

P017 INTRACRANIAL DOTTER ANGIOPLASTY USING TENZING 7 FOR SYMPTOMATIC ATHEROSCLEROTIC STENOSIS: INITIAL MULTICENTER EXPERIENCE

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Introduction Traditional endovascular treatment of intracranial atherosclerotic disease (ICAD) includes balloon angioplasty and stenting. Catheter-mediated (“Dotter”) angioplasty has been previously described for extracranial arteries. The Tenzing 7 (Route 92 Medical, San Mateo, CA) shelf-reducing delivery catheter has an atraumatic tapered distal tip that progressively enlarges to a 0.062 inch (1.6 mm) outer diameter (figure 1).

Aim of Study We report our initial multicenter experience in treating symptomatic ICAD steno-occlusive lesions using Dotter angioplasty/Tenzing-plasty.

Methods After local IRB approvals, we retrospectively reviewed consecutive patients undergoing endovascular treatment for symptomatic ICAD with off-label Tenzing-plasty, as a first approach at our stroke centers from 2021-2024. Subsequent adjunctive balloon angioplasty and/or stenting were performed at operator discretion.

Results Twenty-eight consecutive underwent Tenzing-plasty, either as part of an emergent large vessel occlusion mechanical thrombectomy procedure, or if medical management of ICAD had previously failed. Median age was 63±12 years and 13 were female (46%). Stenosis location was: 12 M1, 7 M2, 2 ICA, 6 vertebral V4 segment, 1 basilar. The average pre-treatment ICAD stenosis was 95±7%, including 13/28(46%) with complete occlusion on initial angiogram. In 28/28(100%), Tenzing-plasty resulted in improvement in arterial caliber after median 1 pass (IQR 1-1), with average stenosis improving to 64±15%. Subsequent balloon angioplasty was performed in 5/28(18%). Stenting was performed in 12/28(43%) cases using a variety of self-expanding or balloon-mounted stents. There were no instances of arterial perforation or symptomatic intracranial hemorrhage.

Conclusion Tenzing-plasty is a feasible and safe alternative technique for improving luminal caliber and flow restoration for symptomatic ICAD lesions. Further study is warranted.

Disclosure of Interest yes Consultant: Route 92 Medical, Stryker Research grants: Stryker, Microvention Equity interest: Route 92 Medical.

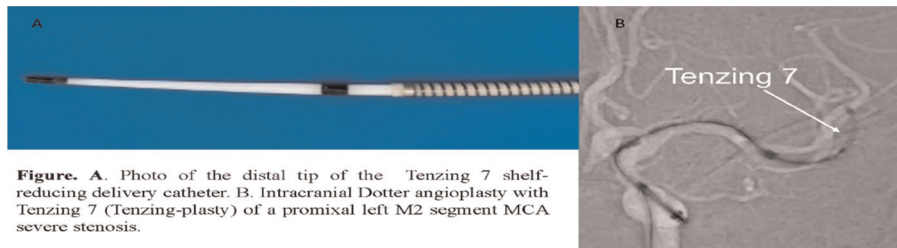


Figure. A. Photo of the distal tip of the Tenzing 7 shelf-reducing delivery catheter. B. Intracranial Dotter angioplasty with Tenzing 7 (Tenzing-plasty) of a proximal left M2 segment MCA severe stenosis.

Abstract P017 Figure 1

P018 ISCHEMIC STROKE WITH ESTABLISHED LARGE INFARCTS: HOW MUCH OF FUNCTIONAL OUTCOME IMPROVEMENT AFTER MECHANICAL THROMBECTOMY IS EXPLAINED BY FOLLOW-UP INFARCT VOLUME REDUCTION AND BY THE POST-ACUTE NEUROLOGICAL STATUS? – A TENSION SECONDARY ANALYSIS

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Introduction The interplay between thrombectomy-related infarct volume reduction, post-acute neurological improvement and functional outcome has been described[1-4]. However, pathophysiological mechanisms might be different in patients with large established infarcts.

Aim of Study To evaluate how much of the thrombectomy-related treatment effect is explained by follow-up infarct volume and the post-acute neurological status in patients with large ischemic core enrolled in the TENSION RCT[5]. We hypothesize that the proportion of the treatment effect explained by infarct volume reduction is lower in patients with established large infarctions.

Methods Main inclusion criteria of the TENSION RCT were anterior circulation stroke and ASPECTS 3-5. All patients with availability of relevant data points were included. Two causal treatment effect models (ordinal logistic regression) were defined to quantify the effect of endovascular therapy on improvement in functional outcome (90d-mRS) explained by a) follow-up infarct volume and b) 24h-NIHSS.

