The Rate of Breast Cancer Among Women with Breast Mass Attending Teaching Hospitals: A cross sectional study

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ABSTRACT

Background: In daily clinical practice, the problems of breast mass, pain or discharge is extremely common in the Iraqi population, as well as, globally. Nearly all patients develop fear about the possibility of malignancy when they acquire a breast mass. However, the trend in most health care institute is that most breast lesion are of benign biologic behavior and among true neoplastic lesions, the rate of malignancy is somewhat low. Marital status has been linked to outcome of breast malignancy; however, the link is controversial.

Aim of the study: The present included a cohort of Iraqi women with various breast lesions in order to make a clear insight about the true incidence rate of carcinoma and risk factors associated with development of malignant breast lesions.

Patients and methods: The study was designed to be a cross sectional study involving a cohort of 182 Iraqi women with breast mass. Patients were selected in a systemic random way from the population of patients already visiting the surgical consultation clinic and ward and oncology unit in teaching hospital in province/ Iraq. The beginning of data collection was dated on the 20th January 2018 and ended on the 10th June 2018.

Results: The present study showed that the most breast lesions (82%) were benign and that among benign lesions, the most frequent one was fibroadenoma (37.4%). Malignant lesions accounted for small percentage (17.4%). Mean age of patients with carcinoma was 49.78 ±7.58 years and most all cases occurred after 20 years of age and that 87.5% of cases were seen after the age of 40. Majority of breast carcinoma were of invasive ductal carcinoma, of grade II and stage II. No significant association was seen between clinical behavour of breast mass and marital status, however, malignant clinical behavior showed significant association with age.

Conclusion: The incidence rate of malignant breast lesions in Iraqi women with breast mass is similar to that seen worldwide and that age is the main risk factor that predicts malignant clinical behavior of a breast mass. No association was reported between marital status and biologic behavior of breast mass

Keywords: Breast cancer, marital status, Iraq

Introduction

In daily clinical practice, the problems of breast mass, pain or discharge is extremely common in the Iraqi population, as well as, globally (1). Nearly all patients develop fear about the possibility of malignancy when they

acquire a breast mass. However, the trend in most health care institute is that most breast lesion are of benign biologic behavior and among true neoplastic lesions, the rate of malignancy is somewhat low (2). The most common form of malignant breast lesions is of epithelial origin, namely carcinoma. The risk of developing breast carcinoma has positive correlation with age, being rare before the age of 25, the incidence rate becoming increasing greater after 25 and majority of cases are diagnosed after the age of 50; the median age at diagnosis is around 65 years old (3). Unfortunately, substantial amount of data, suggested that Iraqi women showed younger age of acquiring breast cancer and that the rate of breast carcinoma during the last two decades outnumbered that of the preceding decades. The increasing incidence has been linked by many authors to the first, second and third Arab gulf wars, during which the exposure to chemical weapons and radiation based weapons, is blamed to be number one risk factor (4). For most surgeons, the histological report of a breast mass is main step in making decision about the nature of breast mass. From histological point of view, benign breast lesions can be inflammatory such as breast abscess and duct ectasia, proliferative, such as fibrocystic disease and fibro adenoma and reactive conditions such as fat necrosis, whereas, most malignant lesions are epithelial in origin, ductal carcinoma being the most frequent and accounts for approximately 80% of the cases. Lobular carcinoma comes next and account for less than 20 % of the cases (5). Both ductal carcinoma and lobular carcinoma can be infiltrative or non-infiltrative lesions (6). In addition to advancing age, other risk factors, are blamed to participate in the causation of breast carcinoma, including, hormonal imbalance, especially excess estrogen exposure, obesity, alcohol intake, lack of exercise, women who got married late and depends on exclusive bottle feeding are also at higher risk, exposure to chemical agents and radiation, and the list of risk factors includes several other controversial suggestions (7). The present study was designed to be a cross sectional study that included a cohort of Iraqi women with various breast lesions in order to make a clear insight about the true incidence rate of carcinoma and risk factors associated with development of malignant breast lesions.

Patients and methods

The study was designed to be a cross sectional study involving a cohort of 182 Iraqi women with breast mass. Patients were selected in a systemic random way from the population of patients already visiting the surgical consultation clinic and ward and oncology unit in Al-Dewaniah teaching hospital in province/ Iraq. The beginning of data collection was dated on the 20th January 2018 and ended on the 10th June 2018. The questionnaire form was based on the following:

- Sociodemographic characteristics of patients: Mainly age and marital status.
- Review of histopahologic features including, histological type, biological behavior (benign versus malignant), grade and stage of malignant tumors.

