

## Mammary lymphoscintigraphy with various radiopharmaceuticals in breast cancer

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Sentinel node biopsy (SNB) in breast cancer is a promising surgical technique that avoids unnecessary axillary lymph node dissection. To optimize lymphatic mapping with radiopharmaceuticals, mammary lymphoscintigraphy with 30–50 MBq of technetium-99m-diethylenetriamine pentaacetic acid human serum albumin ( $^{99m}\text{Tc}$ -HSAD), technetium-99m-human serum albumin ( $^{99m}\text{Tc}$ -HSA), or technetium-99m-tin colloid ( $^{99m}\text{Tc}$ -TC) were investigated in 69 cases of primary breast cancer. Dynamic early images were obtained during the first 30 or 40 minutes, and static delayed images were obtained 6 hours after tracer injection. Hot spots as sentinel lymph nodes (SLNs) appeared in 51 of 69 cases (74%): in early images in 27 cases and in delayed images in 24 cases. SLNs were visualized more frequently in 23 of the 26 cases (88%) treated with  $^{99m}\text{Tc}$ -HSAD and in 21 of the 24 cases (88%) treated with  $^{99m}\text{Tc}$ -HSA than in only 7 of the 19 cases (37%) treated with  $^{99m}\text{Tc}$ -TC. In 26 of the 51 cases, SLNs were identified as faint spots in delayed images. There was a significant difference in the first appearance of SLNs on the lymphoscintiscan between 43 cases of dense breast parenchyma and 26 cases of fatty breast parenchyma. These results suggest that  $^{99m}\text{Tc}$ -HSAD or  $^{99m}\text{Tc}$ -HSA is acceptable for lymphatic mapping, but in cases which have faint spots in delayed images or fatty breast parenchyma, gamma probe-guided SNB may result in failure or misleading false-negative SLNs.

**Key words:** breast cancer, sentinel lymph node, lymphoscintigraphy, breast parenchyma