An unusual late complication of Gasserian ganglion decompression surgery

Case report

ALONSO L. DESOUZA, M.D., JOHN E. KALSBECK, M.D., AND SOLOMON BATNITZKY, M.D.

Department of Neurosurgery, Indiana University Medical Center, Indianapolis, Indiana

The authors report an unusual complication following surgery for decompression of the Gasserian ganglion. Eight years postoperatively this patient developed a left temporal lobe granuloma caused by a piece of wood used to plug the foramen spinosum at surgery. The patient's clinical and radiological findings were suggestive of a glioma involving the temporal lobe.

KEY WORDS     □9 foramen spinosum □9 foreign body □9 granuloma □9 temporal lobe

THE first decompression of the trigeminal nerve root and ganglion was performed by Taarnhøj in 1952.17 He noticed that one of his patients was free of pain after removal of an epidermoid tumor that was compressing the trigeminal root. Complications of Taarnhøj's procedure were minimal. Intraoperative bleeding, paresthesia, transient seventh nerve paresis, and recurrence of pain have been reported in the literature.16 We are aware of no report of a temporal lobe granuloma as a complication of this procedure.

A foreign body may cause brain abscess as late as 31 years after its introduction.8 Most of the brain abscesses and granulomas caused by a foreign body are due to penetrating injuries. Several cases of an unusual foreign body in the brain have been documented.1,2,8-10,12,18 We are reporting an unusual complication of decompression of the Gasserian ganglion which presented as a temporal lobe mass mimicking a glioma.

Case Report

This 55-year-old woman was admitted to our hospital with a history of focal seizure activity. One year before admission, she had developed abrupt jerking in the muscles of the right half of her body which lasted for 45 minutes. This episode was associated with slurring of her speech, and difficulty in expressing herself, which lasted for 4 days. She experienced similar episodes 1 month and 7 months later.

History. The patient had developed numbness in her lower extremities 22 years before the onset of her present symptoms. At that time she was diagnosed as having multiple sclerosis. Her examination and symptoms remained relatively stable for about 15 years at which time she developed numbness in both upper extremities. She also developed trigeminal neuralgia on the left side and underwent a retrogasserian decompression.
Late complication of Gasserian ganglion surgery

Following this procedure, she had a transient episode of facial paresis.

**Examination.** The patient exhibited a moderate receptive and expressive aphasia. She was oriented to place and person, but had difficulty in naming the year. She was unable to remember four words given 3 minutes earlier, and her proverb interpretation was poor. The left pupil was 1 mm larger than the right and reacted slightly more slowly. There was no papilledema. The visual fields showed constriction in the right superior temporal field. There was a slight overaction of the facial muscle on the left. She had a mild dysmetria on the right. Reflexes were slightly increased on the right and bilateral Babinski responses were present. There was no definite sensory loss. Her gait was broad-based and spastic.

A $^{99m}$Tc scan revealed an increase in radioactivity in the left temporoparietal area. Left carotid angiography demonstrated an avascular mass in the left temporal lobe (Fig. 1). An electroencephalogram was diffusely slow and revealed focal slowing in the left temporal region. Computerized tomography demonstrated a lesion in the left temporal region with surrounding edema (Fig. 2).

**Operation.** A left temporal craniotomy was performed. On exposing the temporal lobe, the brain appeared yellowish in color and the gyri were widened and flattened. At a depth of about 3 cm a firm, fibrotic, vascular mass was found. A frozen section was reported to show neoplastic tissue with many small cells. The anterior inferior temporal lobe was resected and additional fibrotic tissue removed. Within this mass were many small areas of necrotic and purulent-looking material, at the center of which a small wooden peg was found (Fig. 3).
A. L. DeSousa, J. E. Kalsbeck and S. Batnitzky

Postoperative Course. Postoperatively, the patient had no increase in her deficits and her course was uneventful. She was treated with Chloromycetin (chloramphenicol). Cultures were all negative and antibody studies were positive only for *Pseudomonas*. Histological examination revealed chronic granulomatous inflammation with multiple abscess cavities. On follow-up examination 18 months postoperatively, her clinical status was practically unchanged.

Discussion

The extradural approach to the Gasserian ganglion was introduced by Frank Hartley in 1892. To avoid bleeding from the middle meningeal artery, the foramen spinosum has been plugged with such materials as cotton, wood, Gelfoam, and wax. Reported complications of the above procedure are few. The migration of a wooden plug through the dura and into the temporal lobe with a resulting intracerebral granuloma represents a rare and unusual complication. The diagnosis was difficult even after examination of the frozen section. The presence of necrosis, inflammatory cells cuffing around the vessels, and giant multinucleated cells all made differentiation from a glioblastoma difficult. After removal of a large area of the lesion and finding the piece of wood, the chronic granulomatous appearance of the lesion was obvious.

Recently a paper by Miller, et al., described the danger of intracranial wood. They reviewed 42 case reports from the literature, primarily periorbital puncture wounds by sharp wooden objects. Permanent neurological deficit occurred in 74% of the cases. Brain abscess occurred in one-half of the cases. Cerebral abscess is a frequent complication of penetrating injuries of the brain. Of the patients with retained bone fragments reported by Rowe and Turner, 25% developed brain abscesses within 6 weeks. However, the appearance of an abscess due to a retained foreign body can be delayed and may be discovered many years later.

References


Fig. 3. A 10-mm piece of wood found within the left temporal lobe granuloma.
Late complication of Gasserian ganglion surgery


Address reprint requests to: Alonso L. DeSousa, M.D., Department of Neurosurgery, Emerson Hall 139, Indiana University Medical Center, 1100 West Michigan Street, Indianapolis, Indiana 46202.