Differentiation between osteomyelitis and malignant tumor infiltration into the mandibular bone using ^{18}F-FDG PET

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Abstract

<u>Introduction</u>

When clinical findings similar to osteomyelitis are noted in the course observation after oral cancer treatment, it is difficult to differentiate between the recurrence of the cancer or osteomyelitis caused by radiation.

<u>Objectives</u>

This study was performed to evaluate the usefulness of PET using ^{18}F-FDG for such differentiation.

<u>Materials and Methods</u>

The subjects were 6 patients who had been diagnosed with carcinoma of the tongue or gingiva and received treatment. In the postoperative course observation, ^{18}F-FDG PET was performed to differentiate between osteomyelitis and the recurrence of cancer. Twenty cases of carcinoma of the gingiva with jaw bone infiltration were selected as the control.

<u>Results</u>

The mean SUV was 6.2 ± 1.9 in osteomyelitis, and 11.2 ± 5.7 in gingival carcinoma. It was little and of low reliability, but a case of osteomyelitis could judge the significant difference as 6 examples in both SUVmax in statistical way.However, in cases in which SUV is over 8, it is estimated that the possibility of cancer is markedly high. As far as both SUVmax and an SUV change with the passage of time were seen, a difficult thing expected to distinguish. This thing is regarded as the purpose FDG also piles up on a cell related to an osteoblast and the bone metabolism represented by an osteoclast in addition to the cancer cell. A study of medicine not FDG, but for PET which piles up an amino acid metabolism of Choline on only a marked cancer cell seems necessary therefore to distinguish osteomyelitis and cancer of the oral cavity by a PET check.