



Visual Diagnosis in Emergency Medicine

A Case for Thrombectomy: Acute Onset Hemiparesis from a Large Vessel Occlusion

Rahul V. Nene, MD, PHD,* Arvin R. Wali, MD, MAS,[†] David R. Santiago-Dieppa, MD,[†] Shanmukha Srinivas, BS,[†]
and Kama Z Guluma, MD*

*Department of Emergency Medicine, University of California, San Diego, San Diego, California, and [†]Department of Neurological Surgery, University of California, San Diego, San Diego, California

Reprint Address: Rahul V. Nene, MD, PhD, Department of Emergency Medicine, University of California, San Diego, 200 W. Arbor Drive, No. 8676, San Diego, CA 92103.

□ **Keywords**—Large vessel occlusion; Computed tomography angiography; Stroke

Introduction

There have been significant advances in the treatment of stroke in the last decade, and mechanical thrombectomy is the new standard of care for the treatment of stroke due to large vessel occlusion (LVO) (1). We describe a case of an elderly man with an acute stroke secondary to LVO and present images demonstrating the use of mechanical thrombectomy.

Case Report

A 91-year-old man with a history of atrial fibrillation on apixaban presented with sudden onset confusion 45 min prior to arrival. He was noted to be nonverbal with right facial droop, right hemiparesis, and a National Institutes of Health Stroke Scale score of 26. A stroke code was activated and an acute occlusion of the first segment of the left middle cerebral artery was found on computed tomography angiography (CTA) scan of the head and neck (Figure 1). Soon after the imaging was obtained,

the patient started aspirating and required emergent intubation for airway protection. The patient was then taken for immediate endovascular thrombectomy to remove a large clot (Figure 2). After thrombectomy, the patient had complete reperfusion of the affected vascular territory. Unfortunately, the patient could not be weaned from the ventilator and was transitioned to comfort care 1 week later.

Discussion

Multiple recent studies have reported on the benefit of endovascular thrombectomy for the treatment of a specific cohort of stroke patients who present up to 24 h after onset of symptoms (2–4). Identification of patients who may be candidates for mechanical thrombectomy depends on a combination of imaging findings and patient factors (e.g., age, comorbidities, and functional status), and can be determined in discussion with neurologists and neurointerventionalists. It is estimated that up to 40% of ischemic strokes are due to LVO, and these patients have worse morbidity and mortality (5,6). This higher clot burden is also less likely to recanal-

RECEIVED: 4 July 2021; FINAL SUBMISSION RECEIVED: 27 July 2021;

ACCEPTED: 11 September 2021



Figure 1. Computed tomography angiography demonstrating an occlusion of the first segment of the left middle cerebral artery (arrow) and lack of distal flow.

ize spontaneously or after i.v. thrombolysis (7,8). CTA and perfusion imaging can identify patients with LVO and a surrounding ischemic penumbra that is salvageable with immediate intervention (1). Thrombectomy also represents an additional treatment modality for patients with a contraindication to thrombolysis, as in our patient,

who was taking a direct oral anticoagulant. Emergency physicians should be aware of the possibility of endovascular therapy for acute stroke secondary to LVO and be able to engage a multidisciplinary stroke service or transfer patients to a comprehensive stroke center for such cases.



Figure 2. Photo of the large clot that was removed via endovascular thrombectomy.

References

1. Powers WJ, Rabinstein AA, Ackerson T, et al. Guidelines for the Early Management of Patients With Acute Ischemic Stroke: 2019 Update to the 2018 Guidelines for the Early Management of Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke. *Stroke* 2019;50(12):e344–418.
2. Berkhemer OA, Fransen PSS, Beumer D, et al. A randomized trial of intraarterial treatment for acute ischemic stroke. *N Engl J Med* 2015;372:11–20.
3. Albers GW, Marks MP, Kemp S, et al. Thrombectomy for stroke at 6 to 16 hours with selection by perfusion imaging. *N Engl J Med* 2018;378:708–18.
4. Nogueira RG, Jadhav AP, Haussen DC, et al. Thrombectomy 6 to 24 hours after stroke with a mismatch between deficit and infarct. *N Engl J Med* 2018;378:11–21.
5. Skagen K, Skjelland M, Russell D, Jacobsen EA. Large-vessel occlusion stroke: effect of recanalization on outcome depends on the National Institutes of Health Stroke Scale Score. *J Stroke Cerebrovasc Dis* 2015;24:1532–9.
6. Malhotra K, Gornbein J, Saver JL. Ischemic strokes due to large-vessel occlusions contribute disproportionately to stroke-related dependence and death: a review. *Front Neurol* 2017;8:651.
7. Barreto AD, Albright KC, Halleivi H, et al. Thrombus burden is associated with clinical outcome after intra-arterial therapy for acute ischemic stroke. *Stroke* 2008;39:3231–5.
8. Demchuk AM, Goyal M, Yeatts SD, et al. Recanalization and clinical outcome of occlusion sites at baseline CT angiography in the Interventional Management of Stroke III Trial. *Radiology* 2014;273:202–10.