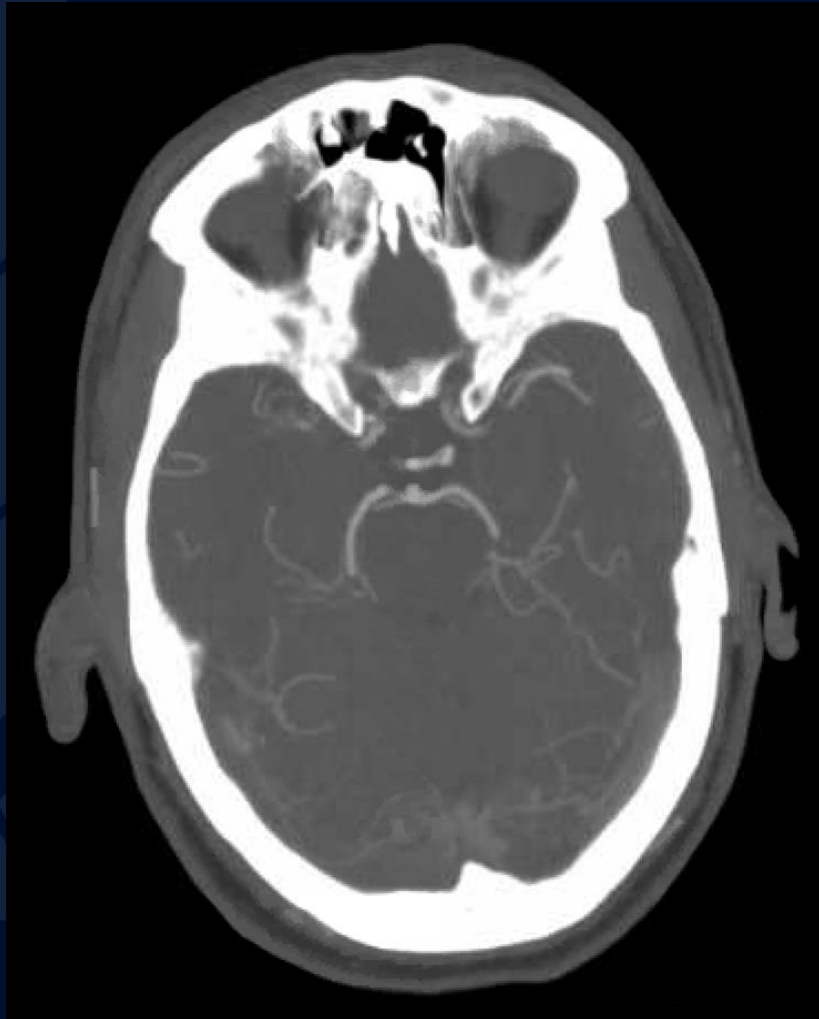


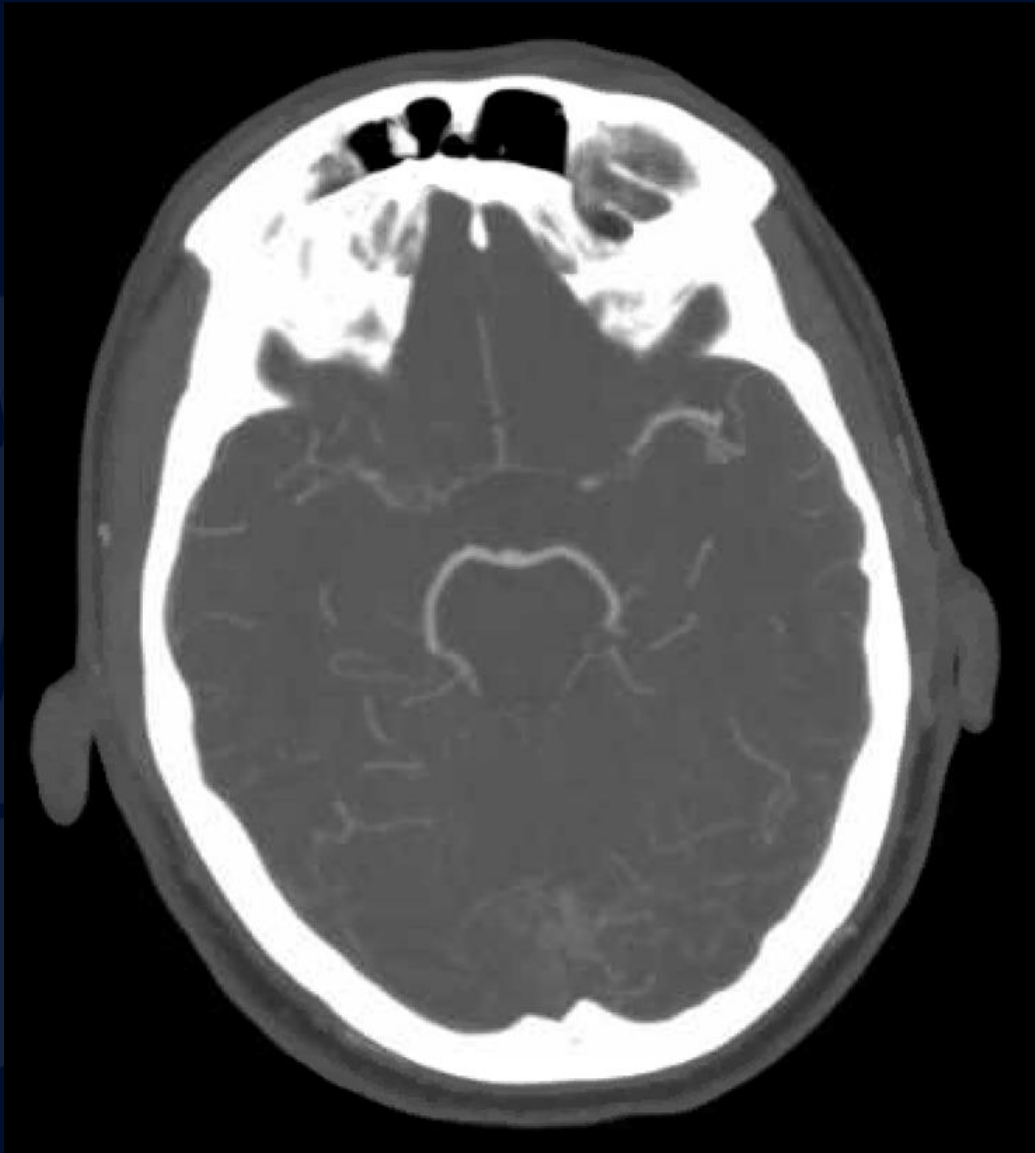
A large, stylized leaf graphic in a dark blue color, positioned on the left side of the slide. The leaf has a prominent vein structure and a wavy, serrated edge.

