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Stuttering Stroke

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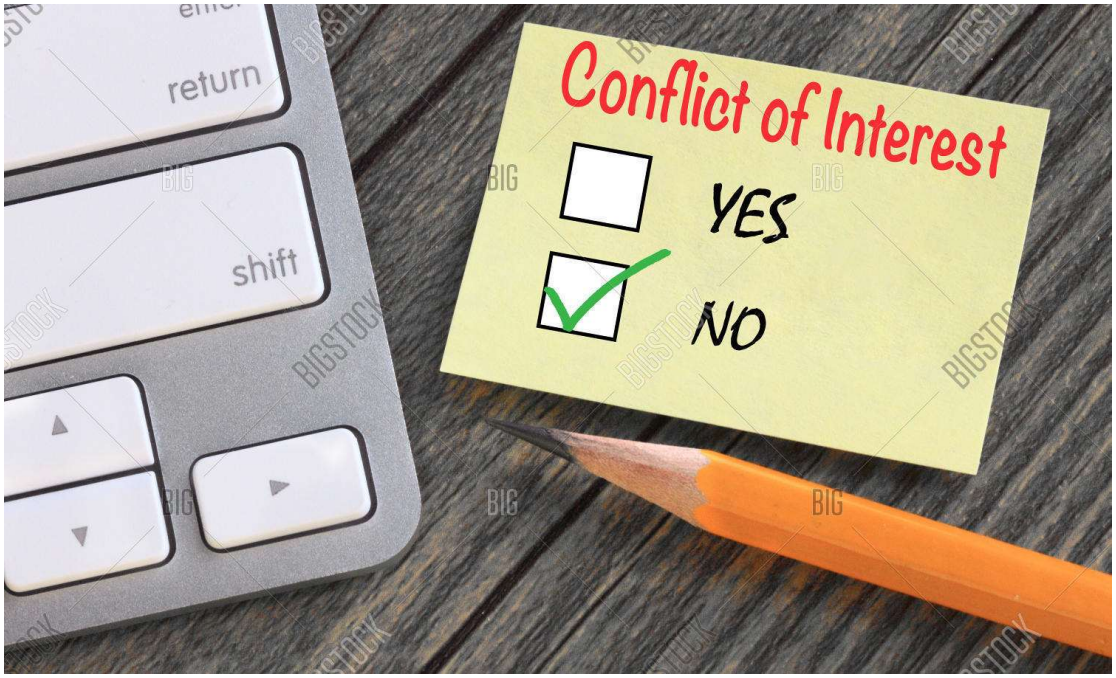
Disclosure



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Stuttering Syndromes

The clinical hallmark of stroke is typically sudden onset of a focal neurologic deficit. However there are a subset of patients who will have a fluctuating symptoms at onset, punctuated by periods of near or total symptom resolution – aka **“stuttering”**

Often mistaken for Transient Ischemic Attacks. Fluctuations may be observed to be dependent on blood pressure, or position

This presentation is especially common with subcortical and pontine strokes.

Be vary wary of anyone who has presented with multiple similar TIA episodes within a few days

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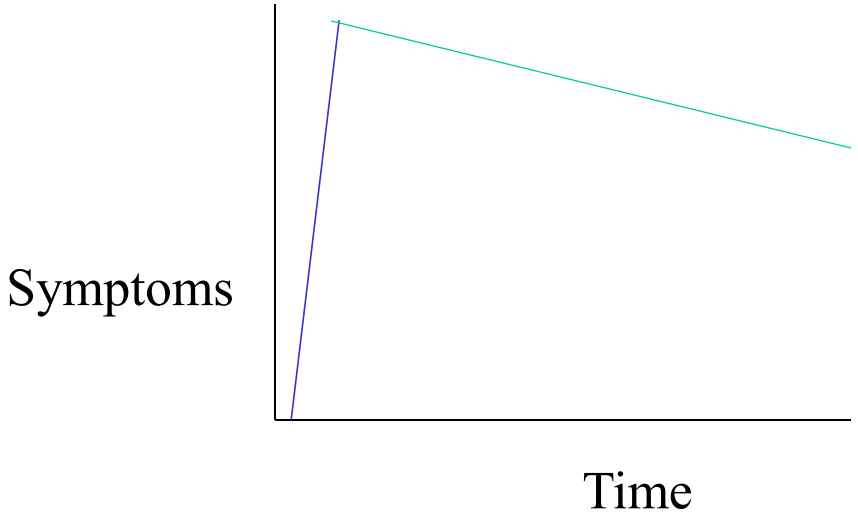
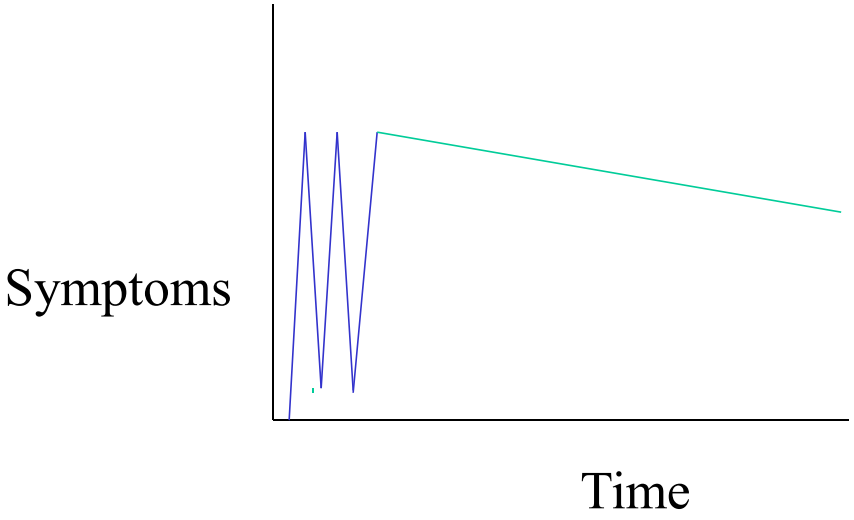


