Arteriovenous Malformation Presenting as Trigeminal Neuralgia

Case Report

MARTIN C. JOHNSON, M.D., AND JAMES H. SALMON, M.D.

Division of Neurosurgery, University of Cincinnati, and the Veterans Administration Hospital, Cincinnati, Ohio

Tumors and aneurysms of the cerebellopontine angle that present symptoms of trigeminal neuralgia are well known. Documented cases of arteriovenous malformation that mimic trigeminal neuralgia are rare. We are reporting such a case, with a review of the literature.

Case Report

Past History. The patient first developed symptoms of right facial pain after a head injury in 1946, at the age of 29. Over the next 17 years, the pain became more persistent and debilitating despite various conservative measures. The pain was described by the patient as short-lived and shock-like. It was limited to the third division of the right fifth cranial nerve. In July, 1963, intracranial resection of the third division of the right trigeminal nerve was performed. The pain recurred. Reexploration and resection of the second and remaining fibers of the third division were carried out 2 weeks later.

The patient remained free of pain for approximately 7 months, only to have recurrence of the neuralgia. On September 15, 1964, he underwent his third operation, a retrogasserian neurectomy. There was no recurrence of facial pain after this procedure.

On June 21, 1965, while lifting a heavy weight at work, the patient became dizzy, complained of an excruciating headache, and had a generalized convulsion. He was admitted to another hospital in a semicomatose state. Neurological examination revealed a left hemiparesis and hemihypesthesia. Shortly after admission, pneumoencephalography demonstrated only moderate symmetrical dilatation of the lateral ventricles. The cerebrospinal fluid was grossly bloody and xanthochromic. He remained stuporous and confused for about 2 months. Despite a residual left hemiparesis and hemihypesthesia, he returned to full-time work as a mechanic. He also noted some deafness and tinnitus in his right ear and complained of decreased visual acuity.

On September 7, 1966, he had a second generalized seizure similar to the first and was readmitted to the hospital. He recovered without apparent increase in his neurological deficit. Over the next 6 months, he had three convulsive episodes and was discharged from his job. His wife noted a definite deterioration of personality. He complained of intermittent slurring of his speech and increasing blurring of vision.

Examination. The patient was first admitted to the Cincinnati Veterans Administration Hospital on April 24, 1967. On examination, he had bilateral temporal pallor of the optic discs, a left homonymous hemianopsia, and hypalgesia of the entire right side of the face. The corneal reflexes were intact. There was a moderate weakness of the muscles of mastication on the right. He had no sense of taste on the entire right side of his tongue and there was a definite peripheral-type weakness of the right facial musculature. He had a sensory-neural hearing loss in his right ear. His gait was moderately ataxic with a tendency to veer to the left. The modalities of pain and temperature were depressed over the left trunk and extremities. He had a mild left hemiparesis with hyperactive deep tendon reflexes and a Babinski response on the same side. No bruit could be heard over the head or neck.

Lumbar puncture revealed crystal-clear cerebrospinal fluid under normal pressure. There were no cells, and the protein was 57 mg%. An electroencephalogram demonstrated a right temporal slow focus. A technetium brain scan and skull x-rays were interpreted as normal. A right brachial angiogram demonstrated an enlarged basilar artery which was displaced from right to left and anteriorly by a large lobulated arteriovenous malformation in the right cerebellopon-
Fig. 1. Towne (left) and submental-vertex (right) views of right brachial angiogram demonstrating a 3 × 2 cm lobular arteriovenous malformation in the right cerebellopontine angle and extending above the tentorium. This displaced the basilar artery (arrow) and its branches to the left.

Fig. 2. Lateral views of the right brachial angiogram demonstrating the rapid transit time of the contrast media, at 2 sec (left) and at 3 sec (right). In the 3 sec film, opaque medium is seen in both the vertebral artery and the sigmoid sinus.