

O-025 **LARGE-VOLUME SINGLE-INSTITUTION EXPERIENCE WITH TRANSRADIAL VERSUS TRANSFEMORAL MECHANICAL THROMBECTOMY IN ACUTE ISCHEMIC STROKE**

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Introduction Transradial access is increasingly common in cerebrovascular intervention, but its safety and efficacy in mechanical thrombectomy (MT) in acute ischemic stroke remain unclear. We present a single-institution experience at a high-volume comprehensive stroke center comparing neurologic outcomes between transfemoral and transradial MT procedures.

Materials and Methods We reviewed a prospectively maintained single-institution stroke database including consecutive cases between January 1, 2016 and December 31, 2023. Inclusion criteria were: Age >18 years and presentation within 24 hours of last-known-well. Patients were categorized by initial access site (transradial or transfemoral). For anterior circulation occlusions, a propensity matched cohort for access site was created using age and time from symptom onset to arterial access, with exact matching for occlusion site and thrombolytic administration. Multivariate regressions for puncture-to-deployment of first device and puncture-to-recanalization times, radiographic outcomes, binarized discharge, and 90-day modified Rankin score were calculated. An interaction model was calculated for laterality and access site.

Results 1648 patients were included (1381 transfemoral, 267 transradial). The transradial group had fewer females (42.7% vs. 52.1%, p=0.005), lower NIHSS (15.1±7.1 vs. 16.4±7.1, p=0.002), more posterior circulation occlusions (13.1% vs. 3.8%, p=0.01), and greater median onset-to-puncture interval (360 [IQR73–656] vs. 254 [IQR 169–624] min, p=0.02). Intubation (6.9% overall) and intravenous TPA administration (39.2%) rates were similar between groups. Transradial procedures had longer puncture-to-device-deployment and -recanalization intervals (22 [IQR 10.0–19.0] vs. 13 [IQR10–19] min,

29 [IQR15.5–28] vs. 20 [IQR 14–31] min) for all occlusion sites, but among posterior circulation occlusions, there was no difference in puncture-to-recanalization interval (20 [IQR 15–31] min). Access site crossover was more common in the transradial group (6.7% vs. 0.7%, p < 0.001). Transradial procedures had a higher rate of TICI 3 reperfusion (49.8% vs. 41.6%) but not TICI 2c/3 (66.7% overall) with similar rates of embolization to new territories (1.5% vs. 3.8%, p = 0.056). Proportions of favorable neurological outcomes were not different at discharge or 90 days. The matched cohort included 206 transradial and 206 transfemoral cases. In multivariate modelling transradial access was associated with increased puncture-to-deployment and puncture-to-recanalization times (8.6 [95%CI 6.1–11.7] min, 8.2 [95%CI 4.2–12.1] min). There was no interaction with laterality. Access site choice was not associated with neurological outcome, successful reperfusion, or embolization to new territory.

Conclusion Transradial MT was associated with similar posterior circulation but slower anterior circulation procedural times, overall similar rates of TICI 2c/3 reperfusion and similar neurologic outcomes when compared against transfemoral procedures.

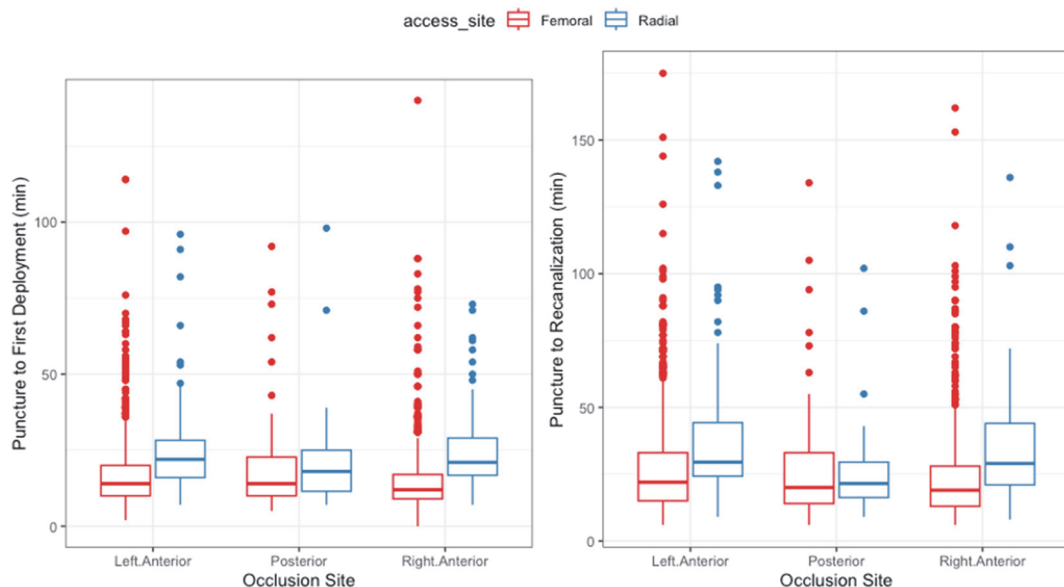
Disclosures J. Feler: None. R. Torabi: None. C. Chang: None. C. Porto: None. M. Jayaraman: None. D. Wolman: None. K. Moldovan: None.

