PERSISTENT CEREBROSPINAL RHINORRHEA ORIGINATING IN A FRACTURE THROUGH THE PETROUS BONE AND CURED BY MUSCLE GRAFT

REPORT OF A CASE

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In the majority of cases, persistent cerebrospinal rhinorrhea results from defects in the floor of the anterior fossa. However, in a few instances it occurs through the petrous pyramid or mastoid bone, the fluid draining into the middle ear and through the Eustachian tube into the nasopharynx.1,6-8 Defects in the temporal bone may be produced by trauma, surgical or accidental, or by erosion of tumors.

Persistent cranionasal or cranio-otic fistulae require closure in order to prevent inevitable intracranial infection and severe headache or pneumatocele.4-7,15,16 In 1926 Dandy7 clearly pointed out that suture or patching of the dura mater was essential for cure. Various methods of accomplishing this have been tried, the success that has been attained having been proportional to the adequacy of reestablishment of dural continuity.1-3,5,6,9-14

The following case is considered sufficiently unusual to warrant recording.

CASE SUMMARY

J.H., a 37-year-old man, was admitted to the Albany Hospital on Aug. 20, 1954. Two days previously he had fallen a distance of 20 feet, striking his head. He had been unconscious for 45 minutes, and was dazed for 4 hours. He vomited several times and had bled from the nose. Because of persistent drowsiness he was brought to the hospital. He was somewhat confused and complained solely of numbness of the right side of the face.

Examination. He was a well developed, well nourished man who was awake but confused. Temperature was 98.5°, respiratory rate 18, pulse rate 52/min. and blood pressure 110/70. There was a sutured laceration in the right frontal area. No bony deformity of the head or neck was found but the neck was rigid. The right tympanic membrane was blue and bulging. There was no active bleeding from the nose or throat. Except for bradycardia the chest and cardiovascular systems were normal. The abdomen was negative.

* Deceased February 15, 1956.

FIG. 1. Roentgenogram of base of skull showing wide fracture (retouched) through right petrous pyramid.
His sense of smell was intact. The pupils were equal and reacted. Abnormal neurological findings were: hypaesthesia on the right side of the face, weakness of all muscles of expression on the right, and deafness of the right ear.

Roentgenograms of the skull disclosed a fracture line extending from the right parietal bone through the floor of the middle fossa and across the petrous pyramid to the posterior fossa (Fig. 1).

Course. During the next 4 days he was maintained on antibiotic therapy and observed closely. His confusion disappeared but the bradycardia persisted. On August 24 he sat up for the first time and pink fluid drained out of the right nostril. This was followed by severe headache. Analysis of this fluid revealed the presence of 45 mg. per cent glucose. Nasopharyngoscopy showed fluid draining out of the ostium of the right Eustachian tube. The temperature remained normal.

On September 3, because of persistence of the drainage and in an attempt to discover whether the leak was anterior or posterior to the petrous ridge ½ cc. of pantopaque was placed in the cisterna magna and the patient was kept on the right side. Roentgenograms (Fig. 2) revealed radio-opaque material in the posterior fossa and nasopharynx but none in the middle fossa.

Operation. On Sept. 7, 1954, because of failure of the fistula to heal spontaneously, a right suboccipital craniectomy was performed and the posterior surface of the petrous pyramid was visualized. At the junction of the middle and inner thirds a wide tear in the dura mater could be seen. This was just in the region of the cisterna lateralis, extending from the internal auditory meatus vertically to the petrous ridge. A piece of muscle was placed in and
over the defect. Using the electrocoagulation current the muscle was burnt and appeared to stick to the surrounding dura mater.

Postoperative Course. For 4 days a very small amount of cerebrospinal fluid drained from the nose. When discharged on Sept. 21, 1934, he was ambulatory. He was deaf in the right ear. Taste sensation over the entire tongue was normal. There was still some hypaesthesia over the lower part of the right side of the face. When seen 5 months later the facial weakness had almost entirely disappeared. Hearing in the right ear had not returned. All cerebrospinal fluid drainage had ceased. Headaches had disappeared and he had returned to work.

SUMMARY

A case of persistent cerebrospinal rhinorrhea caused by cranio-otic fistula is presented. The problems posed concerned the radiographic demonstration of the fistula's origin in the posterior rather than the middle fossa. The difficulty of suturing a dural patch in this region was obviated by the use of muscle, tightly wedged in and rendered more adherent by the electrocautery.

This method would no doubt be applicable to persistent fistulae in this area, such as those caused by extensive curettement of the internal auditory meatus for the removal of tumors.

REFERENCES