Drs. North and Spellman concisely review the role of sentinel node biopsy in the management of patients with malignant melanoma and provide an excellent summary of the current state of this technique. A number of comments should be made about this review. These comments relate to (1) the technical aspects of the procedure and (2) its clinical indications.

Technical Aspects
With regard to the former, I disagree with the authors' contention that lymphoscintigraphy is unnecessary in the management of patients with extremity melanoma. In about 5% of patients with extremity melanoma, lymphatic drainage is found to be other than anticipated based on anatomy alone. Lymphoscintigraphy clearly defines these abnormal drainage patterns. More importantly, lymphoscintigraphy is a prerequisite for the use of a hand-held gamma counter to precisely locate the sentinel node; even in the setting of a predictable nodal drainage pattern, preoperative lymphoscintigraphy with intraoperative use of the hand held gamma counter markedly shortens the length of time required to find the node, lessens the extent of dissection required, and, after removal of the sentinel node, permits counting over the nodal basin to detect relevant residual nodes. Furthermore, as demonstrated by Reintgen's group, the combination of blue dye and radioisotope leads to a higher success rate in the detection of the sentinel node [1].

The timing of the radioisotope injection relative to surgical dissection is important. Most investigators would agree that the ideal interval is between 1 and 4 hours. In the series of Krag et al, a number of patients had the injection up to 24 hours prior to surgery [2]. This long interval may permit "pass through" of radioisotope into second-echelon nonsentinel nodes. If one uses the hand-held gamma counter to ensure that all significant radioactivity has been removed from the nodal drainage basin, this can lead to excision of multiple second-echelon nonsentinel nodes.

As the authors note, McCarthy et al have criticized the choice of colloid used. Although it is true that sulfur colloid has particles of varying size, the larger particles can easily be excluded from the injection at the primary site by microfiltration with a 22- or 10-mcm filter. We have found this technique to be quite satisfactory, and associated with prompt migration of the isotope. Antimony, advocated as an alternative by McCarthy et al, is not currently available in the United States and is not widely used.

The authors describe the amount of blue dye injected at the primary site as 2 to 3 mL. In most instances, very satisfactory staining of the afferent lymphatics can be achieved with a much smaller injection, ie, 0.5 to 1.0 mL. This minimizes tissue staining at the site of the primary, decreasing the likelihood of locally persistent dye after wide excision.

The role of immediate "frozen-section" immunostaining of sentinel nodes also is as yet undefined. At centers where this procedure is not done routinely, it is unlikely that pathology departments will commit to the overhead necessary to have this investigation available, particularly as it does not seem to have an impact on long-term regional control or survival. It would appear that, for most centers, immediate frozen section with hematoxylin and eosin (H & E) staining is appropriate, reserving immunohistochemical evaluation to be done subsequently on the permanent sections. If the sentinel node is found to contain metastatic disease on subsequent evaluation by either permanent section H&E or immunohistochemical staining, there does not appear to be any detriment to the patient going back and performing a selective lymph node dissection at that time. Indeed, immediate frozen section of the node may be unnecessary. Moreover, there may be
some advantage to omitting it in terms of minimizing the exposure of pathology personnel to the radiocolloid contained in the sentinel node.

It is important to emphasize that the accuracy of sentinel node staging of a regional lymph node basin has been validated by completion elective lymph node dissection only in patients who have had biopsy or local excision of their primary. Although the procedure may be valid in patients who have undergone prior wide excision, this has not yet been proven, and it is unlikely that sentinel node staging will be validated in this setting. Those patients who have undergone sentinel node staging following definitive wide excision will need to be monitored closely for the possibility of subsequent regional failure in the sentinel node basin.

**Indications Still in Evolution**

Finally, as with any new technology, the indications for and role of this technique in the management of patients with intermediate-thickness cutaneous melanoma continue to evolve. Clearly, one important question relates to the impact of this technique on long-term survival. Morton and colleagues are attempting to address that question in an ongoing prospective randomized trial sponsored by the National Cancer Institute.

North and Spellman state that intraoperative lymphatic mapping and sentinel node biopsy should be performed only within the context of a clinical trial. If the only question to be asked about this technique were its impact on survival, one would have to agree with that statement. However, that is not practical. In order to accrue patients to the intergroup trial, surgeons need to have demonstrated competency in the technique with 15 consecutive patients. Most patients with intermediate-thickness melanoma in this country are not cared for by surgeons with that level of sustained experience. The technique of combining blue dye with radiocolloid is simple and easily learned, and the expectation is that this technique will become widely disseminated under the aegis of improved patient care long before its impact on survival is known.

It is extremely useful to patients presenting with intermediate-thickness melanoma to have their nodes pathologically staged. This enables the treating physician to offer them a much clearer statement about the long-term prognosis of their particular melanoma. Thus, as pathologic staging can now be performed with much less than a full lymph node dissection, sentinel node biopsy will become increasingly accepted as the standard of care for these patients. Finally, although Kirkwood et al were unable to show that the benefit of postoperative adjuvant immunotherapy was any different in patients with clinically occult nodal metastases than in those with clinically apparent nodal metastases,[3] intuitively this is an appealing concept that needs to be investigated further.

The importance of Morton's contribution to the field of surgical oncology cannot be overstated. He has focused our attention on the process of early metastatic disease to regional nodes. The advent of sentinel node biopsy has enabled us to ask the pathologist and molecular biologist to focus an intense investigation on the initial draining node in an effort to define the biology of these tumors. Our expectation is that the role of this technique will continue to expand, not only within the field of melanoma but also in other malignancies.

**References:**


**Source URL:**

http://www.physicianspractice.com/review-article/role-sentinel-node-biopsy-management-malignant-melanoma-1

**Links:**