Original Article

Epidemiological, Radiological and Histological Characteristics of Breast Cancer in Patients of a Regional General Hospital in Guerrero, Mexico

Características epidemiológicas, radiológicas e histológicas de cáncer de mama en usuarias de un hospital general regional en Guerrero, México

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Summary

Objective: to estimate the frequency and to describe the epidemiological, radiological and histopathological characteristics of women with breast cancer. **Methods:** cross-sectional study in 2560 women older than 25 years who attended a hospital for a mammography during 2018. The bi-rads classification was described. The clinical records of cancer-positive patients were reviewed and information including epidemiological characteristics, mammography and histopathological study result was collected. The data obtained were analyzed in the Excel program, frequencies and percentages were studied. **Results:** the frequency of breast cancer was 2.65% (68/2560). 60% were 50 to 69 years of age, 59% were obese and 47% had a family background of breast cancer. According to bi-rads classification, 3% were B3, 45% were B4, 49%, B5 and 3%, B6. Regarding the histopathological report, 83% corresponded to infiltrating ductal carcinoma. **Conclusions**: in patients with breast cancer, the most frequent characteristics were age from 50 to 69 years, obesity and family background of breast cancer. bi-rads stages 4, 5 and 6 and infiltrating ductal carcinoma were the most frequently described.

Keywords: Neoplasms; Breast; Mammography

Resumen

Objetivo: estimar la frecuencia y describir las características epidemiológicas, radiológicas e histopatológicas de mujeres con cáncer de mama. **Métodos:** estudio transversal en 2560 mujeres mayores de 25 años que acudieron a toma de mastografía durante el año 2018. Se describió la clasificación de BI-RADS. Se revisaron los expedientes clínicos de las pacientes positivas a cáncer y se recabó información que incluía características epidemiológicas, resultado de estudio de mastografía e histopatológico. Los datos obtenidos fueron analizados en el programa Excel, se estudiaron las frecuencias y los porcentajes. **Resultados**: la frecuencia de cáncer de mama fue de 2.65% (68/2560). 60% tenía de 50 a 69 años de edad, 59%, obesidad y 47%, antecedente familiar de cáncer de mama. De acuerdo con la clasificación BI-RADS, 3% fue B3, 45% fue B4, 49%, B5 y 3%, B6. Respecto al reporte histopatológico, 83% correspondió a carcinoma ductal infiltrante. **Conclusiones**: en pacientes con cáncer de mama, la edad de 50 a 69 años, la obesidad y el antecedente familiar de cáncer de mama fueron las características más frecuentes. Los estadios de BI-RADS 4, 5 y 6 y el carcinoma ductal infiltrante fueron descritos con mayor frecuencia.

Palabras clave: cáncer, mama, mastografía

Introduction

Breast cancer is the most common type of cancer and represents the second leading cause of death from cancer among women in the Americas; in this region there are more than 462,000 new cases and almost 100,000 deaths per year due to this pathology.[1]

Mexico has remained in the first places of death in women from this cause.[2] The mortality rate is 17.19 deaths per one hundred thousand women aged twenty years or older.[3]

The risk factors that have been associated with breast cancer are: age over forty years,[2] female gender,[4,5] high intake of salt, sugar, meat, fats and saturated oils, lifestyle, age of women during their first birth, low parity, hormone replacement therapy for prolonged periods of time, early menarche or late menopause, overweight, poor breastfeeding, sedentary lifestyle, smoking, alcoholism and genetics.[2,5-8]

The basic tool for investigating breast problems is clinical breast examination in conjunction, as appropriate, with mammography, ultrasound, magnetic resonance imaging (MRI), or pathologic studies.[9]

Ultrasound is the method of choice to differentiate solid and cystic lesions, better characterize mammographic findings and better appreciate palpable breast lesions.[10] Through the mammographic screening program it has been possible to diagnose not only patients with palpable mass, its importance lies in the fact that it also detects asymptomatic patients.[11,12] The most frequent radiological finding is the mass and less frequently calcifications, simple cysts, complex cysts, mass with calcifications and mass with cysts are reported.[13-15]

The most frequent histological type is infiltrating ductal carcinoma, other types found are: infiltrating lobular carcinoma, ductal *in situ*, lobular *in situ* and Paget's disease.[16-19]

The aim of this study was to describe the epidemiological, radiological and histopathological characteristics of women with breast cancer.

Methods

A cross-sectional study conducted during 2019, including women who underwent mammography at the Vicente Guerrero Regional General Hospital No. 1, from January to December 2018.