Typical Stroke



"Stuttering" Stroke

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There are areas of the brain where very small blood vessels supply very important tissue

Anterior Circulation

Internal Capsule-supplied by perforators off the Internal Carotid

Posterior Circulation

Medial Pons – supplied by perforators off the basilar artery

Damage to these small arteries can cause profound symptoms. Both can result in hemiplegia, as well as many other symptoms (sensory if the thalamus is effected, cranial neuropathies in the pons)

Sometimes these small vessels can spasm or have intermittent occlusion, causing fluctuating symptoms

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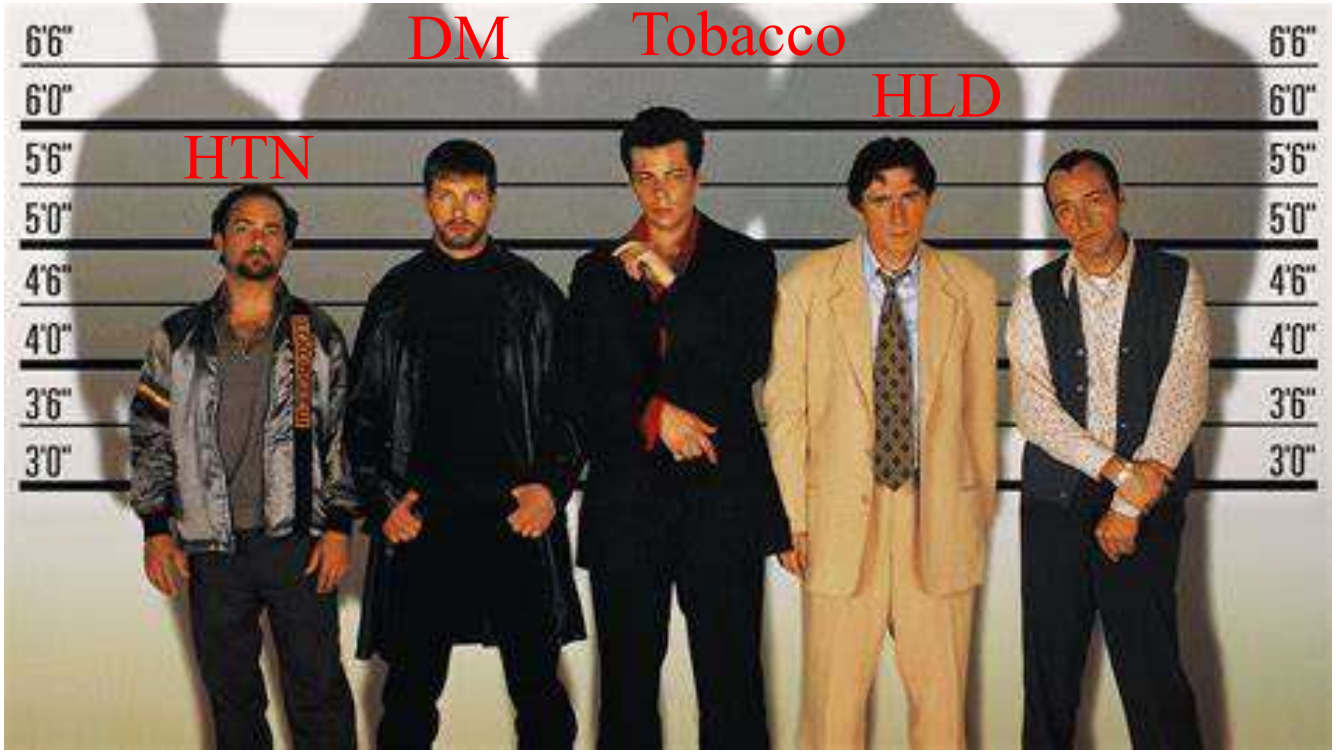
Small Vessel Disease

The smallest blood vessels in the brain are the most susceptible to damage from common risk factors.



