

RESEARCH ARTICLE

Breast Lesions in Adolescents and Young Women in Pakistan - a 5 Year Study of Significance of Early Recognition

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Abstract

Background: Breast cancer is the most frequent malignant disease amongst young women. If we review local data in Pakistan then breast cancer represents approximately a third of all cancers in females. The age standardized incidence rate (ASR) world per 100,000 is 53.8 and crude incidence rate is 30.9. We have observed during our surgical pathology practice and it is also reported by other Asian studies that breast carcinoma is amongst the leading malignancies in the region and the patients are at least a decade younger than counterparts in developed nations. Age is an important issue in effective screening, diagnosis and management of breast cancer, especially in this geographical region where late presentation and poor prognosis are a hallmark of the disease. **Objective:** The aim of this study is to determine the frequency of malignant breast lesions in symptomatic young females presenting with breast lumps. **Materials and Methods:** This is a retrospective study conducted at the Pathology Department, Liaquat National Hospital and Medical College, Karachi. Descriptive and pathology data of malignant breast tumors 1st January 2004 to 31st December 2009 were reviewed, using the departmental archived data. It included both male and female patients up to the age of 25 years. **Results:** A total of 714 surgical specimens from/of symptomatic breast lesions were received at the pathology department of Liaquat National Medical, in the five years study period, in young females. There were 575 (80%) benign, 119 (16%) inflammatory and 20 (2.8%) malignant lumps. **Conclusions:** The obtained data for females only up to 25 years of age suggest a massive burden which requires urgent attention. Early assessment of lesions is essential in order to avoid mortality from malignancies.

Keywords: Breast cancer - malignant lesions - young females ≤ 25 - Karachi, Pakistan

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Introduction

Breast cancer is the most common type of cancer in women world wide (Mizota and Yamamoto, 2012). In 2002, the incidence rate and death rate for invasive breast carcinoma were 124.9 and 25.5 per 100,000 women respectively in the United States. It is still second most common cancer in Europe (Ferlay et al., 2010). If we review local data then breast cancer represents approximately a third of all cancers in females. The age standardized incidence rate (ASR) world per 100,000 is 53.8 and crude incidence rate is 30.9 (Bhurgri et al., 2007). We have observed during our surgical pathology practice and it is also reported by other Asian studies that breast carcinoma is amongst the leading malignancies in the region and the patients are at least a decade younger than counterparts in developed nations (Agarwal et al., 2007). Age is an important issue in effective screening, diagnosis and management of breast cancer, especially in this geographical region where late presentation and poor prognosis are a hallmark of the disease.

The aim of this study is to determine the frequency of malignant breast lesions in symptomatic young females presenting with breast lumps.

Materials and Methods

This is a retrospective study conducted at the pathology department, Liaquat National Hospital and Medical College, Karachi. Descriptive and pathology data of malignant breast tumors ICD-10 (International Classification of Diseases) category C50, registered during 1st January 2004 to 31st December 2009 were reviewed, using the departmental archived data. It included both male and female patient up to the age of 25 years.

The tissue for surgical evaluation had been obtained through spectrum of surgical procedure ranging from needle biopsies to mastectomies and included core biopsies and lumpectomies.

All cases were histologically verified, initially evaluated on hematoxylin and eosin (H&E) stained sections. Special stains and immunohistochemistry were

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selectively used.

Manual and computerized validity checks for the cancer data were performed and included checks for duplication. Cases were categorized by tumor site, age and sex of the patients. Variables recorded were the hospital patient-number, date of incidence, name, age, sex, address, topography, morphology, grade and stage of the tumor. Data were classified using ICD-O3 (International Classification of Diseases-Oncology) and computerized and analysed using SPSS 19. The disease definitions used were as per WHO recommendations (Tavassoli et al., 2003).

