complications were observed. We encountered in our early learning stage a failed attempted placement of Celt in one venous and one arterial access each (0.98%) that remained asymptomatic. In one of these cases the Celt implant was accidentally deployed without properly attaching to the arterial wall. The device was dislodged into the popliteal artery without any flow restriction and the patient remained asymptomatic. Other adverse events were a complete and symptomatic occlusion of right external iliac artery, 1 patient presented with a delayed peripheral neuropathy. No early or delayed hematomas were observed whenever a proper device placement was achieved. On follow-up angiograms, several months following the placement, Celt implants were found in 18 cases adjacent to the arterial wall within the soft tissue. The extravascular migration remained asymptomatic and has previously been observed with other closure devices and may be related to arterial pulsation.

Conclusion Based on our experience Celt is very easy to use and an exceptionally safe and effective percutaneous closure device.

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E-122 THE FEASIBILITY AND EFFICACY OF TRANS-RADIAL ACCESS FOR MECHANICAL THROMBECTOMY IN ISCHEMIC STROKE: A SYSTEMATIC REVIEW OF THE LITERATURE

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Background/Purpose The use of the radial artery to access the cervical and cerebral arteries is gaining popularity in the neuro-interventional field. This trans-radial approach (TRA) avoids the tortuosity that could be encountered in the aortic arch thereby shortening procedural times. This could be relevant in stroke endovascular thrombectomy procedures where time is critical. Large randomized controlled trials of coronary interventions have demonstrated that a TRA is associated with better outcomes and fewer access site complications than trans-femoral access (TFA). We conducted a systematic review to assess the safety and potential advantages of TRA for mechanical thrombectomy in adults with ischemic stroke.

Materials and methods We conducted a Medline search of the literature, including studies published in full in the English language with $\geq$5 adult patients with acute ischemic stroke reporting on the procedures, success, and complications of TRA (± TFA). Clinical and procedural variables were extracted and tabulated.

Results Sixty-eight studied were screened and five met our inclusion criteria. All studies were retrospective and conducted in the United States of America. A total of 73 patients with acute ischemic stroke underwent mechanical thrombectomy (median age 79 years, median initial NIHSS 18). In two studies, TFA was initially attempted but failed. Only one study included a TFA comparison group (n=33 patients). Mean access to reperfusion time was 76.3±36.0 minutes (median 61.1, range 35.8–132 minutes) in TRA vs. 54.0±29.0 minutes (median 54.0, range 46-–62 minutes) in TFA. Successful reperfusion (Thrombolysis in Cerebra Infarction score [TICI] $\geq$2b) was reported in 89% of the patients. Failure to reach the target occlusion was reported in 9% of TRA cases.

Conclusion TRA shows promising efficacy and efficiency for endovascular thrombectomy. Some of the available literature mostly reflects TRA use as a rescue access after failure to obtain TFA resulting in delaying reperfusion. Whether the routine use of TRA will result in comparable reperfusion rates to TFA and faster time to reperfusion is to be shown. Future studies on the TRA in stroke need to separately report the results of learning-phase cases and rescue TRA access.

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E-123 IMPROVED TICI GRADES IN PATIENTS WITH ACUTE LVO USING MECHANICAL THROMBECTOMY DUAL ASPIRATION TECHNIQUE FIRST 20 CASES

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Background and purpose Endovascular Mechanical Thrombectomy is the established standard of treatment for acute ischemic strokes for patients with large-vessel occlusions. Mechanical Thrombectomy techniques are well established in the literature which include many direct catheter aspirations and a choice of various stent retrievers or a combination of the above. Additionally some recent clinical studies demonstrate better procedural and clinical outcomes with balloon guide catheters vs other vascular accessories catheters.

Materials and methods We retrospectively compiled and reviewed the clinical and imaging outcomes of the last 20 consecutive patients who presented with acute intracranial LVO (January 2, 2019 - March 13, 2019) who were treated with emergent MT with concomitant stent retriever and'Dual Aspiration Technique'- (Penumbra and Stryker Aspiration at the level of both distal access catheter and carotid/vascular access sheath catheter).

Results Pt age range 59–105 years, average age-78.5 years, TICI 3 - 9 patients, TICI2 B - 10 Patients, TiCI 2A - 1, Successful recanalization rate% TICI 2B/3 - 95%. Average time to repefusion- 53.6 minutes. Failure rate- 0%.

Conclusion Mechanical thrombectomy utilizing stent retriever and concomitant Dual Aspiration Technique appears to be feasible and effective for removal of thrombus in patients with AIS for LVO with high success rate of recanalization. Short/midterm clinical data is however needed to for these patients.

Disclosures J. Brunson: None.

