CASE REPORTS

EPIDURAL HEMORRHAGE SECONDARY TO Cavernous Hemangioma of the Petrous Portion of the Temporal Bone

LAIBE A. KESSLER, M.D., LOWELL G. LUBIC, M.D., AND YALE D. KOSKOFF, M.D.
Department of Neurosurgery, Montefiore Hospital, Pittsburgh, Pennsylvania
(Received for publication August 3, 1956)

Hemangiomas of the bone are rare. They constitute from 1 to 2 per cent of all bone tumors. The most common site of hemangiomas is in the vertebrae, those of the skull being second in frequency. In the skull they are usually found in the calvarium, involving the parietal and frontal lobes. There are two types of hemangiomas. The capillary variety is made up of closely packed capillaries which are lined by a single layer of nearly cuboidal endothelial cells. The more common cavernous type is composed of larger blood-filled spaces which are lined by a single layer of flattened endothelial cells. Elastic fibers and smooth muscle are usually not present in the walls of these tumors and the amount and character of the fibrous supporting stroma vary greatly.

CASE REPORT

An 8-year-old, white female was admitted to the Neurosurgical Service of the Montefiore Hospital on Feb. 9, 1956. The child had been in good health until 2 days previously, when she complained of an earache accompanied by a small amount of blood exuding from the canal of the right ear. This persisted for 24 hours, and a local physician was called. He noted injection of the right eardrum and prescribed penicillin. That evening the child vomited and felt chilled. On the morning of February 9 the mother could not arouse her. She was taken to another hospital where roentgenograms of the skull showed evidence of mastoiditis. The patient continued to be comatose and was transferred to the Montefiore Hospital that evening with the diagnosis of brain abscess. Past history for chronic ear infection was negative. There was no history of recent head trauma.

Examination. The patient was comatose, with a temperature of 101°F. rectally, a pulse rate of 106/min., and a respiratory rate of 20/min. The neck was supple. There was no cranial bruit. The right pupil was 5 mm. in diameter and fixed; the left pupil was 2 mm. and fixed. There were no gross extraocular muscle palsies. The optic discs were flat, and the corneal reflexes were absent. There was dried blood in the right ear canal with some injection of the drum. There was a left central facial paresis with a left hemiparesis; the deep tendon reflexes on the left side were 8 plus and slightly more active than those on the right. Plantar responses were extensor bilaterally.

Roentgenograms of the skull, including Towne views, revealed a loss of normal cellular structure in the base of the right petrous pyramid and also in the bone of the mastoid process itself. There was a smearing of the bony structure, indicating the presence of bone destruction. The roentgenologist felt that the above findings suggested an acute exacerbation of a chronic sclerosing mastoiditis. There was no evidence of skull fracture (Fig. 1).

The clinical impression was herniation of the medial portion of the temporal lobe into the tentorial notch with secondary compression of the right 3rd nerve and the brain stem. The cause of the herniation was not ascertained pre-operatively.

Operation. Upon opening the squamous portion of the right temporal bone, about 250 cc. of blood gushed out under pressure. The bony opening was enlarged, but no bleeding point
could be found. The dura mater was opened, but there was no evidence of subdural hematoma. The patient’s condition remained poor, and she expired 24 hours following surgery.

Autopsy. There was a bluish discoloration of the right petrous pyramid. The bone was stripped away, and inside was found a large mass of friable vascular tissue. There was some partially organized and clotted blood over the dura mater in the floor of the middle cranial fossa and over the right parietal region. The sulci were shallow and the convolutions were flattened over the right cerebrum. There was moderate herniation of the uncus and hippocampal gyrus of the right temporal lobe. Focal hemorrhages measuring up to 0.5 cm. were present in the inferior portion of the right parietal lobe. There were no gross hemorrhages noted on section of the brain stem.

Microscopic Examination. Sections of the cerebrum and brain stem showed generalized hyperemia and edema. There were numerous small focal hemorrhages and degeneration of the parenchymal tissue in the mid brain and the pons. Sections from the bone of the right petrous pyramid exhibited moderate to marked proliferation of distended and engorged small blood vessels. There was associated moderate extravascular hemorrhage. The pathologist felt that these findings were consistent with the diagnosis of cavernous hemangioma (Fig. 2).

COMMENT

The patient had a cavernous hemangioma in the right petrous pyramid which ruptured spontaneously, causing a secondary epidural hemorrhage and subsequent
death from uncal herniation with compression of the vital centers in the brain stem. The probability is that this vascular tumor had been present since birth. Even in retrospect there was nothing in the roentgenograms to suggest the diagnosis of cavernous hemangioma. This case is documented because of its rare occurrence and with the hope that, in the future, earlier recognition of such a lesion may prevent a fatal outcome.

REFERENCES