

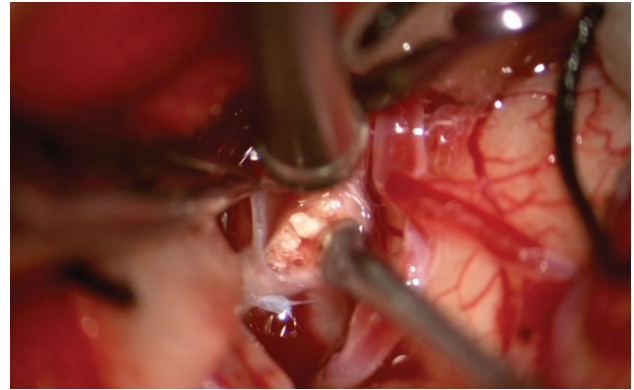
Urgent Middle Cerebral Artery Embolectomy of Calcified Embolus After Intravenous Thrombolysis: 2-Dimensional Operative Video

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This video shows an urgent microsurgical embolectomy of the inferior division of the left middle cerebral artery in a patient treated by intravenous thrombolysis (IVT). Patient was eligible for endovascular mechanical thrombectomy¹; however, the interventional radiologist was not comfortable performing the procedure given prior unsuccessful attempts to remove a calcified cerebral embolus.² A 75-yr-old female presented with an acute ischemic stroke with isolated aphasia (NIHSS 9). Using the drip-and-ship concept, IVT (0.9 mg/kg rt-PA) was administered in a regional hospital. Fifty-five minutes after a complete recovery following IVT, multiple transient ischemic attacks of aphasia were observed. While the patient was a candidate for mechanical thrombectomy based on CT perfusion imaging, given the unsuccessful reports in the literature and the interventional radiol-

ogist's experience, the decision was made to offer microsurgical embolectomy of the calcified cerebral embolus.³ Informed consent for the procedure was obtained directly from the patient. Calcified, crumbly embolus was removed from a 5 mm longitudinal arteriotomy. The arteriotomy was sutured with interrupted 10-0 suture. Initial flow after the embolectomy was 6.5 mL/min. Upon inspection, a distal kink was found in the M2 and after repositioning, flow improved to 35 mL/min.

Postoperative CT angiography documented complete recanalization. The clinical findings completely resolved (NIHSS 0) within 12 hr and remained unchanged at 3 mo and 1 yr.

Informed consent was obtained from the patient for use of media for educational and publication purposes.

KEY WORDS: Brain ischemia, Embolectomy, Microsurgery, Middle cerebral artery, Perfusion imaging, Stroke, Thrombectomy, Tissue plasminogen activator

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Disclosures

The authors have no personal, financial, or institutional interest in any of the drugs, materials, or devices described in this article.

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COMMENTS

The authors present a unique case of surgical middle cerebral artery thrombectomy following initially successful tissue plasminogen activator administration and resolution of symptoms. While the case presented is rare, it is an excellent example of the benefits that can be realized when medical, surgical, and endovascular therapies are considered and appropriately applied in integrated stroke system of care. The viewer should be directed to the discussion of fibrinogen level evaluation to determine surgical bleeding risk. The authors summarize this well. The only critique that I can find is the establishment of proximal and distal control during the initial arteriotomy. It should be expected that any patient with those CTA findings and a fluctuating exam over 8 hours would have produce moderate retrograde flow. The possibility

of distal emboli during the plaque manipulation should also affect the decision to place at least 1 distal clip. This was a fun case to watch.

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The authors should be commended on their excellent operative video. In the age of endovascular therapy, the new stentrievers and thromboaspiration devices should be given a trial prior to initiating open surgical treatment. Regardless, the authors apply perfusion data to select an appropriate that was not responding to tPA therapy. Other than attempting to elevate her blood pressure or endovascular therapy, the authors appropriately performed an open embolectomy of a calcified thrombus in the M2. The operative technique and video is educational and worth having as a third-tier option in stroke therapy.

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