

Original Research Article


A study on sentinel lymph node biopsy in early breast carcinoma and its outcome on management

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	International Archives of Integrated Medicine, Vol. 6, Issue 3, March, 2019. Copy right © 2019, IAIM, All Rights Reserved. Available online at http://iaimjournal.com/	
	ISSN: 2394-0026 (P)	ISSN: 2394-0034 (O)
	Received on: 28-02-2019 Source of support: Nil	Accepted on: 04-03-2019 Conflict of interest: None declared.
How to cite this article: B. Santhi, Suganeswaran. A study on sentinel lymph node biopsy in early breast carcinoma and its outcome on management. IAIM, 2019; 6(3): 201-205.		

Abstract

Background: Breast cancer is a major health problem and was among the top three most common malignancies in the world. It is the most common cancer in women. It ranks fifth among the most common causes of cancer-related death worldwide, while it is the most frequent cause of cancer-related mortality in less developed countries.

The aim of the study: The status of the lymph nodes in the axis is one of the key factors in patients with breast cancer. Histological examination of lymph nodes is the most accurate method for assessing lymph node metastasis.

Materials and methods: A prospective study conducted on 20 patients in Government Royapettah Hospital in 2018. Early breast carcinoma with clinically axillary node negative and they was all undergoing sentinel lymph node biopsy and evaluated the outcome of the report with the postoperative histopathological report.

Results: 12 cases were positive for sentinel lymph node biopsy and the postoperative report concluded the same. 8 cases were negative and hence proceeded with breast conservative surgery. Since only about 1/3rd of patients with clinically negative axilla had nodal metastases after post-operative histopathological examination of the ALND specimen, a significant number of patients would be at risk for the morbidity of ALND without benefiting from the procedure.

Conclusion: Thus Sentinel lymph node biopsy alleviates the unnecessary need of axillary lymph node dissection in clinically node-negative patients.

Key words

Sentinel lymph node biopsy, Early breast carcinoma, Management.

Introduction

According to the Surveillance, Epidemiology and End Results Program, the 5-year overall survival (OS) of patients diagnosed with breast cancer has been improving steadily over the last 20 years [1]. At present, almost 90% of patients diagnosed with breast cancer can survive up to 5 years, with survival being strongly associated with the stage of malignancy at the time of diagnosis [2]. Breast cancer is an example of how insights gained from a deep understanding of the disease natural course biology can change our approach to its treatment [3]. We have come a long way from treating breast cancer exclusively with morbid radical resections to ultraconservative

multimodal management, where systems are combined appropriately with various locoregional treatment options [4]. As a staging and therapeutic tool, axillary lymph node dissection has traditionally been an integral part of locoregional therapy of breast cancer; however, recent trends have shifted the approach from more radical axillary lymph node dissection (ALND) to a less morbid sentinel lymph node biopsy (SLNB) in those cases presenting with a clinically negative axilla (cN0) [5]. In this paper, we will evaluate the need for axillary lymph node dissection in early breast cancer in clinically node-negative patients using sentinel lymph node biopsy [6].

Table – 1: Histopathological and patterns in the study.

NO.	AGE/SEX	CLINICAL EXAM.	USG AXILLA	SLNB	ALND
1	29/F	T1 N0M0	NODE NEGATIVE	POSITIVE	DONE
2	35/F	T2NOMO	NODE NEGATIVE	POSITIVE	DONE
3	43/F	T1 N0M0	NODE NEGATIVE	NEGATIVE	NOT DONE
4	42/F	T2NOMO	NODE NEGATIVE	NEGATIVE	NOT DONE
5	36/F	T2NOMO	NODE NEGATIVE	POSITIVE	DONE
6	28/F	T1 N0M0	NODE NEGATIVE	NEGATIVE	NOT DONE
7	34/F	T2NOMO	NODE NEGATIVE	NEGATIVE	NOT DONE
8	32/F	T1 N0M0	NODE NEGATIVE	POSITIVE	DONE
9	43/F	T1 N0M0	NODE NEGATIVE	POSITIVE	DONE
10	35/F	T1 N0M0	NODE NEGATIVE	NEGATIVE	NOT DONE
11	38/F	T1 N0M0	NODE NEGATIVE	POSITIVE	DONE
12	34/F	T2NOMO	NODE NEGATIVE	POSITIVE	DONE
13	45/F	T2NOMO	NODE NEGATIVE	NEGATIVE	NOT DONE
14	41/F	T1 N0M0	NODE NEGATIVE	POSITIVE	DONE
15	29/F	T2NOMO	NODE NEGATIVE	NEGATIVE	NOT DONE
16	32/F	T1 N0M0	NODE NEGATIVE	POSITIVE	DONE
17	37/F	T2NOMO	NODE NEGATIVE	POSITIVE	DONE
18	38/F	T1 N0M0	NODE NEGATIVE	NEGATIVE	NOT DONE
19	40/F	T2NOMO	NODE NEGATIVE	POSITIVE	DONE
20	31/F	T1 N0M0	NODE NEGATIVE	POSITIVE	DONE

