Interesting image

Sentinel node identification with a portable gamma camera in a case without visualization on conventional lymphoscintigraphy and SPECT/CT

Identificación de un ganglio centinela con gammacámara portátil en un caso sin visualización mediante linfogrammagrafía convencional y SPECT/TC

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A 53-year-old female patient with a cutaneous melanoma located on the right preauricular area (Fig. 1) (panel A upper left) was sent to our facility for lymphatic mapping and sentinel node localization. After 4 intradermal injections of 74 MBq of the hybrid radioactive and fluorescent tracer ICG-99mTc-nanocolloid planar images were performed. At 2 h after injection these images did not reveal any lymphatic drainage (A upper central). Subsequent SPECT/CT with volume rendering (A upper right) nor axial SPECT/CT (A lower row) could separate any potential node uptake from the injection site either (A lower row). Before considering a second tracer injection a portable gamma camera (Sentinella S102; Oncovision, Spain), was used to assess potential lymphatic drainage.

A first image was obtained at 15 cm from the injection place (B upper left). Four spots corresponding to every tracer depot were observed. An image at 5 cm from the lower part of injection area (B upper central) showed a faint blue shadow close to the injection site. Placing the gamma camera closer to above mentioned zone revealed a well-defined hot spot, clearly apart from the injection site, suggesting uptake in a sentinel node (B upper right) and its position was marked on the skin (B lower left). During the surgical procedure another image was obtained with the portable gamma camera (B lower central). A 125I pointer device was used to indicate the exact site of the sentinel node (white blurred spot on B lower right). At the same location indicated by the portable gamma camera a sentinel node was found and removed assisted by a gamma ray detection probe and fluorescence camera as previously described.

Lymphatic drainage from this area is expected in levels Ib and IIA-b. Generally, SPECT/CT offers a higher sensitivity than planar images and excellent anatomical correlation. However, in preauricular melanoma sentinel nodes can be located very close to the injection site and in this case a rare non-visualization scenario (neither by lymphoscintigraphic images nor by SPECT/CT) was encountered. Although not yet routine practice, intra-operative visualization of sentinel nodes with a portable gamma camera is feasible and might improve intra-operative detection of sentinel nodes in the head and neck region.

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Fig. 1. Sentinel node identification using a portable gamma camera in a case of non-visualization with conventional lymphoscintigraphy and SPECT/CT. Panel A: Preoperative lymphoscintigraphy and SPECT/CT fail to visualize lymphatic drainage in a patient with a preauricular melanoma. Panel B: Placement of a portable gamma camera in close proximity to the injection site reveals clear uptake in a sentinel node which was subsequently removed aided by a 1125 pointer device.

References