosis	43	4.3
Fibroadenoma	10	1
Breast Cancer	1	0.1

[Table/Fig-11]: Percentages of breast diseases in the study.

Condition	Prevalence
Cyclical mastalgia	1 in 11
Non cyclical mastalgia	1 in 34
Fibroadenosis	1 in 23
Fibroadenoma	1 in 100
Breast cancer	1 in 1000

[Table/Fig-12]: Prevalence of various breast diseases.

Condition	Age group in years	Average in years
Cyclical mastalgia	23-45	34.8
Non cyclical mastalgia	25-48	34.75
Fibroadenosis	23-44	35.1
Fibroadenoma	21-36	29
Breast cancer	60	60

[Table/Fig-13]: Percentages of breast diseases in the study.

Risk factors	Number	Percentage
Post menopausal status	420	42
Nulliparity	38	3.8
Age at first childbirth >30 years	25	2.5
Duration of breast feeding <1 year	81	8.1
Family history of lumps	2	0.2
Age at menarche <11 years	6	0.6

[Table/Fig-14]: Risk assessment.

breast tenderness [Table/Fig-8]. Symptomatology distribution is shown in [Table/Fig-7]. Not all women with symptoms had signs on examination. 94 of the 1000 women examined had signs, which could be elicited. This is shown in [Table/Fig-9]. Fifteen women with symptoms had signs that were elicited on examination and 39 women were found to have asymptomatic lumps. This correlation of symptoms and signs is shown in [Table/Fig-9]. Prevalence of symptoms and signs were calculated and shown in [Table/Fig-10]. Percentages of individual breast disease conditions studied are shown in [Table/Fig-11]. Prevalence of various breast diseases is shown in [Table/Fig-12]. Cyclical mastalgia was found to be the most common condition diagnosed followed by fibroadenosis. Age wise distribution of detected breast diseases is shown in [Table/Fig-13]. Benign conditions were found in younger age groups with the case of breast cancer being diagnosed at the age of 60. A risk assessment detail is shown in [Table/Fig-14].

DISCUSSION

Our study was an observational study conducted over the period of September 2013 to August 2015 with an aim of studying the prevalence of breast diseases in the village of Seliamedu in Pondicherry with specific reference to profile of all breast diseases among the population selected including whether they were exposed to risk factors or not.

During a series post mortem studies conducted in 2005, it was concluded that one out of two women had some form of fibrocystic disease and one out of five had fibroadenoma [23]. A study on profile of benign breast diseases conducted in the year 2012 on 262 consecutive women attending surgery OPD with complaints of

benign breast conditions revealed that 76% of them were suspected to have BBD on clinical grounds, with 17% of them finally having a proven diagnosis of BBD [18]. Of these, 36% were diagnosed with fibroadenoma with mean age of presentation between 20-30 years. 39% were diagnosed with mastalgia with or without nodularity. In this study, lump was the most common complaint followed by nodularity and mastalgia. Our study similarly showed that the most common complaint noted with the general population was mastalgia with a prevalence of 1 in 10 and the most common sign being nodularity with a prevalence of 1 in 22. In concordance with the above-mentioned study, most common age at presentation for fibroadenoma in our study group was between age groups 20-30 with one individual being diagnosed with the same at the age of 36.

In a study conducted in 2000 fibroadenoma was found to be in 2% in the general population and nipple discharge in 5% [19]. There were 2 women with complaints of nipple discharge in our study although neither had any active discharge at the time of presentation for clinical examination.

In another study conducted by Salzmann et al., it was noted that 42% of women who presented to physician with breast complaints gave a history of lumps [32]. A 66% of them presented with mastalgia. Clinical breast examination detected further course of action in these women. Our study conclusively proves that breast complaints such as pain and lumps are fairly common problems encountered by the general population. Although breast pain is rarely a sign of cancer, it is an important sign that make most women seek medical attention. Smith et al., noted that in a population of 1171 that attended gynaecology OPD, as high as 69% of them experienced some amount of pre menstrual symptoms with 11% of them experiencing significant symptoms [33].

Chang et al., included 998 women in their study with moderate to severe mastalgia were included in the study and it was found that most women had relief with oestrogen receptor modulators. Mastalgia is a common complaint with 66% of normal women experiencing at some point [34]. As concluded by our study, symptomatology regarding breast is seen in 1 in every 8 women in our study population with signs being found in 1 in every 11 women.

