

91 patients (M:F= 48:43; mean age 64 years) presented to hospital after 194 min \pm 230 min from last seen normal. In 58%, the ASPECTS was ≥ 7 . 80% had good/intermediate collaterals. Alteplase was administered to 72% (75% in ESCAPE, $p=0.97$). EVT mean duration was 70 min \pm 62 min. Successful recanalization (\geq TICI 2b) was achieved in 76% (vs 72.4% in ESCAPE, $p=0.97$). Among the 54 patients recanalized, mRS scores of 0-2, 3-5 and 6 were seen in 57.4, 24.1 and 14.8% respectively; ESCAPE comparators 53, 37 and 10%, $p=0.96$, 0.86 and 0.91. **Conclusions:** EVT at our hospital yielded results similar to the ESCAPE trial.

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Lateral medullary syndrome due to left vertebral artery occlusion in a boy post flexion neck injury

A Alawadhi (Montreal)* C Saint-Martin (Montreal) G Sebire (Montreal) M Shevell (Montreal)

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Background: Wallenberg's syndrome (WS), or lateral medullary syndrome is rare in pediatrics, but is not uncommon in adults. It is characterized by neurological deficits due to an ischemic lesion in the lateral medulla. **Methods:** Case report **Results:** We describe a 17-year-old boy who developed WS in the context of hyperflexion injury to the neck while diving in shallow water with vertebral dissection as a presumed etiology. He had 'crossed' neurological deficits above and below the neck. His MRA showed intra and extracranial left vertebral artery occlusion and his MRI showed T2W/FLAIR signal abnormality involving the left lateral medulla and inferomedial aspect of the cerebellum in keeping with infarcts secondary to the left vertebral artery thrombosis and occlusion of the left posterior inferior cerebellar artery. He was started on anti-coagulation after spinal surgery. On discharge, he had persistent dysphagia which prompt a gastrostomy tube placement prior to transfer to a rehabilitation center. **Conclusions:** Our case demonstrates that WS can occur post flexion injury in the pediatric population. The presence of crossed neurological findings above and below the neck in the context of neck injury is an important diagnostic clue that should prompt imaging study focusing on the brain stem and the posterior fossa vascular structures.

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Endoscopic harvesting of a saphenous vein graft for EC-IC bypass followed by proximal artery occlusion of a pediatric giant fusiform MCA aneurysm

AM Wolf (London)* S Swinamer (London) B Van Adel (Hamilton) S Lownie (London)

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Background: Minimally invasive techniques for graft procurement are the norm in cardiac surgery and yet their use in neurosurgery is only in its infancy. We present the case of a 10-year-old boy presenting with fluctuating right facial and upper extremity weakness who was found to have a giant, partially thrombosed, fusiform aneurysm of the M1 segment of the left MCA. **Methods:** Endoscopic harvesting of the saphenous vein was performed with a procedure time of 30 minutes. The graft was used as an interposition graft between the common carotid artery and the superior M2 division of the MCA, which was tunneled subcutaneously. Once Doppler ultrasound

confirmed good flow through the graft, an aneurysm clip was then secured on the M1, proximal to the saccular component of the fusiform aneurysm and just distal to the anterior temporal branch. **Results:** Intraoperative 2D and 3D angiogram confirmed a patent extracranial to intracranial bypass with thrombosis of the giant fusiform M1 aneurysm. By 1-month post-operatively, he had returned to school and routine activities. He continues to do well 6 months post-operatively with a minimal and well-healed donor site scar. **Conclusions:** Endoscopic graft harvesting is an emerging option in the pediatric population undergoing extracranial to intracranial bypass, associated with lower wound complications and improved cosmesis.

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Persistent primitive hypoglossal artery with an associated posterior circulation aneurysm

S McGregor (London)* A Chalil (London) M Boulton (London)

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Background: Persistent fetal carotid-vertebrobasilar anastomoses are rare, with an incidence of $<1\%$. The most common anomaly seen in this group is a persistent primitive trigeminal artery; others such as a persistent hypoglossal artery account for less than 15% of all persistent fetal anastomoses, making this finding exceedingly rare. **Methods:** We present the case of a 32-year-old-female with Poland syndrome (right-sided), who presented with thunderclap headache and reduced level of consciousness secondary to diffuse subarachnoid hemorrhage and hydrocephalus. CT and catheter angiography demonstrated an aneurysm of the V4 segment of the right vertebral artery arising from a persistent right hypoglossal artery, with an absent ipsilateral vertebral artery proximal to the anomaly. **Results:** Hydrocephalus was treated with an EVD, followed by a successful embolization of the V4 aneurysm with Axium coils. Subsequent MR studies demonstrated minimal recanalization of the aneurysm, and small foci of possible infarcts in the hippocampi. Four months later, the patient has some persistent short term memory difficulties but is otherwise neurologically intact. **Conclusions:** We present a rare finding of a persistent fetal hypoglossal artery with an associated vertebral aneurysm. The aneurysm was successfully treated endovascularly through coil embolization with minimal residual neurological deficit. This vascular anomaly was ipsilateral to her Poland Syndrome defects.

