

nar images, regions of interest were assigned to each visible adrenal lesion and to the liver and, in addition, adrenal to liver (AL) ratios were calculated. On SPECT/CT, 2cm spherical volumes of interest (VOI) were placed on the center of each adrenal lesion. Another VOI was placed over normal liver tissue. Using mean count rates, AL ratios were calculated.

Ergebnisse/Results: Adenomatous/hyperplastic adrenal lesions were seen in 12 patients, lesions from non-adrenocortical tumors in 14 pts and primary ACC in 5 patients. On planar images, highest AL ratios were observed after 24 h. Adrenals, which were enlarged due to adrenocortical adenoma/hyperplasia (15 adrenals) showed a strong and significantly higher uptake as compared to enlarged adrenals harboring non-adrenocortical lesions (17 adrenals). Median planar AL ratios were 2.4 (range, 0.9-8.4) and 1.5 (range, 1.3-2.1; $p=0.03$), respectively. Primary ACC showed a variable uptake with no tumor visualization in 2/5 pts (median AL ratio 2.5, range 1.9-3.2). All adenomas/hyperplasias had higher uptake as compared to the normal contralateral adrenal. When SPECT/CT data were used, the difference in AL ratios between adenomatous/hyperplastic adrenals as compared to adrenal lesions of nonadrenocortical origin became more significant. Adenomas of the adrenal had a median AL ratio of 9.6 (range, 3.4-37.5) and non-adrenocortical lesions of 0.7 (range, 0.2-3.7; $p=0.001$). Primary ACC had a median AL ratio of 1.3 (range, 0.6-5.2).

Schlussfolgerungen/Conclusions: IMTO is a suitable tracer to distinguish between lesions of benign adrenocortical and non-adrenocortical origin, but shows a variable uptake in ACC. IMTO-SPECT/CT was superior to planar imaging.

V124 3D navigated (radio-guided) sentinel lymph node biopsy using freehand SPECT : final evaluation of Munich's pilot experience in the operating room

C. Bluemel¹, A. Schnelzer², A. Rieger³, A. Ehlerding², A. Okur⁴, C. Gerngroß⁴, M. Martignoni³, K. Scheidhauer⁴, M. Schwaiger⁴

¹Universitätsklinikum, Nuklearmedizin, Würzburg; ²Klinikum rechts der Isar, Gynäkologie, München; ³Klinikum rechts der Isar, Chirurgie, München; ⁴Klinikum rechts der Isar, Nuklearmedizin, München

Ziel/Aim: Evaluation of performance of sentinel lymph node (SLN) biopsy in breast cancer and melanoma patients (pts) using freehand (fh) SPECT.

Methodik/Methods: Up to date, 64 patients (30-84 y) undergoing SLN biopsy were recruited (44 breast cancer pts (1 bilateral case), 20 melanoma pts) and scanned intraoperatively using fhSPECT (declipseSPECT, SurgicEye, Munich, Germany). The amount of SLNs detected with fhSPECT before incision was counted and compared with the planar scintigraphy (PS) acquired the day before. After post-excision control of axillary region using gamma probe (GP), fhSPECT images were used to verify absence of radioactivity. Left hot spots were confirmed with GP. If clinically indicated, additional SLNs were resected.

Ergebnisse/Results: Preoperatively, 104 SLNs were mapped on conventional PS (92 MBq, 48-127 MBq). Pre-incision GP managed to map SLNs in 61 of 65 cases (sensitivity 94%), and fhSPECT had a sensitivity of 95% (62/65). Compared to PS, fhSPECT mapped 88% of SLNs (91/104) in the identical position, as well as 3 further nodes. In total 163 SLNs were resected and confirmed to be radioactive, whereof metastatic involvement was found in 9 patients (pts). Post-excision fhSPECT detected in 21 pts (33%) left activity despite negative measurement with GP. In 8 pts (13%) 8 additional SLNs were resected. However, the additionally resected nodes were not separately sent to histopathological evaluation, so no potential change in the pathological nodal status could be determined. In the remaining 13 pts harvesting of these nodes was discarded as SLNs with higher uptake had been removed already. Pre-incision scans took approx. 2.3 min and post-excision scans 2.1 min; thus the mean surgical procedure was extended about 5 min.