Data were collected, summarized, analyzed and presented using two software programs; these were the Statistical package for social sciences (SPSS) version 23 and Microsoft Office excel 2013. Numeric variables were presented as mean, standard deviation (SD) and range, whereas, categorical variables were expressed as number and percentage. Incidence rate of depression was expressed as percentage. Association between categorical variables was assessed using either Chi-Square test or Yates correction for continuity when more than 20% of cells have expected counts less than 5. Comparison of mean values between three groups was done using one way analysis of variance (ANOVA). The level of significance was considered at $P \leq 0.05$.

Results

This study included 182 cases of breast lesions in women with an age range of 16-72 years and a mean age of 38.79 ±12.74 years. Taking marital status into consideration, 150 (82.4%), whereas, 32 (17.6%) were unmarried. The breast lesion was situated in the right side in 85 (46.7%), in the left side in 76 (41.8%) and was bilateral in 21 (11.5%). According to

clinical behavior, 150 (82.4%) had benign lesions and 32 (17.6%) had malignant lesions, as shown in table 1. Out of 182 patients, 68 had Fibro-adenoma constituting 37.4 % out of all sample included in the present study and 45.3% out of benign cases enrolled in the current study. Twenty one had fibrocystic disease constituting 11.5 % out of all sample included in the present study and 14.0% out of benign cases enrolled in the current study. Forty four had inflammatory lesions in the form of mastitis, duct-ectasia and abscess forming 24.2% out of all sample included in the present study and 29.3 % out of benign cases enrolled in the current study. Seventeen cases had simple cyst accounting for 9.3 % out of all sample included in the present study and 11.3 % out of benign cases enrolled in the current study, as shown in table 2. Out of 182 patients, 3 had carcinoma in-situ constituting 1.6 % out of all sample included in the present study and 9.4% out of malignant cases enrolled in the current study. Twenty four had invasive ductal carcinoma constituting 13.2 % out of all sample included in the present study and 75.0% out of malignant cases enrolled in the current study. Four had invasive lobular carcinoma forming 2.2 % out of all sample included in the present study and 12.5 % out of malignant cases enrolled in the current study. One case had medullary carcinoma accounting for 0.5 % out of all sample included in the present study and 3.1 % out of malignant cases enrolled in the current study, as shown in table 3. With respect to grade of malignant lesions, 6 patients had grade I breast cancer accounting for 18.8 % out of all malignant cases included in this study, 19 had grade II breast cancer constituting 59.4 % out of all malignant cases enrolled in the current study and 7 patients had grade III breast cancer forming 21.9 % out of all malignant cases subjected to the present study, as shown in figure 1. According to stage of disease, the current study included 3 (9.4%) cases at stage 0 (carcinoma in-situ), 5 (15.6%) cases at stage I, 15 (46.9%) at stage II, 7 (21.9%) cases at stage III and 2 (6.3%) cases at stage IV, as shown in figure 2. The following study showed that patients with malignant lesions were significantly older than patients with benign lesions, 49.78±7.58 years versus 36.66±12.4 years (P<0.001), as shown in figure 4-3. The distribution of malignant and benign lesions according to 20 years intervals is shown in table 4 and figure 4. There was no significant association between age of patients and type of malignancy (P=0.779), table 5. In addition, there was no significant association between age of patients and grade of malignant tumor (P=0.842), table 6. Moreover, there was no significant association between age of patients and stage of malignant tumor (P=0.871), table 7. There was no significant association between marital status and clinical behavior of breast lesions (P=0.064). In addition, there was no significant association between marital status and type of benign lesions (P=0.176). Added to that, there was no significant association between marital status and type of malignant lesion (P=0.871). Moreover, there was no significant association between grade and stage of malignancy and marital status of patients (P= 0.584 and 0.837, respectively), as shown in table 8

Table 1: General characteristics of the study sample

Characteristic	Value
Number of cases	182
Age	
Mean ±SD (years)	38.79 ±12.74
Range (Min.-Max.) (years)	56 (16-72)
Marital status, *n* (%)	
Married, *n* (%)	150 (82.4)
Unmarried, *n* (%)	32 (17.6)
Site	

Right, *n* (%)	85 (46.7)
Left, *n* (%)	76 (41.8)
Bilateral, *n* (%)	21 (11.5)
Clinical behavior	
Benign, *n* (%)	150 (82.4)
Malignant, *n* (%)	32 (17.6)

