Supplemental material

Supplemental table 1. Quality Assessment of Diagnostic Accuracy Studies (QUADAS-2) results

Study	RISK OF BIAS				APPLICABILITY CONCERNS		
	PATIENT SELECTION	INDEX TEST	REFERENCE STANDARD	FLOW AND TIMING	PATIENT SELECTION	INDEX TEST	REFERENCE STANDARD
Bathla et al. 2022	☹	☺	☺	?	☺	☺	☺
Byrne et al. 2017	☹	☺	☺	☺	☺	☺	☺
Duvekot et al. 2021	☺	☺	☹	☺	☺	☺	☺
Fasen et al. 2020	☺	☺	☹	☺	☺	☺	☺
Amukotuwa et al 2021	☺	☺	☺	?	☺	☺	☺
Olive-Gadea et al. 2021	☺	☺	☺	☺	☺	☺	☺
Ospel et al. 2021	☺	☺	☺	☺	☺	☺	☺
Volny et al. 2016	☹	☺	☺	?	☺	☺	☺
Smit et al. 2015	☹	☺	☺	?	☺	☺	☺
Fasen et al. 2021	☹	☺	☹	☺	☺	☺	☺
Becks et al. 2019	☺	☺	☺	?	☺	☺	☺
McDonough et al. 2022	☹	☺	?	☹	☺	☺	☺

☺Low Risk ☹High Risk ? Unclear Risk

Supplemental table 2. Grading of Recommendations, Assessment, Development and Evaluation (GRADE) evaluation

	Test result	Studies	Study design	Factors that may decrease quality of evidence					**Final Quality**
				Risk of bias	Publication bias	Inconsistency	Imprecision	Indirectness of test accuracy	
CTA	Pooled sensitivity = 0.74 (0.63-0.82) Pooled specificity = 0.97 (0.93-0.99)	12	6 cohort and 6 case-control	Downgraded by 2 levels due to case-control design of 7 studies and the reference standard used	Not detected	No serious inconsistency or unexplained heterogeneity	No serious imprecision	Downgraded by 1 level due to between-study comparison in 8 studies	Low ++/
CTP	Pooled sensitivity = 0.89 (0.83-0.93) Pooled specificity = 0.96 (0.86-0.99)	4	3 cohort and 1 case-control						

