

Breast cancer in Malta – a comparative study between the year 2000 and 2010

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Abstract

Introduction: During the last decade, Malta experienced the introduction of a number of programmes and initiatives aiming to raise risk and cancer awareness on breast cancer. The aim of this retrospective study was to assess whether the rise in breast cancer awareness influenced the presentation pattern of breast cancer in Malta.

Method: The patients' records operated for breast cancer in the year 2000 and 2010 were reviewed after sourcing the list from the Pathology Department at Mater Dei Hospital. For each case demographics, laterality, surgical procedure, histology of tumour, largest histological tumour dimension, differentiation and nodal status were collected.

Results: 456 patients were studied; 171 for the year 2000 and 285 for the year 2010. Median age was 64 years (range 23-91 years) in 2000 and 59 years (range 29-96 years) in 2010. Lumpectomy or wide local excision were

carried out in 41.0% of patients in 2000 and 64.7% in 2010. Mastectomy was done in 49.7% of patients in 2000 and 27.1% in 2010. Invasive ductal carcinoma of the unspecified type was the most common histological tumour in both years (68.8% in 2000, 74.7% in 2010). Peak incidence for the histological tumour dimension shifted from pT2 in 2000 to pT1c in 2010. Mean tumour size of the invasive type decreased from 28.2mm in the year 2000, to 22.9mm in the year 2010 (p value = 0.007). Histological regional lymph node metastases decreased from 52.2% in 2000 to 45.0% in 2010.

Conclusion: Our study shows a trend of decrease in tumour size, less axillary node metastases and an increase in breast conservation surgery. Current initiatives and programmes appear to be effective at increasing breast cancer awareness.

Keywords

Breast cancer, awareness, Malta

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Introduction

During the last decade, Malta experienced the introduction of a number of programmes and initiatives aiming to raise risk and symptom awareness on breast cancer and promoting early presentation. There also has been an increase in opportunistic screening, and the national breast screening programme (BSP) was started on the 7th October 2009. Increase in cancer awareness has been shown to lead to detection and treatment at early stages and better long-term survival.¹

The aim of this retrospective study was to assess whether this rise in breast cancer awareness influenced the presentation pattern of breast cancer in Malta. For this comparative study, patients that were operated for breast cancer in the year 2000 and 2010 were analysed.

Method

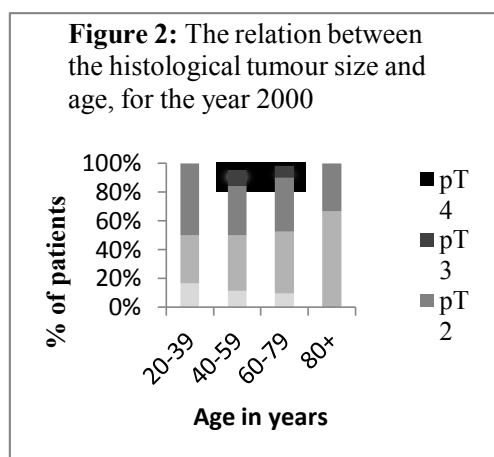
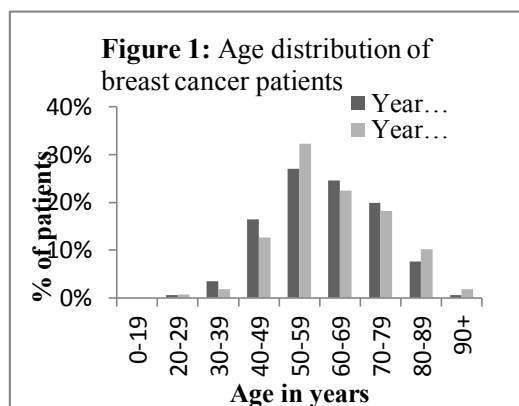
The records of patients operated for breast cancer in the year 2000 and 2010 were reviewed after sourcing the list from the Pathology Department at Mater Dei Hospital. The histologies for both years included

patients operated at St. Luke's Hospital/Mater Dei Hospital and private hospitals.

For each case the following data items were sought and documented if available: gender, age at the time of operation, laterality, surgical procedure, histological type of tumour, largest histological tumour dimension, histological differentiation and nodal status. This information was then compiled into an Excel worksheet.

