

Clinical and Histopathological Characteristics of Breast Cancer in People of Baluchistan and Adjoining Territory of Afghanistan

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Abstract: Breast cancer is a common type of malignancy in the province of Balochistan. The aim of this study was to see the various features of breast cancer in order to know the pattern of disease in the recent time. The present study was conducted during 2001-2005 to evaluate the clinical and pathological characteristics of breast cancer in people of Balochistan including patients from Afghanistan. This study also aims to assess the geographical features and characteristics of Breast Cancer in patients registered at Centre for Nuclear Medicine and Radiotherapy (CENAR). Study included all patients admitted in Centre for Nuclear Medicine and Radiotherapy (CENAR), with carcinoma of breast during the above mentioned period. Different characteristics like Gender and age distributions, residence, clinical Stages, history of breast feeding and other relevant data, investigations are included in this study. Total of 272 patients were included in the study, out of which there were 256 (294%) female and 16 (6%) male patients including 32 (12%) females and 3 (1%) males from Afghanistan with Breast cancer. Most common age group was 41-50 years with 94 (35%) patients, followed by 31-40 years with 68 (25%) patients. 16 (6%) cases of stage I, 20 (7%) cases of stage 2, 68 (25%) cases of stage 3 and 168 (62%) cases of stage 4 of breast cancer were diagnosed in the study. About 196 (72%) and 76 (27.9%) were of urban and rural area by residence, respectively. Most common type of Breast cancer was infiltrating ductal carcinoma with 212 (78%) patients. Baluchistan province is seemed to be at high risk for Breast cancer. It is also common in Afghanistan and other areas of Pakistan. Breast cancer is a common disease at a young to middle age distribution with ductal carcinoma being the most common type. The ailment of breast cancer in Balochistan including Afghanistan is due to the lack of knowledge and awareness.

Keywords: Age distribution, breast cancer, CENAR, clinical stages, ductal carcinoma, gender distribution

INTRODUCTION

Breast cancer is the most common cancer and leading cause of cancer deaths among women worldwide. Ferlay *et al.* (2000a, b) breast cancer resulted in an estimated 189,000 deaths in developed countries and 184,000 deaths in developing countries, accounting for 16 and 12 %, respectively, of all cancer deaths in women.

Globally, breast cancer is the most common cancer among women, comprising 23% of the 1.1 million female cancers that are newly diagnosed each year. Approximately 4.4 million women diagnosed with breast cancer in the last 5 years are still alive, making breast cancer the most prevalent cancer worldwide (Parkin *et al.*, 2002; Parkin and Fernandez, 2006).

Breast cancer is also the leading cause of cancer-related deaths worldwide, case fatality rates being

highest in low resource countries (Anderson *et al.*, 2008)

Breast cancer is the second most common cancer in the world and the most common cancer among women. Breast cancer was estimated to account for 1,105,000 cases and 373,000 deaths in women (Parkin *et al.*, 2000)

Much of this international variation is due to differences in established reproductive risk factors such as age at menarche, parity and age at births and breastfeeding, but differences in dietary habits and physical activity may also contribute. (Key *et al.*, 2001; Collaborative Group on Hormonal Factors in Breast Cancer, 2002)

In fact, age at menarche is partly determined by dietary factors, in that restricted dietary intake during childhood and adolescence leads to delayed menarche. Adult height, also, is weakly positively associated with

risk and is partly determined by dietary factors during childhood and adolescence. (Key *et al.*, 2001)

The WHO/IARC working group on weight control and physical activity estimated that in countries with high rates of cancers related to overweight, excess body weight (BMI over 25 kg/m²) accounts for approximately 39% of endometrial, 25% of kidney, 11% of colon, 9% of postmenopausal breast cancer and 5% of total cancer incidence. (Bergstrom, *et al.*, 2001)

Asia, the largest continent in the world, is a mixture of nations with different ethnics, religions, cultures and socioeconomic statuses. Incidence of breast cancer in developing Asian countries is different from developed countries in Asia and other parts of the world. (Agarwal *et al.*, 2007)

Breast cancer diagnosed in young patients tends to be more aggressive with worse prognosis than those detected in older women. (Yankaskas, 2006) Furthermore, breast cancer in young women is responsible for a greater potential years of life lost, namely, the number of life years which would be saved in the absence of disease. (Parkin and Fernandez, 2006) Breast cancer still persists as an international health burden despite advances in its early diagnosis, treatment and also increased knowledge of its established risk factors. (Kamangar *et al.*, 2006).