# 45-year-old male presenting with acute right hemiparesis and aphasia

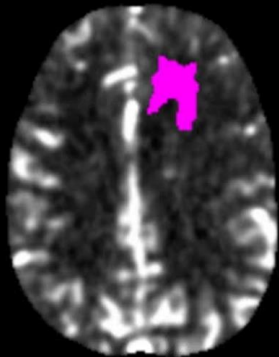
Zoe Garvey, M4  
Racquel Helsing, MD





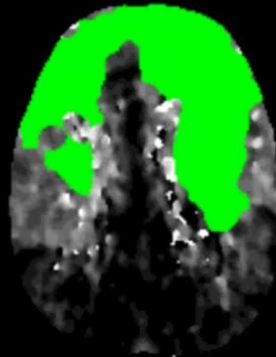


CBF



● CBF < 30%: 9 ml

Tmax

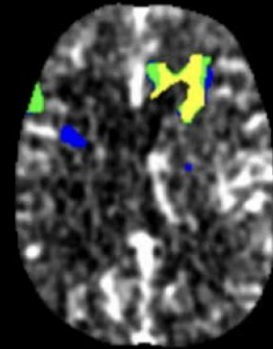


● Tmax > 6.0s: 185 ml

Mismatch volume: 176 ml

Mismatch ratio: 20.6

