

## The Effect of Vascular Anatomy on Revascularization Rates during Stroke Intervention – Is it Time to Improve Access?

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### Introduction

Failure to obtain revascularization remains one of the major pitfalls of mechanical thrombectomy and a topic of concern for the cerebrovascular community. We sought to identify inherent vascular characteristics associated with failed revascularization and suggest a severity scale to predict revascularization rates with current thrombectomy techniques.

### Methods

The authors analyzed a large cohort of patients undergoing mechanical thrombectomy during a 3-year period and investigated pre-procedure vascular imaging. The criteria studied were aortic arch type, presence of aortic bovine arch, and tortuosity of the common carotid artery. A 3-point scale was created and correlated with revascularization rates.

### Results

A total of 143 patients were included in the study. In all procedures, a femoral approach was used. The mean NIHSS was 15.6 ( $\pm$  5.8). All interventions were performed in the anterior circulation (60.8% M1, 14.7% M2, 14% ICA, and 9.8% tandem lesions) and 40.6% (58) of patients received tPA. The cumulative revascularization rate (TICI 2B-3) was 78.3% (112/143). Patients without aortic arch abnormalities and tortuosity in the CCA had an 84% revascularization rate in contrast to 60% in patients with 2 or more criteria in the vascular severity scale. Intermediate patients (1 criteria) had a 68% revascularization rate.

### Conclusions

Our results suggest that patients with high scores on the vascular severity scale are associated with a much higher rate of failed revascularization. Our scoring system is simple and clinically valuable to predict complex anatomy in which direct carotid access might be considered.

### Learning Objectives

By the conclusion of this session, participants should be able to: 1) Understand the importance of successful revascularization during stroke intervention, 2) Recognize patients at high risk for failed revascularization based on vascular imaging, 3) Discuss strategies to mitigate access problems with current thrombectomy techniques

### References

1. Jadhav AP, Ribo M, Grandhi R, Linares G, Aghaebrahim A, Jovin TG, Jankowitz BT. Transcervical access in acute ischemic stroke. *J Neurointervent Surg* 2014;6:652-657.