Most conventional 0.088 inch guide catheters cannot safely navigate intracranial vasculature. The objective of this study is to evaluate the safety of stroke thrombectomy using a novel 0.088 inch guide catheter designed for intracranial navigation.

A multicenter retrospective study, which included patients over 18 years old who underwent thrombectomy for anterior circulation large vessel occlusions. Technical outcomes for patients treated using the TracStar Large Distal Platform (TracStar LDP) or earlier generation TRX LDP were compared with a matched cohort of patients treated with other commonly used guide catheters. The primary outcome measure was device-related complications. Secondary outcome measures included guide catheter failure and time between groin puncture and clot engagement.

Each study arm included 45 patients. The TracStar group was non-inferior to the control group with regard to device-related complications (6.8% vs 8.9%), and the average time to clot engagement was 8.89 min shorter (14.29 vs 23.18 min; p=0.0017). There were no statistically significant differences with regard to other technical outcomes, including time to recanalization (modified Thrombolysis In Cerebral Infarction (mTICI) ≥2B). The TracStar was successfully advanced into the intracranial internal carotid artery in 33 cases (73.33%); in three cases (6.67%), it was swapped for an alternate catheter. Successful reperfusion (mTICI 2B-3) was achieved in 95.56% of cases. Ninety-day follow-up data were available for 86.67% of patients, among whom 46.15% had a modified Rankin Score of 0-2%, and 10.26% were deceased.

Tracstar LDP is safe for use during stroke thrombectomy and was associated with decreased time to clot engagement. Intracranial access was regularly achieved [1].

Flexible intracranial guiding catheters have greatly facilitated neuroendovascular interventions [2] [3].

However, in cases of severe tortuosity of the cervical vasculature, intracranial positioning of these catheters can be impossible or hazardous [4] [5] [6] [7] [8].

The newest generation of flexible, compliant, distal access guiding catheters have substantially advanced the ability to achieve distal guiding catheter position.

Typically the delivery of these flexible distal access catheters is established by advancing the guiding catheters (with or without tapered internal introducer catheters) over 0.035 inch guidewires. In the setting of tortuous or fragile (eg, fibromuscular dysplasia) cervical vasculature, this technique is frequently challenging and requires multiple attempts, has a tendency to induce severe, often flow limiting catheter induced vasospasm, as well as parent artery dissections. In some cases a distal position cannot be achieved and the operator is forced to attempt intracranial therapy from a more tenuous proximal cervical guiding catheter position. In other cases, after distal position is achieved, the vasospasm induced within the parent artery is so severe that the guiding catheter ultimately has to be withdrawn more proximally. Finally, if excessive forward pressure is exerted to advance the guiding catheter system, the entire system can herniate out of the parent artery and into the aortic arch. These technical challenges inevitably add time, complexity, and risk to the procedure.

These technical challenges can be attributed to several mechanisms. First, navigating a 0.035 inch wire across very tortuous segments of the carotid artery not infrequently induces dissections, particularly when the wire catches the wall of the vessel at an abrupt 180° or 360° turn. Advancing larger guiding catheter systems through tortuous vessels over a 0.035 inch wire essentially forces the catheters along the outer curvature of the vessel at each turn, creating a great deal of stress on the vessel wall, providing a stimulus for vasospasm and a potential mechanism for dissection. Finally,

forward vectors applied to advance a guiding catheter system are also transmitted through the junction of the great vessels with the aortic arch. In tortuous or unfavorable (ie, common carotid catheterization with a 'bovine' arch configuration) arch anatomy, these forces create a tendency for the entire guiding catheter system to herniate out of the target vessel and into the ascending aorta [9].

The balloon-assisted guiding catheter placement technique represents a straightforward technique by which to facilitate and expedite the endovascular treatment of intracranial aneurysms in the setting of tortuous cervical carotid anatomy [10].

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see Intracranial Arteriovenous Malformation Embolization

ENVOY Guiding Catheter

ENVOY Guiding Catheter

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