Usefulness of pinhole collimator in differential diagnosis of metastatic
disease and degenerative joint disease in the vertebrae; Evaluation
by receiver operating characteristics (ROC) analysis

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In order to evaluate the diagnostic efficacy of pinhole collimator (PHC) imaging combined
with an X-ray for vertebral metastasis, our prospective study has employed receiver operating
characteristics (ROC) analysis in 21 patients, 11 with osseous metastasis and 15 with
degenerative joint disease in the lumbar vertebrae.

PHC imaging provided better anatomic information on the extent of $^{99m}$Tc-MDP ac-
cumulation. PHC vertebral scintigraphy had a considerable impact on the decision-making
process, although with variations and not very satisfactory results among the physicians
with little experience. Our study suggests that PHC imaging and X-ray film are useful in
differentiating between osseous metastasis and degenerative joint disease in the vertebra.

Key words: pinhole collimator, bone scintigraphy, Receiver operating characteristics
analysis, Bone metastasis, Degenerative joint disease