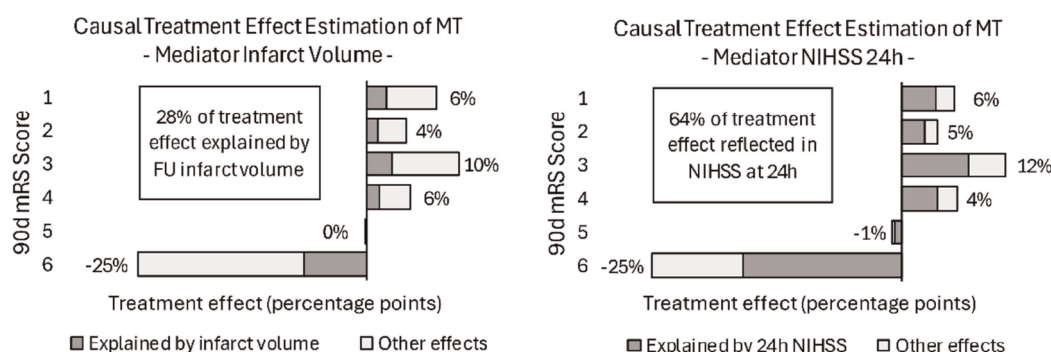
Results 188 patients were included (table 1). For both models, MT was associated with a 25 percentage-points higher probability of 90d-mRS 1-4 (cumulative treatment effects mRS 1-4, figure 1). Follow-up infarct volume explained 28% and 24h-NIHSS explained 64% of the MT-related improvement in functional outcome.

Conclusion In patients with large established infarct core, follow-up infarct volume explained 28% of the MT-related improvement in functional outcome, while NIHSS at 24h reflected 64% of the effect. Compared to follow-up infarct volume, other pathophysiological factors such as topography, selective neuronal loss, neural plasticity and effectiveness of rehabilitation may play a more important role in outcomes of patients with large established infarct cores.

Abstract P018 Table 1 Study cohort baseline characteristics

	BMT (N=96)	BMT & MT (N=92)	Total (N=188)	p value
Age (median)	72.0	72.0	72.0	0.89
Sex (f)	50 (52%)	37 (40%)	87 (46%)	0.10
i.v. thrombolysis (n, %)	34 (35%)	36 (39%)	70 (37%)	0.60
Pre-stroke mRS (mean, SD)	0.5 (0.8)	0.5 (0.9)	0.5 (0.8)	0.86
NIHSS admission (mean, SD)	17.6 (5.1)	18.3 (4.1)	17.9 (4.7)	0.31
NIHSS 24h (mean, SD)	19.5 (6.1)	14.9 (7.2)	17.3 (7.0)	< 0.001
Follow-up infarct volume (ml, mean, SD)	223.1 (109.7)	187.1 (119.2)	205.5 (115.5)	0.03
ASPECTS (mean, SD)	3.4 (1.5)	3.8 (1.5)	3.6 (1.5)	0.06
# of passes (mean, SD)	NA	3.4 (3.4)	NA	NA
final mTICI 2b-3 (n, %)	NA	78 (84%)	NA	NA
90d mRS (mean, SD)	5.0 (1.2)	4.0 (1.7)	4.5 (1.5)	< 0.001

BMT: Best Medical Treatment; MT: Mechanical Thrombectomy



Abstract P018 Figure 1 Causal treatment effect model results with mediation through follow-up infarct volume and 24h NIHSS

P019

TREATMENT EFFECTS OF MECHANICAL THROMBECTOMY IN ISCHEMIC STROKE: INTERPLAY BETWEEN THROMBECTOMY-RELATED INFARCT VOLUME REDUCTION AND POST-ACUTE REHABILITATION MEASURES

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Introduction Successful recanalization by mechanical thrombectomy improves functional outcome of patients with ischemic stroke. However, infarct volume at 24h only partly explains long-term functional outcome [1-4].

Aim of Study A better understanding of the interplay between thrombectomy-related infarct volume reduction and post-acute rehabilitation measures might allow optimized medical management. We hypothesize that the proportion of the treatment effect explained by reduction of infarct volume is higher at earlier time points and decreases at 90-day follow-up due to improvements related to post-acute medical management.

Methods All patients enrolled in the German Stroke Registry (05/2015-12/2019) in our institution were screened. Mediation

analysis was conducted to quantify the effect of successful recanalization (mTICI \geq 2b) on improvement in functional outcome (mRS \leq 2) explained by infarct volume reduction at discharge and at day 90.

Results 429 patients were included (table 1). At discharge, successful recanalization was associated with a 20 percentage points (pp) [95%CI:13pp-27pp] higher probability of good functional outcome, 71%[49%-98%] of the effect was explained by infarct volume reduction. At day 90, successful recanalization increased probability of good outcome by 23pp [16pp-29pp], 56% of the effect was explained by infarct volume reduction (figure 1)

Conclusion At discharge 71% of the treatment effect was explained by infarct volume reduction, at day 90, the proportion explained was 56%, suggesting significant influence of factors that manifest between discharge and day 90, such as rehabilitation measures and late adverse events. Results reflect the importance of post-acute management until day 90, contributing 15% to the observed improvement in functional outcomes.

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