CBV



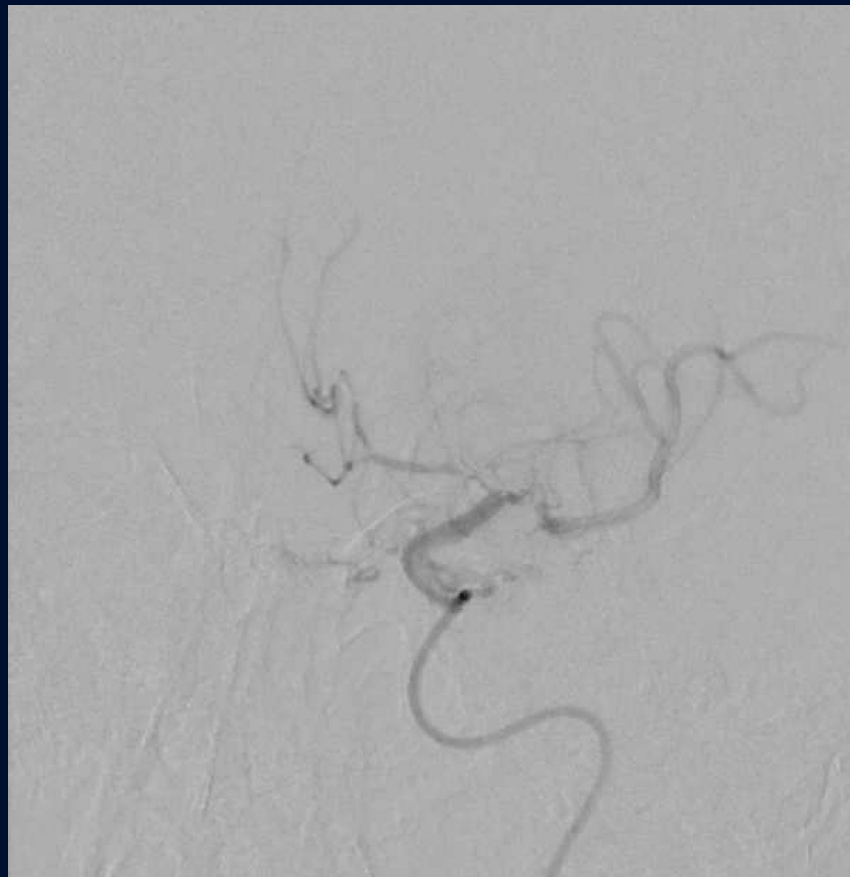
● CBV < 34%: 14 ml

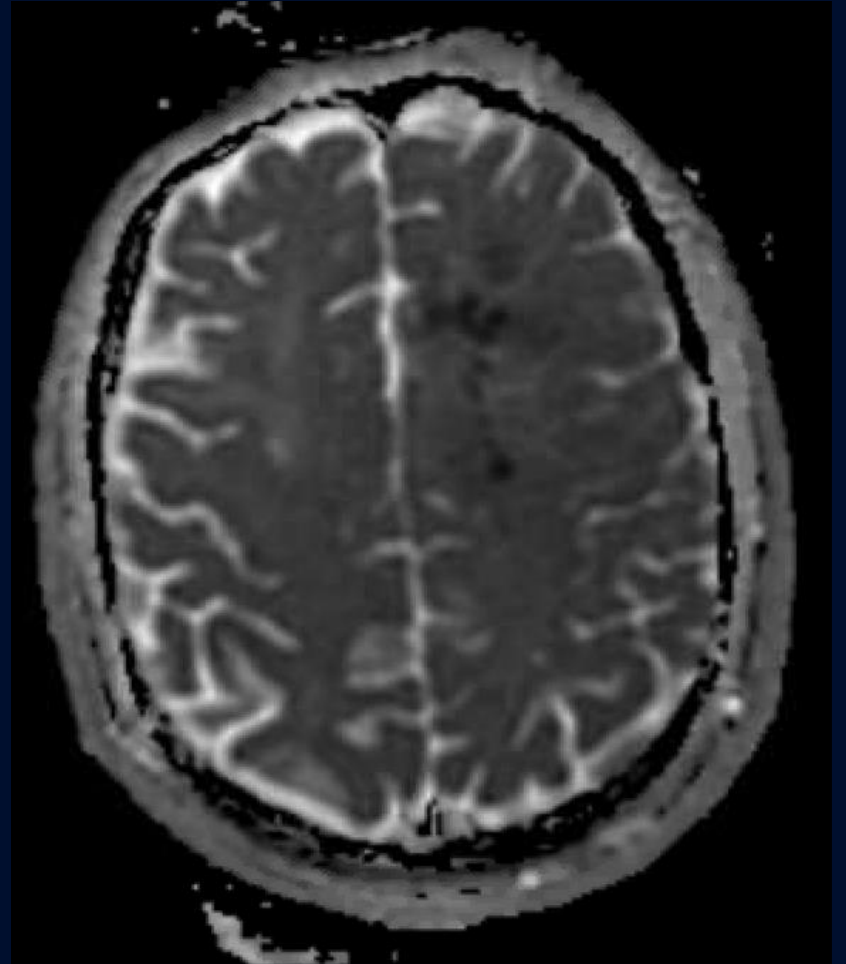
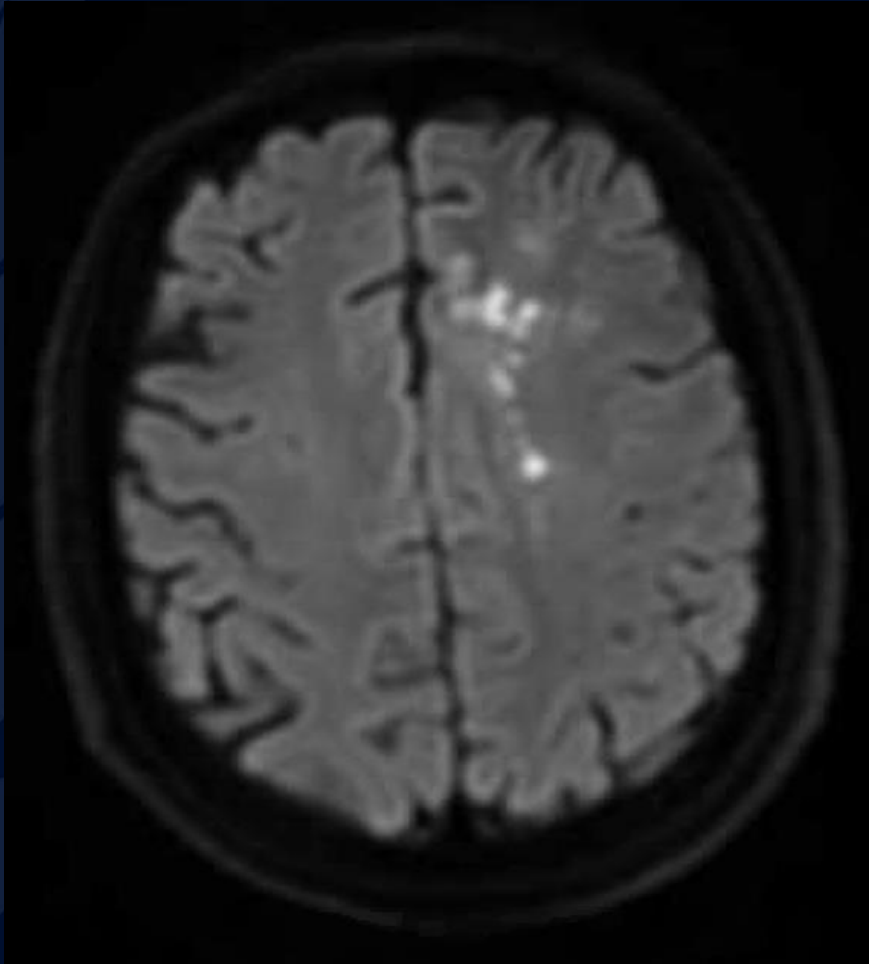
● CBV < 38%: 28 ml

● CBV < 42%: 36 ml

CBV Index (rCBV in Tmax > 6s): 0.7

RAPID







A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. It features detailed vein patterns and a lobed edge.

