

Sentinel Lymph Node Biopsy in Breast Cancer-Should It Be the Standard of Care in India?

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Breast cancer is fast emerging as the most common cancer amongst women in India and most cancers are locally advanced at presentation. The delayed presentation of breast cancers has generally been blamed on the poor socio-economic standards and lower literacy rates in India. There is however another facet to it that is related to the awareness of health providers. In a study conducted by the author, the delays in diagnosis of breast cancer were more often due to providers rather than patients [1]. Considering the sheer burden of the disease, delayed presentation and lack of facilities in most centres, it is not likely that the minimally invasive approach to axilla i.e. Sentinel Lymph Node Biopsy (SLNB) becomes the standard of care in this part of the world in the near future [1–4].

Axillary lymph nodes are perhaps the most reliable clinical predictors of outcome in breast cancer and the survival is known to drop in their presence. In order to optimally tailor the management of breast cancer, assessment of axilla is therefore mandatory. As of now the gold standard method of assessing axilla is histo-pathological examination and all other methods need to be compared against this for accuracy and utility. This has made axillary dissections almost a mandatory part of management of breast cancer. However with the advent of SLNB, it has been made possible to

assess axilla without resorting to routine and morbid axillary dissections in node negative patients.

Halstead vs. Fisher's View and the Middle Path!!

For centuries Halstead's view that cancer spreads in a predictable manner from one to the next anatomical echelon had stood its ground. This formed the basis of extensive local surgeries where the surgeon went an extra yard to get a clear margin (*enbloc* resection) and the patient lost an organ and its function. In the 1970s however, it was proposed by Fisher that Breast cancer is a systemic disease and in spite of very aggressive local surgery, the patient would die of systemic failure. This change in paradigm brought about a significant change in the attitude of cancer surgeons and oncologists towards cancers in general and breast cancer specifically. The focus of trials shifted from merely assessing the survival to improving the quality of life by preserving the organ and its function. The role of adjunctive therapies became significant in reducing the radicality of surgery. This however does not make theory of Halstead that stood the test of time for all these years irrelevant in the present scenario? A cancer surgeon still relies on this theory in achieving R0 resection (microscopic freedom from disease) and "dirty margin" is still the most important factor contributing to the outcome. The theory is also very relevant in the setting of SLNB as it is based on the hypothesis that the lymphatics follow the anatomical pathway (i.e. from level-I to II and finally to level-III). The Fisher's view has made us understand that there indeed is a systemic aspect of the disease that would affect the ultimate outcome and we have neo-adjuvant chemotherapy (NACT) to take care of the systemic

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micro-metastases that may otherwise progress to macro stage and cause distant failure making excessive local surgery less beneficial. Like Niels Bohr said “Opposite of a true statement is a false statement, opposite of a profound truth may well be another profound truth”. We are indeed adapting the middle path for the benefit of the cancer patients.

The Existing Evidence for SLNB in Addressal of Axilla

The aim of axillary lymph node dissection (ALND) is to accurately stage the disease, maximize survival and to provide regional control. The associated morbidities include lymphoedema, restricted shoulder movements, pain, seroma formation, wound infection, numbness along the inner aspect of arm etc. The NSABP B-32 trial (that was aimed at achieving the therapeutic goals like ALND with SLNB i.e. with reduced morbidity) showed that SLNB may be a less morbid and an equally effective method of addressing axilla in node negative patients. A total of 5611 women with clinically node negative operable breast cancer were randomized to SLNB followed by ALND and to observation if the SLNB was negative. The overall survival, disease free survival and regional control were statistically equivalent in both groups. It was concluded that when SLN is histologically free from disease, Sentinel Lymph Node Dissection (SLND) alone with no further ALND is safe, appropriate and effective therapy for patients with clinically node negative breast cancer. The morbidity results also showed the obvious superiority in the second group [5, 6].

The recommendations from American Society Of Clinical Oncology (ASCO) that have been published recently showed that routine SLNB is acceptable and recommended for early stage breast cancer in clinically node negative disease [4]. There is however a debate regarding the timing of the SLND or SLNB in patients receiving NACT. According to ASCO guidelines SLND is considered an option before but not after NACT. The National Cancer Institute (NCI) conference however concluded that SLNB can be performed before or after NACT in patients with clinically node negative cancer. SLNB is associated with less than 1 % isolated axillary recurrence in node negative disease and provides an excellent regional nodal control [5, 6]. The author has published a validation study indicating the reliability of SLNB using dye alone method in patients after neo-adjuvant chemotherapy [4].

The Technical Aspects of SLNB

The SLNB can be performed both with blue dye alone and with combination of blue dye or radio-colloid (dual method). The dual method is considered superior, although studies have observed reasonable accuracy of SLNB using dye alone method in patients after neo-adjuvant chemotherapy [4]. The

tumour and patient characteristics have also been linked with the accuracy of SLNB. The ASCOSOG Z0010 trial showed that age of the patient (> 70 years), increased BMI are associated with failure of SLNB [5–7]. NSABP–B32 trial showed that the tumor location, the type of biopsy and number of sentinel lymph nodes removed affect the false negative rates of SLNB. In ALMANAC (Axillary Mapping Against Nodal Axillary Clearance) study, SLNB success was found to decrease with increasing BMI, tumor location other than the upper outer quadrant and non-visualization of hot nodes on the pre-operative lymphoscintigraphy [8]

SLNB is going to significantly affect the management of breast cancer in the near future with the paradigm shifting towards less being more. Now that many trials have more or less established it as the standard of care in node negative early breast cancer, the role of routine ALND in node negative breast cancer is being challenged. There is also a view challenging the role of ALND in providing information about the biological behaviour of the tumour and reducing the loco-regional burden. Adequate prognostic information may be obtained by the primary tumour alone and axillary lymph nodes are not the most important predictors of the outcome [4–7].

Can we implement these trials as God Gospel truths in Indian scenario? Can these trials be Indian solutions to Indian problems? The answer to these questions at present is obviously “no” but it is not good science to ignore evidence and be blinded to these very well conducted trials. We simply need to tailor them to our scenario. India is a land of paradoxes, with some of the best health care centres in the world that are looking outwards (medical tourism) rather than inwards and some very basic and almost primitive health care providing centres where it may be considered embarrassing to even discuss the concept of SLNB. The key, however is to get the cancers early and screening programmes using local methods and resources with some involvement of governmental and public awareness groups can play significant roles [9]. India is an evolving and emerging economic giant and the whole world is looking in this direction. It is more about “bankruptcy of thoughts” rather than true poverty that is blocking us from making these strides in health care that we truly deserve. SLNB will therefore become the standard of care in the very near future and we will be offering cure by detecting our cancers early.

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