

# Stent Retriever-assisted Mechanical Thrombectomy for Acute Basilar Artery Occlusion: Single U.S. Institution Experience

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#### Introduction

Acute basilar artery occlusion (ABAO) causes devastating strokes that carry high mortality and morbidity. Recent trials (MR CLEAN, EXTENDI-IA, swift prime and ESCAPE) has establish the superiority of intra-arterial treatment of anterior circulation stroke.We report the outcomes of mechanicalthrombectomy in the posterior circulation, with a focus on safety and efficacy of stent retrievers.

### Methods

We retrospectively reviewed our endovascular database for all patients treated with stent retrievers for posterior circulation stroke between June 2012 and June 2014. Twelve patients were identified. The following data were analyzed: thrombus location, previous stroke or transient ischemic attack, thrombus etiology, comorbidities, time from presentation to initiation of endovascular treatment, time from start of angiography to revascularization, and whether intravenous tissue plasminogen activator was administered prethrombectomy. Outcome was considered poor when modified Rankin Scale (mRS) score was >2.

# Results

Mean patient age was 63.42 years (median 64.5, range 28-83 years); 7 were women. Successful recanalization (Thrombolysis in Cerebral Infarction grade 2b or 3) was achieved in 11 of 12 patients (91.7%). Mean discharge mRS score was 2.3 (median 2.0; SD 1.96; range 0–6), with a favorable discharge outcome in 9 of 12 (75%) patients. Two patients died as inpatients. Mean follow-up mRS score was 1.4 (median 1.00; SD 1.075; range 0-4). Good outcome was seen in 9 of 10 (90%) patients at last follow-up (mean follow-up duration, 132.42 days [median 90.50, SD 80.2; range 8-378 days]).

### Conclusions

Our study has shown that by reducing procedure time and avoiding thromboembolic complications, good clinical outcomes and good recanalization with reduced mortality can be achieved with current stent retrievers (Solitaire FR and Trevo). These results leave room for large multicenter trials to further evaluate the scope of endovascular therapy in patients with posterior circulation stroke







## **Learning Objectives**

1. Better results can be achieved by the use of stent retrievers in acute posterior circulation stroke.

2. Decrease recanalization time, translated into bette outcomes and lesser mortality.

Figure 1: A 75-year-old male who presents with a top of the basilar thrombus (Fig 1A) with an NIH of 21. Decision was made to proceed with mechanical thrombectomy after the patient underwent intravenous TPA without significant improvement in his condition. Diagnostic angiogram was performed with a 6F sheath, which was replaced by 6F neuromax, placed in Lt vertebral artery. Under fluoroscopic roadmap guidance, a 5MAX was advanced over a Velocity microcatheter over a Synchro-2 microwire, which was used to bluntly catheterize the right PCA (Fig 1B). Once the microwire was removed, dual run was then obtained confirming the placement of the microcatheter into the right PCA and the position of the thrombus at the top of the basilar and at the origin of both PCAs. At this point, a Solitaire device was then introduced and deployed overlying the thrombus. Velocity microcather was removed from the patient . After a few minutes, the Solitaire device was then recaptured into the 5MAX with robust aspiration. Next, a run was then obtained confirming reopening of the top of the basilar with good flow through the entire basilar artery as well as both PCAs (Fig 1C).