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SURGICAL TECHNIQUE

Salvage craniotomy for extradural hematoma in the adult patient

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Introduction

Acute extradural hematoma (EH) is an absolute emergency requiring urgent neurosurgical intervention. EH occurs in 1—4% of cranial trauma with a global mortality of 10—15%. Standard treatment consists of performance of a craniectomy overlying the hematoma to evacuate the blood clot and to control ongoing bleeding. But transport of the patient to the nearest neurosurgical center within a reasonable amount of time is sometimes impossible. We describe here an intervention that can be performed in the emergency setting by any general surgeon while awaiting transfer of the patient to a neurosurgical center; but transfer should never be delayed simply in order to perform this procedure.

The indications and the modalities for performance of this procedure should be systematically discussed and validated by a neurosurgical consultant at the receiving neurosurgical center.

Situations where salvage craniotomy should be considered include the following:

- transfer time greater than 30 minutes;
- Glasgow Coma Score < 12;
- homolateral dilated pupil or contralateral hemiplegia;
- cranial CT without contrast demonstrating a mass effect with compression of adjacent intracranial structures with midline deviation of > 0.5 cm.

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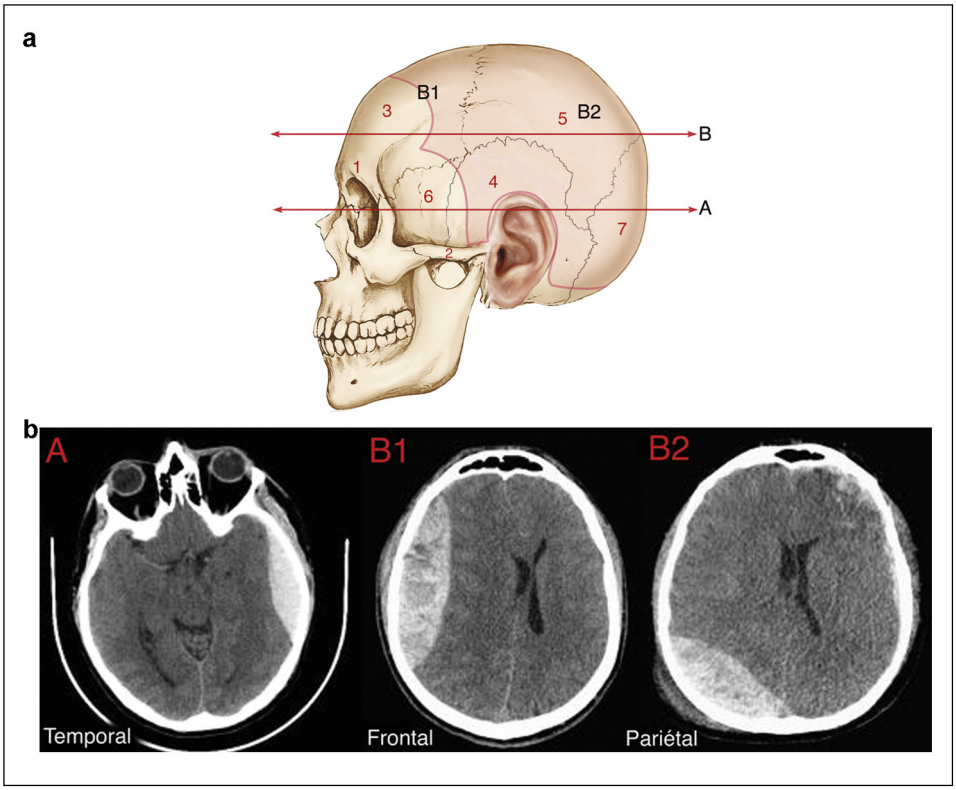

1 Review of anatomy and pathophysiology

The bleeding that produces EH can originate from either arterial or venous lesions. Most often, it originates from the middle meningeal artery or one of its temporal branches. When bleeding is heavy, the artery must be coagulated or ligated to obtain hemostasis. Less commonly, bleeding may arise from laceration of a venous sinus. When a cranial fracture is present, the vascular lesion is usually adjacent to the fracture.

The three most common bleeding sites are temporal, frontal, and parietal, as illustrated here:

A. Temporal EH visualized on a transverse CT cut passing through the orbits;

B1. Frontal EH;

B2. Parietal EH visualized on a fronto-parietal CT cut passing through the lateral ventricles and the frontal sinus.