

Sentinel node biopsy in male breast carcinoma: is the “female” approach justified?

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Summary

Purpose: Mastectomy with axillary lymph node dissection (ALND) represents the gold standard in the treatment of male breast carcinoma. Recently, data have emerged supporting that sentinel lymph node biopsy (SNB) may be feasible in selected patients. The aim of this study was to analyze the safety and prognostic reliability of SNB in male patients with breast carcinoma and clinically negative axilla. **Methods:** During a 10-year period (2000-2010), 11 men with mean age 66.1 years (range 34-84) diagnosed with breast carcinoma were retrospectively included to our study. All patients underwent SNB. Regardless of the SNB results, completion axillary clearance was conducted in all cases. **Results:** SNB detection rate was 100%, while the mean number of sentinel nodes removed was 1.5 ± 0.7 (range 1-2). Frozen section analysis revealed a negative sentinel node in four out of 11 patients (36.4%). Independently of these results, all patients underwent completion ALND. The overall false-negative rate, defined as the percentage of all node-positive tumors in which the SNB was negative, was 0%. **Conclusion:** The current study indicates that SNB may be feasible in selected male individuals with breast carcinoma. The technique may reduce the morbidity related to dissection of the axilla; prospective multicenter trials are needed in order to define the exact criteria for wider application of this technique.

Key words: Male breast cancer; Sentinel node; Prognostic reliability.

Introduction

Male breast cancer is a rare clinical entity accounting for approximately 1% of all breast cancers [1]. The prognosis of breast cancer in male patients is comparable to that of female patients [2, 3]. Axillary lymph node involvement represents the most important prognostic factor and it is reported to be found in more than 50% in men with T1-T2 tumors [4, 5]. Modified radical mastectomy remains the standard of care for male breast cancer patients in most institutions. However, morbidity related to axillary lymph node dissection is consistent including increased surgical time, drainage, lymphoedema and functional impotence of the arm. Data have emerged supporting that sentinel lymph node biopsy (SNB) may be feasible in selected patients, in particular those with early-stage cancer, preserving accurate staging of the disease in the axilla [6, 7]. The aim of this study was to analyze the safety and prognostic reliability of SNB in male patients with breast carcinoma and clinically negative axilla.

Materials and Methods

During a 10-year period (2000-2010), 18 men diagnosed with breast cancer were retrospectively identified from the database of our institution. From these patients, 11 men with mean age 66.1 years (range 34-84) had preoperatively clinically negative axilla and were finally included in the study. Preoperatively complete staging to rule out distant metastases had been performed. All patients underwent sentinel lymph node biopsy intraoperatively. Sentinel node identification was performed after injection of 2-3 ml diluted isosulfan blue dye in the subareolar and peritumoral area. To perform the SNB the tissue of the axillary region was

explored in search for the sentinel lymph node using an axillary incision. The sentinel node specimen was sent for frozen section examination. According to the standard procedure adopted in the department, all patients underwent axillary lymph node clearance independently of the results of frozen section diagnosis.

Follow-up included a physical examination of the breast and axilla at three to six month intervals. Statistical analysis was carried out using MedCalc version 10.2. Statistics are descriptive.

Results

Breast surgery consisted of modified radical mastectomy in nine patients (81.8%) and partial mastectomy with axillary lymph node clearance in two patients (18.2%). SNB detection was successful in all cases while the mean number of sentinel nodes removed was 1.5 ± 0.7 (range 1-2). Frozen section analysis revealed a negative sentinel node in four out of 11 patients (36.4%), corresponding to T1N0 in three cases and T4N0 in one case. The SNB was positive in seven patients (63.6%) and of those, five corresponded to Stage II breast cancer (2 patients with IIA and 3 with IIB). The overall false-negative rate, defined as the percentage of all node-positive tumors in which the SNB was negative, was 0% (Table 1). Ten patients were diagnosed with invasive breast ductal carcinoma and one with mucoepidermoid breast carcinoma. The majority of patients (45.5%) were diagnosed with Stage II breast cancer, while three patients (27.3%) had a Stage I breast cancer (Table 1). Postoperatively two patients developed autolimited bleeding. The mortality rate was 0%.

