

## **Clinical Significance of the Lymphoscintigraphy in the Evaluation of Non-axillary Sentinel Lymph Node Localization in Breast Cancer**

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### **Abstract**

*Background:* Identification and biopsy of the sentinel lymph node (SLN) in early-stage breast cancer (T1-T2N0) has become the standard method in the surgical treatment of the axilla, due to its accuracy in the evaluation of axillary lymph node status, thus avoiding extensive axillary lymph node dissection in patients with negative SLN. The aim of our study is to highlight the role of <sup>99m</sup>Tc-nanocolloid lymphoscintigraphy in the preoperative lymphatic mapping, especially for SLN localizations outside the axilla, as well as the benefits of this technique in the accurate staging of breast cancer.

*Materials and Method:* 430 patients (age 31-81 years) with breast cancer (T1-T2N0 stage) were included in the study group, who underwent lymphoscintigraphy in order to identify the sentinel lymph node in the Nuclear Medicine Department of "Prof. Dr. Al. Trestioreanu" Institute of Oncology, Bucharest, between October 2008 - July 2014. Radiocolloid (<sup>99m</sup>Tc-nanocolloid) was injected using peritumoral or periareolar intradermal technique, doses between 20-37 MBq (0.3-0.5 ml volume), followed by static and dynamic post-injection acquisitions. Intraoperative identification of the SLN was performed using a gamma-probe, guided by the skin marker performed preoperatively after completion of lymphoscintigraphy.

*Results:* 697 sentinel lymph nodes were identified through imaging techniques in 427 patients (99%). Of them, 364 patients had axillary localization of the SLN, while 48 patients (11%) had non-axillary (pectoral, internal mammary, supraclavicular, intra-mammary) localization and 15 patients (3%) had multiple localization (axillary and non-axillary). Intraoperative histopathological exam revealed lymphatic invasion in 74 SLN (12% macrometastases and 88% micro-metastases).

*Conclusions:* The identification and biopsy of the sentinel lymph node in stages I and IIA is a useful routine for accurate breast cancer staging, suited for axillary lymphatic drainage, as well as for unusual non-axillary SLN localization, guiding the clinician for further postoperative management of these patients.

**Key words:** breast cancer, sentinel lymph node biopsy (SLNB), axillary lymph node dissection (ALND)

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