?



A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide, partially overlapping the title text.

# Acute Stroke in Moyamoya Disease

# CT non-contrast

Encephalomalacia



Left paramedian hypodensity, concerning for acute infarct

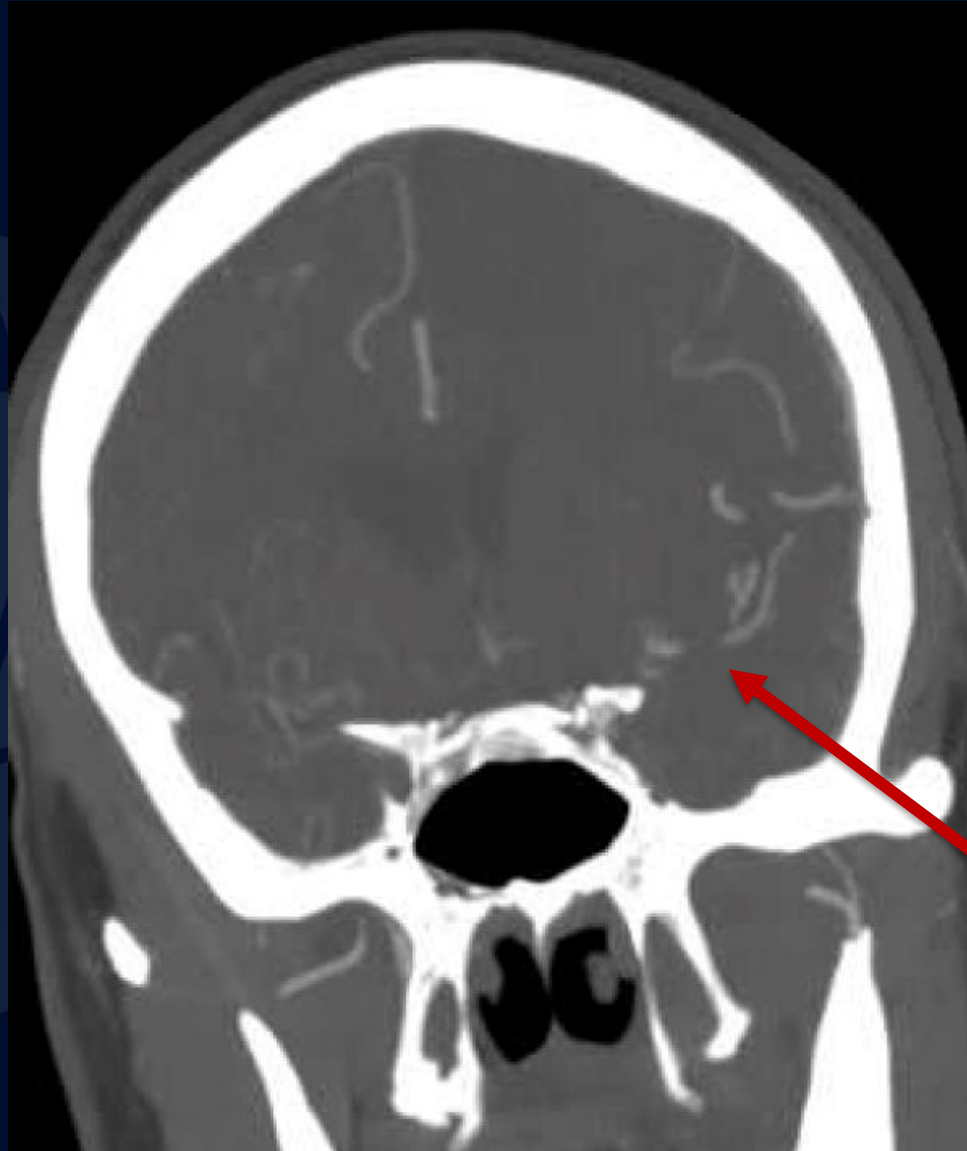
# CT angiogram



Right M1 occlusion

Left M1 occlusion  
versus high-grade  
stenosis

