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Pure mucinous carcinoma of breast cancer in 56 Tunisian women

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ABSTRACT

Background: Pure mucinous carcinoma breast cancer (PMBC) is a relatively rare subtype cancer of breast malignancy and associated with favorable prognosis. This retrospective study aims to investigate clinical, pathological features and clinical long-term outcomes.
Methods: A retrospective review of 56 patients' files with pure mucinous breast cancer was performed. We evaluated the clinic-pathologic characteristics and survival status.
Results: The mean age was 59 years. 37 patients underwent modified radical mastectomy; 14 underwent breast-conserving surgery. The 5-years overall survival (OS) and disease free survival (DFS) rates were respectively 75,3% and 74%. According to univariate analysis for OS, age ($p = 0,049$), menopausal status ($p = 0,024$), clinical T stage ($p = 0,037$), N stage ($p = 0,002$) and pathological T stage ($p = 0,033$) were statistically significant factors for survival.
The DFS was better in postmenopausal women ($p = 0,02$), histological tumor size smaller than 20 mm ($p = 0,024$), and negative lymph nodes ($p = 0,049$).
Conclusion: Pure mucinous breast cancer has a favorable prognosis and is characterized by lower tumor grade, higher hormone receptor expression and lower incidence of nodal involvement. Thanks to its good prognosis, this subtype of cancer should be treated less aggressively than invasive ductal carcinoma.

1. Introduction

Infiltrating ductal breast cancer is the most common cancer in female patients, and the leading cancer in Tunisian women. A mucinous carcinoma is a relatively rare histological subtype of breast cancer, and accounts from 1 to 7% of all invasive breast cancers.[1,2] This type of cancer typically presents with a massive production of extra cellular mucin. It is divided into 2 subtypes, the pure type and mixed type.[3] The distinction between the 2 subtypes is based upon the quantification of cellularity. The pure type consists exclusively of tumor tissue with extracellular mucin production in over of 90% of the tumor, while the mixed form also contains an infiltrating ductal epithelial component without mucin.[4] Pure mucinous breast cancer (PMBC) is characterized by a lower incidence of nodal involvement, favorable histological grade, and higher estrogen receptor (ER) and progesterone receptor (PR) expression.[5] In fact, PMBC patients generally have a more favorable prognosis compared to invasive ductal carcinoma patients, with a low recurrence rate.

2. Patients and methods

A retrospective review was performed on patients presenting with PMBC between 1979 and 2005. We reviewed the medical records of 15,600 women with breast cancer diagnosed in our institute during the previously mentioned period. Among those patients, a total of 56 (0.3%) were recognized as having PMBC. Time to diagnosis was identified as the time between the first symptoms and the first diagnose. Menopausal status was identified after a two year period of amenorrhea. We evaluated the clinical characteristics, tumor features, stage TNM, surgical treatment, lymph node status, and the use of adjuvant treatment. We also examined the relationship between these factors and the overall survival (OS) and free disease survival (FDS) rate.

Fisher's exact test, and log-rank tests were used to compare patient and tumor characteristics, and $P < 0.05$ was considered statistically significant.

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3. Results

Our series comprised 56 women who presented with PMBC. Patient and tumor characteristics are listed in Table 1.

The mean age of included patients was 59 years (range, 20–93 years). Overall, 62.5% of patients were older than 50 years, and nine (16%) were less than 35 years of age at diagnosis. Among 56 patients in our series, 37 (66%) were postmenopausal. The laterality of the lesions was left-sided in 33 patients (59%) and right sided in 23 patients (41%). Additionally, the mean tumor size was 5 cm in diameter (range, 1–15 cm).

Mammography was performed in 45 patients. Mammographic features included a well-circumscribed mass with lobulated margin in 30 patients (66,6%) and with spiculated margin in 12 patients (26,6%) (Figs. 1 and 2).

Micro-calcifications were present in four (8.8%) patients, and were associated with mass in three cases. Mammography was normal in two cases and non interpretable in the breast-feeding patient.