Results

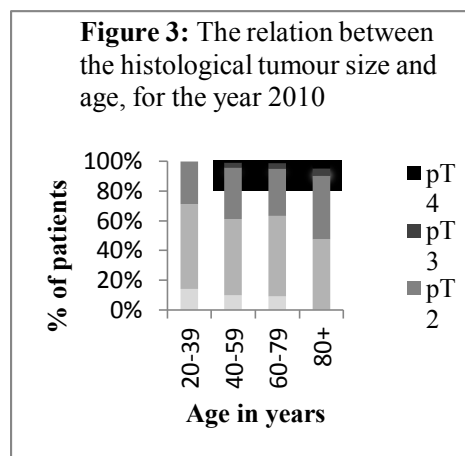
This study was conducted on 456 patients, 171 for the year 2000 and 285 for the year 2010. In the year 2000, there were 168 (98.2%) females and 3 (1.8%) males. In the year 2010, there were 283 (99.3%) females and 2 (0.7%) males that were operated for breast cancer. Figure 1 demonstrates the age distribution of these patients.



The laterality of the breast tumour was noted. In the year 2000, 86 (50.3%) patients had breast cancer in the left breast, 83 (48.5%) patients in the right breast and 2 (1.2%) patients had breast cancer in both breasts. In the year 2010, 131 (46.0%) patients had breast cancer on the left side, 147 (51.6%) patients on the right side, and 7 (2.1%) patients had breast cancer on both sides.

The following surgical procedures were performed: core biopsy or fine needle aspiration (FNA) only due to advanced age or other co-morbidities – 5 (2.9%) in 2000 and 15 (5.1%) in 2010, lumpectomy or wide local excision (WLE) – 71 (41.0%) in 2000 and 189 (64.7%) in 2010, mastectomy – 86 (49.7%) in 2000 and 79 (27.1%) in 2010, other types of operations – 2 (1.2%) in 2000 and 3 (1.0%) in 2010. There were 9 (5.2%) advanced inoperable cases in 2000 and 6 (2.1%) in 2010.

The histological details of the 464 breast tumours studied (8 patients out of the 456 patients studied had breast cancer on both sides and each were listed as 2 separate tumours) were tabulated in table 1. The largest dimension of the primary tumour (pT) and the nodal status (pN) were classified according to the Breast Cancer Staging System of the American Joint Committee on Cancer (7th edition). For the year 2010, there were 4 cases that received neoadjuvant chemotherapy and were classified according to the radiological measurements of the presenting tumour.



Histological type of tumour	Year 2000	Year 2010
Carcinoma, nos*	6 (3.5%)	3 (1.0%)
In situ carcinoma (DCIS**, LCIS***, others)	16 (9.2%)	24 (8.2%)
Invasive lobular carcinoma	14 (8.1%)	33 (11.3%)
Invasive ductal carcinoma, nos*	119 (68.8%)	218 (74.7%)
Invasive ductal carcinoma of specialised types (tubular, mucinous, others)	11 (6.4%)	9 (3.1%)
Other carcinoma	7 (4.0%)	5 (1.7%)
Primary Tumour (T)		
pTx (primary tumour cannot be assessed)	14 (8.1%)	23 (7.9%)
pT0 (no evidence of primary tumour)	0 (0%)	1 (0.3%)
pTis	16 (9.2%)	24 (8.2%)
pT1mi (\leq 1mm in greatest dimension)	0 (0%)	4 (1.4%)
pT1a ($>$ 1mm but \leq 5mm in greatest dimension)	5 (2.9%)	5 (1.7%)
pT1b ($>$ 5mm but \leq 10mm in greatest dimension)	12 (6.9%)	22 (7.5%)
pT1c ($>$ 10mm but \leq 20mm in greatest dimension)	50 (29.0%)	108 (37.0%)
pT2 ($>$ 20mm but \leq 50mm in greatest dimension)	58 (33.5%)	93 (31.8%)
pT3 ($>$ 50mm in greatest dimension)	14 (8.1%)	8 (2.7%)
pT4 (tumour of any size with direct extension to chestwall and/or to the skin)	4 (2.3%)	3 (1.0%)
Differentiation		
Unspecified differentiation	35 (20.2%)	16 (5.5%)
Well differentiation (grade 1)	24 (13.9%)	82 (28.1%)
Moderate differentiation (grade 2)	53 (30.6%)	133 (45.5%)
Poor differentiation (grade 3)	61 (35.3%)	61 (20.9%)
Nodal Status		
pNx (regional lymph nodes cannot be assessed)	60 (34.7%)	74 (25.3%)
pN0 (no regional lymph nodes metastases histologically)	54 (31.2%)	120 (41.1%)
pN1 (micrometastases; or metastases in 1-3 lymph nodes)	34 (19.7%)	61 (20.9%)
pN2 (metastases in 4-9 lymph nodes)	15 (8.7%)	27 (9.2%)
pN3 (metastases in 10 or more lymph nodes)	10 (5.8%)	10 (3.4%)

