

Summary

Development of Neck Filters for Reducing Artifact in Cervical Bone SPECT

Nobutada KIKKAWA* and Shigeo KIMURA**

**Department of Radiology, Kyoto Minami Hospital*

***Department of Internal Medicine, Kyoto Minami Hospital*

In cervical bone scintillation SPECT studies using TEW and OS-EM methods, we have observed an artifact that may interfere with evaluation of the image; higher accumulation in cervical vertebra compared with in the head and thoracic vertebra. As the neck is smaller in diameter than in the thorax and head, gamma ray absorption is lower. In addition, as the distance between the neck and the detector is greater, scattered gamma rays are increased, interfering with imaging and causing artifact. To overcome these prob-

lems, we have developed special absorbers (neck filter) to make the relative absorption level of the neck comparable to that of the head and thorax and have employed these cervical filters in bone scintillation SPECT studies in combination with TEW scatter correction and OS-EM method. Our results showed that artifacts were significantly reduced and satisfactory images were obtained.

Key words: Bone scintigraphy, SPECT, Filter, TEW, OS-EM.