

mentioned 5 cases, dose-time relationship in radiation necrosis was discussed. However, any conclusive data were not obtained for the appropriate dose and terms of irradiation which cause necrosis only in tumor tissue without radiation necrosis in surrounding brain tissue. At the end of this discussion, it was suggested that the safety zone for preventing normal brain tissue from causing radiation necrosis would be lower than that of Lindgren's diagram.

A-40. Granular Cell Tumor: Clinical and pathological report of two cases

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The authors reported two cases of intracranial granular cell tumor which had no apparent continuity to the pituitary area. The first case was 7 year-old female who was in good health and in normal development until Oct. 1972, when the patient gradually developed signs of increased intracranial pressure and right hemiparesis. The patient was admitted to the Department of Neurosurgery, Nagasaki University School of Medicine on Feb. 22, 1973. The patient was found to be lethargic and had severe choked discs. A brain scan indicated increased uptake in the left frontal area and a CAG was abnormal with a large mass lesion in the area, displacing the midline structure as much as 2 cm to the right side. The mass lesion was relatively avascular although the left frontopolar artery was dilated and seemed to be perfusing the tumor. On February 25th, subtotal removal of the tumor was performed. The tumor attached to the dura in its superior aspect but the medial portion of the tumor was separated from the falx by thin sheet of the brain tissue through which the dilated frontopolar artery distributed in the tumor. The rest of the tumor was totally removed 10 days later when the

operative area vulged out and wound dehescence was imminent. The inferior border of the tumor was well in the brain tissue and there were no indication to suggest the tumor tissue continuity to the pituitary area. Histologically, the tumor tissue resembled to so called granular cell myoblastoma, having the characteristic intracytoplasmic granules. The granules were negative to PAS and Orange G stain. The tumor cells gathered in nests of various size which were surrounded by the connective tissue. The nests were further subdivided into smaller groups by reticulin fibers. The nucleus differed in size and shape. Mitosis were found numerously, indicating malignant nature of this tumor. On electron-microscopic examination, the tumor cells were easily identified by presence of the abundant intracytoplasmic granules which were classified tentatively by the authors in 5 types as (1) vacuoles containing fine granules of low density, (2) uniform dense body, (3) dense body with smaller dense granules of lower density, (4) dense body with vacuoles and (5) compound dense body with granules of (1) to (4). Glycogen particles were found in between these granules. No basement membrane covered the cell. No specific junction structures were noted. The cells cultured from the tissue taken during the 3rd operation yielded intracytoplasmic granules similar to the EM observation. The granules seemed to originate around the nucleus and then spread in the periphery of cytoplasm. The granules were still seen in the cells of 2nd culture, 2 months after the original implant.

The 2nd case was 38 y.o. female admitted to the Yamaguchi Prefectural Hospital on Feb. 27, 1973 with one month history of gradually increasing right hemiparesis. The tumor, located in the left parietal region was also avascular in the CAG. The tumor attached to the dura at the convexity but there was no distinct border between the underlying brain tissue. The tumor was totally removed and the patient did well since then. The light microscopic findings of the tumor tissue were essentially the same as of the 1st case except that there were no indication of malignancy. Attempts to perform electron microscopic examination of the formalin fixed tissue were not successful.

The intracranial granular cell tumor not

related to the pituitary gland has never been reported in the world literature except in the recent report by Markesberry et al. They postulated the origin of the tumor to be young mesenchymal cell while the other author proposed Schwann cell, myoblast, and pituitary cell.

However, our findings were suggestive of glial origin and also differed in staining characteristics of the granules from the previous reports. The differences in the histochemical nature of the granules were also discussed by the previous authors which certainly leads to more confusion in determining the nature of the granules as much as in naming of the tumor. The tumor has been called under 20 different names. The authors proposed this tumor to be called "granular cell tumor," implicating the tumor cells with intracytoplasmic granules which is the only universal findings among the reported cases of more than 500, as long as the nature of the granules and the origin of the tumor remain obscure.

A-41. Two Cases of Dumbbell Type Tumor in the Incisural Region.

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It is well noted about the dumbbell type of meningioma arising in the incisura of the tentorium. However, another histological feature of this type of tumor is rarely reported.

We had, recently, two cases of dumbbell type tumor in the incisural region, one was ependymoma and the other epidermoidoma. The significance of the vertebral angiogram was especially noted in the diagnosis of these tumors.

Case 1. H.K., 5-year-old girl was admitted to our hospital on April 10, 1968. She complained of progressive headache, vomiting and unsteadiness of her walk. Neu-

rological examination revealed the left-sided hemiplegia, bilateral papilloedema and the left-sided pupillotonia. The vertebral angiogram revealed that the right posterior cerebral artery was displaced laterally and upward, and on the contrary the right superior cerebellar artery was displaced medially and downward in its proximal portion. The pneumoventriculogram showed that the triangle of the right lateral ventricle was elevated and its lower surface was deformed. The aqueduct and the fourth ventricle were seen to be slightly displaced anteriorly and to the left side. A right occipital craniotomy was performed on April 23, 1968. The tumor, as far as macroscopically investigated, did not invade into the cerebrum and totally removed. The tumor was attached to the posterolateral part of the right tentorial notch and the supratentorial mass weighed about 16 gm, and the infratentorial one about 4 gm. Histological findings were suspected ependymoma. The patient was recovered uneventfully and discharged on about one and half months after operation.

Case 2. K.N., 31-year-old woman was admitted to our hospital on June 2, 1973, with complaints of headache and vomiting. Neurological examination revealed bilateral papilloedema with preretinal hemorrhage and stiffneck. The vertebral angiogram showed that both sides of the posterior cerebral arteries were separated slightly each other and the right sided superior cerebellar artery was displaced medially and slightly upward in spite of dominant upward displacement of the posterior cerebral artery in its proximal portion. The pneumoventriculogram revealed that the right sided temporal horn of the lateral ventricle and the posterior portion of the 3rd ventricle were elevated. The aqueduct and the 4th ventricle were displaced posteriorly and to the left side. A right occipital craniotomy was performed on June 29, 1973. The white colored tumor was extracerebral and in a saddle form, situated antero-laterally at the incisura. It was successfully removed. Histological examination showed epidermoidoma. The patient was recovered uneventfully and discharged.