

- 3) Static scintigram follows after this on every examination area for five minutes.
- 4) For the evaluation of scintillation counts, one count-unit which takes maximum counts around the examined area is adopted as the count-unit of this region.
- 5) The count ratio, counts of every region of spine to that of sacrum, is used as another factor.

The result is as follows.

- a) It is possible to set the normal range in the scintillation counts and the ratios.
- b) Tumors or metastatic lesion take extremely high counts and ratios.
- c) Metabolic bone diseases show high scintillation

count, but ratios of this group are lower than that of normal.

- d) Moderately high counts are shown in the inflammatory group of spine, but ratios are extremely high like in tumors.
- e) In the cases of tumor in spine, the spine without lesion take lower counts and ratios than that of normal.

These result is shown in the beginning of disease though X-rayphotograph does not indicate abnormality.

Now, we can differentiate the diagnosis of bone diseases in spinal region, and it will be possible to evaluate the grade of diseases in the future.

### Delayed Bone Scan of the Pelvis

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Work-up of patients of neoplastic disease with possible metastasis has been changed from a radiographic skeletal survey to radionuclide scanning of the bone, liver and brain, with remarkably better results. Although many reports indicate that radionuclide bone scanning is a more sensitive method than the radiographic skeletal survey for the detection of skeletal metastases. Mall et al. summarized several disadvantages of radionuclide bone scanning, including false negatives in the pelvic lesions obscured by a high level of radioactivity in the bladder. As far as the pelvis is concerned, Galasko and Doyle concluded that a radiograph of the pelvis is more informative than a radionuclide bone scanning.

Three to five hours after intravenous injection of 15–20 mCi of  $^{99m}\text{Tc}$ -pyrophosphate or  $^{99m}\text{Tc}$ -EHDP, bone scan is taken first with a whole body scanner. On viewing this scan, pictures of

the areas of interest or questionable metastasis are taken from multiple angles with Scinticamera. In addition to such routine scanning, scan of the pelvis 24 hours later is obtained. In this delayed scan it takes 5–10 minutes to get an image because radioactivity of the pelvic bone has decreased. But a satisfactory picture can be obtained by increasing the brightness on C R T.

With this method we were able to detect suspected or unsuspected metastatic lesions which were masked by high radioactivity of the bladder in previous routine scan. Furthermore in many cases our delayed scan showed no abnormal uptake of the pelvic bone and it proved that abnormal radioactivities observed in previous routine scan were due to radioactivity in a dislocated or unusually shaped bladder or contamination on patients' skin or underwear.