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NON-INVASIVE FOLLOW-UP OF ANEURYSMS TREATED WITH WEB® – A FLOW MODEL ANALYSIS OF CTA- AND MRI-TECHNIQUES VERSUS DSA AS GOLD STANDARD WITH PARTIALLY OCCLUDED ANEURYSMS

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Introduction Brain aneurysm treatment with the Woven Endo Bridge (WEB®) is widely accepted. For long term follow up a non-invasive imaging would be preferable to avoid potential risks from repetitive catheter angiography.

Aim of the Study To evaluate which non-invasive imaging modality correlates best with DSA.

Methods Four different realistic aneurysm models were designed and 3D printed and a WEB Device was implanted following the official sizing recommendations. Subsequently the devices were partially filled with silicone though a small borehole, intentionally leaving out a proportion of the devices volume. DSA images were made as reference, followed by MRI using T1-, T2- and TOF-sequences, as well as CT and Spectral CT scans. All Images were blinded and reviewed by two experienced readers using the WEB Occlusion Scale (WOS).

Results In our model CT and Spectral CT Scans were all scored as WOS 0, resulting in 0% conformity with DSA. The readers agreed in 100% of the cases. Comparing MRI sequences with DSA consistent results were found in 9.4% of the cases. The readers scored concurring WOS in 68.8%.

Conclusions From our analysis the detection of small residual inflows into aneurysms treated with WEB Devices, using non-invasive MRI or CT techniques is very unreliable and can not replace DSA for follow up. This is probably not true for recurrences outside the devices.

Disclosure FW consults and proctors for Microvention. GK, MP and JM have no conflicts of interest.

Logistics

EP38*

SINGLE CENTER EXPERIENCE UTILIZING A NOVEL AUGMENTED REALITY PLATFORM TO TELEPROCTOR A NEUROENDOVASCULAR FELLOW

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Introduction Remote tele-proctoring solutions are gaining traction in neuro-endovascular surgery, however evidence supporting its use in fellowship training is limited. We demonstrate a novel augmented reality tele-proctoring platform to enable a remote attending to guide a fellow through neuro-interventions.

Methods A consecutive series of neuro-endovascular cases were performed by a first-year neuro-endovascular fellow with remote guidance from an attending surgeon. The fellow and attending were connected using the Proximie platform, a cloud-based solution that enables users to capture and stream up to four live video feeds from a clinical environment to a remote user. In this setting, two video streams were obtained directly from the AP and lateral cameras on the biplane. Videos were streamed live to the remote attending surgeon providing them situational awareness. The attending could

provide immediate vocal feedback to the fellow over an intercom. The attending could also deploy Proximie's augmented reality tools which were visible to the fellow in real-time on a laptop in the angiography suite.

Results A total of ten cases were performed on eight patients during the study period. 30% of participants were female and the median patient age was 63±18.6 yrs. Six interventions and four diagnostics were performed in the series. All cases were a technical success. No complications or deaths occurred.

Conclusions This study demonstrates successful use of an augmented reality tele-proctoring platform in a fellowship training paradigm.

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Disclosure Ameer E Hassan is a consultant for Proximie. Sohun K Desai, Wondwossen G Tekle, and Alexandros L Georgiadis do not have any disclosures.

EP39*

COLLATERAL DAMAGES OF COVID-19 ON THE HUNGARIAN ISCHEMIC STROKE CARE

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Introduction Although most of the stroke centers reported a remarkable decline in stroke care during the coronavirus disease 2019 (COVID-19) pandemic, data from Central Europe are limited.

Objectives We aimed to assess the impact of the ongoing pandemic on the Hungarian ischemic stroke (IS) care system.

Methods At a national level, we retrospectively accessed the number of IS admissions and reperfusion therapies, i.e., intravenous thrombolysis (IVT) and endovascular therapy (EVT), from 2 January 2017 to 31 December 2020 in Hungary. We used different statistics (means, medians, trends, relative rates, linear relationships) to analyze the impact of the COVID-19 outbreak on the number of IS admissions and reperfusion therapies.

