

The role of sentinel lymph node dissection in lobular breast cancer

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ABSTRACT

Lobular breast cancer represents a rare histopathological subtype of this malignancy, being characterised by a particular way of lymphatic spread. Therefore, the most widely known property of this tumor is the one of skipping certain lymphatic groups. Due to this aspect, the benefits of sentinel node identification were considered to be controversial so far. The aim of the current paper is to discuss about the indications and contraindication of this procedure in lobular carcinoma of the breast.

Keywords: lobular breast cancer, sentinel node dissection, axillary lymph node dissection

INTRODUCTION

Sentinel lymph node dissection has become the standard of care in patients with early stage breast

cancer, especially in ductal carcinomas; meanwhile, the method was also successfully implemented in patients with more advanced lesions, in cases with

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previous history of axillary surgery or after neoadjuvant chemotherapy. However, the most commonly encountered histopathological subtype which seems to benefit from this approach remains ductal invasive carcinoma (1-4); patients diagnosed with the lobular subtype are characterised by certain features such as a higher risk of presenting bilateral breast lesions as well as a higher capacity to skip certain lymphatic groups (5). Therefore, in such cases the role of sentinel node identification remained a controversial one for a long period of time (5-9).

EPIDEMIOLOGICAL AND HISTOPATHOLOGICAL FEATURES OF LOBULAR BREAST CANCER

Lobular cancer represents less than 15% of all cases of breast cancer and present few different characteristics when compared to invasive ductal carcinoma (10). Therefore, differently to invasive ductal carcinoma, lobular carcinomas are well differentiated lesions with positive oestrogen receptors and high frequency of multicentric, multifocal and even bilateral distribution; meanwhile they present a high capacity of random metastasizing at the level of different lymph node status and have a significant risk of developing distant metastases after more than 5 years from the initial diagnostic (11). Apart from the higher amounts of oestrogen and/or progesterone receptors, the c-erb-b2 expression is lower and so is the Ki67 index. Another important feature is related to the absence of E-cadherin expression; therefore the intercellular adhesion is lower and the dimensions of the tumor are usually underestimated at the preoperative imaging evaluations; in the meantime, the lower expression of E-cadherin is responsible for the capacity of these cells of conducting to the apparition of multifocal or multicentric lesions as well as of the skipping pattern of lymphatic spread (12-16).

THE RATIONALE OF SENTINEL NODE DISSECTION IN LOBULAR CANCER

Initially it has been considered that sentinel node detection in lobular cancer is a difficult procedure due to its capacity to infiltrate metastatic sites in a single pattern and due to its low grade cytomorphology, the sensitivity of the method being of less than 20% (7-8). One of the first studies which came to demonstrate the effectiveness of the method has been conducted by Creager et al. and was published in 2002 (9); the study included 678 patients submitted to sentinel node dissection for breast cancer, all cases being submitted to intraoperative imprint cytology and to standard hematoxylin-eosin and cyto-keratin immunohistochemistry. The authors report-

ed an overall sensitivity of 53%, a specificity of 98%, a positive predictive value of 94%, a negative predictive value of 82% and a global accuracy of 84%. Meanwhile, the authors underlined the fact that the sensitivity of macrometastases detection was significantly higher when compared to micrometastases detection. When it comes to lobular carcinoma, the authors underlined the fact that the sensitivity of detecting lymph node metastases by this method was similar between ductal and lobular carcinoma in regard to both micro- and macrometastases. Therefore, the authors underlined the fact that by using imprint cytology, similar rates of sentinel node detection could be observed for ductal and lobular carcinoma (9).

Another interesting study which aimed to investigate the safety and effectiveness of sentinel lymph node detection in breast cancer patients has been published in 2014 by Wang et al.; the study included 1269 patients with lobular breast cancer submitted to sentinel lymph node dissection (393 cases) and axillary lymph node dissection (876 cases respectively) (17). After a median follow up of 71 months there was no significant difference in terms of disease specific survival and overall survival between the two groups. Meanwhile the authors investigated which prognostic factors are associated with poorer long term outcomes and observed that the overall survival was particularly decreased in cases diagnosed at older ages (more than 50 years of age) and with larger lesions (T2 versus T1) while the disease specific survival was significantly influenced by the dimension of the tumor. In the respect of the above mentioned results, the authors underlined the fact that sentinel lymph node dissection can be safely performed in early stage lobular breast cancer, in such cases axillary lymph node dissection being rather unjustified (17). A similar conclusion was drawn by the study conducted by Güven et al. and published in 2018; the study included 105 patients diagnosed with lobular breast cancer who were submitted to sentinel lymph node dissection and demonstrated that tumors with larger than 2 cm diameter were significantly correlated with the presence of sentinel lymph node metastases (18).

Another study which aimed to investigate the effectiveness of sentinel lymph node identification and in the meantime of axillary lymph node dissection exclusion in lobular breast cancer was published in 2018 by Adachi et al.; the study included 3,771 breast cancer patients, 184 cases presenting lobular carcinomas and the remaining 2402 presenting invasive ductal carcinoma (19). Sentinel lymph node dissection was the option of choice in most cases, 93% of patients with lobular carcinoma

and 2,402 cases with ductal carcinoma being submitted to this therapeutic approach. Among patients diagnosed with macrometastatic deposits at the level of the sentinel nodes 68% of cases with lobular histology and respectively 46% of cases with ductal histology also associated non-sentinel lymph node metastases; moreover, the multivariate analysis demonstrated that the association of the lobular histopathological subtype and sentinel lymph node macrometastases were significantly correlated with the presence of non-sentinel lymph node metastases; therefore, in such cases axillary lymph node dissection should not be omitted (19).

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CONCLUSIONS

Although lobular breast cancer has certain particularities in terms of histopathology and patterns of spread, it seems that sentinel lymph node detection is perfectly justified in patients diagnosed with early stages; therefore, in such cases an unnecessary lymph node dissection can be successfully avoided without impeding the long term outcomes of these patients. However, cases presenting larger tumors and positive sentinel nodes – due to the presence of macrometastatic deposits – should be considered at risk and should be further submitted to axillary lymph node dissection.

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