

## Introduction

Acute subdural hematomas (aSDH) are one of the most commonly encountered neurosurgical conditions. They occur in approximately 10-20% of all traumatic closed head injuries and represent a significant cause of morbidity and mortality worldwide. Craniotomy for aSDH evacuation is the conventional treatment of choice for patients who require intervention. However, craniotomy for aSDH evacuation may be associated with significant operative blood loss and prolonged recovery time, especially in elderly patients and those with multiple medical comorbidities who are taking antiplatelet or anticoagulant medications. The aim of this single-center, retrospective cohort study is to evaluate the outcomes of minimally invasive endoscopic evacuation of aSDHs.

## Methods

We retrospectively reviewed the medical records of all patients who underwent minimally invasive endoscopic aSDH evacuation with the Apollo/Artemis neuro-evacuation device (Penumbra, Alameda, CA) at our institution from April 2015 to July 2018.

## Results

The study cohort comprised seven patients. Three patients were neurologically intact at presentation, and two presented with dysphasia, one presented with headaches, and one presented with left lower extremity paresis. The median baseline mRS at presentation was 0 (range 0-2). The median degree of hematoma evacuation was 88.4% (range 84.8-95.9%), including median pre- and post-operative hematoma volumes of 51.5 cm<sup>3</sup> (range 12.1-91.6 cm<sup>3</sup>) and 6.6 cm<sup>3</sup> (range 0.5-7.9 cm<sup>3</sup>), respectively. There were no perioperative complications. The discharge status was home in five patients, subacute rehabilitation facility in one, and death in one due to respiratory complications. The median mRS at discharge was 2 (range 0-6).

## Conclusions

Minimally invasive endoscopic evacuation of aSDHs using the Apollo/Artemis neuro-evacuation devices affords an acceptable risk to benefit profile, and it could be a reasonable alternative to craniotomy for appropriately selected patients. Further studies are needed to evaluate the long-term outcomes of this approach in larger cohorts.

## Learning Objectives

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

- 1) Understand the morbidity and mortality of acute subdural hematomas
- 2) Recognize that endoscopic evacuation of acute subdural hematomas is a promising alternative therapeutic intervention

## References

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