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Peri-cavity atrophy after minimally invasive evacuation of intracerebral hemorrhage

S Ahmed (Saskatoon)* J Scaggiante (New York) J Mocco (New York) C Kellner (New York)

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Background: Intracerebral hemorrhage (ICH) remains a significant cause of morbidity and mortality. While traditional surgical techniques have shown marginal clinical benefit of ICH evacuation, minimally invasive techniques have shown some promise. Endoscopic evacuation of the hemorrhage may reduce the peri-hematoma edema and subsequent atrophy around the hemorrhage cavity. This study aims to quantify the changes in cavity volume following hematoma evacuation. **Methods:** Patients from the INVEST registry of

minimally invasive ICH evacuation were included retrospectively if follow-up computed tomography (CT) scans were available for analysis. Hematoma cavity volumes were calculated from the immediate post-procedural and three-month follow-up CT scans using the Analyze Pro software. **Results:** Twenty patients had follow-up CT scans at a mean time of 93 days from hematoma evacuation. The average cavity size at follow-up was 11938.12 mm³ (SD: 6996.49). The change in cavity size compared to the prior CT was 6396.74 mm³ (median 2542; range: -1030-27543; SD: 8472.45). This represented mean growth in cavity volume of 54%. **Conclusions:** This study provides preliminary data describing increase in cavity size after endoscopic minimally invasive evacuation of ICH. Comparison to atrophy in conservatively-managed patients is a further planned avenue of research.

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Missed vertebral artery dissection: a case series

A Persad (Saskatoon)* B Stewart (Edmonton)

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Background: Vertebral artery dissections are the second most common cause of posterior circulation stroke. Particularly in young people, they must be considered as causes of acute infarction, especially with a history of cervical trauma. Here, we present three cases of vertebral artery dissection that were initially not diagnosed as such. All were caused by uncommon mechanisms; one by self-inflicted neck manipulation, and one as a sequela of falling from a trampoline, and one from minor trauma to the head while standing. **Methods:** This is a series of three cases seen by the authors of posterior circulation stroke secondary to vertebral artery dissection caused by uncommon mechanisms. **Results:** N/A **Conclusions:** Vertebral artery dissection should be considered as a differential diagnosis in patients presenting with acute head and/or neck pain and any neurological findings in relation to acute neck trauma.

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Functional approach using intraoperative brain mapping and neurophysiological monitoring for surgery of arteriovenous malformations in eloquent areas

P Lopez-Ojeda (L'Hospitalet de Llobregat - Barcelona)* J Sanmillan (L'Hospitalet de Llobregat - Barcelona) A Fernandez-Coello (L'Hospitalet de Llobregat - Barcelona) I Fernandez-Conejero (L'Hospitalet de Llobregat - Barcelona) Y Ali-Ciurana (L'Hospitalet de Llobregat - Barcelona) A Gabarros (L'Hospitalet de Llobregat - Barcelona)

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Background: Surgical resection of arteriovenous malformations (AVMs) in eloquent areas is significantly associated with greater surgical morbidity. We describe a functional approach for surgical treatment of these lesions **Methods:** A total of 20 patients with AVMs in eloquent areas were surgically treated and retrospectively analyzed. Individualized functional approach, using brain mapping and/or neurophysiological monitoring was performed in each case according to every case specific features and location. Seventeen patients underwent surgery under asleep conditions and 3 patients

underwent awake intraoperative mapping **Results:** There was no mortality. Four patients had hemorrhagic complications (20%). Ten (50%) presented neurological immediate postoperative worsening. Eight of them achieved complete recovery in follow up and 2 showed a permanent deficit. At 6 months follow up all the patients (100%) had good clinical outcome (mRS less than 2). There were no intraoperative seizures but 5 patients (26.3%) developed postoperative seizures. Fifteen patients (75%) had total AVM resection. Language and/or motor function were identified in all but one patient (95%). Each case required changes in surgical strategy to preserve the motor and/or language functions during surgery. **Conclusions:** Intraoperative monitoring and brain mapping are valuable and safe for the treatment of eloquent AVMs by indentifying and protecting motor and language function during resection.

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Acute thrombectomy in patients of 80 years and older: a retrospective analysis of radiological and clinical outcomes with an intention to treat analysis

EA Cora (Ottawa)* V Demetriou (Newcastle Upon Tyne) F Essbahien (Ottawa) H Alqahtani (Ottawa) B Drake (Ottawa) H Lesiuk (Ottawa) P White (Newcastle Upon Tyne) D Iancu (Ottawa)

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Background: The safety and clinical outcomes of thrombectomy in the 80 years or older age group are not yet clear. Our aim is to provide data from clinical practice to assess the safety and efficacy of endovascular thrombectomy in this age group. **Methods:** We retrospectively reviewed consecutive patients of age ≥ 80 referred for thrombectomy procedures at our institutions from 01/01/2015 to 01/09/2015. We collected demographic data, risk factors, clinical and radiological findings, treatment details, clinical and radiological outcomes. **Results:** Data for 75 patients was included. Baseline clinical characteristics are similar to previous trials. There were MCA occlusions in 49% (37/75) and tandem occlusions in 15% (11/75) patients. 67% (50/75) patients received IVtPA. Good reperfusion (mTICI 2b/3) was achieved in 60% (45/75) patients within 224 minutes. Good clinical outcome (mRS 0-2) at 90 days was achieved in 31% (23/75) patients. Results are similar to HERMES data on patients of age ≥ 80 and differences will be discussed. **Conclusions:** Our study adds valuable evidence to the limited data on safety and clinical outcomes in patients 80 years of age and older who undergo thrombectomy. Our findings support the data from clinical trials and confirm that mechanical thrombectomy can be performed safely and in a timely fashion outside of trials with similar results.