

# A novel handheld suction device for direct aspiration thrombectomy: clinical experience in four cases of large vessel ischemic stroke

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## 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 Hospital with acute onset symptoms and LVO of either the anterior or posterior circulation with NIHSS  $\geq$  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 National Institute of Health Stroke Scale (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 mean 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.

## Learning Objectives

By the end of this session participants should be able to identify a new technique for direct aspiration thrombectomy in patients with large vessel ischemic stroke.

## References