

it will not be long and one will see a better future of this field with the help of the various agencies such as the IAEA, our local atomic energy agency and the national government as a whole. Being aware of the benefits being offered by this branch of medicine, time will come that our local laboratories will be well-equipped and supported by a strong work force whose training in atomic energy can be put into practice.

《招待講演 VIII》

Usefulness of Pinhole Scintigraphy in Bone and Joint Diseases

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The field-size-enlargement technic using a pinhole collimator has been widely practised in the clinical study of the thyroid gland and its superiority over the rectilinear scanning has been well documented (Hurley et al, 1971; Sostre et al, 1978). A recent review of the literature reveals however that the application of this technic to the diagnosis of organs and systems other than the thyroid gland has been much limited.

With the understanding of the facts that pinhole-collimator scintigraphy (PCS) is qualitatively advantageous over the rectilinear scanning and multihole scintigraphy in studying the thyroid gland, we have carried out a systematic test to evaluate the clinical usefulness of PCS in bone and joint diseases.

MATERIALS AND METHODS

Seventy-two consecutive cases with various bone diseases referred to the Nuclear Medicine Section of the Department of Radiology at St. Mary's Hospital, Catholic Medical College, Seoul were subjected to clinical statistical analysis. Diagnosis was established in each case on the basis of clinical examination, roentgenography, biopsy or surgery.

Bone scintigraphy was performed 4 hours after the intravenous injection of 30 mCi MDP-technetium-99m. Routine anterior and posterior single-pass-area scanning (SPAS) of the whole skeletal system were followed by single-spot scintigraphy (SSS) and pinhole-collimator scintigraphy (PCS) of the structures of interest. The gamma camera was an Ohio-Nuclear Sigma 410 with a pinhole-collimator whose aperture was 3 mm in diameter. PCS image was obtained with the collimator face from 5 to 10 cm above the target bone or joint. Radioactive counts were accumulated from 400,000 to 500,000 over a period of 20 to 30 minutes.

The quality of each image of SPAS, SSS and PCS was assessed and scored by 3 qualified image specialists on the basis of an arbitrary scale of 0, 1, 2, and 3 according to anatomicospatial resolution and pathological details in terms of "hot or cold" area. Thus, 0 represented normal; 1 suspicious

lesion; 2 a definite hot or cold area but with poor anatomical and pathological details and 3 excellent anatomical and pathological informations.

RESULTS

It is clear that the relative diagnostic sensitivity of SPAS, SSS and PCS was 29/72, 51/72, and 62/72, respectively, with the mean scoring being 1.21 ± 0.75 , 1.67 ± 0.55 , and 2.78 ± 0.61 , respectively. The difference between each display method was highly significant statistically, with an especially high significance for PCS.

Ten out of 72 cases of PCS had a score under 3 and 7 out of these low-score cases occurred in the imaging of claviculo-manubrial junction, 2 in the rib imaging and 1 in the mandible imaging. The relatively low scoring in these anatomical sites was considered to reflect geometrical loss of counting rates due to small anatomical volume.

SUMMARY AND CONCLUSIONS

Pinhole scintigraphy demonstrated excellent anatomico-spatial resolution and pathological informations of bone and joint diseases studied.

The positivity or relative sensitivity of pinhole scintigraphy has been amply verified by the present clinical observation. This technic is particularly useful in investigating large irregular and long tubular bones of the spine, pelvis and both extremities. On the other hand the sensitivity seemed rather low when small bones like the clavicle, rib and mandible were imaged and this was considered to be the reflection of geometrical loss of counting rates due to small volume. Some typical examples of various diseases will be presented to highlight our experiences.

《招待講演 IX》

Will Digital Intravenous Ventriculography Replace Radionuclide Angiography as the Preferred Method to Evaluate Global and Regional Cardiac Function?

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Most published reports describing digital subtraction angiography have dealt with its clinical application in studying the visceral, cranial and extracranial circulation, only briefly mentioning its potential as a method to evaluate ventricular function.

In the present study, single plane digital intravenous ventriculography was compared with conventional contrast left ventricular cineangiography in over 50 patients. For the intravenous