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Performance of a multislice fan beam collimator for SPECT imaging of the head

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A multislice fan beam collimator was designed for a SPECT system with a rotating scintillation camera, and it was constructed by the lead casting method which was devised in recent years. The focal length from the surface of the detector side of the collimator is 75 cm. In order to reconstruct the SPECT images we modified the interpolation method which was developed for reconstruction of the X-ray CT and applied it. Primary photopeak data were obtained with a 20% energy window centered at 140 keV for ^{99m}Tc and 159 keV for ^{123}I. The fan beam collimator reduces the field of view, and it would therefore be limited to use only for the head and neck region at present; however, both resolution and sensitivity were ~20% better than those of the parallel hole collimator. A fan beam collimator is a useful implement for the SPECT study.

Key words: fan beam collimator, SPECT, gamma camera