Neurosurgical Techniques
Trigeminal Rhizotomy: The Temporal Approach

EDGAR A. KAHN, M.D.
University Hospital, Ann Arbor, Michigan

Under intratracheal anesthesia the patient is placed in the sitting position with the trunk tilted backwards about 30° from the vertical position. The thighs and knees are placed in what would seem to be a comfortable, flexed position. The positive pressure suit has been previously placed on the patient but is not ordinarily inflated unless there is a blood pressure drop or a hint that air is entering the venous system.

It is best for orientation of the surgeon that the sagittal plane of the head should be exactly parallel to the wall the operator is facing. Should the head be turned to the left in a left-sided operation, the dissection could be carried too far in a posterior direction, and the dura would then be opened into the posterior fossa. Should difficulty be encountered in identifying the landmarks of the floor of the middle fossa, the position should be checked to make certain that the head has not been rotated.

The incision must not be carried below the zygomatic process. The temporal muscle is split in the direction of its fibers. The dissection is then carried down behind the zygomatic process, as low as possible, so that the optimum exposure of the temporal squama may be obtained. An opening is made in the temporal bone and this is enlarged to about the size of a 50 cent piece, freeing the dura prior to rongeuring and carrying the bone removal as low down on the base of the skull as is possible. Before attempting to elevate the dura from the floor of the middle fossa, the surgeon should free it from the bony margin through the full circumference of the craniectomy opening for a distance of about 1 cm. The exposure of the ganglion will ultimately be facilitated by this procedure.

The elevation of the dura from the floor of the middle fossa should now be commenced. Occasionally, in older individuals, the dura is so tightly adherent to the floor of the middle fossa that it cannot be elevated. One then opens the exposed dura immediately by a low curved incision, and approaches the Gasserian ganglion intradurally. Sometimes, after the elevation of the dura has been started, it will split without tearing, and a portion of the outer layer will adhere to the floor of the middle fossa. If the dissection is continued, the dura will continue to split if it does not tear; the surgeon will then lose sight of the middle meningeal artery, which adheres to the floor of the middle fossa. Possibly all other landmarks may also be lost. This complication can be avoided if it is recognized. One “backs out,” elevates the small adhering area of outer dura, and then proceeds with the extradural dissection.

It is easier and better to carry the dural dissection somewhat anteriorly so that the foramen spinosum is approached anterolaterally. If the foramen spinosum cannot be readily visualized, a branch of the middle meningeal artery may be recognized on the surface of the dura and followed down to this foramen. The foramen spinosum is plugged with a small wisp of cotton and the middle meningeal artery divided.

After this artery has been divided, the dissection should be carried 2 mm. anterior to the foramen spinosum, where stripping of the temporal dura should be as low as possible on the lateral margin of the foramen ovale. In this way the 3rd division will be encountered, and the dissection cannot be carried beneath it. The dura is now stripped directly upward for a short distance on the 3rd division, following which the direction of dural stripping is at about a 45° angle. When approximately the first half of the dura propria has been exposed, the petrosal nerves will be encountered as they run adherent to the undersurface of the dura from beneath the ganglion to the hiatus fallopian. Elevation of the dura should be carried out more or less parallel to the direction of the petrosal nerves toward the hiatus fallopian. In this way, pulling on petrosal nerves will take place toward,