E-124 PERSISTENT TICI 0 AFTER MECHANICAL THROMBECTOMY: INCIDENCE AND INSIGHTS AT A HIGH-VOLUME COMPREHENSIVE STROKE CENTER

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Purpose There is now class 1a evidence for the efficacy of mechanical thrombectomy in patients with acute ischemic stroke and a large vessel occlusion (LVO).[1 2] Failure to recanalize portends a poor prognosis for the patient with a decreased chance for a good function outcome (modified

Rankin Score of 2 or less). The purpose of our study was to evaluate the incidence and causes of persistent occlusion of intracranial large vessel occlusion following mechanical thrombectomy at our high-volume comprehensive stroke center, with the goal of providing some insight into potential ways to increase recanalization rates in future patients.

Methods After institutional board approval, a prospectively maintained institutional thrombectomy database for acute ischemic stroke was queried from 2015 to present. Patients with documented large vessel occlusion in the intracranial circulation and failure to recanalize after attempted mechanical thrombectomy were included for analysis. Patient characteristics including age, sex, co-morbidities, baseline NIHSS score, and baseline ASPECTS, were recorded. Rates of symptomatic hemorrhage, final ASPECTS, need for decompressive hemicraniectomy, and outcomes at 90 days (modified Rankin Scale) were also included. The statistical package R was used for analysis.

Results 24 out of 368 patients with LVO and acute ischemic stroke had persistent TICI 0 occlusions after attempted mechanical thrombectomy. 15 patients were male. Mean age of patients with persistent TICI 0 was 68.8 years (range 44 to 94 years). A combination of stent-retrievers and direct aspiration (solumbra) was used for mechanical thrombectomy in all cases were the lesion was accessible. The most common reason for persistent TICI 0 was failure to recanalize despite adequate stent apposition and aspiration, which occurred in 18 out of 24 cases, or 75% of cases. Inability to pass a microwire through the site of occlusion was the second most common reason for persistent TICI 0, which occurred in 5 out of 24 of cases (21%). Inability to select the proximal great vessels due to extreme tortuosity only occurred in one case. 11 out of the 24 patients with persistent TICI 0 occlusions died within 90 days of attempted thrombectomy.

Conclusions The rate of TICI 0 mechanical thrombectomy was extremely low in our series, accounting for only 7% of thrombectomy cases at our high-volume stroke center. Failure to recanalize the site of large vessel occlusion was the most common reason for persistent TICI 0 after attempted mechanical thrombectomy in our large series, occurring in 75% of persistent TICI 0 cases. In our series, persistent TICI 0 after mechanical thrombectomy had a high mortality rate, nearly 50%.

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E-125 SHORT-TERM IN-HOSPITAL OUTCOMES OF THROMBOLYSIS FOR ACUTE ISCHEMIC STROKE PATIENTS WITH NON-PRIMARY BRAIN TUMORS AND DEFICIENCY ANEMIAS

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Background Intravenous thrombolysis remains an underutilized treatment for acute ischemic stroke (AIS) due to several relative and absolute contraindications. Previous studies have found similar outcomes after thrombolysis between AIS patients with benign brain tumors and AIS patients without. This study aims to investigate short-term outcomes of thrombolytic treatment for the greater majority of AIS patients who have no history of primary brain tumors, particularly those with deficiency anemias.

Methods This retrospective cohort study utilized data from the 2012–2015Q3 Nationwide Inpatient Sample (NIS). ICD-9 codes identified adult patients (ages 18+) who suffered acute ischemic stroke and received intravenous thrombolysis, and then further isolated patients diagnosed with anemia. Data for patients who were missing important clinical identifiers (age, gender, race, mortality), did not receive IV thrombolysis, and had primary brain tumors (benign or malignant) were excluded. Data analyses assessed hospital mortality rate, length of stay (LOS), inpatient charges, and average age of admission.

Results Of the 24,692 encounters with AIS patients treated with thrombolysis and had no history of primary brain tumors, 3,276 were diagnosed with anemia.

- Mean mortality rate was significantly increased (8.2% anemia vs. 6.7% no anemia, $p = 0.002$).
- Mean LOS was significantly longer (8.11 days anemia vs. 6.07 days no anemia, $p<0.0001$).
- Average total charges were significantly increased ($109,278.95 anemia vs. $82,529.99 no anemia, $p<0.0001$).
- Average age at admission was significantly older (69.38 years anemia vs. 66.69 years no anemia, $p<0.0001$).

Conclusion This study aims to inform physicians to better manage AIS patients receiving IV thrombolysis with anemia and no history of primary brain tumors. These patients experience higher mortality rate, longer LOS, increased total hospital charges, and older age at admission than those without anemia. These findings suggest that placing clinical focus on the coexisting deficiency anemia before administering IV thrombolysis for AIS may be critical for improving short-term in-hospital outcomes. Future research should aim to investigate different thrombolytic agents to determine the most optimal choice for patients with anemia.

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