# CT angiogram

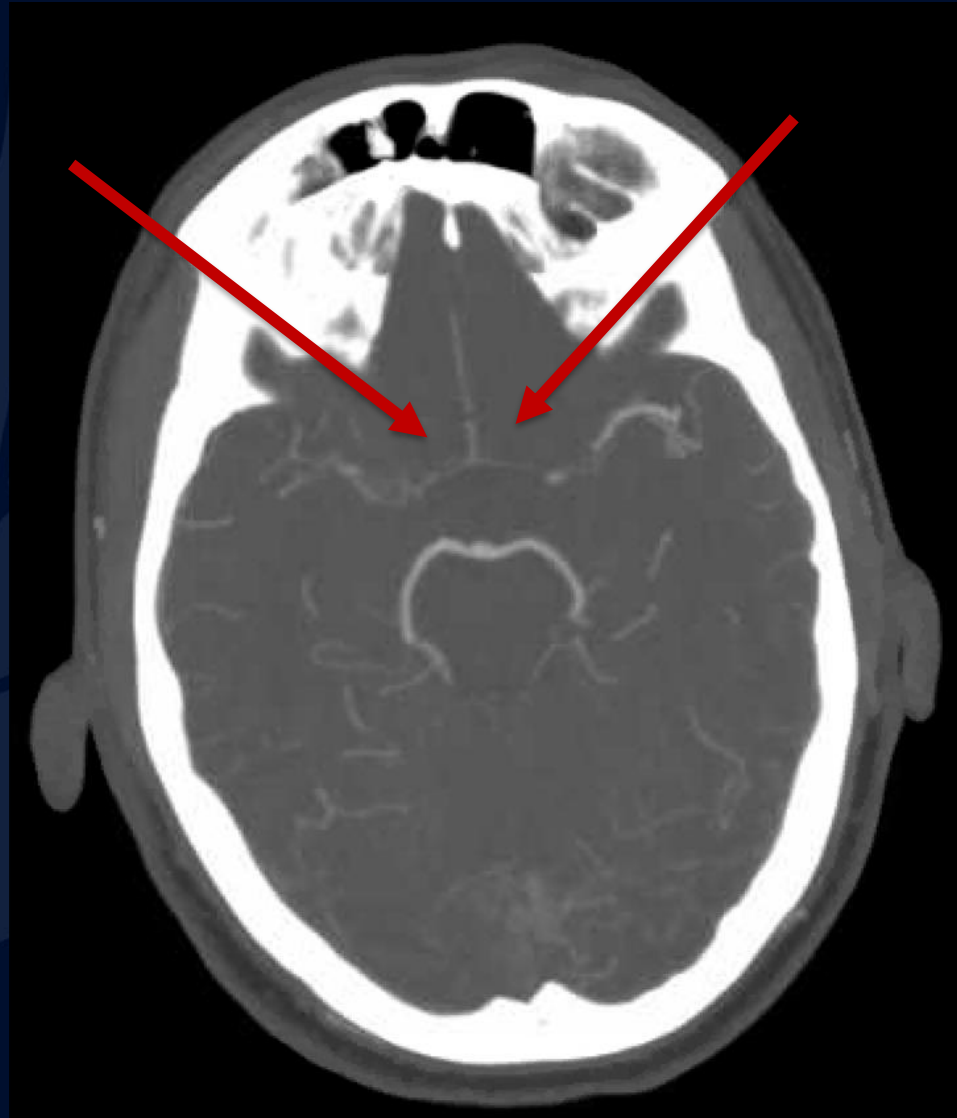


Lack of opacification of the right MCA

Left M1 occlusion versus high-grade stenosis

# CT angiogram

Right ACA high grade stenosis



Left ACA high grade stenosis

# CT perfusion

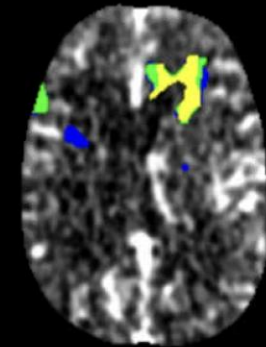
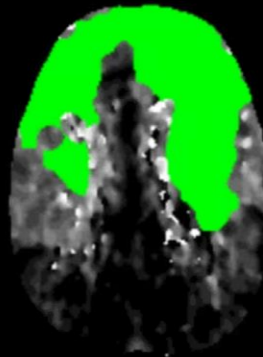
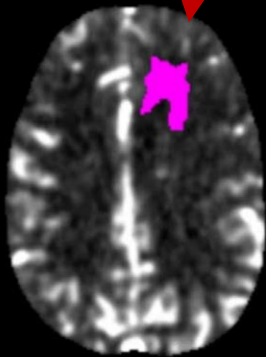
Core