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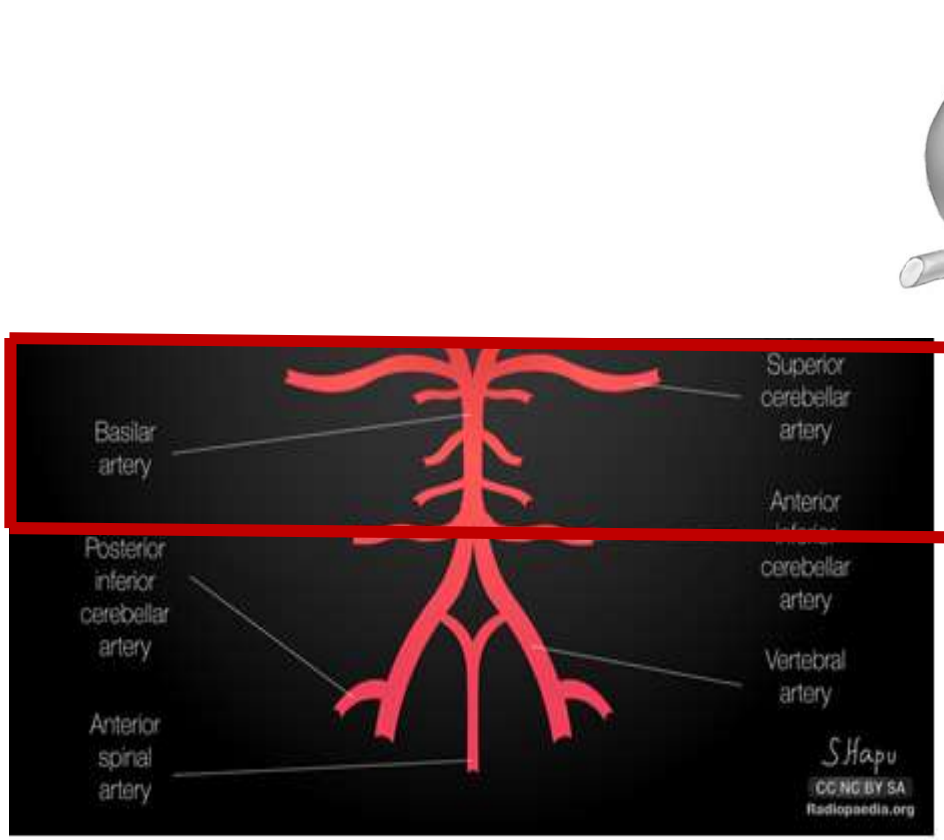
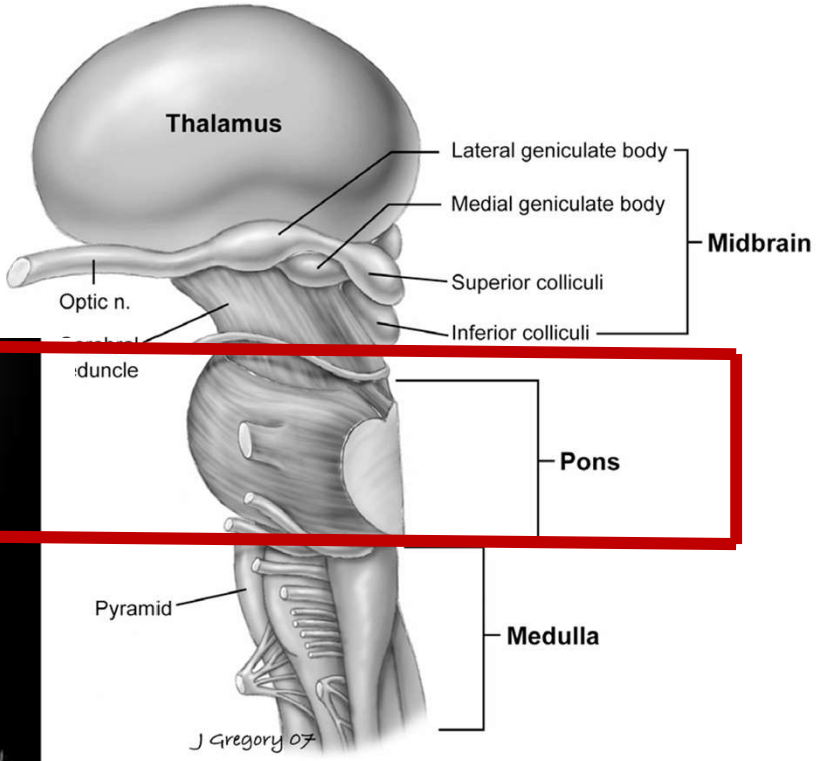
The Brain Stem has three divisions – Midbrain, Pons, Medulla

