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Symposium 8: New devices and new challenges in radioguided surgery

 Monday October 12, 2009 14:30h - 16:00h
 Room: Hall 112

OP273 First clinical experiences with the intraoperative detection of radiolabelled tumors with the aid of an electronically collimated high-energy gamma-probe

 15:00h -
 15:30h **Hamid Reza Lighvani**

Aim: The aim was to check the intraoperative sensitivity of an electronically collimated high-energy gamma-probe in detection of radionuclide labelled tumors or Lymph nodes (LN). Methods: 10 Patients with a malignant tumor [2 children at the age 4-14 and 8 adults (m/f: 2/6, age of 44-81)] underwent a Probe-guided surgery between 20 minutes to 4 hours p.i. [8x FDG, 1x Ga 68-DOTATOC und 1x Iod 123-mIBG; Patients: Nr.1: carcinoid, Nr.2: recurrence of neuroblastoma, Nr. 3: osteosarcoma, Nr. 4-8: NSCLC, Nr. 9-10: PTC]. The Gamma-Locator DXI (GF&E, Germany) was operatively applied in order to identify all foci by measurements. The counting rate of foci (in vivo/ex vivo) was measured and documented. Pat. with NSCLC was set at 2, 5 times higher counting rate (in comparison to LN with lowest impulse) to a Cut-off for an intraoperative classification of the removed LN as suspicious or not suspicious. A concluding check measurement was made in order to assure a complete removal of all herds. Results: In the 1st case the Probe found a not resectable intracardiac metastasis. In the infant's case both 2 herds were excised completely supported by Probe (the R0 situation was confirmed by a postoperative Iod 123-mIBG-Image). In the 3rd case we were able to localize the tumor precisely as well as an adequately sufficient biopsy. In 3 of 5 cases with NSCLC was the histopathology congruent with the preoperative FDG-PET. In one case an enlarged lymph node which was suspicious of metastasis with a high counting rate was found operatively, which histopathologically proved to be a regional metastasis. This was an occult metastasis in the FDG-PET. In the last case, an incongruence of the multimodal imaging showed up while intraoperative suspicious LN had not shown any metastasis in H and E stain. Almost all removed LN from Pat. Nr. 4-8 were positive by Probe-measurement. However, there was no evidence of a pathological FDG utilization in the PET. Five LN in this group were to be measured at a 2, 5 times higher counting rate without identifying a metastasis by HE stain. In two cases with PTC, metastasis was localized und removed successfully. Conclusions: The Gamma-Locator proved to be a highly sensitive device with great ability to localize radiolabelled lesion during operation. The Probe seems to have high potential by operative management of malignant tumors, but other studies are required to evaluate the role of this new approach.

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