Breast ultrasound examination was performed in 50 patients. Ultrasonographic imaging showed a hypoechoic lesion with heterogeneous internal echo in 30 cases, and hypoechoic lesions with posterior enhancement in 9 cases. Eleven lesions were not picked up by ultrasound.

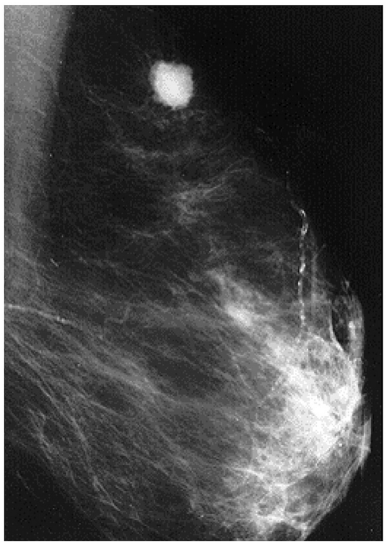

Fig. 1. Mammography showing a well-circumscribed mass with lobulated margins.

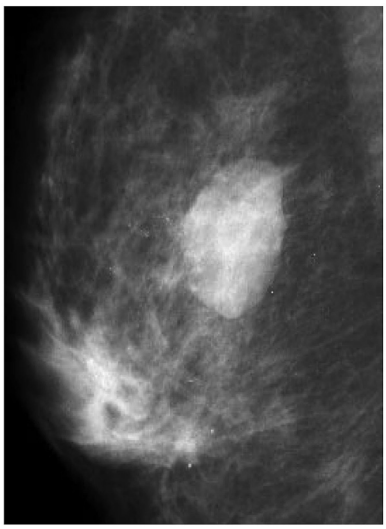

Fig. 2. Mammography showing a well-circumscribed mass with lobulated margins.

Table 1
Patient and tumor characteristics (N = 56).

Characteristics	Value
Age (years)	
Median	59
Range	20–93
Time at diagnosis (months)	
Median	10
Range	1–96
Tumor size (cm)	
Median	5
Range	1–15
Tumor stage n (%)	
T0	2 (3,5%)
T1	9 (16%)
T2	28 (50%)
T3	8 (14%)
T4	8 (14%)
Unknown	1 (1,7%)
Grade n (%)	
I	14 (25%)
II	11 (19,6%)
III	2 (3,5%)
Unknown	29 (51,7%)
Lymphovascular invasion n (%)	
Present	3 (5,3%)
Absent	48 (85,7%)
Unknown	5 (8,9%)
Hormonal receptor n (%)	
Positive	18 (32%)
Negative	2 (3,5%)
Unknown	36 (64%)
Her 2/neu status n (%)	
Positive	1 (1,7%)
Negative	14 (25%)
Unknown	41 (73.3%)
Lymph node status n (%)	
Positive	14 (28.6%)
Negative	37 (71.4%)
Primary treatment n (%)	
Radical surgery	7 (12.5%)
Radical surgery + RT	30 (53.5%)
Conservative surgery + RT	14 (25%)
No surgery	5 (8.9%)
Systemic therapy n (%)	
Hormonal therapy alone	7 (25.9%)
Chemotherapy + Hormonal therapy	15 (55.5%)
Chemotherapy alone	5 (18.5%)

Fifty-one patients (91%) underwent axillary node dissection, and 14 (27.4%) of those patients had positive nodes. The median clinical tumor size was 54 mm when the axillary lymph nodes were not involved and 67 mm if involved. No axillary nodal involvement occurred in patients with tumor less than 40 mm in diameter.

Twenty patients underwent immunohistochemistry testing for estrogen and progesterone receptors, with positive results noted in 18 of those patients. Additionally, 15 patients underwent immunohistochemistry testing for HER-2/neureceptor, with overexpression in only one patient.

Tumor was metastatic in five women when first diagnosed, and the majority of patients (64%) presented with early-stage disease. In total, 2% of patients presented as stage 0, 9% at stage I and 53% at stage II; few patients had advanced disease at diagnosis, with 23% at stage III, and 13% at stage IV.

Radical mastectomy was performed on 37 patients (72.5%), and 14 patients underwent breast conserving surgery followed by radiotherapy (27,4%).

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