SD: Standard deviation; Min.: minimum; Max.: maximum; *n*: number of cases

Table 2: The frequency distribution and rates of benign breast lesions

Benin lesion	*n*	% out of all sample	% out of benign lesions
Fibro-adenoma	68	37.4	45.3
Fibrocystic disease	21	11.5	14.0
Inflammatory (mastitis, duct-ectasia, abscess)	44	24.2	29.3
Simple cyst	17	9.3	11.3
Total	150	82.4	100.0

n: number of cases

Table 3: The frequency distribution and rates of malignant breast lesions

Malignant lesion	*N*	% out of all cases	% out of malignant cases
CIS	3	1.6	9.4
Invasive ductal carcinoma	24	13.2	75.0
Invasive lobular carcinoma	4	2.2	12.5
Medullary carcinoma	1	0.5	3.1
Total	32	17.6	100.0

CIS: carcinoma in-situ; *n:* number of cases

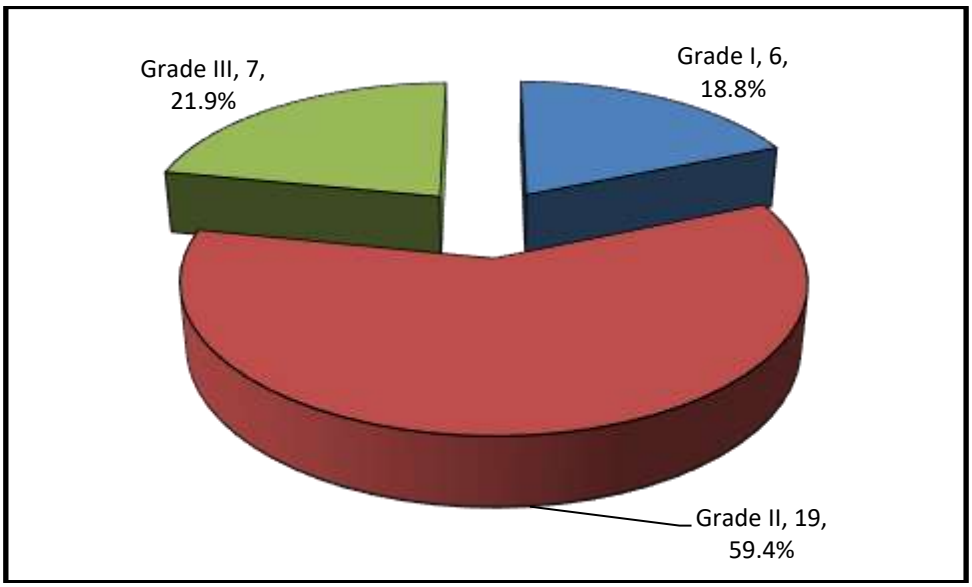

Figure 1: Pie chart showing the distribution of malignant cases according to grade

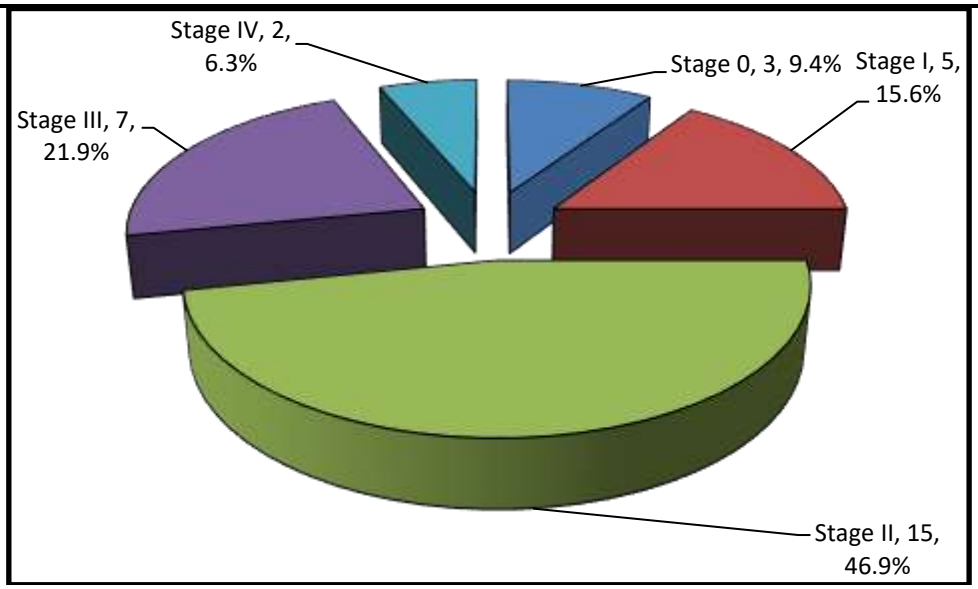

Figure 2: Pie chart showing the distribution of malignant cases according to stage