Schlussfolgerungen/Conclusions: Preliminary experience indicates that intraoperative imaging with fhSPECT for lymphatic mapping enables more intuitive and sensitive detection of SLNs than the use of conventional GP alone with minimal alteration of the surgical workflow. Post-excision fhSPECT

showed remaining activity and motivated additional SLN dissection in 8 patients. Despite these data, no change in therapy could be observed. But the high number of residual SLNs motivates to setup a further prospective study to clarify the impact of fhSPECT on pathological status, therapy or prognosis. Furthermore, for quality assurance, the system can document the absence of residual SLNs at the end of surgery.

V125 Präoperative SPECT/CT zur Detektion von Wächterlymphknoten bei malignem Melanom: Untersuchungen des Benefits bei 404 Patienten.

C. Boy¹, J. Klode², I. Stoffels³, J. Dissemond³, S. Rosenbaum-Krumme¹, S. P. Müller¹, D. Schadendorf³, A. Bockisch¹, T. D. Pöppel¹

¹Universität Duisburg-Essen, Klinik für Nuklearmedizin, Essen; ²Universität Duisburg-Essen, Universität Duisburg-Essen, Essen; ³Universität Duisburg-Essen, Klinik für Dermatologie, Essen

Ziel/Aim: Der histopathologische Befund des Wächterlymphknotens (SLN) gehört zu den wichtigsten prognostischen Faktoren bei Erstdiagnose eines malignen Melanoms. Das Konzept der SLN-Entfernung (SLNE) wird in diesen Zusammenhang kontrovers diskutiert, da Raten falsch negativer SLN von bis über 40% berichtet wurden. Als Ursache werden vornehmlich individuelle Faktoren (z. B. topographische Lage des Primarius, Besonderheiten der Lymphdrainage und Körperkonstitution) angesehen. Neuere Ergebnisse bei Patienten mit Hauttumoren, insbesondere im Kopf-Hals Bereich, zeigten einen medizinischen Benefit der SLN-Hybridbildgebung (1) vor SLNE. Bei Patienten mit malignem Melanom der äußeren Haut untersucht unsere Studie mögliche Vorteile der präoperativen SLN-SPECT/CT gegenüber der Standard SLN-Diagnostik und SLNE ohne SPECT/CT.

Methodik/Methods: Retrospektiv analysierten wir Daten von 404 Patienten mit malignem Melanom (Stadium I und II, American Joint Committee on Cancer), bei denen zum Zeitpunkt der SLN Diagnostik klinisch keine Hinweise auf eine Lymphknotenmetastasierung vorlagen. Es erfolgte in der Patientengruppe ohne Hybridbildgebung (n= 264, mittleres Alter 57 Jahre) die standardisierte SLN-Diagnostik unter Verwendung von Tc-99m-Nannokolloid, mit dynamischer und statischer planarer Bildgebung, SPECT-Option und Gammasondenmessung prä- bzw. intraoperativ. Nach Einführung der Hybridbildgebung wurden bei Patienten (n=140, mittleres Alter 60 Jahre) präoperative SPECT/CT Untersuchungen der Radiokolloid anreichernden Lymphknotenregion(en) durchgeführt (low-dose CT: 130 kV, 17 mA, 5-mm Schnitte).

Ergebnisse/Results: In der Patientengruppe mit SPECT/CT fanden sich gegenüber der Gruppe ohne SPECT/CT pro Patient vermehrt SLN (488/264 versus 330/140; $p < 0,001$), vermehrt histologisch positive SLN (55/264 versus 44/140; $p < 0,001$) und eine kürzere Operationszeit (min) 38,3 versus 49,8; $p < 0,02$). Durch die SLN-SPECT/CT wurde der operative Zugangsweg gegenüber dem konventionellen operativen Vorgehen bei 23/140 Patienten geändert. Es ergab sich letztlich für Patienten mit SLN-SPECT/CT eine Rate falsch negativer SLN von 4/44(8,3%) versus 12/55(17,9%) ohne Hybridbildgebung, $p < 0,001$.

Schlussfolgerungen/Conclusions: Die vorliegende Arbeit zeigt einen signifikanten medizinischen Vorteil der präoperativen SLN-SPECT/CT bei malignem Melanom mit einer Primariuslage innerhalb und ausserhalb der Kopf-Hals Region.

Literatur/References:

(1) Klode J, Pöppel T, Boy C., et. al (2011) Advantages of preoperative hybrid SPECT/CT in detection of sentinel lymph nodes in cutaneous head and neck malignancies. J. Eur. Acad. Dermatol. Venereol., 10:1213-1221