Sentinel node biopsy in breast cancer

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Background. *Sentinel lymph node (SLN) biopsy is rapidly emerging as the most significant advancement in surgical treatment of breast cancer since the initiation of breast conservation treatment. SLN biopsy can accurately identify the node-positive patients who require axillary dissection, and spare node-negative patients an operation from which they would not have any benefit.*

The procedure is highly multidisciplinary, requiring close cooperation between nuclear medicine, surgery and pathology. It poses a new set of technical issues for each specialty, of which none has been completely resolved. Therefore, it needs to be cautiously audited during the implementation. It is generally accepted that every surgeon who wants to perform SLN biopsy should do his/her own personal series of SLN biopsies and backup axillary dissection in at least 30 cases, with a success rate of at least 90% and false negativity rate of maximum 3%. We are presenting the personal series of a single surgeon (M.S.).

Patients and methods. *We included 36 female T_{1-2} N , breast cancer patients in the study. They all received an injection of 1ml ^{99m}Tc sulphur nanocoloid of 60 MBq activity into and around the tumor. Two hours after the injection the lymphoscintigraphy was done and the projection of SLN was marked on the skin. The patients were referred to the operating room within 24 hours after the injection at the latest. There, they were injected again with 1 ml of Patent Blue peritumorally or intratumorally. After 3-5 min, an intraoperative gamma probe was used for the identification of SLN. Surgical incision was made on the spots where the skin marks had been made and blue nodes showing afferent and/or hot nodes were excised. After having retrieved the SLN, the backup axillary dissection was done. Formalin-fixed, in toto paraffin embedded SLN were cut to three or five levels. The slides were stained, additionally to HE, immunohistochemically by CAM5.2 and CK MNF116.*

Results. *Lymphoscintigraphy was done in all 36 patients. In 4 patients, we could not present SLN preoperatively. SLNs could be found in all patients after the injection of Blue Dye. We retrieved 54 SLNs (average 1.5 SLN/patient); of these, 36 SLNs were hot and blue, 9 only hot and 9 only blue. Three SLNs in three different patients were in the region of internal mammary artery while the rest were in the axilla. In 17 patients, 19 SLNs were histologically positive and 9 of these had only micrometastases. In all cases, backup axillary dissection was done. On average, 16.8 lymph nodes were retrieved per patient. In only five cases of SLN positive patients, additional positive lymph nodes were found in the axilla. When a negative SLN was found, no positive nodes were detected in the axilla.*

Conclusion. *SLN biopsy in this personal series of breast cancer patients proved to be a safe and accurate method to predict negative axillary lymph nodes. In our series, there was no false negatives. The identification of SLNs with lymphoscintigraphy and Blue Dye was successful in all cases.*

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