

Decompressive Hemicraniectomy and Intractable Intraoperative Brain Herniation: the Use of a Plastic Sheet, Resembling a Bogotá Bag, for Temporary Scalp Closure

Marcius Benigno Marques dos Santos; Orival Alves; Marcelo A Rodrigues; Stenio Henrique de Souza; Helber Perez; Fernando Schmitz; Álvaro da Luz; Layara Lenardon; Paulo Eduardo Carrilho; Talvany de Oliveira; Cristiane Egewarth

Introduction

Decompressive craniectomy with duraplasty is an life-saving procedure for the treatment of persistent elevated intracranial pressure, when optimized medical therapies have failed. Ultimately the skin edges are easily reapproximated. We describe four cases of a huge intraoperative brain swelling that was refractory to standard measures and the temporary augmentation of the scalp with a sterile plastic sheet.

Methods

The authors present four cases of decompressive hemicraniectomy with durotomy, two for the treatment of traumatic brain swelling with midline shift to the right side (a 21 year-old male, and a 7 year-old boy), and two for left-sided malignant middle cerebral artery ischemic stroke (51 year-old, and 44 year-old, both males) with the development of massive intraoperative brain herniation. The duraplasty was performed, but the primary skin closure was precluded. Thus, in order to provide an augmentation of the scalp, a sterile plastic sheet was sewn to the skin edges with running suture, and no brain tissue was surgically removed.

Learning Objectives

By the conclusion of this session, participants should be able: 1) Describe this alternative and simple technique for temporary scalp augmentation, 2) Recognize that this technique represents an alternative for a rare situation, and the authors do not recommend as a primary type of closure applied to all cases of decompressive hemicraniectomy.

Results

Two patientes died: the 51 year-old within the first week of the craniectomy, from brainstem compression along with sepsis; the 44 year-old, after 112 days from craniectomy, from sepsis, but the skin was reapproximated after 3 weeks. The skin was reapproximated in 10 days for the 21 year-old patient, and the 7 year-old boy eventually needed a skin graft.

Conclusions

The use of a plastic sheet to provide skin augmentation, resembling a Bogota bag, in the face of massive brain herniation during decompressive craniectomy should be considered a viable option, including the preservation of potentially functioning brain tissue. The plastic sheet for the 7 year-old boy with traumatic brain injury.



The plastic sheet for the 51 year-old male with malignant MCA ischemic stroke - anterior view.



The plastic sheet for the 51 year-old male with MCA malignant ischemic stroke - lateral view.



The plastic sheet for the 51 year-old male with malignant MCA ischemic stroke - posterior view.



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