The BI-RADS 2018 database of the radiology and imaging service of the hospital was reviewed, which had results of mammography of patients referred from different family medicine units of the Mexican Institute of Social Security (IMSS) that are distributed in different regions of the state of Guerrero.

A total of 2560 female patients over 25 years of age, who were registered in the database, were included; those who did not have the necessary information were excluded. The BI-RADS classification was described.

Subsequently, to estimate the incidence, the BI-RADS cases reported as suspicious were selected and the results of the histopathological study were sought in the pathology department of the hospital. Of the breast cancer-positive patients, clinical records were reviewed and information was collected in a data collection form that included patient characteristics (age, lactation, smoking, obesity, nulliparity, menarche, menopause, family background of breast cancer and hormone replacement therapy), mammographic study results (BI-RADS classification, type of lesion, nodular (mass) pattern, associated lesions and location) and histopathological study results (histological study of strain).

The data obtained were analyzed in the Excel program, frequencies and percentages were studied.

Current national and international ethical standards were taken into account, and the research protocol was evaluated by the local research committee.

Results

Data from 2560 patients were analyzed. The average age was 56 years, range 21 to 95. The age distribution was: 0.1% corresponded to women aged 20 to 25 years (3), 2.65%, from 26 to 39 (67), 25.7% from 40 to 49 (660), 68.9% from 50 to 69 (1765) and 6.3% were 70 years or older (163).

32.5% of the women were referred from services of the same hospital (832), 57.3%, from family medicine units located in Acapulco (1469) and 10. 1%, from family medicine units located in other municipalities and localities of the state of Guerrero (Chilpancingo, Tierra Colorada, San Marcos, Ometepec, Tecpan de Galeana, Atoyac de Alvarez, Coyuca de Benitez, Zihuatanejo, Iguala, Taxco de Alarcon and Ciudad Altamirano) (259).

The result of the mammographic study, according to the BI-RADS classification was: 2%: B0 (52), 1%: B1 (20), 81%: B2 (2085), 11%: B3 (285), 3%: B4 (69), 2%: B5 (44) and 0.1%: B6 (4).

2.6% of patients had a positive histopathological study for breast cancer (68/2560); of these, the most frequent age group was 50 to 69 years with 60% (n=41). Other characteristics more frequently found were obesity: 59% (n=40) and family background of breast cancer: 47% (n=32), see Table 1.

Of the 32 patients with a family background of breast cancer, the relationship was specified in ten cases: mother (3), sister (4), daughter (2) and aunt (1).

The mammographic study identified that, according to the BI-RADS classification, 3% were B3 (2), 45% were B4 (B4a 4% [3], B4b 12% [8], B4c 29% [20]), 49% were B5 (33) and 3% were B6 (2).

Nodules (masses) were described in the mammography in 72% of the patients (49); according to their shape, 51% were irregular (25) and the most frequent was nodules or masses with spiculated borders with 47% (23). In relation to density, 35% were medium (17), see Table 2.

Nodular or masses patterns were described, the most frequent was the spiculated irregular medium (18.3%), see Table 3.

Calcifications were observed in 42% of the cases (29); of which, the following types were found: pleomorphic in 48%

Table 1. Epidemiological Characteristics of Women with Breast Cancer

Characteristic		Frequency	Percentage
Obesity		40	59.00%
Family background of breast cancer		32	47.00%
No breastfeeding		24	34.00%
Hormone replacement therapy		18	26.00%
Smoking		15	22.00%
Nulliparity		14	21.00%
Age	26-39 years	2	3%
	40-49 years	12	18%
	50-69 years	41	60%
	70 years or older	13	19%
Menarche	9-10 years	9	13%
	11-14 years	52	77%
	15-16 years	7	10%
Menopause	26-39 years	2	4%
	40-49 years	14	27%
	50-69 years	36	69%

n=68

Table 2. Characterization of Nodules (Masses) in Mammographic Results

Characteristics	Sub-classification	Frequency	Percentage
Shape	Round	14	29.00%
	Oval	10	20.00%
	Irregular	25	51.00%
Contour	Circumscribed	10	21.00%
	Microlobulated	7	14.00%
	Masked	3	6.00%
	Indistinct	6	12.00%
	Spiculated	23	47.00%
Density	High	16	32.50%
	Medium	17	35.00%
	Low	16	32.50%

n=49

Table 3. Nodular (Masses) Patterns Found in the Mammography

Nodular Pattern	Frequency	Percentage
Spiculated Irregular Medium	9	18.30%
Spiculated Irregular High	5	10.20%
Spiculated Irregular Low	5	10.20%
Circumscribed Oval High	3	6.10%
Indistinct Oval Medium	3	6.10%
Microlobulated Oval Medium	2	4.00%
Circumscribed Oval Medium	2	4.00%
Spiculated Round High	2	4.00%
Circumscribed Round Low	2	4.00%
Circumscribed Round High	2	4.00%
Other patters	14	28.50%

n= 49

(14), amorphous in 27% (8) and linear in 24% (7).

