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P81 NOVEL SYNTHETIC CLOT ANALOGS FOR IN-VITRO STROKE MODELLING

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Introduction The increased demand for training of mechanical thrombectomy in ischemic stroke urges the creation of new simulation models for training and device assessment. Clot characterization has shown to play a role in procedural planning and thrombectomy device effectiveness.

Aim of the Study In this study, we aim to analyze the characteristics and applicability of completely synthetic, animal-free clots developed by the authors, in the setting of an in-vitro model of mechanical thrombectomy.

Methods Synthetic clots based on agarose (n=12) and silicone (n=11) were evaluated in a previously described in-vitro neurointervention simulation of mechanical thrombectomy with clot extraction devices. 9 clots were excluded due to insufficient vessel occlusion and failure to integrate with clot extraction device. Synthetic thrombi were characterized and compared using a categorical score-system on vessel occlusion, elasticity, fragmentation, adherence and device integration.

Results Both agarose-based and silicone-based clots demonstrated relevant flow arrest and a good integration with the clot extraction device. Silicone-based clots scored higher on adherence to the vessel wall and elasticity. Calcified clots of mixed nature were simulated with addition of 3D printed structures.

Conclusion Selected synthetic clots can successfully be implemented in an in-vitro training environment of mechanical thrombectomy. The clots' different properties might serve to mimic fibrin-rich and red blood cell human thrombi.

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Do you have any conflict of interest to declare?: No

P82 THROMBECTOMY FOR PRIMARY ISOLATED DISTAL ANTERIOR CEREBRAL ARTERY OCCLUSION STROKE

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Introduction Distal medium-vessel occlusions (DMVO) stroke represents a possible next frontier of endovascular stroke treatment. However, evidence suggesting a possible benefit remains sparse, especially in the anterior cerebral artery (ACA).^{1 2}

Aim of study To investigate clinical and safety outcomes of primary isolated ACA occlusion stroke treated with thrombectomy.

Methods Patients with primary isolated DMVO of the ACA distal to the A1 segment treated endovascularly in daily clinical practice between January, 2013, to October, 2021 were analyzed from an international, retrospective, multicenter registry.^{3 4} Early clinical and long-term functional outcome were measured with NIHSS and mRS. Safety was assessed by the occurrence of sICH and mortality.

Results ACA-DMVOs were located in 59.5% (50) in the A2, in 36.9% (31) in the A3 segment, and in 3.6% (3) in the A4 segment. The median age was 76 years (IQR:66–84) and 47.6% (40) were female. The median number of reperfusion attempts was 1 (IQR, 1–2) and in 82.1% (69) of cases thrombectomy was considered successful reaching a reperfusion grade of mTICI 2b-3 including a first-pass effect of 45.2% (38). The median 24h-NIHSS decrease from admission was -2 (IQR: -4 to 1; p=0.033) following thrombectomy. Rates of favorable functional outcome (mRS 0–2) and mortality were 39.1% (25) and 26.6% (17), respectively. sICH occurred in 2.4% (2).

Conclusion Thrombectomy appears technically feasible and safe for treating primary isolated anterior cerebral artery occlusions distal to the A1 segment. Further studies are warranted to evaluate treatment effects.

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P83 THE RELATIONSHIP OF FUNCTIONAL OUTCOME AFTER MECHANICAL THROMBECTOMY AND SERUM GLUCOSE IS PARTIALLY MEDIATED BY EDEMA FORMATION

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Introduction High blood glucose was shown to be associated with worse clinical outcome and increased edema formation in patient with acute stroke undergoing mechanical thrombectomy.¹ A better understanding of the pathophysiological pathways and a quantification of their effects might support targeted therapeutic approaches.