Supplementary figures legend:

Figure 1a, 1b: Tan's system- is a 3-point score that grades middle cerebral artery (MCA) collaterals in the affected area. It can be performed rapidly in acute situations. The grade assigned are – 0 (absent collaterals, **Figure 1a**), 1 (<50% of the affected area, not shown) or 2 (50% or more of the affected area, **Figure 1b**).

Figure 2a-2d: Maas system- is a 5-point score that compares collaterals on the affected hemisphere against the unaffected side. It uses the Sylvian fissure vessels or leptomeningeal collaterals as internal control and enables a rapid scoring. The scores range from 1 (no vessels opacification, **Figure 2a**), 2 (less than contralateral side, **Figure 2b**), 3 (equal to the contralateral side, not shown), 4 (more than the contralateral side, **Figure 2c**) and 5 (exuberant, **Figure 2d**).

Figure 3a- 3c: Miteff's system- is a 3-point score that grades middle cerebral artery collateral branches with respect to the Sylvain fissure and can be performed rapidly. The grade assigned are – 3 (if the vessels are reconstituted distal to the occlusion, **Figure 3a**), 2 (vessels can be seen at the Sylvian fissure, **Figure 3b**) or 1 (when the contrast opacification is merely seen in the distal superficial branches, **Figure 3c**).

Thrombectomy procedure:

At our institution, each interventionalist has free choice on device and technique. Though commonly, in the anterior circulation, an 8 or 9 French balloon guide catheter (BGC) is advanced to the cervical internal carotid artery with the support of a long 80cm Arrow sheath (Teleflex, USA). Whereas in the posterior circulation, a 6 French Envoy guiding catheter is advanced through a 65cm arrow sheath into either vertebral artery. A 0.021 microcatheter is navigated through the occlusion and the EmboTrap is optimally positioned into the clot. After balloon inflation of the BGC, the EmboTrap is retracted into the BGC with manual aspiration using a large 50cc syringe for flow reversal. Alternatively, a distal access catheter is sometimes used and positioned just proximal to the occlusion, and the EmboTrap is fully or partially retrieved into it under aspiration in both the distal access catheter and the BGC. Standard angiographic runs are taken before and after the procedure and between thrombectomy attempts based on operator preference. Additionally, with experience and confidence in using the device, we adapted our technique by abandoning the 'waiting time' after device deployment. The runs to show passage of contrast through the opened device were also abandoned since this did not influence our decision making in any way.

Stroke imaging CT protocol specification:

Discovery CT750HD (GE Healthcare, Waukesha, WI, USA)

Stroke protocol				
	kV-peak	CTDIvol(16cm)	DLP	Duration
NECT	120	around 45	600 - 865	

CTA, younger	80	8	280	
CTA older	80	14 - 18	590 - 690	
mCTA	80	9-12	850	
CTP 8cm younger	80	70	555	45 sec
CTP 8cm older	80	101	806	
CTP 12 cm younger	80	206	1960	
CTP 12 cm older	80	277	2630	66 sec

Multimodal CT stroke protocol with NECT/ CTA/ CTP with different protocols with typical specifications as above. All values are approximate and of course differs from examination to examination.

	Univariate Analysis patients with MCA occlusion			Multivariate Analysis	
	mRS 0-2 (n=53)	mRS 3-6 (n=46)	P-value	Adjusted Odds Ratio (95% C.I.)	P-value
Age, mean (SD), year	64.4 (12.2)	70.4. (10.9)	0.092		
Male	30/53	25/46	0.491		
Intravenous tPA	23/53	19/46	0.581		
Recent stroke	2/53	0/46	0.497		
General Anesthesia	4/53	4/46	1.000		
NIHSS at onset, median (range)	11 (3-25)	16 (3-29)	**<0.001**	0.78 (0.69-0.88)	**<0.001**
Tan good collaterals	47/53	33/46	0.043	2.21 (0.62-7.82)	0.216