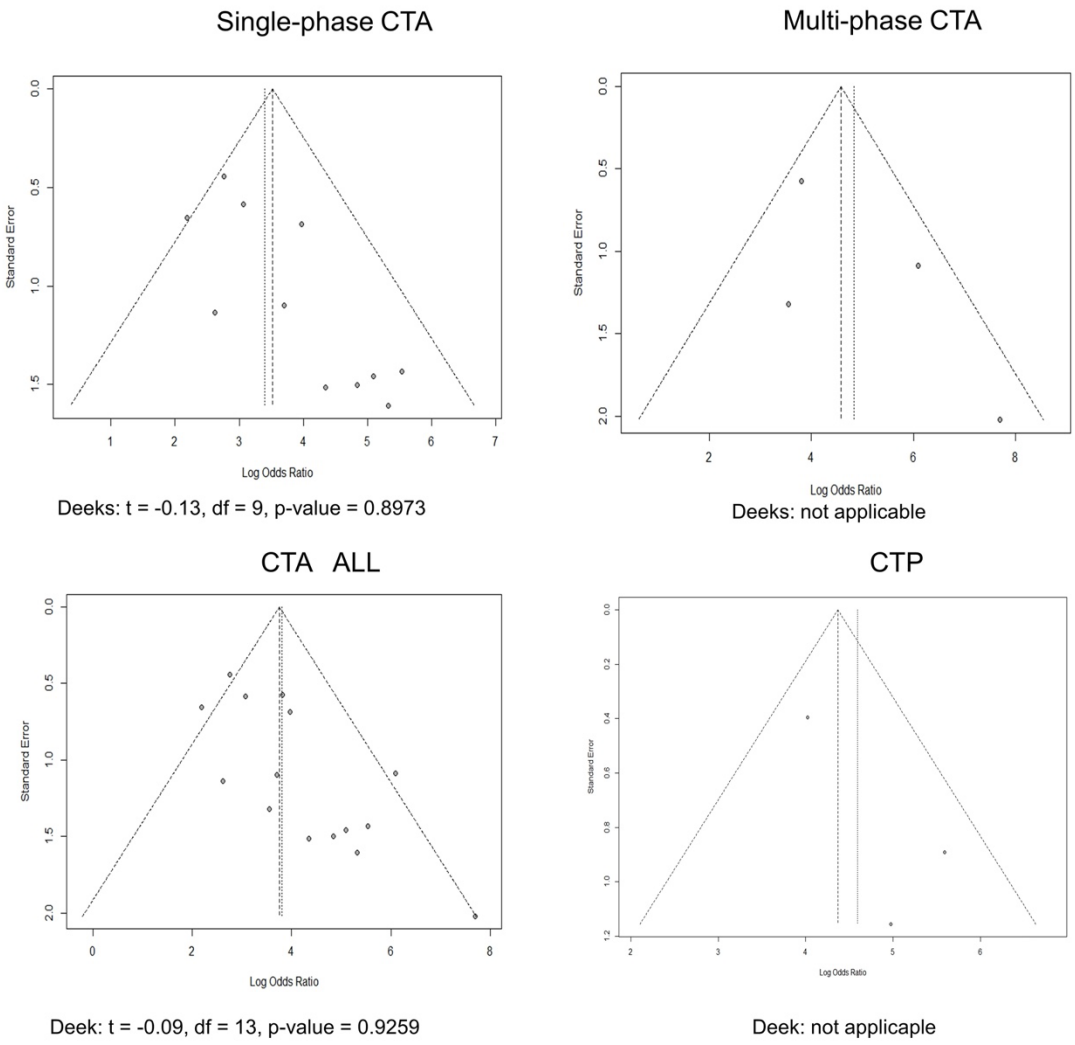
Supplemental table 3. Comparison of accuracy tests in the studies presenting both techniques.

Study	R	Sensitivity, Value % (95%CI)		Specificity, Value % (95%CI)		Diagnostic accuracy for DMVO detection CTA vs. CTP/CTP+CTA
		CTA	CTP/CTA+CTP[1]	CTA	CTP/CTA+CTP[1]	
Amokutowa et al. 2021	**1**	60 (47.6-71.5)	95.7 (88.0-99.1)[2]	78.6 (67.1-87.5)	88.6 (78.7-94.9)[2]	Diagnostic accuracy measured by AUC was better on CTP alone (p<0.001)
	2	77.1 (65.6-86.3)	98.6 (92.3-100.0)[2]	90.0 (80.5-95.9)	91.4 (82.3-96.8)[2]	
	3	71.4 (59.4-81.6)	95.7 (88.0-99.1)[2]	95.7 (88.0-99.1)	97.1 (90.1-99.7)[2]	
	4	74.3 (62.4-84.0)	97.1 (90.1-99.7)[2]	85.7 (75.3-92.9)	84.3 (73.6-91.9)[2]	
	TOTAL	**70.7 (na)**	**96.8 (na)**[2]	**87.5 (na)**[2]	**90.3 (na)**[2]	
Bathla et al. 2022	**1**	76 (61.23-87.41)	93 (82.10-99.54)	96 (87.02-99.54)	96 (84.64-98.82)	Diagnostic accuracy improved with the addition of CTP maps for both readers (p=0.001 and p=0.004 using McNemar test)
	2	78 (63.64-89.05)	91 (79.21-97.58)	91 (79.34-96.87)	98 (89.93-99.95)	
	TOTAL	**0.77 (na)**	**0.92 (na)**	**0.935 (na)**	**0.97 (na)**	
Becks et al. 2022	**1**	33 (na)	67 (na)	100 (na)	99 (na)	The addition of CTP increased the accuracy of DMVO detection with an AUC increase on CTP+CTA vs CTA alone (p=0.032)
	2	75 (na)	88 (na)	94 (na)	93 (na)	
	3	63 (na)	96 (na)	95 (na)	95 (na)	
	TOTAL	**57 (na)**	**83 (na)**	**97 (na)**	**96 (na)**	

R=reader; CTA= computed tomography angiography; CTP=computed tomography perfusion; ns=non-significant; na=not available. [1]CTP values are CTA+CTP unless otherwise specified; [2]CTP values are derived from CTP Tmax alone without CTA; [3]Data separated by individual readers are not available.