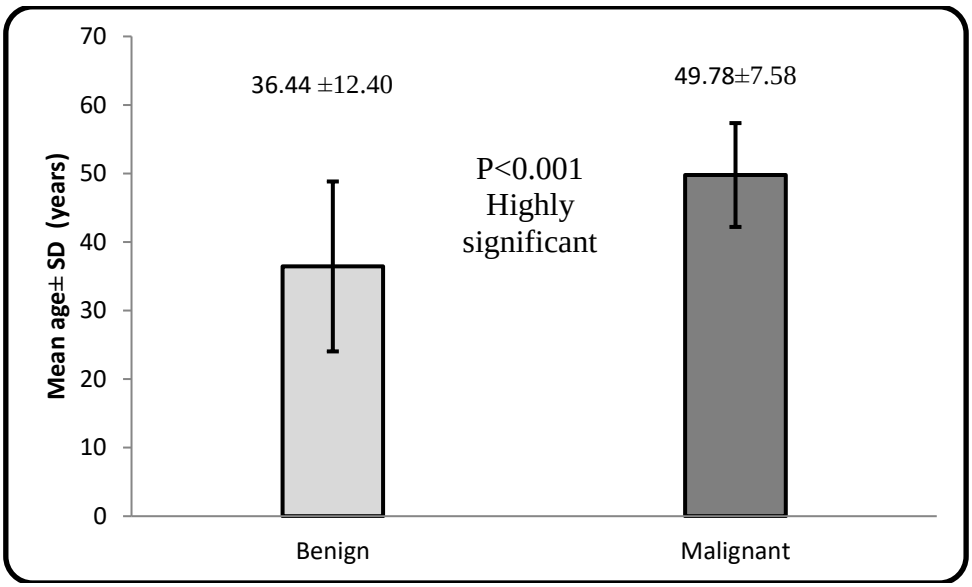

Figure 3: Bar chart showing the difference in mean age between patients with benign breast lesions and patients with malignant breast lesions

Table 4: Association between clinical behavior of breast lesions and age of the patients

Age intervals	Benign n = 150	Malignant n = 32	χ^2	*P*
≤20 years	15 (10.0)	0 (0.0)		
21-40 years	82 (54.7)	4 (12.5)	33.095	<0.001
41-60 years	45 (30.0)	27 (84.4)		Highly significant
> 60 years	8 (5.3)	1 (3.1)		

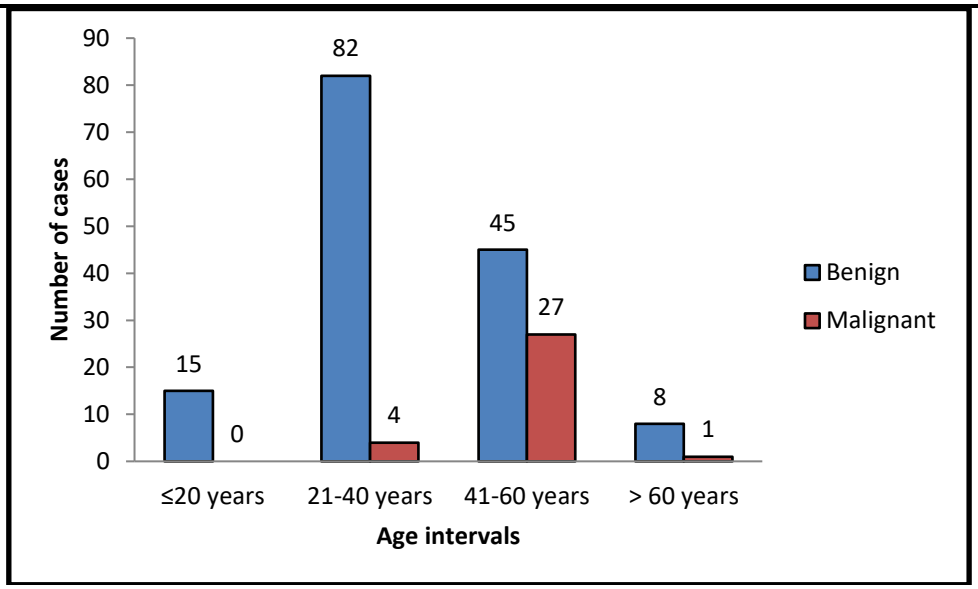

Figure 4: Histogram showing the distribution of benign and malignant cases according to age

Table 5: Association between age and type of malignant breast lesion

Malignant lesion	21-40 years	41-60 years	> 60 years	Total	Mean age ±SD	*P*
CIS	0	3	0	3	47.33 ±4.04	0.779 † Not signficant
Invasive ductal ca.	4	19	1	24	50.04 ±8.49	
Invasive lobular ca.	0	4	0	4	50.75 ±4.35	
Medullary ca.	0	1	0	1	47.00 ±	
Total	4	27	1	32	49.78 ±7.58	