Penumbra

CBF

Tmax

CBV



● CBF < 30%: 9 ml

● Tmax > 6.0s: 185 ml

Mismatch volume: 176 ml

Mismatch ratio: 20.6

● CBV < 34%: 14 ml

● CBV < 38%: 28 ml

● CBV < 42%: 36 ml

CBV Index (rCBV in Tmax > 6s): 0.7

RAPID

## Left ICA angiogram

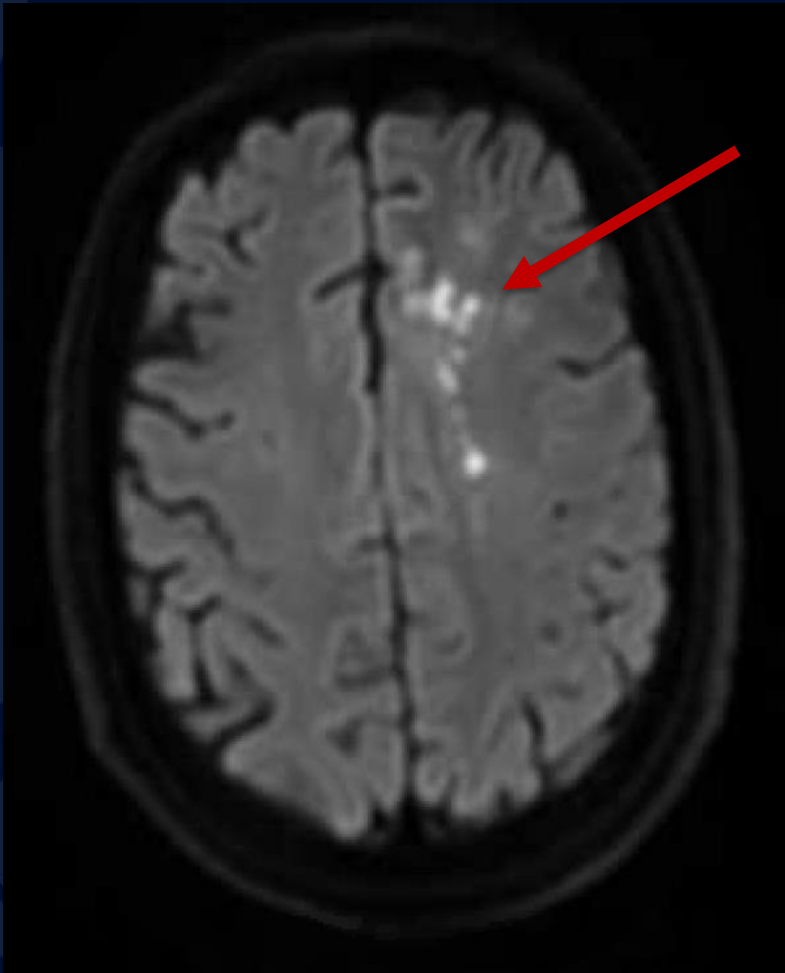


Left ICA bifurcation  
with high-grade  
stenosis in both left  
ACA and left MCA

