Intracerebral tuberculoma

Case report

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Intracerebral tuberculomas presenting as space-occupying lesions are rare in the United States, but common in India and South America. Before the advent of antituberculosis drugs, tuberculomas carried a high surgical risk because those patients surviving the operation succumbed to meningitis disseminated at the time of surgery. The introduction of streptomycin, para-aminosalicylic acid (PAS) and isoniazid (INH) drastically reduced this complication. However, decompressive surgery to relieve the edema associated with the tumor continued to present formidable risks. Sibley and O'Brien, reviewing 102 cases in which resection was combined with drug therapy, noted 23 deaths, 18 of them at the time of surgery.

Corticosteroids have come to play a valuable role in the treatment of cerebral edema and miliary tuberculosis and should be especially useful in the management of intracerebral tuberculomas. Only the rarity of this condition has precluded a trial.

Case Report

A 28-year-old man was admitted to the U.S.A.F. Hospital in Tachikawa, Japan, on December 23, 1968, for the evaluation of progressive left-sided weakness and headache in the presence of miliary tuberculosis.

Examination. The patient was rational and oriented. Visual fields were full and fundi normal. There was a left hemiparesis. Cerebellar function was normal. Deep tendon reflexes were hyperactive on the left. The left plantar reflex was extensor, the right flexor. Laboratory studies included a hematocrit of 42%, a white cell count of 7600, erythrocyte sedimentation rate (ESR) 28. The Tine test was markedly positive. Chest x-ray films revealed fluid in the right base with old fibrotic changes in the apex. Skull films were normal. Sputum cultures grew mycobacteria tuberculosis. A liver biopsy showed a single, small granuloma. A spinal tap revealed an opening pressure of 200 mm water and a closing pressure of 160 mm after the removal of 8 ml of clear colorless fluid. There were no cells in the spinal fluid; the protein was 59 mg% and the sugar 47 mg%; cultures were negative. On the day after admission, the patient was started on a regime of INH, PAS, streptomycin and dilantin.

Three days later the patient's condition deteriorated; his headache became worse, and there was uncrossed diplopia on right and left lateral gaze. He was unable to walk. There were bilateral extensor plantar responses. Following angiography the patient was placed on decadron, 4 mg four times daily. Twelve hours later there had been a dramatic change. The patient no longer complained of headache. The diplopia was gone. He was able to walk unassisted. There was a minimal left hemiparesis. The left plantar...
response was extensor; the right, flexor. Thirty-six hours later neurological examination was normal.

A right carotid angiogram done prior to initiation of steroid therapy showed diffuse cerebral swelling maximal in the frontoparietal area. The anterior cerebral artery was shifted 13 mm to the left. The second angiogram 10 days later showed significant improvement, with the anterior cerebral artery now in the midline; a localized mass could not be identified on either study.

The encephalogram prior to initiation of steroids showed a large amount of rhythmic high voltage 1–3 cps activity over the right cerebral hemisphere superimposed on a 2–3 cps low voltage nonrhythmic activity. The electroencephalogram 3 days later no longer showed the rhythmic high voltage slow activity.

Steroids were discontinued after 2 weeks. During the next 3 months on INH, PAS, and streptomycin, the patient steadily improved and was considered for discharge. However, the electroencephalogram remained abnormal, showing 4–7 cps low voltage activity and a slower alpha over the right. A brain scan showed an area of increased uptake 1.5 cm from the peripheral cortical vasculature to the right of the midline. A pneumoencephalogram showed displacement of the body of the right lateral ventricle (Fig. 1).

Operation. That same day, a right frontoparietal craniotomy was carried out. At the level of the coronal suture, 3 cm below the surface, the probe encountered a mass which proved to be multilobulated and cystic with a firm vascular capsule (Fig. 2). It was freed by blunt dissection and delivered intact. It

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**Fig. 1.** Left: Pneumoencephalogram, brow-up, anteroposterior view, showing downward displacement of the right frontal horn and downward and lateral displacement of the body of the right lateral ventricle. Right: Pneumoencephalogram, erect, lateral projection, showing downward displacement of the entire body of the right lateral ventricle.

**Fig. 2.** Top: External view of the cyst showing numerous small blood vessels. Bottom: Interior of the cyst showing a finely granular surface.