

scan time. At 24 hours, or the ^{85}Sr scan time, the maximal value appeared later.

2) In the autoradiogram findings, the distribution of Sr was not markedly different at both 3 and 24 hours 3–4 weeks after fracture, or at the stage of predominant bony callus.

3) However, at the stage of 1–2 weeks after fracture with mixed presence of cartilaginous callus and bony callus, Sr uptake was high in the cartilaginous callus 3 hours

later (the scan time for ^{87}mSr). On the contrary, at 24 hours on the scan time for ^{85}Sr , the Sr uptake was high in the bony callus.

These findings would suggest the possibility of detection of initial lesion by ^{87}mSr scintigram as compared with ^{85}Sr scanning.

For the interpretation of these two kinds of bone scanogram, the data described above should be kept in mind.

Scanning with ^{87}mSr , ^{85}Sr in the Diagnosis of Bone Fracture

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Ever since Bauer and Wendeborg reported on the application of external counting in the diagnosis of bone tumor and bone fracture in 1957 and Fleming on the use of ^{85}Sr photoscan in the diagnosis of metastatic cancer in 1961, not a few reporter have been made in this field. This time, we injected ^{87}mSr 2 mCi intravenously to 79 bone fracture patients and observed chronologically the healing process of fracture. We conducted profil scan and area scan immediately after operation, at 4 weeks, 8 weeks, 12 weeks and 24 weeks after operation, and as late as 2 years and 2 months with the longest case, and compared the findings with those of the normal extremities. The following are the results we obtained.

(1) Observation of the healing process of fracture by scanning revealed no uptake of

Sr immediately after fracture or during the physiological inflammation period. However, the Sr uptake started to rise from around the time when the new bone began to appear or when osseous sclerosis became evident and continued to increase at 8 weeks, 12 weeks and 24 weeks after operation.

(2) Strong uptake of Sr could be noted in the fractured area even with elderly patients, proving that active recovery process is taking place with them too.

(3) With those cases with a long recovery process after fracture, with those cases with poor osseous accretion, or with those cases clearly presenting a false joint, no increase in Sr uptake could be noted, and even defects could be observed. This proves that this is a very helpful method of examination in the diagnosis of pseudoarthrosis.