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Optimizing the Localization Dimension of Targeted Axillary Dissection: Beyond Sentinel Node Mapping

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Dear Editor,

I read with great interest the article by Pelegrina-Perez *et al.*[1] in the *Archives of Breast Cancer*, the first evaluation of indocyanine green (ICG) fluorescence as an adjunct mapping agent during targeted axillary dissection (TAD). ICG identified 40.0% of sentinel lymph nodes (SLNs) exclusively. It also detected 2 metastatic nodes that the radiotracer alone would have missed. These findings offer useful evidence for ICG as a complementary modality in axillary staging after neoadjuvant therapy (NAT). I wish to highlight 1 dimension that warrants further discussion.

TAD, as originally described by Caudle *et al.*[2], comprises 2 equally important components: targeted excision of the previously clip-marked node and adequate SLN sampling. In my view, the 2 are not interchangeable. Pelegrina-Perez *et al.*[1] addressed the second through ICG integration, but the first, clip-marked node localization and retrieval, remains relatively underexplored. In their cohort, the clipped node was not identified in 1 of 21 patients (4.8%), and the implications were not explored in detail.

This point may merit brief comment. In the original TAD study, Caudle *et al.*[2] reported that the clipped node was not retrieved as an SLN in 23% of patients. Six of these had negative SLNs, but metastasis was confirmed in the clipped node. Adding evaluation of the clipped node reduced the false-negative rate (FNR) of sentinel node surgery from 10.1% to 1.4%. The ACOSOG Z1071 trial by Boughey *et al.*[3] reported an FNR of 12.6% for SLN biopsy alone after NAT in clinically node-positive patients. The clipped node can harbor the only residual metastasis when sentinel nodes are negative. For this reason, the single retrieval failure reported here may bear on staging completeness, and it would be informative to know whether SLN biopsy alone was judged to be sufficient in that patient or whether completion dissection was undertaken.

Pelegrina-Perez *et al.*[1] used preoperative guidewire placement for localization. A recent systematic review by de Wild *et al.*[4] identified 6 definitive markers for TAD. The review distinguished 1-step procedures (marker placed before NAT) from 2-step procedures (placed after NAT), noting that 2-step approaches carry a risk of failing to identify the clipped node on post-NAT imaging. The guidewire technique used here is a 2-step procedure. The observed retrieval failure may therefore relate, in part, to the recognized challenges of post-NAT localization.

The choice of localization method appears to influence retrieval success. Mactier *et al.*[5] reported 100% clip-marked node retrieval with Magseed-localized TAD versus 91.4% without localization. SLN concordance was 85.8% with localization but only 66.7% without it. This near 20-percentage-point gap suggests that SLN mapping alone may not reliably capture the clipped node. Coogan *et al.*[6] reported a 97% retrieval rate (31 of 32) with radar reflector localization placed before chemotherapy, supporting a 1-step approach. Comparable identification rates have been achieved with combined imaging-guided localization, radioisotope occult lesion localization, and SPECT/CT lymphoscintigraphy.[7–9] Localization strategy, therefore, merits consideration alongside the mapping technique.

Two further points deserve brief mention. First, the authors reported a median of 3 SLNs per patient (range, 1–7). de Wild *et al.*[4] cautioned that excising more than 3 SLNs risks “node-picking,” which may

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add morbidity without proportional gain in accuracy. The removal of 7 nodes in 1 patient may suggest that ICG-enhanced mapping, without a defined stopping rule, could shift TAD toward a more extensive dissection. Second, node-by-node histopathological matching between the detection method and individual nodal pathology was not performed, so the diagnostic accuracy of ICG cannot be determined from the present data.

In closing, I commend Pelegrina-Perez *et al.*[1] for their pioneering work. Future studies may benefit from reporting both components of TAD (SLN mapping and clip-marked node retrieval) and from comparing ICG-enhanced mapping alongside various localization techniques. Such reporting would provide clearer guidance for varied clinical settings.

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CONFLICT OF INTEREST

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ETHICAL CONSIDERATIONS

Not applicable.

AI DISCLOSURE

In preparing this manuscript, the author used Claude (Anthropic) only for language refinement. The author reviewed and edited all content and takes full responsibility for the accuracy and integrity of the final manuscript.

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