Results

A total of 714 surgical specimens from/of symptomatic breast lesions were received at the pathology department of Liaquat National Medical, in the five years study period, in young females (<25 and >25 years of age). The lesions were primarily classified into inflammatory (and related conditions) and neoplastic conditions. The inflammatory cases were further categorized into different categories (Table 1).

The largest group comprised of abscess representing 49 cases (6.9%) followed by fibrocystic change (10 cases,

1.4%) and fibroadenosis (13 cases, 1.8%) (Table 2). The neoplastic conditions were divided into benign (575 cases, 80%) and malignant (20 cases, 2.8%) (Table 2).

The cases were stratified by age into those below 10 years (1 case 0.14%), between 11-15 years (58 cases, 8.1%), 16-20 years (357 cases, 50%) and those between 21-25 years (300 cases, 42.01%).

There were 575 (80%) benign, 119 (16%) inflammatory and 20 (2.8%) malignant lumps. Benign neoplasm cases constituted the largest group followed by inflammatory lesion and cases of malignant tumors. Among malignant tumors infiltrating duct carcinoma constituted 13 (65%), infiltrating lobular carcinoma 01 (5%) and borderline and malignant phylloides 6 (30%).

Discussion

The incidence of breast cancer in Karachi South (KS) for the period 1995-1997 was the third highest in Asia (Bhurgri et al, 2007). Considering this fact we have conducted this study to document the pattern of breast lumps in young females with special reference to the occurrence of early onset breast cancer in Pakistani women. Breast cancer is the most common cancer in women according to cancer registry (Bhurgri et al, 2007).

The mean age of breast cancer cases was 47.5 years in KS. This finding is compatible with reported studies from Bombay (Malik and Bharadwaj, 2003). The incidence of breast cancer in younger women or breast cancer of reproductive ages in KS is the highest reported globally. In KS 60% of the newly diagnosed breast cancers are observed in women below 50 years as compared to only 25% in the US (Bhurgri et al., 2007). Knowing this fact that the mean age of breast cancer in Pakistan, similar to Middle East countries is ten to fifteen years younger than other countries in world we in this study looked at a very rare age group (i.e; >25 years) of malignant breast diseases and found out that even in a single institution based study of five years duration. There were 20 cases. It is important to emphasize this point because young women generally do not consider themselves to be at risk for breast cancer. However, breast cancer can strike at any age and women of every age should be aware of risk factors and breast self examination technique.

The incidence of breast cancer increases with age, doubling about every 10 years until the menopause, when the rate of increase slows dramatically (Malik and Bharadwaj, 2003). In KS the incidence of breast cancer multiplied 12 times between 15 to 20 years the rate of increase had fallen to 1.6 fold, between 45 and 55 years to 1.3 fold. This indicates that there is a dramatic rise in the incidence of breast cancer in the younger age groups (15 to 35 up till 45 years) in this population (Bhurgri et al., 2007). This same factor is highlighted in our study. Now, all these findings raise the question that what are the possible risk/etiological factors. Although these patients fall in reproductive age group however, in our population reproductive factors cannot be considered a major risk factor as early marriage, multiple births and prolonged breast-feeding are the norms of our society. Early menarche, late menopause and thus the prolonged effect

Table 1. Mean Ages of All Neoplastic Lesions

Lesion	Mean	Confidence interval	Standard deviation	Range
Fibroadenoma	19	Lower Bound (19.4) Upper Bound (20.03)	3.07	10-25
Benign Phylloides	18.9	Lower Bound (17.80) Upper Bound (20.13)	3.177	12-25
Malignant phylloides	19	Lower Bound (14.38) Upper Bound (24.41)	4.03	15-25
Carcinoma	23	Lower Bound (20.54) Upper Bound (26.25)	2.30	20-25

