

Endoscopic-assisted evacuation of subacute subdural hematoma: a case-control study

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Introduction

Subacute subdural hematomas (SDH) contain both acute and chronic clot which often makes burr hole drainage inadequate. Craniotomy, however, provides access to more brain surface area but at the cost of more extensive surgery and potential morbidity. Endoscopic-assisted mini-craniotomy may optimize hematoma removal while maintaining a minimally invasive approach.

Methods

We reviewed cases of endoscopic-assisted mini-craniotomy (<3 cm) for subacute SDH performed at our institution from January 2014 to June 2017 (N=16). To select controls we reviewed all contemporaneous craniotomies for SDH (N=230); 93 were radiographically identified as subacute SDH. Exclusion criteria included: previous cranial surgery, intracranial malignancy or vascular pathology, end-stage renal disease, non-iatrogenic coagulopathy (INR>1.4 and/or platelet count<100,000/ul), age 18 or less, or GCS less than 13. We collected outcome data on SDH thickness and midline shift (post-operatively and at follow-up), reoperation rate, mortality, and length of hospitalization.

Results

Sixteen cases and 47 controls were included in the analysis. Cases were younger than controls (70.8 vs. 77.8 years, $p=0.03$). Decrease in subdural thickness was similar at time of in-patient post-operative imaging (-0.9-cm vs -0.8-cm, $p=0.4$), but tended to be greater in the endoscopic group at out-patient follow-up (-1.5 cm vs -1.1 cm, $p=0.06$, fig. 1). Changes in midline shift at both times were similar ($p>0.3$). The average length of stay was 7.6 days for cases versus 9.8 days for controls ($p=0.16$, fig. 2). While all cases were discharged by day 17, six controls were hospitalized for 19 days or more. One case and eight controls required reoperation for recurrence ($p=0.4$), and 3-month mortality was 0% vs 6.4% for cases and controls, respectively ($p=0.6$).

Conclusions

Compared to craniotomy, endoscopic-assisted evacuation of subacute SDH tended to achieve greater decrease in hematoma thickness by time of follow-up. Trends toward decreased length of hospitalization, reoperation rate, and mortality in endoscopic group were not statistically significant.

Learning Objectives

- (1) Understand technical approach of endoscopic SDH evacuation
- (2) Discuss theoretical advantages of technique in setting of subacute SDH
- (3) Summarize outcomes of patients undergoing endoscopic versus craniotomy for subacute SDH

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