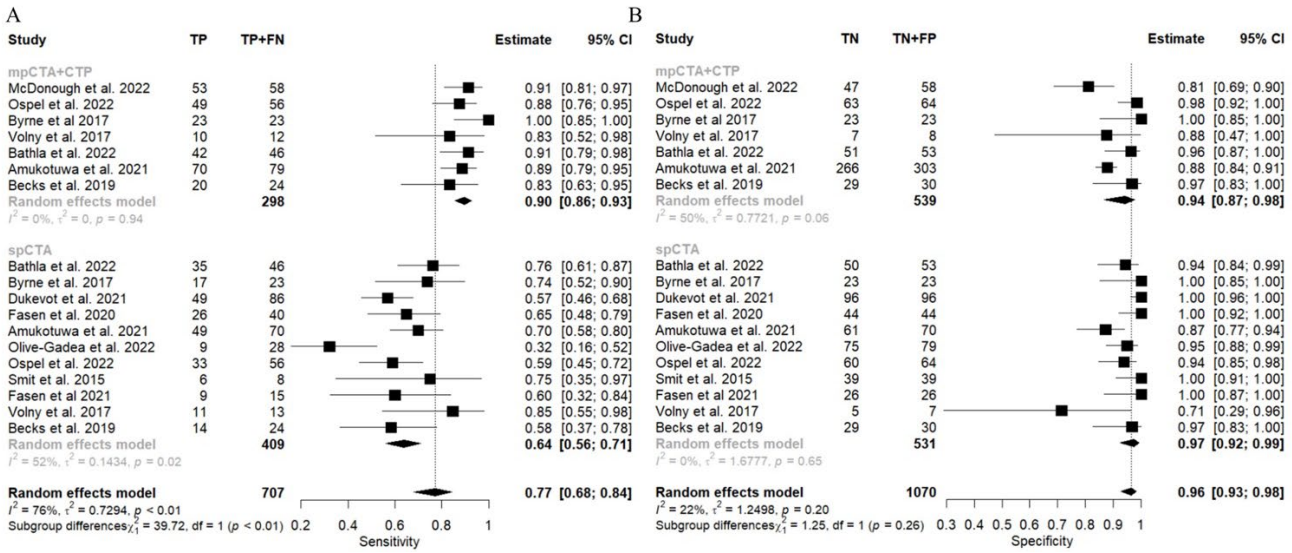
Supplemental table 4. Comparison of accuracy tests in the studies presenting spCTA and mpCTA.

Study	Sensitivity, Value % (95%CI)			Specificity, Value % (95%CI)		Conclusions
		Single-phase CTA	Multi-phase CTA	Single-phase CTA	Multi-phase CTA	
Byrne et al. 2017	Trainees	71.7 (57.4–82.7)	100 (92.2–100)			Significant improvement in the sensitivity of DMVOs in MPCTA compared with SPCTA (P<0.001)
	Neuroradiologist	78.3 (64.4–87.7)	100 (92.2–100)			
Ospel et al. 2022	N/A		N/A	N/A	N/A	The accuracy of MeVO detection for all 3 readers ranged between 57% and 61% on single-phase CTA and improved to 86%–89% with mCTA.
Volny et al. 2016		0.86 (.81-0.90)	0.86 (.81-0.91)	0.75 (.65-0.83)	0.82 (.73-0.89)	The sensitivity and specificity of both methods for primary clot detection were comparable as they had overlapping confidence intervals.



Supplemental figure 1.

Funnel plot and complementary Deek's test of studies reporting on computed tomography angiography (CTA) including single and multi-phase, and computed tomography perfusion (CTP).



Supplemental figure 2.

Pooled analysis of multi-phase computed tomography angiography (mpCTA) and computed tomography perfusion studies compared with single-phase computed tomography angiography (spCTA) studies.