

Successful Sentinel Lymph Node Biopsy from a Case of Breast Carcinoma Using Isosulfan (Blue Dye)

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Sentinel lymph node (SLN) biopsy in breast cancer is an emerging technique that decreases surgical morbidity. SLN was successfully identified as blue node with blue lymphatic after intradermal injection of isosulfan. The breast tumor was clinically palpable having a size of 4cm in upper and out quadrant of right breast with non palpable axillary lymph nodes. The tumor malignancy was documented pre-operatively by excision biopsy. SLN biopsy offers an ideal staging procedure for early breast cancer patients. SLN biopsy is a simple, inexpensive and accurate procedure in breast cancer patients whose axillary nodes are non-palpable .

Key words: Breast cancer, Sentinel lymph node, isosulfan

Introduction

Nodal status is the first most important prognostic factor in breast carcinoma and it has a major influence when decisions are made about surgery and systemic treatment. The other mode of assessment of axillary nodal status include physical examination (Scare, 1988). Axillary dissection has been used but there has been rational claims that this method has no therapeutic benefits in node negative patients, who are at risk of its side effects; most notably lymphoedema, and to a lesser extent neuronal damage (Ivens *et al.*, 1992). The procedure is also associated with significant morbidity including shoulder dysfunction. The other factor seems to be the ability of the pathologist to retrieve the nodes from axillary fat (Cserni, 1998). This has brought the concept of sentinel lymph node biopsy (SLNB). In recent years SLNB with isosulfan (blue dye) has evolved into safe and effective alternative to axillary dissection in patients with breast carcinoma. Sentinel lymph node is defined as the first lymph node receiving lymphatic drainage from a tumor. Dye directed SLNB from breast cancer provides accurate staging with low morbidity (Collins, *et al.*, 2000). The status of the sentinel lymph node can reflect the status of other lymph node in breast cancer. SLNB has emerged as a potential alternative to routine axillary dissection in clinically node negative early breast cancer. Sentinel lymph node is not only a prognostic indicator but it also dictates whether the patient should receive further surgery and adjuvant chemotherapy (Sakorafas and Tsiotou, 2000). This paper reports the successful try of SLNB for the first time with isosulfan (blue dye) in a breast cancer patient.

Materials and Methods

Patient: The age of the patient was 60 years, the breast tumor was clinically palpable having a size of 4cm in upper and outer quadrant of the right breast with non palpable axillary lymph nodes and no distant metastatic disease. Tumor malignancy was documented preoperatively by excision biopsy (Fig. 1).

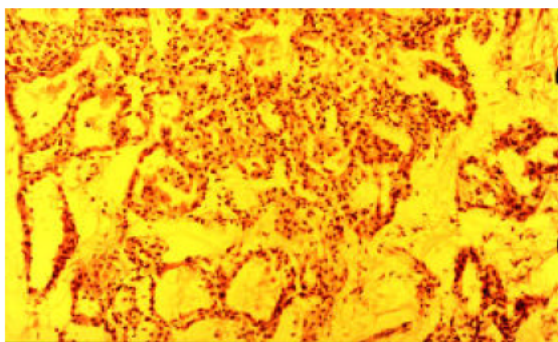


Fig. 1: Histology of breast carcinoma (H and E x 200)

Blue dye mapping technique: Under general anesthesia, an intradermal injection of isosulfan 3ml (1%) was given in the previous scar as the patient underwent excision biopsy 21 days back and there was residual tumor. After the injection a gentle circular motions of the breast were performed to improve blue dye axillary diffusion. A minimum 10 minutes rest period was observed before proceeding sequence of surgical procedure for mastectomy followed by sentinel node removal with completion of standard axillary (level I and II) clearance. The harvested sentinel node and non sentinel nodes were sent separately to pathologist.

Results and Discussion

In this study, we made a trial of isosulfan blue dye to map the sentinel lymph nodes. The sentinel lymph node was successfully identified as blue node with blue lymphatic (Cserni *et al.*, 2000). No allergic blue dye induced reaction was observed however blue staining of urine and stool for 24 hours was observed. These effects last no longer than 24 hours and were harmless.

Sentinel lymph node biopsy is an alternative to standard axillary lymph node dissection. The sentinel lymph node is the first lymph node in the afferent lymphatic drainage pathway from a tumor. The concept of regional selective lymphadenectomy with lymphatic mapping was introduced in 1992 in early-stage melanoma (Morton *et al.*, 1992) Several nontoxic mapping dyes (isosulfan, patent blue-V) have been used. Giuliano *et al.* (1994) applied this technique to breast cancer. The goal of the axillary sentinel lymphadenectomy in breast cancer is to offer a good compromise between low, acceptable morbidity and a high degree of staging accuracy to facilitate selection of patients for adjuvant therapy. This recent advance in the surgical management of breast carcinomas primarily concerns non palpable and low risk primary tumors, potentially free of axillary involvement. Sentinel lymph node biopsy was originally described in penile carcinoma (Cabanas, 1977).

Identification of a sentinel lymph node that is free of metastatic tumor cells eliminates the necessity of performing a standard axillary lymph node dissection with its attendant morbidity (Schrenk *et al.*, 2000). Using vital blue dyes, mainly isosulfan blue and patent blue-V, sentinel node localizing rates ranged from 85.6 to 93.5% (Giuliano *et al.*, 1997). Other studies suggest that the SLN can be identified in about 83-94% using vital dye alone (Bobin *et al.*, 1999). Blue dye is a visual guide leading to the sentinel lymph node (blue node). Kem (1999, 2001) reported the use of subareolar (SA) injection of isosulfan blue dye to identify breast sentinel lymph nodes. The SA injection provides direct access to a high density of subdermal breast lymphatic which results in rapid and reproducible transport of vital dyes to axillary nodes. The use of dye-only was advocated because of its simplicity and accuracy. Isosulfan blue is a non-azo organic dye developed for subcutaneous injection to delineate the lymphatic channels. Several studies have been based on the suggestion of Borgstein *et al.* (1997), that breast parenchyma and the overlying skin share their lymphatic because they are embryonically related and hence the peritumoural intradermal or periaerolar injection of the tracing agents are equivalent (Linchan *et al.*, 1999; Klimberg *et al.*, 1999).

SLN biopsy with isosulfan is a simple and inexpensive procedure and can be used for patients with invasive breast cancer having less than 5cm and clinically negative axillae.

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