S-14. A Case of Delayed Radionecrosis developed after Radiation Therapy for a Pituitary Tumor

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The patient, a woman aged 63, developed a visual disturbance, underwent radiation therapy for the pituitary tumor by a physician around March in 1963. After a temporary improvement she was treated with CO⁶⁰ for the tumor at the Radiation Department in our hospital in November 1963; she also suffered from the visual disturbance.

At the end of February in 1965 she suddenly developed a motor disturbance of her left arm and leg, and dysarthria. She was admitted to the Radiation Department in our hospital and was transferred to our department on 4/13/1965.

At the transferred time neurological examination revealed a clear consciousness, a left homonymous hemianopsia, no papilledema, a left central facial paresis, protrusion of the tongue to the left on extension, and a flaccid paresis with impairment of discriminative sensation of the left arm and leg. One week prior to the surgery her right arm came to show weakness.

The spinal fluid was under a pressure of 140 mm.H₂O, and its protein was 61 mg.%. A plain skull roentgenogram revealed a ballooned-out sella turcica and hypertrophied frontal internal table. The AP-view of a right carotid arteriogram showed no elevation of the A-1, and a positive proximal shift of the anterior cerebral artery to the left. The lateral view disclosed a remarkable backward concave at the A-2, and a slight upward displacement of M-2.

The AP-view of a pneumoventriculogram displayed a parallel shift of the Septum Pellucidum toward the left with a tilting of the upper margin of the 3rd ventricle to the left, the lower margin located in the midline. The PA-view of the pneumogram showed a slight displacement of the atrium of the right lateral ventricle toward the left side and an irregular shape of the posterior horn of the right side.

Under the suspicion of a space taking lesion in the right hemisphere a large osteoplastic craniotomy was performed on the right side, revealing no space occupying lesion. The frozen section made from the occipital, parietal, and temporal area indicated degenerative necroses.

Unfortunately the patient died of pneumonia postoperatively. The autopsy disclosed half moon-like scleroses with hyaline degeneration of collagenous fibers in arteries in the Sylvian fissure, a selective necrosis of the white matter of the right precentral, parietal, occipital, temporal area and of the right ventral aspect of the upper pons.

Among literatures of various authors, Arnold and Bailey et al (1954) empha-

sized a selective necrosis of the white matter and a direct effect of radiation upon the white matter. Zeman and Sholz (1957) described a plasmatic infiltration necrosis of tissues. Zuelch (1960) proposed a hypothesis of antigen-antibody reaction. In short an adequate explanation of the mechanism of a delayed radio-necrosis and the reason of a long latent period have not been given yet.

Some characteristics of our case were as follows: (1) A latent period of about two years. (2) A half moon-like sclerotic change with hyaline degeneration of arterial walls. (3) A selective necrosis of the white matter of the right pre-central, parietal, temporal, occipital area and of the right ventral aspect of the upper pons.

In conclusion, we are inclined to think that radiation therapy would rather be used postoperatively for a pituitary tumor.

S-15. Theration Therapy by Tele Co⁶⁰ with High Dosis for Brain Stem Tumor

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The essential therapy for brain stem tumor is radiation therapy always and some authors had reported the cases survived for long years after the radiation therapy.

The authors had reported the five patients of brain stem tumor treated by Tele Co⁶⁰ with very much high dosis. The age of these cases are from 6 years old to 12 years old and had neurological symptom and displacement of the basilar artery and the fourth ventricle which are typical evidence in lower brain stem tumor.

Each cases had treated in two stages and the total dosis of radiation were 12100–20,400 r.

The follow up studies have been doing until present time and the shortest is 18 months and longest is 38 months with one death. Four patients are keeping social useful daylife and two of these patients are studying in primary school.

As recovery of symptom and sign in these patients had observed when 3000 r. had radiated, the authors had pointed the radiation therapy should be done rapidly until this dosis under all kind of treatment to keep the patients condition.