Table 1: The histological characteristics of breast tumours

Discussion

Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death in Maltese females (Malta Cancer Registry). In contrast, male breast carcinoma is rare, accounting for less than 1% of all cases of breast carcinoma.² The large difference noted between the number of cases for the year 2000 and 2010 may be attributed to the incidence of female breast cancer in Malta which had increased from 2000 to 2010. Also in 2000 the breast clinic at St. Luke's hospital had just started and by 2010 more patients were referred to this clinic where data collection is better.

A shift from mastectomy towards breast conserving surgery was noted in our study. In the year 2000, mastectomy with axillary surgery was the commonest type of operation performed but in 2010, the commonest type of operation performed was lumpectomy/WLE with axillary surgery. During the period studied, it has been accepted that the outcome after breast cancer surgery and radiotherapy is equivalent to that in patients undergoing mastectomy.^{3,4}

From the histological type of tumour point of view, there was no significant difference between the 2 years. The invasive ductal carcinoma of the unspecified type was the most common type of histological tumour in both years. A small increase in the number of invasive lobular carcinoma was noted in 2010. This coincides with other studies which demonstrates that the incidence of invasive lobular carcinoma is rising, and this is mainly attributed to increased use of hormone replacement therapy and in vitro fertilization, improved diagnostic tools and more accurate pathological classification and diagnosis.^{5,6} A small decline in the incidence of in situ carcinoma was noted in 2010.

The peak incidence for the largest histological dimension of the tumour shifted from pT2 in the year 2000 to pT1c in the year 2010. A decline in the mean tumour size of more than 5mm was also detected. The mean tumour size of the invasive type decreased from 28.2mm in the year 2000, to 22.9mm in the year 2010 (p value = 0.007). Part of this decline was found to be attributed to the effect of the national BSP. Out of the 291 tumours studied for the year 2010, 43 were detected through the BSP, and 33 of these were of the invasive type. The mean tumour size of these 33 tumours was 16.2 mm, while the mean tumour size of the other 209 tumours of the year 2010 was 23.9mm. When comparing the mean tumour size of the year 2000 (28.2mm) with the mean tumour size of the 209 patients of the year 2010 (23.9mm), the decline in the mean tumour size was also statistically significant (p value = 0.037).

The median age of patients with breast cancer decreased from 64 years (23 years to 91 years) in 2000 to 59 years (29 years to 96 years) in 2010, but this decline was not of statistical significance (p value = 0.23).

The relation between the histological tumour size and the age of the patients at the time of operation is demonstrated in Figures 2 and 3. In 2010, patients aged less than 80 years presented with a smaller breast tumour. Older patients did not

follow this pattern as a rise in the number of large breast tumours (pT2, pT3, pT4) was noted in patients aged 80 years and over. This is in keeping with several other studies which show that breast cancer awareness in older age groups is poor, and thus they are more likely to delay their presentation with breast cancer.^{7,8,9}

In our study, the peak incidence in the histological differentiation of the tumour shifted from poor differentiation in 2000 to moderate differentiation in 2010. However, there may be a bias because only 79.8% of tumours were graded in 2000, while in 2010, 94.5% were graded.

This study also surveyed axillary lymph node status. The incidence of patients with histological regional lymph nodes metastases decreased from 52.2% in the year 2000 to 45.0% in the year 2010.

Conclusion

Overall, our study shows a change in the pattern of presentation of carcinoma of the breast with a shift towards diagnosis at an earlier stage and an increase in breast conservation surgery. Current initiatives and programmes aiming to increase breast cancer awareness and early detection appear to be effective.

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