CT findings for Thrombectomy of the Vertebro-Basilar Artery Occlusion in Acute Ischemic Stroke

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Introduction

Thrombectomy may be effective in treatment of the vertebro-basilar artery (VBA) occlusion. To achieve successful recanalization following thrombectomy, it is required to distinguish between embolic and atherosclerotic occlusions.

Hypothesis

CT findings of hyper-dense distal basilar artery sign (HD distal BA sign) and distal basilar-artery open sign (dBA open sign) can differentiate embolic from atherosclerotic occlusions in the VBA.

Methods

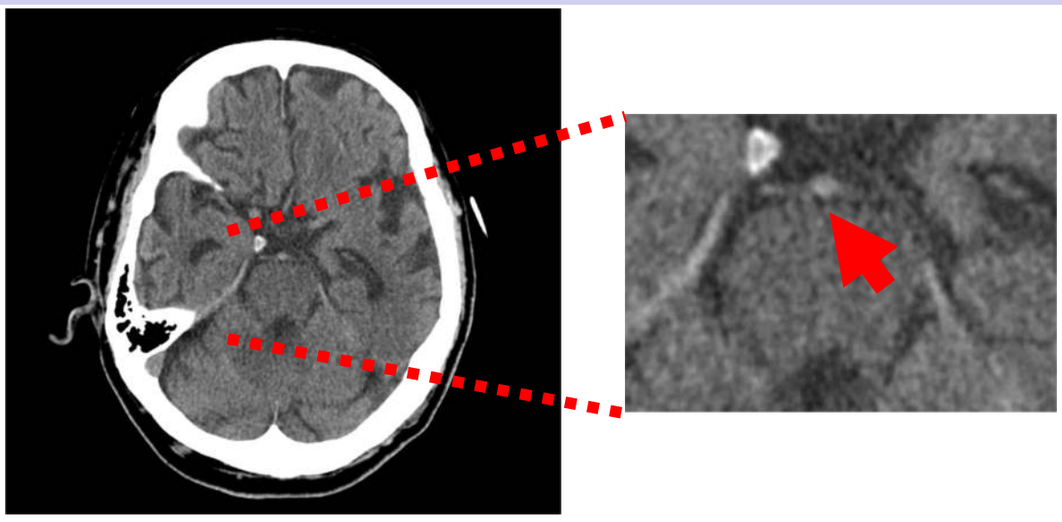
Patients

1) January, 2013 and - July, 2018
2) VBA occlusion
3) Emergency thrombectomy or percutaneous angioplasty
4) Pre-contrast CT(pc-CT) and CT angiography (CTA)

Evaluation

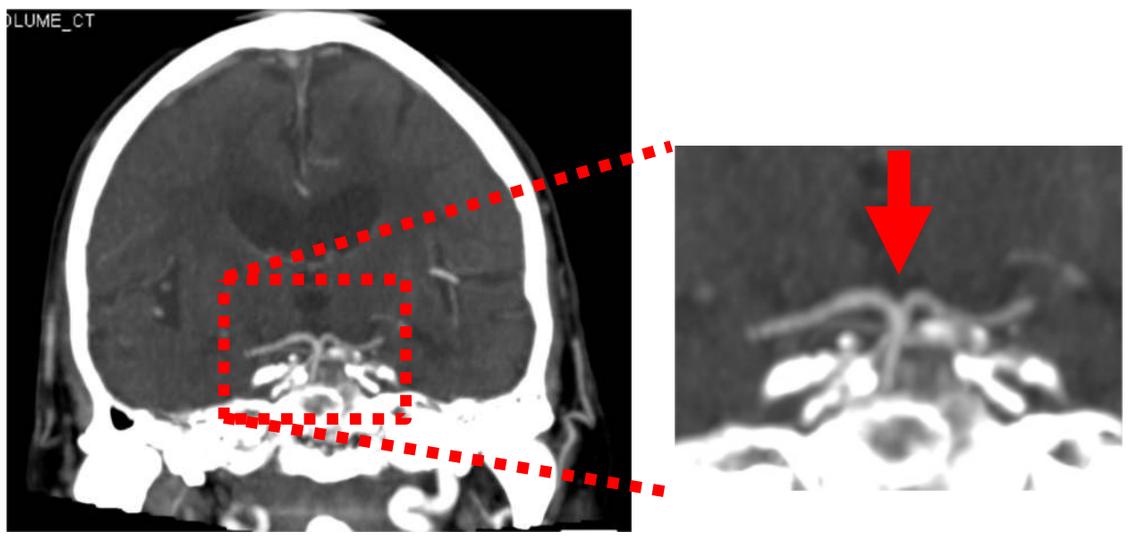
1) Baseline features
2) HD distal BA sign
3) dBA open sign
4) Diagnosis of embolic or atherosclerotic stroke according to angiographic findings during endovascular procedures

