Sentinel Node in Oral Cancer: The Nuclear Medicine Aspects. A Survey from the Sentinel European Node Trial


PURPOSE
Nuclear imaging plays a crucial role in lymphatic mapping of oral cancer. This evaluation represents a subanalysis of the original multicenter SENT trial dataset, involving 434 patients with T1-T2, N0, and M0 oral squamous cell carcinoma. The impact of acquisition techniques, tracer injection timing relative to surgery, and causes of false-negative rate were assessed.

METHODS
Three to 24 hours before surgery, all patients received a dose of Tc-nanocolloid (10-175 MBq), followed by lymphoscintigraphy. According to institutional protocols, all patients underwent preoperative dynamic/static scan and/or SPECT/CT.

RESULTS
Lymphoscintigraphy identified 723 lymphatic basins. 1398 sentinel lymph nodes (SNs) were biopsied (3.2 SN per patient; range, 1-10). Dynamic scan allowed the differentiation of sentinel nodes from second tier lymph nodes. SPECT/CT allowed more accurate anatomical localization and estimated SN depth more efficiently. After pathological examination, 9.9% of the SN excised (138 of 1398 SNs) showed metastases. The first neck level (NL) containing SN+ was NL I in 28.6%, NL IIa in 44.8%, NL IIb in 2.8%, NL III in 17.1%, and NL IV in 6.7% of positive patients. Approximately 96% of positive SNs were localized in the first and second lymphatic basin visualized using lymphoscintigraphy. After neck dissection, the SN+ was the only lymph node
containing metastasis in approximately 80% of patients.

CONCLUSIONS
Best results were observed using a dynamic scan in combination with SPECT/CT. A shorter interval between tracer injection, imaging, and surgery resulted in a lower false-negative rate. At least 2 NLs have to be harvested, as this may increase the detection of lymphatic metastases.

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