The Surgical Outcome of Traumatic Extra-axial Hematomas Causing Brain Herniation in Children

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Introduction

The aim of this study was to assess the surgical outcome and prognostic importance of clinical and radiological data from children operated on under emergency conditions due to an extra-axial hematoma causing brain herniation.

Methods

This retrospective study included 25 children operated on due to herniated traumatic extra-axial hematomas from January 2000 to December 2010.

Results

Of those 25 children, 17 (68%) were diagnosed with subdural hematoma (SDH), 7 (28%) with epidural hematoma (EDH), and only one patient (4%) suffered from both SDH and EDH. Overall mortality from a herniated extra-axial hematoma was 44%. The mortality rate for herniated SDH patients was 52.9%, and only one patient died from a herniated EDH (14.2%). Low GCS scores at admission, high postoperative ICP values, longer intervals from trauma to surgery, longer durations of brain herniation, the presence of intraoperative brain swelling, larger and thicker hematomas, and more displacement of the midline structures and obliteration of the basal cisterns were all correlated with mortality and an unfavorable outcome.

Conclusions

Brain herniation is a serious consequence of traumatic extra-axial hematomas in children, and approximately one-third of these patients have the potential for a favorable outcome. We recommend postoperative ICP monitoring to predict outcome and early decompressive surgery when possible for promising results.

Learning Objectives

Brain herniation is a serious consequence of traumatic extra-axial hematomas in children, and approximately one-third of these patients have the potential for a favorable outcome. We recommend postoperative ICP monitoring to predict outcome and early decompressive surgery when possible for promising results.