Age is one of the most important risk factors of breast cancer. Some of the recognized risk factors may differ relative to age at diagnosis and some have complicated age interactions. (Andrieu *et al.*, 2000; Tavani *et al.*, 1999)

The typical age incidence curve of breast cancer has a rapid rise until the age 40. After age 40, the rate of the increase slows; however, continuing to rise with increasing age until around 50, then it starts to decline, specifically in low risk populations. (Kelsey and Gammon, 1991)

Incidence rates in some of these counties, including the United States, United Kingdom, France and Australia, sharply decreased from the beginning of the millennium, partly due to lower use of combined postmenopausal hormone therapy. (Ravdin *et al.*, 2007; Canfell *et al.*, 2008)

In contrast, breast cancer death rates have been decreasing in North America and several European countries over the past 25 years, largely as a result of early detection through mammography and improved treatment. (Jemal *et al.*, 2010; Althuis *et al.*, 2005; Autier *et al.*, 2010)

In many African and Asian countries however, including Uganda, South Korea and India, incidence and mortality rates have been rising, (Parkin *et al.*, 2010; Parkin *et al.*, 2005) with changes in reproductive patterns, physical inactivity and obesity being the main contributory factors (Jemal *et al.*, 2010; Colditz *et al.*, 2006; Ito *et al.*, 2009) increases in breast cancer awareness and screening activity may be partially responsible for the rising incidence in these populations.

Maintaining a healthy body weight, increasing physical activity and minimizing alcohol intake are the best available strategies to reduce the risk of developing breast cancer. (Kushi *et al.*, 2006)

Early detection through mammography has been shown to increase treatment options and save lives, although this approach is cost prohibitive and not feasible in most economically developing countries. (Anderson *et al.*, 2006)

Recommended early detection strategies in these countries include the promotion of awareness of early signs and symptoms and screening by clinical breast examination. (Anderson *et al.*, 2008)

In recent years, much effort has been made to promote a greater awareness of breast cancer among the public. October has been designated the breast cancer awareness month. The various Hospitals, together with the breast cancer foundation, organize talks and seminars on breast cancer detection and treatment.

Breast cancer is the most common cancer among women in Balochistan and accounts for 19 % of all female cancers. The proportion of breast cancer in Balochistan has much increased from 2001 to 2005; this is expected to rise further in the coming years.

The aim of this study is, therefore, to study prevalence of breast cancer in Balochistan (province of Pakistan), to create awareness among people.

The major aims and objectives of this study are to recognize the Geographical distribution of breast cancer. To study the risk factors and disease characteristics of breast cancer in patients of Baluchistan.

PATIENTS AND METHODS

This study was conducted from January 2001 to December 2005 in CENAR (Centre for Nuclear Medicine and Radiotherapy) Quetta. CENAR is one of the regional cancer treatments and research centers in Pakistan and provides treatment facilities to the entire Balochistan province along with adjoining territory of Afghanistan and Iran. It is 40 bedded cancer Hospital, attached to Bolan Medical Complex, a 600 bedded tertiary care facility Total 4193 cases of cancer reported at this center from 2001 to 2005, out of which 272 cases were diagnosed on breast cancer. Out of 272 patients 256 were female and 16 male patients including 32 females and 3 males from Afghanistan with Breast cancer.

We used the standard questionnaire of cancer registry to collect data including various demographic variables like Gender and age distributions, residence, clinical Stages, history of breast feeding and other relevant data, investigations were included during the interview. Data was retrieved from the surgery/pathology register and linked with the main

central patient records. Statistical Design was made by calculating percentages and ratios for each variable.

RESULTS

In our study a total of 272 patients were included, out of which 256 (94.1%) were female and 16 (6%) were male patients including 32 (12%) females and 3 (1%) males from Afghanistan with Breast cancer. Most common age group was 41-50 years with 94 (35%) patients, followed by 31-40 years with 68 (25%) patients. 16 (6%) cases of stage I, 20 (7%) cases of stage 2, 68 (25%) cases of stage 3 and 168 (62%) cases of stage 4 of breast cancer were diagnosed in the study. About 196 (72%) and 76 (27.9%) were of rural and urban area by residence, respectively. Most common type of Breast cancer was infiltrating ductal carcinoma with 212 (78%) patients. Out of total breast carcinoma patients 122 (47%) were the patients having right sided breast carcinoma and 128 (45%) were having left sided breast carcinoma. While rest of the patients i. e 22(8%) were having bilateral breast carcinoma.

DISCUSSION

The aim of this study was to see the various features of breast cancer in order to know the pattern of disease in the recent time. The present study was conducted during 2001-2005 to evaluate the clinical and pathological characteristics of breast cancer in people of Balochistan including patients from Afghanistan. This study also aims to assess the geographical features and characteristics of Breast Cancer in patients registered at Centre for Nuclear Medicine and Radiotherapy (CENAR).

In our study a total of 272 patients of breast cancer were diagnosed containing 256(94.1%) females and 16(6%) males including 32(11.7%) females and 3(1.1%) males from Afghanistan (Fig. 1). Different characteristics like Gender and age distributions, residence, clinical Stages, history of breast feeding and other relevant data are included in this study.

