

INTRODUCTION

Strokes are the most common disability in the United States; the annual incidence of new or recurrent strokes is 795,000.¹ Prior to 2015, individuals who suffered from a stroke had limited treatment options with initial management consisting of intravenous thrombolytics for patients who met treatment criteria.³ Subsequent advances in technology led to improved outcomes for stroke while decreasing the caregiver burden. In 2015 and 2016, there were six positive “early window” trials that showed a clear benefit of mechanical thrombectomy for patients with large vessel occlusion who were treated up to 16-24 hours after symptom onset.⁵

For example, the DAWN study showed that endovascular thrombectomy (also known as mechanical thrombectomy) for acute ischemic stroke was beneficial when performed within 6 hours: outcomes for disability at 90 days were better with thrombectomy plus standard care than with standard care alone.^{3,4} The results of these studies allowed for changes in management that have led to mechanical thrombectomy (MT) quickly becoming standard practice.² In the following case presentation life-altering neuro-intervention therapy proves beneficial and life-changing for patients, when initiated early in the treatment course.

CASE PRESENTATION

We present a case of an 84-year-old Hispanic male with a past medical history of hypertension, previous myocardial infarction with stent placement and pacemaker placement, congestive heart failure, atrial fibrillation and hypothyroidism who was rushed by ambulance to the hospital with left upper and lower extremity weakness, left facial droop, slurred speech, and ataxia.

Prior to the symptoms, the patient’s family reports that the patient was able to ambulate independently and was able to perform activities of daily living.

- The patient’s baseline Modified Rankin score (mRS) was 0.

On primary survey, the patient was alert, awake, and uncooperative. He was oriented only to self, had a left sided facial droop with generalized left sided weakness.

- His National Institutes of Health Stroke Scale score (NIHSS) was 7.

He was immediately taken for CT head without contrast, which showed a focal hyperdensity of the proximal right middle cerebral artery (Figure 1). While in the CT room, the patient received intravenous tissue plasminogen activator (tPA).

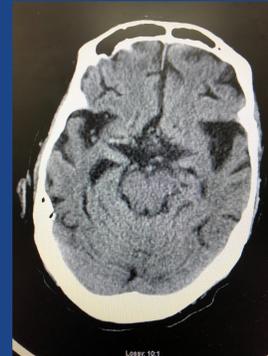


Figure 1: CT head without contrast, which showed a focal hyperdensity of the proximal right middle cerebral artery

The patient was then taken to the Interventional Radiology suite for a suctioned Mechanical Thrombectomy. In the Interventional Radiology suite, the patient was found to have a clot in the right middle cerebral artery (Figure 2).

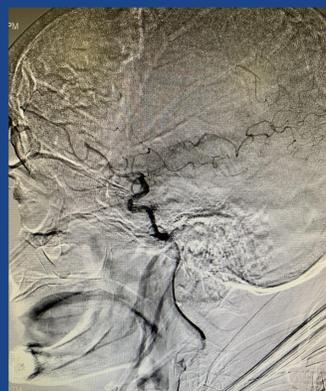


Figure 2: Imaging shows a significant thrombus in the right middle cerebral artery.



Figure 3: Imaging shows successful removal of the thrombus in the right middle cerebral artery and return of blood flow.

The thrombus was successfully removed (Figure 3). The patient was admitted to the Neurology Intensive Care Unit for close monitoring and evaluation due to the high risk of neurological deterioration and hemorrhagic transformation. Within 24 hours of onset the patient gained full function of his left lower and upper extremity, and his left sided facial droop improved by day two of onset of symptoms. His National Institutes of Health Stroke Scale score (NIHSS) was 1. The patient’s baseline modified rank score (mRS) was 1 at discharge.

DISCUSSION

- Middle cerebral artery occlusion is one of the most debilitating strokes that can result in permanent disability without intervention.
- Patient’s whose symptoms are recognized shortly after onset benefit from early intervention.
- As of 2019, the Acute Ischemic Stroke guidelines recommend starting intravenous (IV) alteplase in patient with acute ischemic stroke symptoms within 4.5 hours.⁶ Inclusion criteria for IV alteplase is: clinical diagnosis of ischemic stroke causing measurable neurological deficit, onset of symptoms less than 4.5 hours before beginning treatment, and greater than 18 years of age.⁶
- For patients with acute ischemic stroke cause by a large artery occlusion in the anterior circulation who can be treated within 24 hours of the time they were last known to be at their neurological baseline, intra-arterial thrombectomy is recommended.⁶
- The patient was discharged to home with his family and was able to avoid common adverse outcomes including physical impairment, increased caregiver burden, risk of depression and subsequent hospitalization.

LEARNING POINTS

This case serves as an example to highlight the importance of:

- Prompt diagnosis by emergency and primary care physicians
- The critical importance of management of ischemic stroke with intravenous tissue plasminogen activator and thrombectomy
- Rapid management of strokes leads to optimal patient outcomes and avoidance of significant patient mortality and morbidity
- Using evidence based medicine to manage early stroke symptoms leads to a decrease in negative economic outcomes

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