Role of Linear Durotomies In Decompressive Craniotomy For Cerebral Hemispheric Swelling With Acute Subdural Hematoma

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Introduction

Decompressive craniectomy (DC) in severe traumatic brain injury
(TBI) is associated with acute and late complications. The wide aperture of the duramater is associated with cerebral extrusion and consequent secondary lesion. To avoid these complications, Burguer et al 2008 developed a durotomy instead of duroplasty. We proposed a technical modification in DC with 5 linear durotomies and duroplasty.

Methods

We performed a prospective cohort with 43 TBI patients undergoing DC for treatment of diffuse hemispheric brain swelling with acute subdural hematoma.
All patients underwent the modified durotomies "Burger type" (three on the frontal and parietal lobes and two on temporal lobe) with autologous tissue of subgaleal over the durotomies in order to avoid direct contact of the cerebral cortex with bone flap or CSF leakage.

Results

Comparing the CT scans before and after surgery, the midline shift decreases from median of 11 mm to 5.5 mm ($p<0,0001$). Only one patient had presented uncontrolled intracranial hypertension after surgery. There has been no intraoperative death. Postoperative mortality in the intensive care unit within 14 days was 50%.

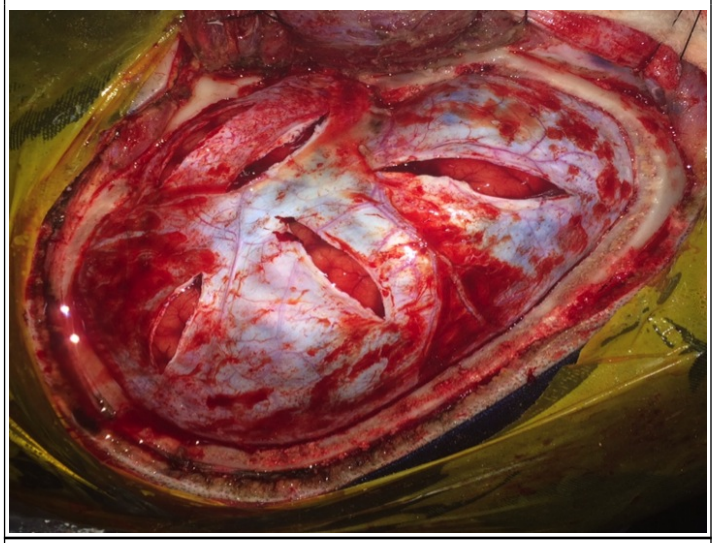
Learning Objectives

By the end of this section, participants should be able to describe the Linear Durotomies and the role of ths technical modification

Conclusions

In this pilot study, we observed ICP control, avoiding the complications of classical decompression. The modified durotomies should be an option to avoid abrupt extrusion of the brain and to allow the gradual and gentle reduction of ICP.

Linear Durotomies



Linear Durotomies and Autologous Duroplasty