Aim: Planar whole body scan (txWBS) is the standard imaging modality performed in our department for the post therapeutic work-up of patients with well-differentiated thyroid cancer. However, sometimes it is difficult to distinguish physiologic from pathologic uptake and to localize lesions because of lack of anatomic landmarks. The purpose of this study was to evaluate the additional information provided by SPECT/CT in the management of these patients. Material and Methods: From February 2007 to March 2010, 41 SPECT/CT scans were performed on a dual head gamma camera with an integrated SPECT/low energy CT system for combined transmission and emission tomography in addition to planar txWBS, in 36 patients (22 women, 14 men, age range 15-77 years, mean 53.9 years) with malignant thyroid disease (27 papillary cancers, 7 follicular cancers, 1 insular and 1 less differentiated cancer). Whole body anterior and posterior images were acquired 7 days after therapeutic administration of 2960-9768 MBq of $^{131}$I, the dose being adjusted to the disease situation. Planar whole body scans were interpreted by two nuclear medicine physicians who determined the need to perform additional SPECT/CT for clarification of inconclusive findings.

Results: Image fusion was helpful in all 41 studies. SPECT/CT demonstrated additional value in 28 cases (68.3%) with cervical $^{131}$I uptake. Due to precise anatomical localization, thyroid remnant tissue could be distinguished from lymph node cervical metastases, excluding nodal involvement in 13 patients (31.7%). In 8 cases (19.5%) SPECT/CT classified mediastinal activity as lung and/or bone metastases and led to an M status upstaging. On the other hand, SPECT/CT revealed physiological uptake in 20 areas suspicious for metastasis on the txWBS. Furthermore, in 3 patients, CT revealed iodine negative metastases predicting a decrease in life expectancy. Conclusions: Post-therapy $^{131}$I SPECT/CT provides relevant information in the management of patients with thyroid cancer, especially in the assessment of $^{131}$I uptake in the neck. It allows the clarification of indeterminate $^{131}$I accumulation and permits a precise anatomical localization of the lesions.