O-026 **SARCOPENIA MEASUREMENT VIA TEMPORAL MUSCLE THICKNESS AS A PREDICTOR OF FUTILE RECANALIZATION AFTER STROKE THROMBECTOMY**

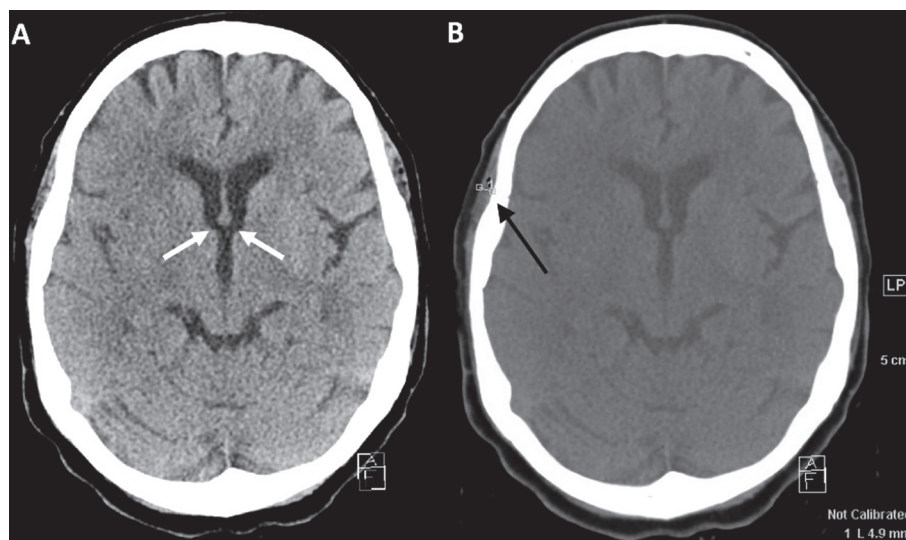
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Introduction Despite level 1A evidence showing benefit of thrombectomy in elderly patients with large vessel occlusion, many who undergo treatment still result in severe disability or death. Improving patient selection to detect those unlikely to benefit from thrombectomy may reduce costs. Sarcopenia is



Abstract O-025 Figure 1



Abstract O-026 Figure 1

associated with worse outcome in stroke patients and temporalis muscle thickness (TMT) has been proposed as a surrogate marker. This study aims to determine whether temporalis muscle atrophy is associated with higher rates of futile recanalization among elderly patients with large vessel occlusion who undergo thrombectomy with TICI2b/3 recanalization.

Methods A retrospective chart review of patients age > 65 years with angiographic evidence of ICA, M1/M2 segment, and basilar artery occlusions who underwent thrombectomy at a comprehensive stroke center was performed. Axial 3 to 5 mm multiplanar reconstruction from the nonenhanced sequence of the admission plain head CT was independently evaluated by 2 neuroradiologists at the level of the foramen of Monroe to determine TMT (figure 1A). The measurement was acquired perpendicular to the point of maximum muscle thickness (figure 1B). Primary outcome of 90 day mRS was obtained in addition to baseline patient characteristics. T-test and Spearman correlation were applied when analyzing association between TMT and 90 day mRS.

Results Between 2017–2019, 129 stroke patients > 65 years of age underwent mechanical thrombectomy with TICI 2b/3b recanalization. Mean age and admission NIHSS were 76.65 years and 20 respectively. 68% received IV TPA. During TMT measurement both readers selected the exact same slice to calculate TMT 78.4% of the time, differing by two or more slices in only 4.3% (6 patients). There was a statistically significant difference in TMT thickness among patients with 90 day mRS 0–2 (5.03 mm) vs those with 90 day mRS 3–6 (4.52 mm) ($p=0.045$). Spearman correlation between TMT and mRS at 90 days showed a significant negative correlation (correlation coefficient = -0.18 , $p=0.045$). 70% of patients with TMT of 4 mm or less had an mRS 3–6 at 90 days ($n=29$).

Conclusion Our study shows that despite sufficient recanalization, temporalis muscle thickness in patients age > 65, correlated with futile recanalization. This study's findings suggest that TMT, as a surrogate for sarcopenia, may help in stroke thrombectomy triage, by providing additional information besides what is currently obtained by telephone interviews to determine prestroke disability. TMT may improve the accuracy in current stroke triage practices by better predicting futile recanalization after thrombectomy.

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O-027 PREDICTION OF EARLY NEUROLOGIC DETERIORATION AFTER MECHANICAL THROMBECTOMY FOR ANTERIOR CIRCULATION LARGE VESSEL OCCLUSION: DEVELOPMENT AND INTERNAL VALIDATION OF A MACHINE LEARNING MODEL

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Introduction Early neurologic deterioration (END) is associated with poorer outcomes after mechanical thrombectomy (MT). Therefore, prediction of END may be a useful surrogate to inform prognosis and select patients for closer monitoring shortly after MT. We sought to develop and internally validate a machine learning (ML) model for END prediction.

Methods Consecutive adults who underwent MT for ICA/M1/M2 occlusions at a single institution from 2015 - 2020 were reviewed. END was defined as an increase in NIHSS 24 hours after thrombectomy ≥ 4 compared to presenting NIHSS. The data was split into 80% training and 20% hold-out test sets. 9 ML models were screened using repeated 5-fold cross validation (CV) and the top 3 were selected for hyperparameter tuning with nested CV. The top performing ML model was evaluated on the test set and compared to logistic regression (LR) as well as chatGPT 3.5.

Results A total of 499 patients with a mean age of 64 years were included. There were 61 (12.2%) patients with END. The 3 ML models that achieved the highest AUC on the training set were Random Forest ([RF] 0.75, 95% CI 0.63 - 0.87), LightGBM (0.75, 95% CI 0.58 - 0.84), and Support Vector Machine (0.72, 95% CI 0.55 - 0.83). The final ML model was an ensemble model that combined LightGBM and RF, which achieved a median AUC of 0.73 (95% CI 0.62 - 0.83) and median accuracy of 0.81 (95% CI 0.75 - 0.87) on the test set. The ML model had significantly ($p < 0.001$)