The associated lesions described were suspicious lymph nodes, retractions, distortion of the architecture and thickening of the skin.

According to the location of the cancer: 7% was bilateral (5), 45% in the left breast (30) and 48% in the right breast (33). The localization by quadrants was described in 80% of the cases (55): 40% in the right external superior (22), 20% in the left external superior (11), 12.7% in the left internal superior (7), 10.9% in the left external inferior (6), 5.4% in the right internal inferior (3), 5.4% in the left internal inferior (3), 3% in the right external inferior (2) and 1.8% in the right internal superior (1).

Of the histological report, 83.8% corresponded to infiltrating ductal carcinoma (57), 7.3%, to ductal carcinoma *in situ* (5), 4.4%, lobular (3), 1.4%, tubular/lobular (1), 1.4%, malignant spindle cell neoplasm compatible with sarcoma of the mammary gland (1) and 1.4%, poorly differentiated metastatic carcinoma of the right breast (1).

Discussion

The frequency of breast cancer was 2.6%, which is above that reported in Mexico in 2019, when it was estimated that for every one hundred thousand women aged twenty years or more, 35.24 new cases were reported.[2]

In another study in Saudi Arabia, the incidences varied between three and eight confirmed cases per one thousand patients, during the period from 2010 to 2017.[3] This may be due to the fact that in this study the population that attended a second level hospital for screening and diagnosis was mostly 40 years of age or older (97%) and the total population of women aged 20 years or older was not taken into account, therefore, the frequency may be overestimated; even so, it is considered a very frequent problem in this state of Mexico.

Regarding the epidemiological characteristics of the patients in the present study, it was found that the most frequent age group was 40 to 69 years, and the number of cases growth with increasing age; this coincides with studies carried out in Latin America and the world.[4-8,20-23] Although age is a non-modifiable risk factor, its identification is important, since it emphasizes the need to carry out prevention and health promotion activities early on, and to carry out timely detection.

Another very frequent characteristic is obesity, which is mentioned as the most frequent modifiable factor in different articles; this is of great importance, since obesity is a public health problem that affects a large part of the population. The other characteristics identified also coincide with the different published studies.[4-8,21,22]

In the Mexican population it is described that the most frequent mammographic pattern is dispersed fibro glandular, so that the mammographic study is considered of choice for screening.[24] In the population studied, according to the BI-RADS classification, 45% of cases were B4, 49%, B5 and 3%, B6, no cases of cancer were identified in patients classified as 1 to 3, these percentages are similar to those reported in a study in Brazil, in which category 4 was 48% of the cases of cancer.[10]

Nodules or masses were described on mammography in 72% of patients, calcifications were observed in 42% of cases. The literature describes the palpable mass as the most frequent lesion, as well as micro-calcifications, non-palpable tumors and irregular borders among the non-palpable lesions, coinciding with the findings of the present study.[13,14]

According to the location of the cancer, 7% was bilateral, in the left breast, 45% and in the right breast, 48%. The localization by quadrant was

described in 80% of the cases, being the upper external right the most frequent, however, differences have been found in the search, having that the most affected side has been the left side with 52%, right side with 39.8% and bilateral with 8.2%.[13,14,15]

Of the histological report, 83% corresponded to infiltrating ductal carcinoma and 7% to ductal carcinoma *in situ*. This has been mentioned in previous studies, in which it has been shown that infiltrating ductal carcinoma is the most frequent malignant lesion, followed by infiltrating lobular carcinoma and less frequently by ductal carcinoma *in situ*.[16-19,25]

The cross-sectional design, the hospital sample without a population base and the lack of some data in the records are considered limitations of the study; however, the information presented is considered of great importance because it shows a view of breast cancer initiation and the characteristics of women with this disease in the state of Guerrero, Mexico.

Conclusions

Breast cancer was present in a high proportion of the studied population, in comparison with the national prevalence; the most frequently found epidemiological characteristics most frequently found were obesity and family background of breast cancer. Most cases occurred in patients aged 50 to 69 years. In the mammographic study it was identified that according to the BI-RADS classification, most were classified as B3, B4 and B5; and the histopathological report corresponded to infiltrating ductal carcinoma.

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