Materials and methods

A prospective study was conducted on 20 patients in government royapettah hospital in 2018. Early breast carcinoma with clinically

axillary node negative and they was all undergoing sentinel lymph node biopsy and evaluated the outcome of the report with the postoperative histopathological report [8, 9]. The

sentinel node excised during SLND was identified intraoperatively by lymphatic mapping using a vital methylene blue dye. 0.5ml methylene blue (1ml methylene blue mixed with 1.5 ml saline) was injected sub-areola (12'o clock, 3'o clock, 6'o clock, 9'o clock) peritumoral intradermally depending on the site of tumor location, 10-15 minutes before skin incision planned. The breast was massaged for 5 min to facilitate the identification of blue lymphatic vessels and the lymph nodes. If the primary tumor was excised previously, the dye was injected into the wall of the biopsy cavity. Approximately 5 minutes after dye injection, a transverse skin incision was made just below the hair-bearing area in the axilla. Blunt dissection was performed to identify the dye-filled lymphatic tract in the axilla. This track was then followed proximally and distally until a blue-stained sentinel node was identified with dye stain which we injected. If more than one dye-filled lymphatic tract was identified, each was followed separately. These tracts usually drained to the same sentinel lymph node.

Results

12 cases were positive for sentinel lymph node biopsy and the post-operative report concluded the same. 8 cases were negative and hence proceeded with breast conservative surgery. Since only about 1/3rd of patients with clinically negative axilla had nodal metastases after post-operative histopathological examination of the ALND specimen, a significant number of patients were at risk for the morbidity of ALND without benefiting from the procedure (**Table – 1**).

DISCUSSION

The primary aim of this study was to investigate the national incidence of SLN metastasis in pure DCIS based on the final pathology report. The secondary aim was to examine whether a more thorough examination of the tumor blocks could substitute for SLNB [7]. Our hypothesis was that SLNB was performed too liberally and also in cases that did not fulfill the National Guidelines

criteria. Interestingly, according to the registered data for patients having BCS, SLNB was performed in three out of four cases despite the criteria from the guidelines not being fulfilled [10]. During the same period, the corresponding figure for patients having a mastectomy was one out of two cases. In our study, only 0.7% of patients with a postoperative diagnosis of pure DCIS and combined with the performance of an SLNB developed SLN metastasis [11]. None of the SLN-positive patients had more than one metastasis and there were no patients with non-SLN metastases. A Dutch review of 21 studies reported an average incidence of 4% for SLN metastasis in postoperatively diagnosed pure DCIS. However, the range was wide (0-18%), possibly representing differences in tissue sampling techniques and the proportion of large samples [12]. The more extensively the tumor blocks are examined, the greater the chance that occult invasion may be revealed. This is supported by the results from our study in which occult invasion indeed was discovered after re-evaluation and additional sectioning of the tumor blocks, but was found to the same extent in both SLN-negative and SLN-positive patients. The first axillary node draining the node is designed as Sentinel Lymph Node [13]. At present, the best method to detect lymphatic spread is to analyze some of the lymph nodes in the armpit because this area is often the first place affected outside of the breast. It is thought that the sentinel lymph node (SLN) is the pivotal node that drains the breast and the tumor in a symptomatic way. SLN biopsy is a team effort requiring close collaboration between the nuclear medicine physician, surgeon, and pathologist, but is a robust procedure and works well with a variety of techniques [14]. The isotope mapping accuracy is superior to that of blue dye and, except for the most experienced centers, the success of isotope plus dye mapping is superior to that of either method alone. Isotope may be injected the day before or the morning of surgery of that particular patient. Lymphoscintigraphy is done at the discretion of the nuclear medicine physician and surgeon in a specialized center. Blue dye is injected at the start of surgery

peritumorally. The success and accuracy of SLN biopsy are comparable with a variety of injection sites (peritumoral, intratumoral, intradermal, subdermal, subareolar), injection volumes, isotope preparations, and blue dyes. SLN biopsy is done under local or general anesthesia, in the supine position, with the patient's arm abducted at 90 degrees and (at the surgeon's preference) sterilely draped into the operative field. Prophylactic antibiotics are given prior to induction [15].

Conclusion

The possibility of a tumor-positive node in clinically negative axilla is even lower for patients with small lesions. Furthermore, axillary status does not affect the selection of adjuvant therapy in approximately 40% of patients with nodal disease, although it provides important prognostic information. With the minimal risk of complications, SLND can accurately differentiate patients who would not benefit from ALND from those who would benefit from a complete axillary dissection with ALND. However, SLND should be considered as an experimental technique because its clinical efficacy has only been demonstrated in relatively few studies. Quality control is paramount for the successful application of this technique as an adjunct for the management of cancer breast.

Acknowledgments

The authors would like to thank the Professors, Associate Professor, and Assistant Professors Department of General Surgery, Govt. Royapettah Hospital, Govt Kilpauk Medical College, Chennai for helping with data collection their support for completing the research.

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