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FUNCTIONAL IMAGING OF THE SALIVARY GLAND: DIAGNOSTIC VALUE FOR DETECTING SALIVARY GLAND TUMORS.

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This study was designed to evaluate regional function of the salivary gland in washout phase.

Functional image was produced by computerized image subtraction technique. It was as follows: The data were collected on MT in 30 sec. frame from 0 to 40 min. after Tc-99m pertechnetate i.v. administration. At 30nd min. lemon juice was administered. An image acquired 2nd min. after stimulation was subtracted from an image acquired just before stimulation. The remaining activity of the salivary gland by this subtraction refrects the function of washout phase.

This technique has been applied to 13 cases with histologically confirmed salivary gland tumors and evaluated comparing with conventional scintigram. In conventional image, 5 of 13 tumors were imaged as normal or hot areas without clear delineation of tumor and normal gland. But in functional image, all of these tumors were visualized as cold areas.

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GA-67 AND TC-99M PERTECHNETATE SCINTIGRAPHY OF TUMOROUS LESIONS IN SALIVARY GLAND.

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It is well known that many kinds of tumor occur in the salivary gland. Therefore, it is very useful to differentiate non-invasively malignant tumor from benign one. In this present study, salivary gland scintigraphy using Ga-67 citrate (Ga-67) and Tc-99m pertechnetate (Tc) have been performed on 13 patient in whom diagnosis is confirmed by the pathological examination. Tc scintigraphy were combined with excretory function test by lemon. Strong accumulation of Ga-67 was found in all of 5 patients with malignant tumor, and 2 of 8 patients with benign tumor. Increased accumulation of Tc was shown in 2 patients with Warthin tumor and 1 patient with multiple myeloma. Combined study of excretory function of salivary gland shows as below: (1) Malignant tumor accumulated strongly Ga-67 wheter normal excretory function or not. (2) Two cases of benign tumors with strong accumulation of ^{67}Ga were shown to be disturbed on the excretory function. It might be partialy due to retention of Ga-67 in the salivary gland that Ga-67 was strongly accumulated in these two benign cases. Our study demonstrated that it was possible to differentiate malignant salivary tumor from benign one by scintigraphy using both Ga-67 and Tc associated with excretory function test.

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QUANTITATIVE ANALYSIS OF SALIVARY GLAND FUNCTION BY SEQUENTIAL SALIVARY SCINTIGRAPHY

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Sequential salivary scintigraphy (SSS), labial salivary gland biopsy, and contrast sialography were performed in 292 patients suspected of Sjogren's syndrome (SS).

The uptake coefficient from 5 to 10 minutes after intravenous administration of Tc-99m pertechnetate, uptake rate at 15 minutes excretion of Tc-99m pertechnetate, by the stimurated parotid gland and it's recovery function were quantitated in 142 patients, 150 examinations (127 females,15 males).

The value of parameters of SSS in the diagnosis of SS was compared with the histologicaly diagnosed groups of patients,70 cases of non-SS,28 of subclinical-SS and 44 of definige-SS.

The results correlated well with the histological diagnosis used to categorize the disease. Patients with definite-SS had the lowest recorded rates in each of uptake, excretion and recovery in the series.

In the present study we evaluated excretory rate as the most useful parameter of salivaly gland function witch reliably separated normal patients from those with subclinical-SS and appears to be a feasible diagnostic parameter in SSS

Quantitative analysis of SSS is useful as a noninvasive and repeatable method to initially evaluate or to follow the course of Sjogren's syndrome.

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SALIVARY GLAND UPTAKE OF Ga-67 CITRATE & $^{99m}TcO_4^-$ FOLLOWING RADIATION THERAPY.

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Ga-67 citrate scintigraphy has been shown to be useful in the evaluation of the effectiveness of the treatment,and in the early detection of the local recurrence and metastases on post-irradiated patients with head and neck malignant tumor.

Bekerman et al has described the increased concentration of Ga-67 citrate within salivary gland following radiation therapy,which results in the false-positive on scintigram and may be confused with cervical lymph-node or recurrence activity.The decision that the increased uptake of Ga-67 citrate is salivary gland is only due to clinical course. Therefore,some of the sites considered to be salivary gland may be due to tumors.

Then,we used $^{99m}TcO_4^-$ salivary gland scintigraphy to evaluate the false-positive as well as clinical findings.Furthermore,we studied on the relation between the Ga-67 uptake and absorbed dose in the salivary glands.