

# Investigating added value of freehand SPECT in sentinel node biopsy of melanomas

Constantin Lapa, Jakob Säckl, Andreas Rieger, Christina Blümel, Asli Okur, Thomas Wendler, Marc Martignoni and Klemens Scheidhauer

## Abstract

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**Objectives** Generate preliminary data for setting up of a comparison study between sentinel node (SN) biopsy with gamma probe (GP) alone and with new freehand SPECT (FH) system.

**Methods** Up to date 19 of 20 patients (30-74y) undergoing SN biopsy due to a melanoma have been operated with the aid of the newly introduced FH system (declipseSPECT by SurgicEye GmbH) within a pilot study. Patients received a conventional lymphatic mapping (planar scintigraphy, PS) the day before surgery and were scanned in the operating room (OR) with FH before the first incision and after SN resection. The position of every SN detected by FH was compared with PS and confirmed to be radioactive with GP using FH navigation.

**Results** In PS 14 patients presented drain to axilla (20 SNs), 5 to groin (10 SNs), 2 to the abdominal wall (6 SNs) and 1 to neck (1 SN). Pre-incision FH and PS showed the same nodes in all but 1 patient (drain to groin), where FH detected 1 additional node which was confirmed by GP. In 1 patient (axilla) GP failed to tell apart 2 SNs clearly separated in FH and PS. FH was used in all cases for incision planning. After resection and radioactivity absence as checked with GP, FH detected 5 hot spots (5 patients). These spots were confirmed to be radioactive guiding GP to the spot seen by FH using navigation. In 1 patient (axilla), surgeons decided to resect 1 hot spot which resulted to be an additional SN.

**Conclusions** Preliminary results of pilot study show that FH is capable of reproducing PS images in the OR. Further FH showed to be useful in incision planning and for confirmation of complete resection of SNs. In a comparison study resection of additional hot spots should be investigated for potential change in nodal staging. Further impact of image guidance on morbidity should also be evaluated.

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