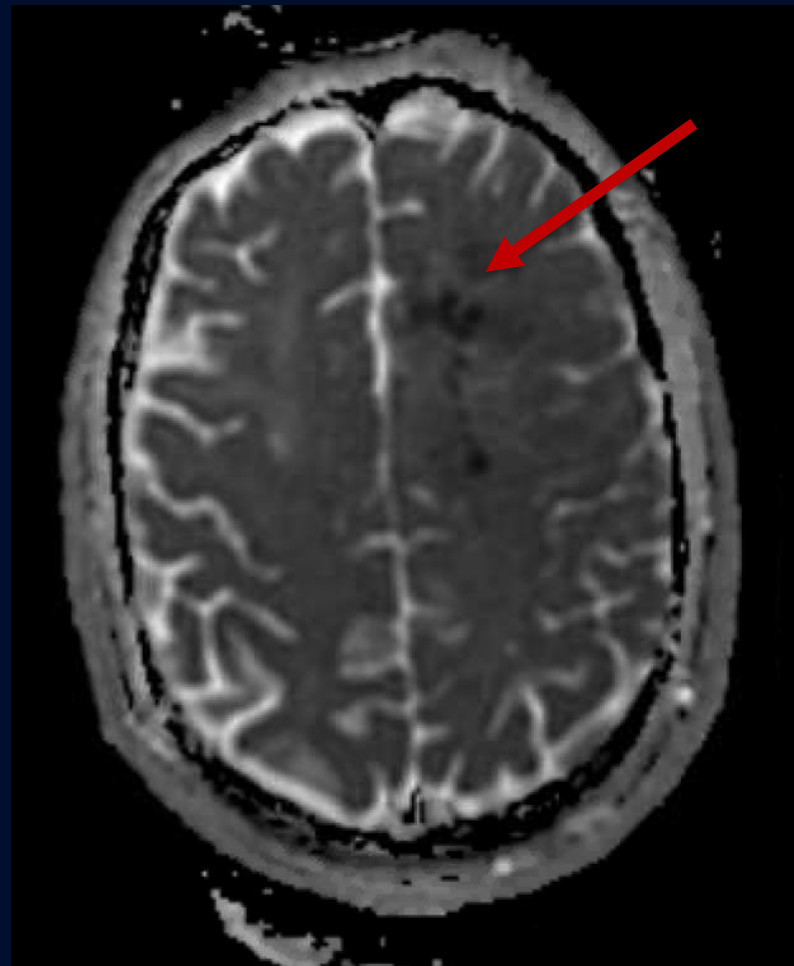
"Puff of Smoke"



MRI DWI



MRI ADC



DWI hyperintensity corresponding to ADC hypointensity = diffusion restriction, as may be seen in the setting of acute ischemic infarction

# Moyamoya

Moyamoya disease is an idiopathic, progressive, non-inflammatory, non-atherosclerotic, vaso-occlusive disease characterized by progressive narrowing of distal ICA/proximal circle of Willis vessels with secondary collateralization.

The term moyamoya disease (MMD) should be reserved for an idiopathic condition.

Moyamoya syndrome can be due to numerous conditions causing arterial occlusion of the circle of Willis with resultant collateralization. May have similar appearance to Moyamoya disease.

# Moyamoya

## Epidemiology

- Bimodal distribution
  - 5-10 years and second peak during 4th decade
- Most frequent cause of stroke in Asian children

## Presentation

- Most common is ischemic stroke followed by TIA and intracranial hemorrhage
- Less frequently present with seizure

# Imaging Findings

## Cerebral angiogram

- Small abnormal net-like vessels proliferate giving characteristic “puff of smoke” sign

## CT without contrast

- 50-60% of affected children show anterior>posterior atrophy
- Stroke (children)
- Intracranial hemorrhage (more common in adults)
- Well circumscribed, hypodense lesions measuring simple fluid density

## CT with contrast

- Enhancing dots (enlarged lenticulostriate arteries) in basal ganglia
- Abnormal netlike vessels at base of brain

## CT perfusion

- Depicts penumbra and infarct core in acute ischemia

# Imaging Findings

## MRI

- T1: multiple dot-like flow voids in basal ganglia
- T2: increase sign in small vessel cortical and white matter infarcts, collateral vessels = net-like filling defects in basal cisterns
- Flair: Bright sulci = leptomeningeal poison ivy sign, slow-flowing engorged pial vessels, thickened arachnoid membranes, correlates with decreased cerebral vascular reserve
- DWI: helpful for “acute on chronic” disease
- T1+C: enhancing “dots” in basal ganglia and net-like thin vessels in cisterns, leptomeningeal enhancement

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