

Waxing and Waning Stroke Symptoms: A Case Study for Treatment

Lauri Speirs* and Renee Potter

¹Pinnacle Health, Stroke Program, Clinical Nurse Specialist, JPS Health Network, USA

²JPS Stroke Coordinator, JPS Health Network, USA

*Corresponding author: Lauri Speirs, Pinnacle Health, Stroke Program, Clinical Nurse Specialist, JPS Health Network, 2950 Roosevelt Ave, Fort Worth, TX 76106, USA, Tel: +1 817-920-6190; E-mail: laurifred1960@yahoo.com

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Abstract

Stroke is the 5th leading cause of death in the US, with one person dying every 4 minutes as a result. Approximately 800,000 people have a stroke each year; about one every 40 seconds. Strokes occur due to problems with the blood supply to the brain: either the blood supply is blocked or a blood vessel within the brain ruptures, causing brain tissue to die. A stroke is a medical emergency, and treatment must be sought as quickly as possible. Here we present a case of a 61-year-old African American female was brought in by ambulance for non-sensical speech.

Keywords: Stroke; Endovascular treatments; Alteplase treatment; Non-sensical speech

Introduction

Approximately every 40 seconds someone in the United States has a stroke [1]. Stroke occurs across all ages, races, and socioeconomic backgrounds. The risk for stroke is greater for women, over their lifetime, than men [1]. Tissue plasminogen activator (t-PA) is still the only Food and Drug Administration (FDA) approved medication to treat acute stroke [2]. New methods to treat stroke, such as endovascular treatments, do not preclude the use of tPA [3].

Identifying patients with potential strokes can be challenging, especially when the symptoms are waxing and waning. In the acute phase of ischemia, fluctuation in neurological status is common [4]. In this case, our patient presented rapidly oscillating neurological symptoms.

Case Presentation

A 61-year-old African American female was brought in by ambulance for nonsensical speech. On arrival, patient was quickly assessed by the Emergency Department (ED) physician and deemed to be a stroke code. Patient was taken emergently to the Computed Tomography (CT) scanner, labs were drawn and processed, and Glasgow Coma Scale (GSC) was 15. Patient

was able to answer questions with lightly slurred speech. She stated history of stroke approximately one year ago.

Pre-hospital vital signs were pulse 66, blood pressure 166/95, respirations 20, oxygen saturation 100% on room air and glucose 94. Emergency Medical System (EMS) reported the patient's mother called EMS due to the patient being difficult to understand and not making sense while drinking coffee. The patient continually asked EMS why they were there, why were they called. EMS reported the patient had signs of receptive aphasia also. Patient was transported under stroke protocol to our facility. During transport, patient's symptoms improved.

9:00 - Last known well time.

9:29 - EMS arrived on scene arrival.

10:11 - Patient arrived at hospital. Patient was found to have some slight slurring of speech but able to provide her medical history. Patient denied need to be in the hospital and completely unaware of her symptoms.

10:36 - Patient in CT, NIHSS 1.

10:50 - Stroke coordinator and neurology arrived, viewed the CT scan, (**Figure 1**). We proceeded to discuss tPA with the patient. Patient was able to verbalize understanding with tPA treatment on her way back for a CT angiogram. While moving to the CT scanner, patient became non-verbal with an NIHSS [4].

11:00 - CT report was called to the ED physician as a hyperdense left Middle Cerebral Artery (MCA), possible clot.

11:25 - Interventional radiology (IR) was called with the patient information and waxing/ waning NIHSS.

11:30 - Arrival back to the ED room; tPA was initiated. Patient was still aphasic. Within a few minutes of starting tPA, patient was responding verbally and conversing normally. We discussed the possibility of endovascular treatment with the patient and she verbalized understanding with her disease process. During the discussion, the patient began having more difficulty understanding what we were saying. The decision was made to take the patient to IR.

11:45 - While transporting the patient to the IR suite, the patient became completely nonverbal and stopped following commands, NIHSS 6.

Patient had a successful thrombectomy with a thrombolysis in cerebral infarction (TICI) 3 score. The following day, her Magnetic Resonance Imaging (MRI) scan only showed her previous stroke without any ischemia in her left MCA territory. Patient was at her baseline, even arguing with her mother about calling EMS.

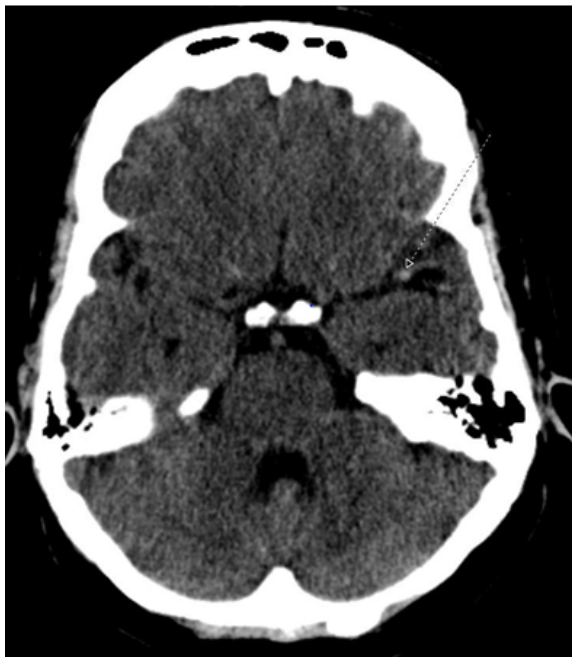


Figure 1 Patients with proven clinical benefit on intravenous Alteplase treatment.

Discussion and Conclusion

Although we did treat the patient with tPA and thrombectomy, we deliberated on the decision for a few minutes, since her early presentation demonstrated such mild

symptoms. Since her main symptom was speech, we proceeded to use the stroke code protocols. Aphasia is considered, by the American Stroke Association [5], as a disabling deficit. Our patient had multiple episodes of severe aphasia, indicating the need for tPA, and the non-contrast CT head report signaled the path to thrombectomy. Many times, stroke patients do not present with clear cut symptomology, as presented above. Demaerschalk et al. [5] write “there should be no exclusion for patients with mild but nonetheless disabling stroke symptoms in the opinion of the treating physician with intravenous Alteplase because there is proven clinical benefit for those patients” (**Figure 1**).

References

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