Neurosurgical Techniques

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Supratentorial Skull Flaps

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The following illustrations show the scalp and bone flaps commonly used by the neurosurgical service at Duke University Medical Center to expose supratentorial lesions.

In planning any skull flap, the most important aspect of the problem is being certain that it is properly placed in order to expose the intracranial lesion with as little trauma to the adjacent brain as possible. Other aspects of the procedure which are extremely important are (1) preservation of blood supply to the scalp flap, (2) avoiding the frontal sinus, (3) avoiding damage to the major venous sinuses, (4) avoiding damage to the branch of the facial nerve to the forehead, and (5) avoiding placing burr holes too far apart.

In this series of sketches, burr holes are outlined indicating that the bone is cut with a gigli saw. If a craniotome is used rather than a gigli saw, we have found that in older people in whom the dura adheres to the inner table, it is better to use several burr holes in order to separate the dura from the inner table of the skull and avoid cutting the dura at the bone edge by the craniotome.

Often it is useful to connect the burr holes through their outer periphery rather than through their center as shown in the drawings. This modification provides an additional centimeter of exposure throughout the circumference of the bone flap.

Unilateral Frontal Flap

The incision for the average unilateral frontal (Fig. 1 A) scalp incision is outlined in such a way as to preserve the blood supply from the temporal artery and the branch of the facial nerve to the forehead. The scalp and bone flaps are reflected separately, the scalp anteriorly and the bone laterally onto the temporal muscle. The bone flap should avoid the frontal sinus, unless the sinus is large or it is necessary to obtain a low exposure, as in a hypophysectomy. If the sinus is opened intentionally or unintentionally it should be immediately sealed off with a strip of fascia.

If a large bone flap is planned, three burr holes instead of two are placed just lateral to the sagittal sinus to avoid the danger of tearing the dura and a cortical vein while separating the dura from the inner table of the skull (Fig. 1 B).

FIG. 1. A. Unilateral frontal scalp flap. Note location of branch of facial nerve and temporal artery.