

Introduction

Intracerebral hematoma (ICH) secondary to aneurysm rupture is not rare; incidence has been reported in up to 12% of patients with ruptured aneurysms. The Penumbra Apollo System facilitates minimally invasive clot removal, which may be a crucial adjunct to treatment. Two patients with ruptured cerebral aneurysms and ICHs presented to our institution since acquiring the Apollo System. Both patients underwent treatment of their aneurysm and evacuation of their hematoma via the Apollo. We present our methods and outcomes, demonstrating the use of the Apollo as a safe and viable treatment option for the management of ICH secondary to aneurysm rupture.

Methods

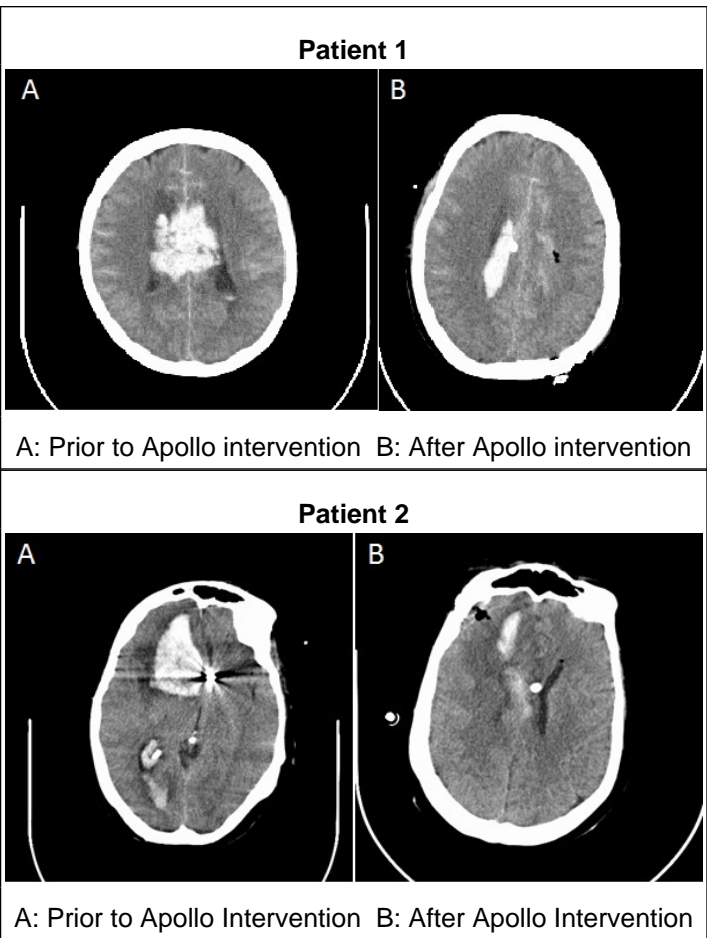
Two patients presented to the Emergency Department with Hunt-Hess 5, Fisher 3 + IVH subarachnoid hemorrhage with associated ICH. Both patients underwent immediate external ventricular drain placement with some clinical improvement and were taken to the angio suite for successful embolization. Both patients were then taken to the operating room for craniotomy and minimally invasive removal of their ICH via the Apollo System. One was taken immediately for life-threatening interhemispheric hemorrhage (**Patient 1**), while another was taken in a delayed fashion, as the ICH resulted in cerebral edema and intracranial pressure elevation (**Patient 2**). The ICH evacuation was achieved under direct visualization, using neuronavigation and a registered endoscope along with the Apollo System.

Results

Greater than 90% clot evacuation was achieved in both patients. They have recovered clinically, and are participating in physical therapy, where they continue to improve.



Figure 1: Penumbra Apollo Device



Conclusions

This case series illustrates a safe and effective use of the Apollo system for the minimally invasive evacuation of an ICH secondary to aneurysmal rupture. The procedure can be performed with direct visualization of the ICH evacuation, and has shown good results.

References

Turner RD, Vargas J, Turk A, Chaudry MI, Spiotta A. Novel Device and Technique for minimally invasive Intracerebral Hematoma Evacuation in the Same Setting of a Ruptured Intracranial Aneurysm: Combined Treatment in the Neurointerventional Angiography Suite. Operative Neurosurgery. 2015;11(1):43-51.