Editorial

The Sentinel Node Debate in Breast Cancer

Although somewhat of a misnomer, the 'sentinel node idea' has taken the community of breast cancer surgeons by storm. It is a misnomer because extensive anatomical studies have not found any solitary lymph node in the axilla into which the lymphatics of the breast drain; and there is no mention of a sentinel node (SN) in *Gray's anatomy*. Rather, lymphatic channels of the breast communicate extensively and drain into several nodes in the axilla that belong to the first echelon.[1] Consequently, after sentinel node biopsy (SNB), only in approximately 50% of the SNB-positive cases are metastatic cells found to be confined to a single 'sentinel' lymph node.[2] Similarly, although SNB implies a targeted surgical procedure, it has been observed that more the number of 'sentinel' nodes removed, the lower is the false-negative rate.[3] Nonetheless, the idea cannot be faulted that women who have a clinically negative axilla and a relatively small primary tumour could be spared a complete axillary lymph node dissection (ALND) if their SNB proves to be negative. It is noteworthy, however, that although SNB is now widely practised, only one controlled trial with low power and short follow up has so far been published to detect any possible survival difference between SNB and ALND.[4]

Four methods have been used for identification of SN at surgical biopsy:

1. the use of a gamma counter (probe) after injecting ^{99m}technetium-labelled sulphur colloid over the skin of the breast;
2. identification of a SN after injecting a blue dye (isosulphan or methylene blue);
3. blue dye-guided axillary sampling; and
4. blind low axillary sampling.

Although a combination of the isotope and blue dye methods is the recommended practice in most western countries,[5] a randomized clinical trial that compared blue dye alone with the blue dye and isotope method found no difference in performance between the 2 methods.[6] Thus, the blue dye method that obviates the use of radioactivity and expensive gadgetry seems to be an acceptable alternative for resource-poor countries. The blue dye-guided axillary sampling is less targeted and removes the blue node(s) as well as any glands that appear suspicious on palpation. The last method of blind axillary sampling or '4-node sampling' was first tested over 2 decades ago and found that the axilla can be adequately staged if 4 axillary nodes are removed.[7,8] This finding has since been confirmed by others.[9]

In this issue of the *Journal*, Deo *et al*.[10] argue that the western experience with SNB should not be extrapolated to the Indian environment, which is not yet ready for routine use of SNB. One of the main arguments that the authors put forward is that the vast majority of Indian patients present in advanced stages of breast cancer in whom SNB is not applicable, and that Indian women are more concerned about disease recurrence than issues of morbidity and cosmesis. While the latter argument is debatable, even in the absence of mammographic screening, many women in India do present with a clinically negative axilla and a relatively small tumour and thus could receive the benefit of SNB. The authors further argue that since axillary nodal status is the dominant determinant of adjuvant systemic therapy, a complete axillary dissection is to be preferred. However, in today's times, and by international

convention, all women with tumours >1 cm (except those that are strongly oestrogen receptor-positive) should receive adjuvant chemotherapy.[11] Thus, SNB does not in any way interfere with systemic treatment. The argument that few surgeons in India are fully trained to undertake SNB is valid; but this was the case with breast conservation therapy 10 years ago. Yet today, many surgeons outside established cancer centres are successfully practising breast conservation therapy. New techniques have to be learnt, and admittedly a certain learning curve is inevitable. But that should not deter us from our endeavour to deliver a potentially less morbid procedure to our patients.

With respect to techniques of SNB, many centres in India are not equipped with nuclear medicine facilities and a gamma probe. But, as discussed above, while the dual method is to be preferred, randomized controlled trials have shown the blue dye method to be as effective as the combined one, and that 4-node sampling is an adequate method for staging the axilla.[9] In fact, over half the surgeons in the UK currently prefer the blue dye-guided sampling method,[12] although a nationwide training programme on the use of the combined technique has been initiated.[13] Thus, there is no reason why centres in India that do not have facilities for the isotope technique for SNB should not undertake a blue dye-guided sampling or a low axillary 4-node sampling. Naturally, our pathologists need to be trained; but again, immuno-histochemical (IHC) identification of SN metastasis is not essential and multiple haematoxylin and eosin sections are adequate if more than 3 lymph nodes are removed.[14] However, a word of caution—we must ensure that SNB is not used indiscriminately; there is evidence that false-negativity of SNB increases with increasing size of the primary tumour.[15] Since the majority of randomized controlled trials have used a cut-off tumour size of 3 cm, it may be prudent to use this tumour size as a selection criterion for our patients. To conclude, what is ideal should not be the enemy of what is possible.

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