Sentinel lymph node biopsy for breast cancer - Indian perspective

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Breast cancer is the most common malignancy among women worldwide. In India breast cancer is fast emerging as the leading cancer among women, replacing cervical cancer in majority of the population-based cancer registries. During the last three decades due to widespread use of screening mammography in the western world a large number of node negative, early breast cancers are being diagnosed with increasing frequency. In the early 90s to avoid the morbidity of axillary lymph node dissection (ALND) sentinel lymph node biopsy (SLNB) has been proposed as minimally invasive alternative for surgical staging of clinically node negative early breast cancer patients. Currently SLNB is being advocated as standard of care in the western world-based on the scientific evidence generated by a number of single institutional and multicentre international trials. In the recent past, the concept of SLNB is slowly catching-up in India. However, the western experience and guidelines cannot be directly extrapolated to the Indian scenario without addressing the issues pertaining to the patient profile, availability of expertise, training, quality control and cost factors.

The Indian experience in SLNB is limited with a small number of published validation studies. Parmar et al. [1] reported results of a validation study from Tata Memorial Hospital in 2003. In this study 100 node negative early breast cancer patients had a SLNB mapping using blue dye. Sentinel lymph node was identified in 77% of patients

with a false negative rate of 22.2% using frozen section and 16.6% using immunohistochemistry. The authors have also reported a 36.7% false negative rate for clinical assessment of axilla. Another validation study was performed at All India Institute of Medical Sciences (AIIMS) by Deo et al. [2]. Between 2000 and 2002, 76 node negative early breast cancer patients had a SLNB using blue dye. In this study, intraoperative imprint cytology was used for evaluation of sentinel node. The SLN identification rate was 90.4% and the sensitivity, specificity and accuracy of SLNB in predicting axillary node status was 84.2%, 100% and 91.3%, respectively with a false negative rate of 8%. The sensitivity, specificity and accuracy of intraoperative imprint cytology was 96.9%, 100% and 98.6%, respectively. In another study from AIIMS, Bassi et al. [3] reported 100% sentinel node identification rate, 90.9% negative predictive value and 10.5% false negative rate in 40 breast cancer patients using combined blue dye and radiotracer technique. In 2008, Somsekhar et al. [4] reported their preliminary experience of SLNB in 100 early breast cancer patients from Manipal Hospital, Bangalore using combined blue dye and radiotracer technique. They reported a 100% SLN identification rate with 96% sensitivity and 100% specificity, and 3.7% false negative rate.

As far as the disease spectrum of breast cancer is concerned there is a big disparity between western and Indian breast cancer patient profile. Majority of the patients in India present with locally advanced disease and positive axillary nodes due to socioeconomic factors, lack of access to quality healthcare and absence of an effective screening programme. Contrary to the reported western figures of 70% node negative early breast cancer, 60–70% of breast cancer patients in India present with locally advanced node positive disease. In an audit of 1,152 operable breast cancer patients treated in the Department of Surgical Oncology,

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AIIMS, 8% had stage I disease, 50% had stage II disease and 42% had stage III disease at presentation. Overall 61% patients had positive nodal disease on final histopathology analysis. Subgroup analysis revealed a node positivity rate 44% in early breast cancer and 85% in locally advanced breast cancer.

A successful SLNB programme requires a quality multidisciplinary team approach involving surgeon, nuclear medicine physician and pathologist with an expertise in advanced techniques. As happens with any new surgical technology there is a learning curve for SLNB. As per the American Society of Breast Surgeons guidelines a surgeon should have performed a minimum of 30 SLNB procedures with an identification rate of 85% and a 5% or lower false negativity rate before he starts offering SLNB as a treatment option to patients. A correlation has been seen between identification rate and surgical volume and also between surgical volume and patient outcome. Therefore; it has been proposed that only surgeons who routinely operate on patients with breast cancer should perform SLNB. Most of the breast cancer surgery in India is still performed by general surgeons and breast surgery as a subspecialty is still in its infancy. If strict quality control is not ensured, the potential for mismanagement of breast cancer patients in India is enormous. In order to avoid these problems surgical associations like ASI and IASO should frame guidelines for SLNB programme in India and centres with proven validation record can offer training to surgeons interested in SLNB programme. Creation of a national registry for centralised data monitoring and audit of SLNB data will help in formulating guidelines at a national level. Another important issue that needs to be addressed in a developing country-like India is the cost factors involved in a SLNB programme including the additional cost for nuclear medicine and advanced pathology services.

To conclude, SLNB is one of the major advances made in the field of breast cancer management and it has a proven role in treating early breast cancer with minimal morbidity. In developing countries like India SLNB can be applicable to 30–40% of breast cancer patient population and its role should be explored in locally advanced breast cancer patients in future because it forms the bulk of breast cancer patient spectrum. Simultaneously efforts should be made to increase the early detection of breast cancer. The role of multidisciplinary approach, training, validation and quality control are important issues which should not be neglected before offering SLNB services routinely to Indian breast cancer patients. There is also scope for exploring innovative low cost alternatives to SLNB like four node biopsy technique, SLNB using blue dye alone, intraoperative imprint cytology and focussed ultrasound with FNAC.

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