Among these Patients the distribution of Breast carcinoma, the most common age group was 41-50 years with 94(34.5%) patients. The next common age group was 31-40 with 68(25%) patients. These results are in agreement with international as well as some local studies. (Fig. 2) .

Kelsey and Gammon (1991) concluded that a typical age incidence curve of breast cancer has a rapid rise until the age 40. After age 40, the rate of the increase slows; however, continuing to rise with increasing age until around 50, then it starts to decline, specifically in low risk populations. (Siddiqui and Rasool, 2001; Baloch and Iqbal, 2006) proposed that the most common age group is 40-59 which correlate our results.

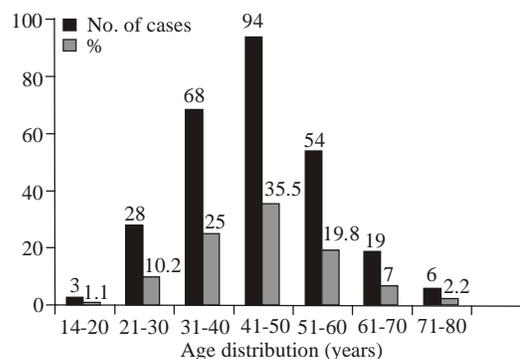


Fig. 1: Distribution of breast cancer cases by gender

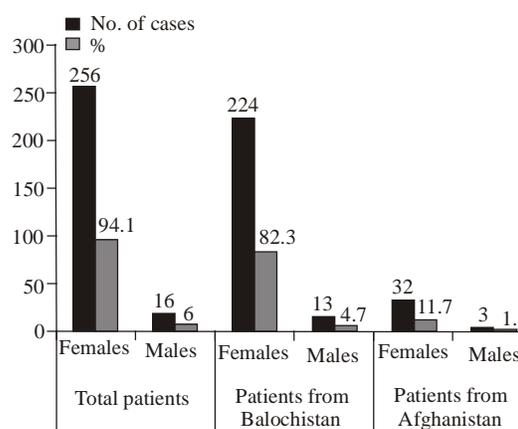


Fig. 2: Distribution of breast cancer cases by age

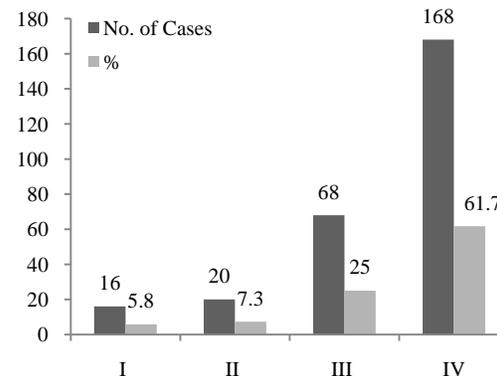


Fig. 3: Distribution of breast cancer cases by clinical stages

Different stages in which disease is distributed are 16 (6%) patients of stage I, 20 (7.3%) patients of stage 2, 68 (25%) patients of stage 3 and 168 (62%) patients of stage 4 disease. This illustrated that the breast carcinoma tends to be more prevalent at the later stages i.e., stage 3 and stage 4 (Fig. 3). It means that breast cancer is more easily diagnosed at the earlier stages i.e stage 1 and stage 2. These results are in agreement with (Muhammad *et al.*, 2008)

Norsa'adah *et al.* (2005) concluded that hospital-based cases represent a selective population because

going to a hospital is culturally influenced and dependent upon perception of hospital facilities, reputation, policies and staff competency.

In our study it is cleared that the obesity and over weights are increasing risk factors of breast carcinoma (Table 1). Key *et al.* (2001) also resulted that obesity increases the breast cancer risk in postmenopausal women by around 50%, probably by increasing serum concentrations of free oestradiol. Obesity is a risk factor for the old women (Setiawan *et al.*, 2009)

In our study we have shown that married women are at high risk comprising 217 (84.8%) followed by widow 24 (9.3%) and single 16 (6.2%). Since some risk factors are cycle related so our data illustrated that the incidence of breast cancer is slightly different at Menopausal states i. e 17 (6.6%) and 16 (6.2%) at pre-menopausal and post-menopausal status respectively (Table 1).

Our study also explains that history of breast feeding is also a risk factor for breast carcinoma. Among total women patients, 146 (53.6%) women were having a negative breast feeding history while 125 (46%) were having a positive breast feeding history. This demonstrates that positive breast feeding history has a defensive effect on the risk of breast cancer (Table 1).

Reza *et al.* (2011) proposed that longer duration of breast feeding (37 months or more vs. less than 37 months) showed a protective effect on the risk of breast cancer.

Jemal *et al.* (2010) and Mackay *et al.* (2006) reported that the factors that contribute to the international variation in incidence rates largely stem from differences in reproductive and hormonal factors and the availability of early detection services.