Results Although the non-standardized number of IS admissions, IVTs and EVTs decreased only in some measure during the COVID-19 epidemic, the trend analysis demonstrated a significant disruption in the trends. The reduction's dynamic and extent have differed for each variable, and the number of IS admissions decreased to a disproportionally larger extent than the number of IVTs and EVTs. In contrast to IVT, the number of IS admissions and EVTs showed a significant

negative linear correlation with the number of new or cumulative COVID-19 cases in Hungary.

Conclusions Collateral damages of the COVID-19 outbreak on the Hungarian IS care system were demonstrated. The disproportionately greater decline of IS admission numbers could partially be explained by the effect of health emergency operative measures. Further studies are needed to evaluate the causes of our observations.

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Disclosure Nothing to disclose

EP40

TELEPROCTORING IN NEUROINTERVENTIONISM

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6 cases of neurovascular treatment with remote assistance are presented. various techniques (zoom, smart glasses and hospital internal system) 2 aneurysm treatments with flow diversion are presented. 1 case with web device. and 3 cases of stroke.

All cases occurred during the covid 19 pandemic.

Multiple tests were carried out during the simulation courses. Evaluating communication in real time. mastery of the images and mastery of the software.

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Disclosure Boris Pabon: proctorship con MEDTRONIC, Microvention Consultant MIVI

Imaging

EP41*

WHICH TRANSFER PATIENTS WITH STROKE DUE TO A LARGE-VESSEL OCCLUSION BENEFIT FROM CT SCAN REEVALUATION PRIOR TO MECHANICAL THROMBECTOMY?

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Background In patients transferred from a primary stroke center (PSC) to a comprehensive stroke center (CSC) with a large

vessel occlusion (LVO-AIS) it is unclear who should undergo CT scan before mechanical thrombectomy (MT). We aimed to identify which patients benefited from such reevaluation.

Methods We conducted a retrospective study, including consecutive patients admitted to our CSC from 1/1/2016 to 31/12/2019, transferred from a PSC with anterior circulation LVO-AIS. We compared two groups. Group A (= beneficial CT scan) including patients either excluded from MT due to large infarction on CT reevaluation or patients headed directly to angio-suite and 90 day mRS >2. Group B (= futile CT scan) including patients submitted to MT and 90 day mRS ≤2 with or without prior CT reevaluation. We analyzed clinical and imaging variables collected in PSC. Collateral circulation was scored using modified Tan score.

Results We included 230 patients in group A and 225 in group B. Age (OR:1.04 95% CI 1.02–1.07, p<0.001), NIHSS (OR: 1.11 95%CI 1.06–1.15, p<0.001), ASPECTS score in PSC (OR:0.74 95%CI 0.60–0.91, p=0.006) and collateral score (OR:0.14 95%CI 0.083–0.222, p<0.001) were independent predictors of usefulness in CT scan reevaluation. Optimal cut-off points to identify best candidates for CT reevaluation were age ≥80, NIHSS ≥18 and ASPECTS ≤8.

Conclusion Patients with age ≥80, NIHSS ≥18, ASPECTS ≤8 or reduced collateral score (modified Tan <2) might benefit from CT scan reevaluation after transfer and prior to MT.

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Disclosure Nothing to disclose

EP42*

USE OF THE NEW PHILIPS' ADVANCED 3D NEURO-IMAGING FOR LVO TRIAGING AND DOOR TO PUNCTURE TIMES REDUCTION

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Introduction First clinical utilization of Philips' advanced 3D neuro-imaging prototype technology during stroke treatment.

Objectives and Aims Use of the new Philips' advanced 3D neuro-imaging prototype technology and cone beam angio-suite CTA versus standard multi-detector CT for triaging of acute LVO.

Methods We utilized the Philips' advanced 3D neuro-imaging prototype technology for within AngioLab non-contrast CT and CTA acquisition during direct to angio-suite LVO cases transfer. Pre-procedural ASPECT score and post-procedural evaluation of IPH or SAH components has been performed with the Philips' advanced 3D neuro-imaging prototype technology. The door-to-puncture timing in these patients has also been recorded and compared with that associated to standard patients necessitating of an additional stop in the ED for further/repetitive imaging acquisition.