Osteochondroma of the Base of the Skull Causing an Isolated Oculomotor Nerve Paralysis

Case Report Emphasizing Microsurgical Techniques

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Intracranial chondroma and osteochondroma are rare tumors. Chorobski, et al.,2 in 1939 collected 25 intracranial chondromas from the literature and his personal series. Aronson and Otis1 in 1962 found 25 additional cases and reported one case of their own. Gabrielsen and Kingman6 in 1964 reported one case. Falconer, et al.,6 in 1968 added two cases. Our case is unique because a review of the literature has disclosed no previous report of a similar lesion causing an isolated oculomotor nerve paralysis.1,5,6-10,14,16,17,20,21

Case Report

A 25-year-old woman was admitted to Harbor General Hospital on June 25, 1967, with the chief complaint of a droop of her right eyelid and double vision. In January, 1966, she began to have diplopia on occasions when she suddenly looked to the left. This cleared spontaneously and had not been a problem until December, 1966, when she noticed drooping of her right eyelid; within a few months this had progressed to virtual inability to open the right eyelid and persistent double vision.

The patient was known to have Ollier's disease (enchondromatosis) which in her childhood had required multiple surgical procedures, on both knees and the left ankle to correct the deformities.

Examination. The abnormalities in the general physical examination were limited to the slightly deformed knees. Neurological examination revealed an isolated paralysis of the right oculomotor nerve with a complete ptosis and a dilated, nonreactive pupil (Fig. 1, left). Visual acuity and visual fields were normal. The fundi were normal. There were no other significant neurological findings.

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Blood sugar was 95 mg%; tests for venereal disease were negative. The cerebrospinal fluid was normal. Tensilon test was negative, and the electroencephalogram was normal.

Radiological Studies. Skull films showed an irregular calcification in the area adjacent to and slightly posterior to the right posterior clinoid process (Fig. 2). No bony changes in the skull were identified. Chest x-ray showed calcified and cystic changes of the right fourth rib and the left seventh and eighth ribs and the right scapula. X-ray of the pelvis and lower extremities showed multiple changes of the bones, demonstrating expansion of the cortex and some loss of trabecular pattern. Brain scan with Technetium99m was normal. Bilateral carotid and vertebral angiography and pneumoencephalography did not show significant abnormalities.

Operation. On July 5, 1967, a right temporal craniotomy was performed under general anesthesia. The right temporal lobe was elevated slowly from the floor of the temporal fossa until the free margin of the tentorium was identified. The tumor was apparent in the region of the point where the free margin of the tentorium attached to the posterior aspect of the petrous bone. The binocular operating microscope was introduced using 10 power magnification. The arachnoid was freed from the dome of the tumor, which presented as a cystic-appearing mass. The right third cranial nerve could not be seen at this time. Dissection about the tumor was continued and a window was then cut in the wall of the tumor for internal decompression. The contents of the tumor consisted of a gelatinous material, which was easily removed with suction, and stony fragments of calcific material ranging from 2 to 5 mm in diameter. The tumor was moderately vascular and was evacuated with a
combination of curetting and suction, revealing a mass of approximately $2 \times 3 \times 2$ cm. The right third cranial nerve was identified under the surgical microscope on the medial side of the tumor, evidently having been displaced medially and thinned like a ribbon. It was possible to separate the tumor capsule from the third cranial nerve and to follow the nerve in its entirety from beneath the posterior clinoid process to the brain stem. The tumor actually arose from the tip of the right petrous bone and was completely removed with its capsule. The wound was closed in a routine fashion. The pathological diagnosis on microscopic examination was osteochondroma.

Postoperative Course. The patient had an uneventful postoperative course and was discharged from the hospital on July 13, 1967, the eighth postoperative day. Follow-up visits showed rapid recovery of the right oculomotor nerve function. Three weeks postoperatively, she was able to open her right upper eyelid slightly, and by 3 months there was no ptosis. Movements of the right eye returned slowly to normal, and the right pupil became smaller and reactive to light within 6 months after the operation (Fig. 1, right).

Discussion

The rarity of intracranial cartilaginous neoplasms is well known. Cushing found only three osteochondromas in his series of