Hulka and Moorman (2001) proposed that Reproductive factors that increase risk include a long menstrual history, null parity, recent use of postmenopausal hormone therapy or oral contraceptives and late age at first birth.

Baan *et al.* (2007) and Key *et al.* (2006) concluded that Alcohol consumption also increases the risk of breast cancer.

In the present study, the histomorphological types seen among 272 breast cancer patients indicated that there were 212 cases (78%) with histology of IDC which was found to be the most common type. (Table 2) The site of the tumor in studied cases was the, Right breast in 44.8 % of cases, the Left breast in 47% and bilateral involvement in 8% of cases. (Fig. 4).

According to Muhammad *et al.* (2008), infiltrating ductal carcinoma with nonspecific features was the commonest type, found in 38 patients (82.6%) out of 46.

Table 1: Distribution of Breast cancer according to the selected risk factors

Risk factors		No of patients		
		(N)	(%)	
Obesity	Normal	154	56.6	
	Overweight	99	36.3	
	Obese	18	6.6	
Habits	No habit	148	54.4	
	Smoking	32	11.7	
	Snuff	89	32.7	
Feeding	No feeding	146	53.6	
History	Feeding	125	46	
Cycle	Marital status	Single	16	6.2
		Married	217	84.8
Related	No. of pregnancies	Widow	24	9.3
		Infertile	10	3.9
		≤2	3	1.17
	≤4	6	2.3	
	≥4	11	4.2	
	Menopausal status	Pre	17	6.6
Post		16	6.2	

Table 2: Histopathological types of breast cancer

S. no	Histopathological types	No. of patients(N)	(%)
1	Ductal carcinoma	212	78
2	Invasive	27	10
3	Metastatic	8	3
4	Pagets Disease	8	3
5	lobular cancer	5	1.8
6	Medullary type	5	1.8
7	Stroma cancer	2	0.7
8	Papillary type	2	0.7
9	Recurrent type	2	0.7
10	Mucinous type	1	0.3

Table 3: Histopathology of breast cancer /histopathology and clinical stage of breast cancer in balochistan

S. no	Parameter	No. of cases		(%)	
1	Gender	Total	Females	256	94.1
		Distribution	Males	16	6
	Patients from	Baluchistan	Females	224	82.3
		Baluchistan	Males	13	4.7
		Patients from	Females	32	11.7
		Afghanistan	Males	3	1.1
2	Age	14 -20		3	1.1
		Distribution	21- 30	28	10.2
	(years)	31-40	68	25	
		41-50	94	34.5	
		51-60	54	19.8	
		61-70	19	7	
71- 80		6	2.2		
	Residence	Urban	196	72	
3	Rural		76	27.9	
		Clinical	I	16	6
	Stages	II	20	7.3	
		III	68	25	
		IV	168	62	
5	Site of cancer	Right Breast cancer	122	44.8	
		Left Breast cancer	128	47	
		Bilateral Breast cancer	22	8	

Among the 272 malignant patients, nearly 87% (237) belonged to the province of Baluchistan and approximately 13% (35) from Afghanistan. (Table 3) Almost every district of Baluchistan had breast cancer

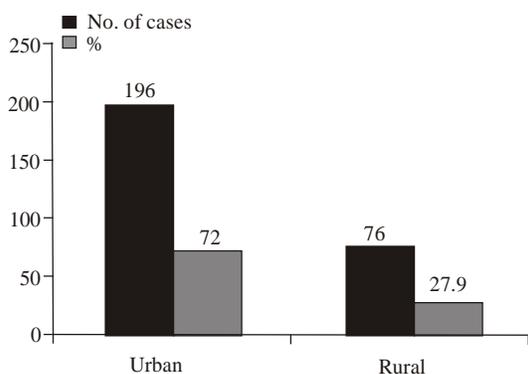


Fig. 4: Distribution of breast cancer cases by site of cancer

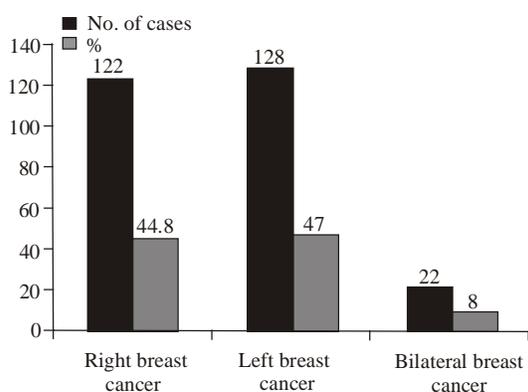


Fig. 5: Distribution of breast cancer cases by residence

patients and more populated districts had large number of breast ca patients. In total 272 patients 72% were from urban areas and 27% were from rural areas. (Fig. 5).

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