Hyper Dense distal Basilar Artery sign: HD dBA sign



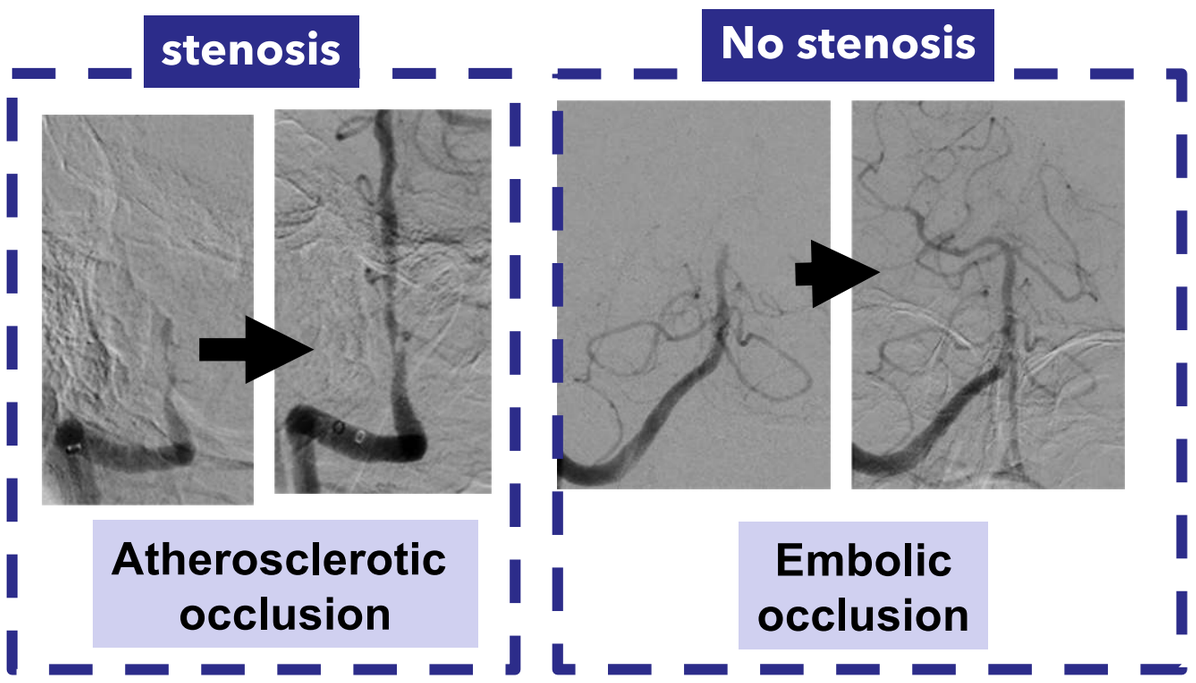
We defined HD distal BA sign as hyper-dense in the distal segment of the basilar artery (BA) in the pc-CT.

Distal Basilar Artery open sign : dBA open sign



We defined dBA open sign as proximal occlusion with distal patency of the BA in the CT angiograms.

Angiographic Findings Just After Thrombectomy



We diagnosed lesions as atherosclerotic occlusion when there were stenoses and as thromboembolic occlusion when there were no stenoses just after thrombectomy.

Results

N = 25	
Age (median)	78
Male gender	17 (68%)
NIHSS (median IQR)	32 (15.5 - 35)
Atrial fibrillation	10 (40%)
Atherosclerotic occlusion	7 (28%)
HD dBA sign +	18 (72%)
dBA open sign +	10 (40%)

	Atherosclerotic	Embolic	p
HD dBA sign +	3	15	p<0.05
HD dBA sign -	4	3	

	Atherosclerotic	Embolic	p
dBA open sign +	7	3	p<0.0001
dBA open sign -	0	15	

Conclusion

Hyper-dense distal basilar artery sign and distal basilar-artery open sign can distinguish between embolic and atherosclerotic occlusions in the vertebro-basilar artery.