MIteff good collaterals	47/53	36/46	0.181		
Maas good collaterals	17/53	12/46	0.513		
Patent ACOMM	53/53	40/46	**0.008**	22.8 (0.01 – 222.07)	0.99
Patent PCOMM	28/53	20/46	0.422		
mTICI 2b/3	47/53	35/46	0.082		
Number of attempts, median (range)	2 (1-10)	3 (1-9)	0.127		
Onset-to-puncture time, mean, (SD),min	292 (149.0)	301.3 (167.5)	0.784		
Puncture-to-reperfusion time, mean, (SD), min	60.0 (44.4)	67.5 (44.4)	0.389		

Supplementary Table 1. Results of univariate and multivariate analysis of patients with MCA occlusion : predictors of good functional outcomes. tPA- tissue plasminogen activator, NIHSS- national institute of health stoke scale, TICI – thrombolysis in cerebral infarction scale. ACOMM – anterior communicating artery, PCOMM- posterior communicating artery

	Univariate Analysis Patients with MCA occlusion			Multivariate Analysis	
	Mortality, n=10	Alive n=89	P-value	Adjusted Odds Ratio (95% C.I.)	P-value
Age, mean (SD), year	68.4 (11.7)	67.3 (12.9)	0.784		
Male	5/10	50/89	0.747		
Intravenous tPA	2/10	40/89	0.290		
Recent stroke	0/10	2/89	0.805		
General Anesthesia	0/10	8/89	1.000		
Tan good collaterals	9/10	71/89	0.682		

MIteff good collaterals	8/10	75/89	0.662		
Maas good collaterals	2/10	27/89	0.719		
Patent ACOMM	9/10	84/89	0.491		
Patent PCOMM	2/10	46/89	0.056		
NIHSS at onset, median (range)	13.5 (2-23)	15 (2-29)	0.453		
mTICI 2b/3	6/10	76/89	0.066		
Number of attempts, median (range)	4 (1-10)	2 (1-8)	**0.013**	1.63 (0.89 – 3.00)	0.113

Onset-to-puncture, mean (SD), min	194.3 (43.4)	308 (160.5)	**0.039**	**1.00 (1.00-1.00)**	**0.047**
Puncture-to-reperfusion time, mean, (SD), min	91.1 (45.3)	60.3 (43.4)	**0.039**	1.00 (0.99- 1.00)	0.674

Supplementary table 2. Results of univariate and multivariate analysis of patients with MCA occlusion: predictors of mortality. tPA- tissue plasminogen activator, NIHSS- national institute of health stoke scale, TICI – thrombolysis in cerebral infarction scale. ACOMM – anterior communicating artery, PCOMM- posterior communicating artery

Studies showing incidence of ACOMM on CT-angiogram studies.

Incidence of complete Anterior circle of Willis:

Reference	**% of complete anterior circle of Willis**
Qi Li et al	79%
Waaijer A et al	80%
Hilal et al	82.8%
Varga et al	67.8%

References:

1. Qi Li, Jialun Li, Fajin Lv, Kewei Li, Tianyou Luo, Peng Xie, A multidetector CT angiography study of variations in the circle of Willis in a Chinese population, Journal of Clinical Neuroscience, 2011, Pages 379-383,
2. Waaijer A, van Leeuwen M, S, van der Worp H, B, Verhagen H, J, M, Mali W, P, T, M, Velthuis B, K: Anatomic Variations in the Circle of Willis in Patients with Symptomatic Carotid Artery Stenosis Assessed with Multidetector Row CT Angiography. Cerebrovasc Dis 2007;23:267-274. doi: 10.1159/000098326
3. Hilal Siahin, Yeliz Pekçevik. Anatomical variations of the circle of Willis: evaluation with CT angiography. Anatomy 2018;12(1):20–26

4. Varga, A., Di Leo, G., Banga, P.V. et al. Multidetector CT angiography of the Circle of Willis: association of its variants with carotid artery disease and brain ischemia. Eur Radiol (2019) 29: 46.