Methods Case analysis and literature review.

Results A patient in their early 20's with mild obesity presented to the emergency department (ED) one hour after acute onset of left hemiplegia (NIHSS 11). Emergent imaging revealed multifocal right middle cerebral artery territory acute ischemic infarcts with small petechial hemorrhage. CT angiography showed a right M1 segment occlusion. He was not a candidate for intravenous thrombolysis. Patient underwent mechanical thrombectomy with contact aspiration. The occluded right M1 segment was successfully recanalized, but follow-up angiography revealed re-stenosis. Balloon angioplasty was performed, but repeat angiography again demonstrated critical re-stenosis. A balloon-mounted stent was placed in the R M1 segment, with successful recanalization and no further re-stenosis. The patient was acutely loaded with intravenous tirofiban, followed by oral aspirin and clopidogrel. Notably, the patient tested positive for COVID-19, but remained otherwise asymptomatic. Laboratory investigation, including hypercoagulable and autoimmune workup for typical and atypical stroke etiologies, did not reveal any significant abnormalities, but the patient did have mildly elevated d-Dimer, and a minimally elevated homocysteine levels. Lower extremity ultrasound was negative for deep venous thrombosis, and echocardiogram was negative for significant abnormalities or intracardiac shunts. No cardiac arrhythmia was found. Patient was discharged home on hospital day five with NIHSS 1 (mild left facial droop) on aspirin and clopidogrel. At a two-month follow-up, patient remained without any objective residual deficits. Transcranial Doppler ultrasound at follow-up revealed full patency of the intracranial stent. Our literature search revealed a large body of evidence for acute stroke, LVO and secondary hypercoagulable state in COVID patients. However, focal vasculopathy, occasionally described with other viral infections such as VZV, has not been reported in association with COVID infection.

Conclusion To our knowledge, our case is the first to illustrate the potential for COVID-19 infection to present as a focal intracranial vasculopathy in an otherwise healthy young-patient, resulting in acute ischemic stroke without an underlying hypercoagulable state. Rescue intracranial stenting was necessary to maintain vessel patency and restore intracranial flow.

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E-005

PRELIMINARY RESULTS OF THE SUMMIT NZ ISCHEMIC STROKE TRIAL: MONOPOINT® EMBOLECTOMY FEATURING A NOVEL 088 ASPIRATION CATHETER AND SPECIALIZED DELIVERY CATHETER

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Introduction First-line aspiration is becoming a preferred technique for acute ischaemic stroke treatment. Recent technical advances that facilitate successful first-pass aspiration include larger bore embolectomy catheters guided by more manoeuvrable delivery catheters.

Materials A novel tapered tip delivery catheter was specifically designed to deliver an 0.088" aspiration catheter through a specialized 8F 90 cm introducer sheath (Route 92 Medical, Inc. San Mateo, CA) to M1 and ICA/ICA-T occlusions. The unique operating system, MonoPoint®, is designed to maximize aspiration physics and improve first pass efficiency by engulfing the embolus. Utilizing a single RHV and a novel catheter-on-a-rail simplifies operator handling and control. Tenzing®, the specialized delivery catheter, replaces the traditional microcatheter and is designed to reduce the need for a microwire to facilitate catheter delivery to the face of the embolus.

Methods SUMMIT NZ (ACTRN12619000890134p) was designed as a prospective, single-arm, open label clinical trial at two sites in New Zealand. Eligible participants were patients presenting with acute ischemic stroke from either anterior or posterior circulation large-vessel occlusion within 24 hours of onset, a National Institutes of Health Stroke Scale Score of greater than or equal to 6 and a pre-stroke modified Rankin Score of less than or equal to 2. The primary effectiveness endpoint was arterial revascularization as measured by a modified Thrombolysis in Cerebrovascular Infarction (mTICI) score of 2b or greater at the end of angiography after all endovascular treatments as adjudicated by an independent core laboratory. The primary safety endpoints were device-related peri-procedural complications such as dissection or perforation, symptomatic Intracranial Cerebral Hemorrhage (SICH) at 24 hours and embolization to a previously uninvolved territory.

Results From September 27, 2019 to January 11, 2021, 34 subjects (mean age 68.5, NIHSS 15.9, time last known well 5.9 hours) were enrolled with a diagnosis of acute ischemic stroke. Acute occlusion was located in the middle cerebral artery (74%, 25/34) and internal carotid artery (26%, 9/34). Successful revascularization was achieved in 97% (33/34) of subjects. No serious adverse device effects have been reported.

Conclusions Preliminary findings suggest that first-line aspiration embolectomy using a novel MonoPoint® system including an 0.088" inner diameter aspiration catheter achieves a high rate of arterial revascularization with an acceptable safety profile. A full report on enrollment and results are to be presented.

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