

Introduction

Mechanical thrombectomy is now the standard of care in treating ischemic stroke patients with large vessel occlusion (LVO). Newer, more efficient techniques for thrombectomy continue to be developed, such as the direct aspiration first pass technique for acute stroke thrombectomy (ADAPT). We describe the successful use of a handheld suction aspirator, the ASPIRE device (Control Medical Technology, Salt Lake City, UT) in a series of patients undergoing direct aspiration thrombectomy for LVO.

Methods

Patients presenting to Vanderbilt University Medical Center with acute onset symptoms and LVO of either the anterior or posterior circulation with NIHSS ≥ 5 were included. The device was directly attached to the aspiration catheter. The aspiration catheter was navigated to the proximal face of the clot in triaxial fashion, using a large bore guide catheter and a smaller microcatheter. Suction was applied for 90 seconds during each aspiration attempt.


Results

Four patients were treated; half were male ages 33-86. The presenting NIHSS scores in the four patients were: 14, 8, 13, and 5. Mean time from symptom onset to revascularization was 295.5 minutes. No patients required more than 3 aspiration attempts. All four patients achieved thrombolysis in cerebral infarction (TICI) 3 reperfusion. The median decrease in 24-hr NIHSS scores was 6. One patient required the use of a stent retriever in addition to ASPIRE aspiration. There were no hemorrhagic complications or vascular dissections.

Conclusions

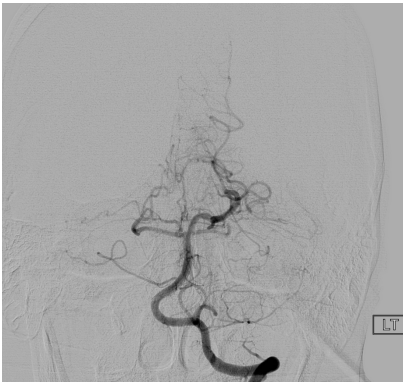
The ASPIRE aspirator was successfully and safely utilized in four cases of LVO. The ASPIRE device allows for continuous aspiration, even if blood or other material is aspirated, allowing for a more sustained aspiration of thrombus and is an additional technique for mechanical thrombectomy.

Case 1




33 year-old female with acute dysarthria and right sided weakness. Initial NIHSS 5. ASPIRE used with Catalyst 6 intermediate catheter.

Case 1




Post-thrombectomy



ASPIRE thrombectomy device (Control Medical Technology, Salt Lake City, UT)

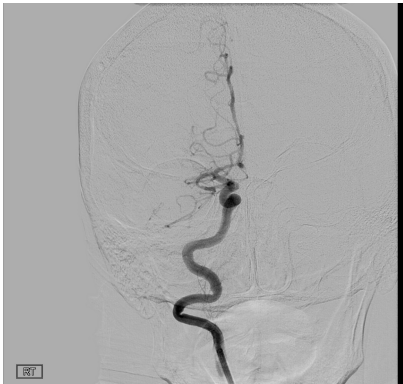
The ASPIRE device

- Single-handed continuous aspiration
- Vacuum chamber automatically empties into collection bag without detachment
- Closed system allows progressive aspiration force




Intact basilar thrombus

Case 2



86 year-old female with left hemiplegia. Initial NIHSS 14. ASPIRE used with 5 Max Ace 064 aspiration catheter.

Case 2



Post-thrombectomy

References

Turk AS, Frei D, Mocco J, et al. ADAPT FAST study: a direct aspiration first pass technique for acute stroke thrombectomy. Journal of Neurointerventional Surgery 6(4):260-264. 2014.