The observation of these autoradiograms revealed that Ga-67 was accumulated in the limbus of abscess (i.e., inflammatory tissue), and concentration of Ga-67 was predominant in inflammatory tissue rather than the other tissues at 4, 5, and 10 days after turpentine injection. Quantitative analysis of these autoradiograms revealed that the ratios of inflammatory tissue/liver, inflammatory tissue/bone and inflammatory tissue/kidney were highest at 7 days after turpentine injection.

This study was undertaken to determine accumulation of Ga-67 in abscess and to compare uptake rate of Ga-67 between abscess and tumors. Two, three, five, seven and ten days after subcutaneous injection of 0.2ml turpentine to the rats, Ga-67 citrate was injected to the rats. Twenty-four hrs after injection of Ga-67, abscess and organs were excised and uptake rates of Ga-67 were assayed. And subcellular distribution of Ga-67 in abscess was determined.

Uptake rates of Ga-67 in abscess increased with time after injection of turpentine and reached a plateau 5-7 days later. Ten min, 24 hrs and 72 hrs after injection of Ga-67, uptake rates of Ga-67 in abscess were 0.92%/g, 3.38%/g and 5.6%/g, respectively. Uptake rates of Ga-67 (24 hrs after injection) in abscess was 2.0-3.4 time of tumor uptake rates (previously reported). On the other hand, large amounts of Ga-67 were in supernatant and decreased with time, but Ga-67 in mitochondrial fraction (lysosomes is contained in this fraction) increased with time until 24 hrs.

We attempted to establish the experimetal system to judge the effect of anti-inflammatory agents by the change of the pattern of Ga-67 uptake in the inflammatory region. The animals were Wistar rats, weighing 150-200g. Turpentine oil was used for inflammable agent. Paper pellet dipped in turpentine oil was implanted in the subcutaneous tissue of the abdominal wall of each animal. Rats were administered Ga-67 citrate intravenously at a dose of 5 μCi/rat and killed 24 hr after the administration. The Weight of granuloma produced by turpentine oil increased gradually and reached a maximum at 6 days after the administration. The pattern of Ga-67 uptake was closely similar to that of the change of granuloma weight. These results showed that the stage of inflammation could be indicated by the pattern of Ga-67 uptake.

We will report the results of the judgment for the effect of anti-inflammatory agents by using of this experimental system.