



# SPECT/CT Improves Inter-Observer Agreement of Equivocal Osseous Lesions Detected on Planar Bone Scan

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## Abstract:

**Aim** To compare inter-reader agreement for planar and SPECT/CT interpretation of equivocal osseous lesions detected on bone scintigraphy in cancer patients. **Materials & Methods** This prospective study recruited patients known to have primary tumor referred for bone scintigraphy with their planar images showing solitary or few equivocal osseous lesions. Every patient underwent planar whole body scan followed by SPECT/CT for the concerned region(s). The gold standard was based on clinical/ imaging follow-up for at least 6-12 months. Two experienced readers (reader 1 has 8-year experience & reader 2 has 12-year experience) scored each lesion on a subjective 5-point score for the possibility of being malignant (1=benign, 2=probably benign, 3 = equivocal, 4=probably malignant & 5 = malignant). True & false results were identified in relation to the gold standard. Kappa measure of agreement was measured for both modalities. **Results** A total of 150 patients were included in this study (110 females, 40 males) with median age 54 years (range:7-84). On planar imaging, both readers successfully identified 48 true positive (TP) & 19 true negative (TN) patients. Both readers were false positive (FP) in 31 & false negative (FN) in 3 patients. They disagree in 2 patients. Moderate agreement was noted (kappa = 0.55). While on SPECT/CT imaging, both readers successfully identified 58 TP & 62 TN patients. Both readers reported FP results in 11 & FN in 2 patients. They disagree in a total of 9 patients. Perfect agreement was noted (kappa = 0.82). **Conclusion** SPECT/CT significantly improved inter-observer agreement among readers for equivocal osseous lesions detected on planar bone scintigraphy.

## Keywords:

SPECT/CT equivocal

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