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FUNCTIONAL IMAGING OF TUMORS. H. Oyamada.
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Since tumors arise from organs after cell mutation and have no specific function unlike usual organs, they are very difficult to investigate from the standpoint of functional imaging. If we interpret in a narrow sense and consider only the native function of an organ the variety of tumors which can be studied will be limited. On the other hand, if we interpret in a wider sense and consider all living activities of tumors, such as metabolism, antigen-antibody reaction, etc., all tumors can be studied. Blood perfusion images are not considered in this paper.

Interpreting in a broad sense, the latest imaging technique is surely positron imaging. The author does not have any experience on this technique, but some research work on glucose metabolism, amino acid metabolism, and the incorporation of pyrimidine compounds of tumor cells is going on elsewhere, thereby it is thought that qualitative image diagnosis of the tumors will step forward. However, positron imaging necessitates special facilities which makes it difficult for general use, thereby making imaging with single photon emitters (SPEs) very important in clinical medicine. Interpreting SPE-imaging in a broad sense, the latest topic is surely monoclonal antibody (MoAb) imaging of tumors. The author has some experience in In-111-MoAb imaging in patients with malignant melanoma. The number of patients now exceeds 10, and the

results are rather favorable. In this field further effort will be made toward raising up the specificity of MoAb against particular tumors and also toward conjugating Fab or F(ab')₂ with short-lived radionuclides.

Interpreting in a narrow sense, certainly the subject of functioning tumors will come to the surface. In this field, the latest topic is the recent trial of I-131-MIBG (I-131-metaiodobenzylguanidine), which visualizes pheochromocytoma as well as other tumors arising from neural crest.

The author wishes to state the present status and future prospect of the functional imaging of tumors as mentioned above with some comments on his own experiences with In-111-MoAb.