Discussion

Male breast carcinoma is an uncommon condition and many of the management recommendations are based on those used for women with breast carcinoma. Innovations

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in management for men follow those of women. The lifetime risk of having breast cancer is calculated as 0.11% in men versus 13% in women [4]. In general, male breast cancer has a less favorable outcome than its female counterpart, and crude survival is 55% for males versus 67% for females at five years [8]. The reasons for the worse prognosis are unclear, though a delayed diagnosis due to absence of screening and diagnostic attention for such a rare disease in men is conceivable.

Modified radical mastectomy remains the standard treatment of male breast cancer [5]. As in women, the involvement of axillary lymph nodes represents the most important prognostic factor. In a multivariate analysis study by Borgen *et al.*, axillary lymph node status was the most powerful predictor of outcome with 80% and 35% 10-year overall survival rates in the case of pN0 and pN+, respectively. Axillary lymph node dissection allows optimal staging and ensures approximately 98% of local control although the benefit on survival remains controversial [5]. Recent studies report that SNB may also be feasible in selected male individuals and may reduce the morbidity related to dissection of the axilla [9, 10]. Sentinel lymph node positivity is reported in 33-55% of the cases, suggesting the need for a rigorous patient selection, generally corresponding to T1N0 [6, 7, 10, 11]. SNB could be recommended in male patients with breast cancer and clinically negative axilla as a component of the surgical management [9, 10]. In our study 63.6% of the patients had positive sentinel lymph nodes and of those the 71.4% had a Stage II breast cancer. The false-negative rate was 0%. In this study SNB accurately staged the axilla in all patients and may be considered for axillary staging in patients with clinically negative axilla.

The histologic subtypes in men are comparable to those of invasive carcinoma in women. However, lobular invasive carcinoma is very rare in men [12]. In our study ten (90.9%) patients were diagnosed with invasive breast ductal carcinoma and one with a high-grade mucoepidermoid breast carcinoma with axillary lymph node metastasis. Mucoepidermoid carcinoma of the breast is a very rare type of neoplasm [13].

This study effectively evaluated the prognostic reliability of the SNB. The limitation of this study is the evaluation of the safety of the SNB. The procedure of SNB was safely performed in all the patients without any intraoperative complications and accurately staged the axilla. Postoperatively two patients developed autolimited bleeding. Since all patients underwent axillary lymph node clearance independently of the results of the SNB, the morbidity related to the SNB itself cannot be evaluated.

Conclusion

SNB is considered the gold standard for staging female patients with early-stage breast carcinoma. The current study indicates that this technique may also be feasible in selected male individuals. SNB may be considered for axillary staging in patients with clinically negative axilla. Prospective multicenter trials are needed to define the exact criteria for wider application of this technique.

Table 1. — Patient characteristics, histologic data, localization of the tumor, sentinel lymph node biopsy results and outcome.

Number of Patients	11
Mean Age (SD)	66.1 years (15.5)
Mean Length of Hospital Stay (SD)	8.6 days (4.2)
Histologic subtypes	10 IDBC, 1 MEBC
Stage I	3
Stage II	5 (2 IIA, 3 IIIB)
Stage III	3 IIIB
Localization	8 Right (3UO, 5 SA) 3 Left PA
SNB Negative	4 (3 Stage I, 1 Stage IIIB)
SNB Positive	7
Postoperative complications	2 cases of autolimited
Bleeding	
Mortality	0%

SNB = sentinel lymph node biopsy, IDBC = invasive ductal breast carcinoma, MEBC = Mucoepidermoid breast carcinoma, UO = upper outer, SA = subareolar/central, SD = standard deviation.

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