Table 2. Frequency

All Lesion	Frequency	%
Benign Lesions:		
Fibroadenoma	461	64.6
Fibroadenoma (juvenile)	27	3.8
Fibroadenoma (giant)	10	1.4
Fibroadenoma (giant)	8	1.1
Benign phylloides	31	4.3
Intraductal papilloma	1	0.1
Tubular adenoma	3	0.4
Benign adnexal tumor	1	0.1
Malignant Lesions:		
Infiltrating ductal carcinoma	13	1.8
Infiltrating lobular carcinoma	1	0.1
Malignant phylloides	6	0.8
Inflammatory Lesions:		
Abscess	49	6.9
Chronic granulomatous	6	0.8
Chronic inflammation	4	0.6
Gynaecomastia	3	0.4
Epidermal inclusion cyst	11	1.5
Fat necrosis	5	0.7
Fibroadenosis	13	1.8
Fibrocystic change	10	1.4
Fibroepithelial polyp	1	0.1
Fibroadenomatoid hyperplasia	4	0.6
Hamartoma	4	0.6
Nodular adenosis	5	0.7
Galectocele	2	0.3
Benign proliferative lesions	1	0.1
Fibroepithelial polyp	1	0.1

of reproductive hormones could however be possible risk factors along with dietary factors and obesity.

The roles of BRCA1, BRCA2 and other genetic factors have not been adequately studied in this population. Now what is different about breast cancer in younger women. Diagnosing breast cancer in young women more difficult because their breast tissue is generally denser than breast tissue in older women. By the time a lump in a young women's breast can be felt, the cancer often is advanced. In addition, breast cancer in younger women is usually aggressive and less likely to respond to treatment.

In our study we have evaluated the pathological spectrum of breast disease in adolescents. We want to highlight spectrum of breast lesions in adolescents as it may require different approach to diagnosis and treatment.

We have found in our study that pathologic spectrum of breast disease in adolescents is broad and includes entities more commonly seen in older patients. This is the same observation as reported in different western and Asian studies (Malik and Bharadwaj, 2003; Leong et al 2010).

In general, in our study the vast majority of breast masses in young patients are benign including tumors and non-neoplastic inflammatory condition representing approximately 80% and 16% respectively. This observation is compatible to an Indian study conducted by Malik and Bharadwaj (2003) with the difference that in this particular study fibrocystic disease constituted the largest group as compared to abscess (49 cases (6.9%)) in our study. This difference may be because the cut off age limit to designate the patient as young is different. In this study young females have been described as those less than 40 years of age. Carcinoma/Malignancy of breast is extremely unusual in this age group (Ashikori et al., 1977). A literature review published in 1977 listed 74 cases reported between 1888 and 1972. In west it is documented mostly in the form of case reports (Hammar, 1987). Malignant neoplasm in our study represent 2.8% of lumps. Although this accounts for the smallest group in the study however still this frequency in young females is higher as compared to the reports from the west (Leong et al., 2010).

Two previous Pakistani studies have reported 18% tumors occurring in women less than 35 years age (Nadira et al., 2009) and 10.2% in study conducted by Nadira Mamoon (Siddiqui et al., 2008). In our study we observed frequency of 2.8% in young women which is very high considering a very low cut off age limit of 25 years. Because it has been well documented in literature that carcinoma in very very rare upto second decade of life but its incidence progressively increases with age (Khanna et al., 1998). In this study also no case of carcinoma was diagnosed below twenty years although cases of malignant phylloides fall between 14 and 25 years of age. The problem with late diagnosis is well documented in advanced presentation of South-East Asian countries and emerging economics.

This paper also aim to explore the presence of disease at young age so symptoms recognition provide an opportunity in detecting early staged breast cancer.

In conclusion, the results of this study suggest that awareness of the possible presence of disease and timely proper repeated examinations will have impact on

prognosis.

Diversity of our population in terms of cultural, social and religious belief also poses challenges. However still if we look at options there are numbers of opportunities for launching a successful mass screening program in limited resource countries (LRC) like Pakistan.

In summary, young age at occurrence, advanced tumor stage and aggressive behaviour of the tumor in this particular age group should urge policy makers to focus on strategies that will help to reduce cancer burden.

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