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Analysis of Surgical Management of Subdural Hematoma in Pediatric Abusive Head Trauma

Vincent Nguyen MD; Olutomi Toluwanimi Akinduro BS; David Alexander Wallace; Sonia Ajmera BS; Michael G. DeCuypere MD; Paul Klimo MD MPH

Introduction

An optimized approach to the surgical management of symptomatic subdural fluid collections in abusive head trauma (AHT) remains controversial (1,2). Surgical options used at the authors' institution include transfontanelle taps, burr holes with/without external subdural drainage, craniotomy for evacuation, and subdural-peritoneal shunting. The authors hypothesize that for the initial management of traumatic subdural fluid collections, burr hole with external subdural drainage carries lower treatment failure and complication rates than transfontanelle taps, burr hole without external drainage, or craniotomy.

Methods

The authors conducted a retrospective observational study to evaluate data obtained in all children with AHT who required surgical intervention for symptomatic subdural fluid collections at Le Bonheur Children's Hospital (LBCH) from September 2008 through October 2017. Demographic, hospital course, radiological, cost, readmission, and follow-up information was collected. Children that received transfontanelle taps were compared to those that underwent craniotomy or burr holes with/without external subdural drainage.

Results

The authors identified 302 children with AHT, of whom 196 had a subdural fluid collection. 45 of these children required surgical intervention. 28 underwent transfontanelle taps, 11 burr holes with external subdural drainage, 4 craniotomy, and 2 burr hole without external drainage as initial surgical management. Those undergoing transfontanelle taps, craniotomy, and burr hole drainage without external subdural drainage had a significantly higher rate of conversion to subdural-peritoneal shunt, treatment failure, and infection. Consequently, overall hospital costs were less for those patients who underwent burr holes with external subdural drainage as initial surgical management.

Conclusions

In our experience, burr holes with external subdural drainage is a viable, safe treatment option for post-traumatic subdural fluid collections in accidental head trauma, with low rates of shunt conversion, treatment failure, infection, complication, and cost.

Learning Objectives

By the conclusion of this session, participants should be able to:

1) Understand the etiology of symptomatic post-traumatic subdural fluid collections in pediatric abusive head trauma

2) Describe the various treatment modalities for these fluid collections

3) Discuss the surgical outcomes, including complications and associated costs with these treatment modalities

References

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