† Kruskal Wallis test

Table 6: Association between age and grade of malignant breast lesion

Grade	21-40 years	41-60 years	> 60 years	Total	Mean age ±SD	*P*
I	0	6	0	6	51.50 ±5.47	0.842† Not significant
II	2	16	1	19	49.79 ±6.89	
III	2	5	0	7	48.29 ±11.12	
Total	4	27	1	32	49.78 ±7.58	

† Kruskal Wallis test

Table 7: Association between age and stage of malignant breast lesion

Stage	21-40 years	41-60 years	> 60 years	Total	Mean age ±SD	*P*
0	0	3	0	3	47.33 ±4.04	0.827 † Not significant
I	0	5	0	5	50.80 ±3.70	
II	2	12	1	15	49.13 ±8.64	
III	2	5	0	7	49.29 ±8.98	
IV	0	2	0	2	57.50 ±3.54	
Total	4	27	1	32	49.78 ±7.58	

† Kruskal Wallis test

Table 8: Association between marital status and breast lesions

Characteristic		Married	Not married	*P*†	Significance
Clinical behavior	Benign / Malignant	120 /30	30 /2	0.064	Not significant
Benign lesions	Fibro-adenoma	49	19	0.176	Not significant
	Fibrocystic disease	18	3		
	Inflammatory	38	6		
	Simple cyst	15	2		
Malignant lesions	CIS	3	0	0.871	Not significant
	Invasive ductal ca.	22	2		
	Invasive lobular ca.	4	0		
	Medullary ca.	1	0		
Grade	I	6	0	0.548	Not significant
	II	18	1		
	III	6	1		
Stage	0	3	0	0.837	Not significant
	I	5	0		
	II	14	1		
	III	6	1		
	IV	2	0		

† Chi-square test" >20 % of cells have expected count <5".

Discussion

The present study showed that the most breast lesions (82%) were benign and that among benign lesions, the most frequent one was fibroadenoma (37.4%). Malignant lesions accounted for small percentage (17.4%). Mean age of patients with carcinoma was 49.78 ±7.58 years and most all cases occurred after 20 years of age and that 87.5% of cases were seen after the age of 40. Majority of breast carcinoma were of invasive ductal carcinoma, of grade II and stage II. No significant association was seen between clinical behavour of breast mass and marital status, however, malignant clinical behavior showed significant association with age. In addition, we found no association between grade and stage of breast cancer and marital status of women, suggesting that marital status has nothing to do with prognosis of breast cancer. These results disagree with finding of Hinyard et al., who stated that prognosis is worse in unmarried than married women with breast cancer (8). A growing body of evidence shows that mortality following a cancer diagnosis is higher in unmarried than married patients (9-12). However, studies on the association specific to breast cancer are limited (13, 14). Two main pathways have been proposed to explain the benefits of marital status on cancer and overall longevity: better economic resources and greater social support (15). However, these two factors need to be investigated in our community. In one large sample study, The percentage of women who reported symptoms (out of total screened) increased clearly by age of the women, 21.8% in age-group 50–54 years and 30% in age group 65–69 years, respectively (16).

Primary breast cancer is the most common cancer afflicting women (incidence of 1/8–10), and it is the second leading cause of cancer death overall (following lung cancer) (17). Breast cancer which is detected early is curable, but it has a 10–20% chance of distant metastases occurring even 10–20 years after the initial diagnosis (18). The most common sites of breast cancer metastasis are bone, lungs, and the liver (19). Worldwide, breast cancer comprises 10.4% of all cancer incidences among women, making it the second most common type of non-skin cancer (after lung cancer) and the fifth most common cause of cancer death. In 2004, breast cancer caused

519,000 deaths worldwide (7% of cancer deaths; almost 1% of all deaths) (20). Lack of effect of marital status on the incidence rate of breast cancer should open the door to search for other important environmental hazards associated with breast cancer such as radiation in the Iraqi community. There is known to be a slight increase in risk in ladies who work with low doses of radiation over a long period of time-for example, X-ray technicians (21).

In conclusion, the present study showed that the incidence rate of malignant breast lesions in Iraqi women with breast mass is similar to that seen worldwide and that age is the main risk factor that predicts malignant clinical behavior of a breast mass. No association was reported between marital status and biologic behavior of breast mass suggesting that other possible environmental factor need to be disclosed as risk factors for breast cancer in Iraqi women in addition to age.

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