PREFRONTAL LOBOTOMY FOR RELIEF OF PAIN
WITH A REPORT OF A NEW OPERATIVE TECHNIQUE

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Since Freeman and Watts\(^1\) reported thatprefrontal lobotomy was useful as a method for relieving intractable pain, numerous reports\(^2,3,6,7,9,11,12\) have attested to the success of the operation in cases of intractable pain not curable by direct attack on the primary disease process. Not only is the fear of suffering abolished, but many patients no longer have pain in the usual sense of that word. The conventional (radical) prefrontal lobotomy, however, has distinct disadvantages, chief of which are changes in personality. Another disadvantage is the high incidence of epilepsy following the currently employed operations. These alterations are grave enough to limit the use of the procedure to a relatively small group of patients suffering with intractable pain.

Probably all surgeons who have performed prefrontal lobotomy for pain have envisaged that with greater experience a wide field may be opened for its usefulness. If this is to be accomplished, however, an operation resulting in less unwanted side effects must be perfected. Such a procedure should accomplish a selective or limited destruction of the frontal lobes as contrasted to the extensive destructive lesion produced by conventional methods. To develop a selective prefrontal lobotomy the fiber tracts (or cortical areas) controlling the function to be destroyed must be accurately known. It is also necessary that a method be devised to reach this limited area for destruction without damaging other important areas in the process of reaching and destroying the selected area. If, on the other hand, the results of lobotomy are in direct proportion to the quantity of tissue destroyed, then the proportion of the frontal lobes to be destroyed for a specific result must be known.

After operating on psychiatric patients by the open method of Lyerly,\(^8\) the writer varied the procedure to one in which an effort was made to divide only the white matter in the medial half of the frontal lobe rostral to the lateral ventricle. The results after this procedure were as gratifying as they were in the cases of more extensive incisions. The same operation also was successful in several cases performed for the relief of pain. Consideration of these facts plus a desire to produce a destructive lesion by a fractional method brought to mind the possibility of performing prefrontal lobotomy by electrocoagulation. The lesions are produced by a high frequency electrical current applied through a small needle insulated everywhere except at the tip. By this method a small lesion can be produced in any portion of
the frontal lobes and the desired area can be approached and destroyed without damage to other areas of the hemisphere. In the same manner the lesion may be increased in size if subsequent study of the patient indicates that a larger incision is needed.

TECHNIQUE

The operation may be performed under local or general anesthesia. A coronal incision 10 cm. in length is made just behind the hairline. A point approximately 6 cm. above the glabella is selected and marked on the exposed frontal bone. A burr hole is made at this level over each frontal lobe. The distance of the burr hole from the midline varies according to which portion of the white matter of the frontal lobe is to be destroyed. The center of the burr hole is 1.5-2 cm. from the midline if the lesion is to be made in the white matter of the medial half of the hemisphere, as was done on the patients included in this report. The dura is opened in a cruciate fashion. In some patients, instead of a burr-hole exposure, a 1-inch trephine has been used so that the medial surface of the hemisphere could be visualized. When the trephine opening is employed, the dura should be opened carefully to avoid damage to a vein, which is sometimes exposed, leading to the sagittal sinus. For identification of the proper plane for the electrode, a point is marked in the temple 2 cm. behind the lateral rim of the orbit. A scratch mark made on the scalp between the burr hole and the point 2 cm. behind the rim of the orbit is used in selecting the plane for the electrode. In most instances, with the burr holes at 6 cm. above the glabella, a ventricular needle, which is used to make a path for the electrode, will

![Image](https://example.com/image1.png)

**Fig. 1 (left).** An anteroposterior x-ray shows the correct placement of the electrodes in relation to the sagittal plane and the anterior horns of the lateral ventricle. In this instance, the electrodes are at a depth of 4.5 cm. below the surface of the cortex and lie 2 cm. from the midline.

**Fig. 2 (right).** A lateral x-ray shows the two electrodes in the same plane and at the proper distance rostral to the anterior horn of the lateral ventricle.