Fibroadenoma is more common in the second and third decade when breast cancer is relatively uncommon [35]. Fibrocystic breast disease affects approximately half the women population with symptoms ranging from pain and nodularity. This occurs due to change in internal hormonal environment [36]. Since mastalgia is a very common problem encountered, it has been extensively studied. In an Indian study conducted by Uma et al., 58 cases of mastalgia studied by them revealed 57% of cyclical mastalgia and the remaining 43% experienced non - cyclical mastalgia. 64% of them were found to have nodularity [37]. In another study by Khan et al., attempting to study mastalgia, 271 cases of mastalgia were included, both cyclical and non-cyclical were found to be 50% with prevalence of non-cyclical mastalgia being slightly higher [38]. Cyclical mastalgia might be an independent risk factor – cyclical mastalgia is a fairly common disorder affecting women and authors aimed to correlate if this has increased risk of breast cancer. A total of 247 women with cyclical mastalgia were followed for a mean period of 16 years and 22 of them developed breast cancer [39]. Kataria et al., have reported similar prevalence in their study [40]. Our study similarly shows that cyclical mastalgia has a prevalence of 1 in 11 and that of non-cyclical mastalgia being 1 in 34. In our study, the prevalence of cyclical mastalgia was found to be higher than that of non-cyclical mastalgia.

There are several risk factors noted as described previously. The median age of menarche of the study population was 13 years, menopause being 45 years, first childbirth at 21 years and duration of breast-feeding being one year in concordance with previous studies.

Study by Weisstock et al., conducted in 2013, regarding risks for breast cancer, a total of 4,266 women were included, 3.5% of whom were found to have risk factors. Over 60% of postmenopausal women to found to have risk factors [41]. Postmenopausal women in our study include 36%.

Fibroadenoma is a benign disease with minimal increased risk of malignancy. It was found in the study by DuPont et al., hyperplasia surrounding the fibroadenoma confers a slightly higher than normal risk for the development of future cancer. Such patients would greatly benefit from surveillance [35].

There has been a steady decline in death due to breast cancer in the US from 43,844 in 1995 to 40,460 in 2007. This is owed to early detection due to effective screening programs [42]. In a large study conducted by the Beattie et al., to detect breast cancer in general practice, the diagnosis was found to be relatively infrequent. In practice, breast cancer continues to be detected by either the patient herself or by the attending physician and only to a lesser extent by screening programs [43]. In our study, one case of conclusive breast cancer was detected with presenting complaint of the patient being a breast lump. Age of presentation was 60 years and further evaluation revealed an infiltrating ductal carcinoma. She was evaluated as per standard protocol and underwent surgery. According to Geoffrey et al., the median age of presentation of women is 58.4 years is comparable to our study [44].

As high as 35% of the studied population in our study was found to be post-menopausal who require further screening evaluation although most of their clinical breast examination was found to be normal. The other risk factors, although not found very often in the general population, requires thorough clinical and pathological assessment.

LIMITATIONS

Since our study group is rural population with low education level, it does not reflect the picture of general population. A study on urban population especially educated working women /educated homemakers may reveal different statistics based upon which stakeholders can plan their health education strategies. Since clinical breast-examination is an observer based investigative tool, this needs to be substantiated with radiological and pathological investigations. Clinical breast-examination as a lone tool in screening is proven to be below par. Many women in the study group had at least one high risk factor that required further evaluation. All women with high risk factors and women with signs and persistent symptoms should have been subjected to further radiological and pathological investigations which we could not achieve due to non compliance of our study group for further sonomammography and histopathological examination even though they were offered free of cost in our institution.

CONCLUSION

Based on our study we infer that benign breast diseases especially mastalgia fibroadenosis and fibroadenoma are commoner than malignant ones. Health seeking behaviour among rural population is not up to the expected level with reference to breast diseases in particular to early detection of cancer breast and risk reduction due to lack of proper knowledge and awareness about available screening programmes like self breast examination, clinical breast examination, triple assessment. Clinical examination as a lone screening method does reveal any fruitful number of cancer breast cases without sonomammography and histopathological examination. This we could not achieve due to non-compliance of rural population in our study, even though the sonomammography and histopathological examination were offered free of cost in our institution. With this scenario, self-breast examination alone may not will really serve as an adequate tool to combat the ever-growing rates of breast cancer. So significant improvements need to be made in that regard especially education regarding availability of all screening programs to the rural population.

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