Parts of the brain stem, including the pons, are fed by very small arteries called “perforators”

Posterior Circulation Anatomy





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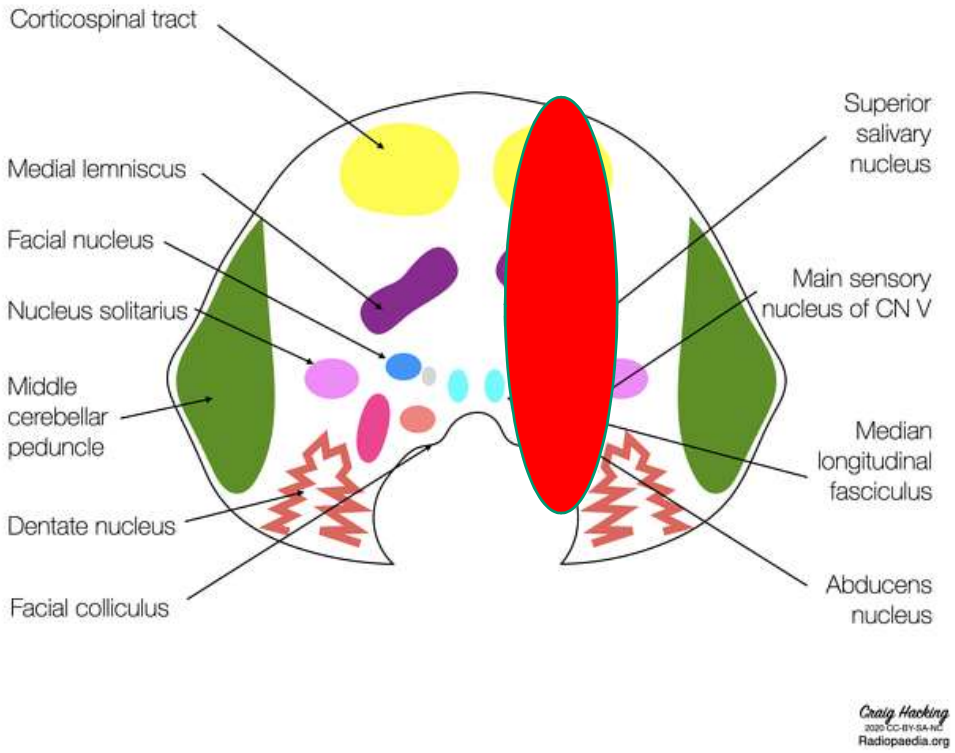
Pons

Axial section at the level of the lower pons



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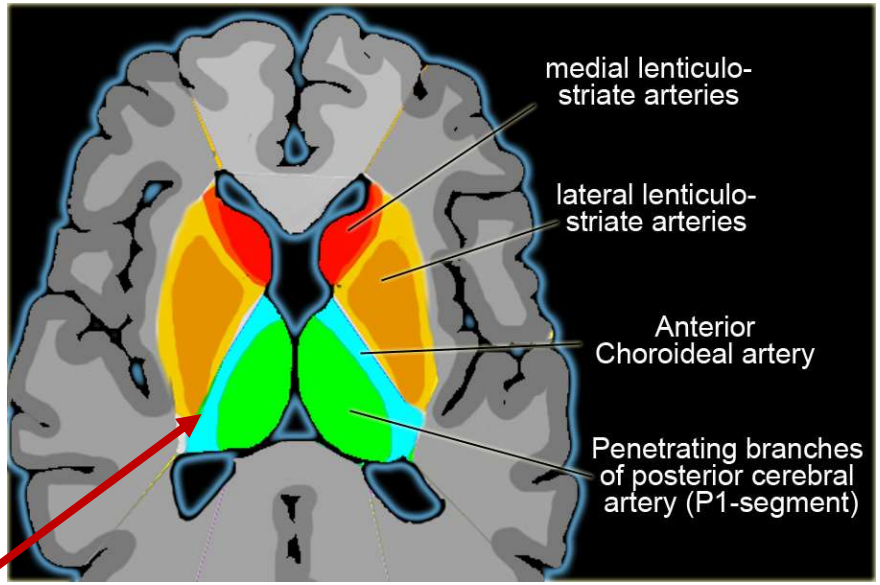
Internal Capsule



Posterior Limb of the Internal Capsule

-small white matter tract that carries all motor signals from the cortex to the brain stem. If damaged can cause hemiparesis

- Supplied by small perforators off the MCA, ACA, ICA

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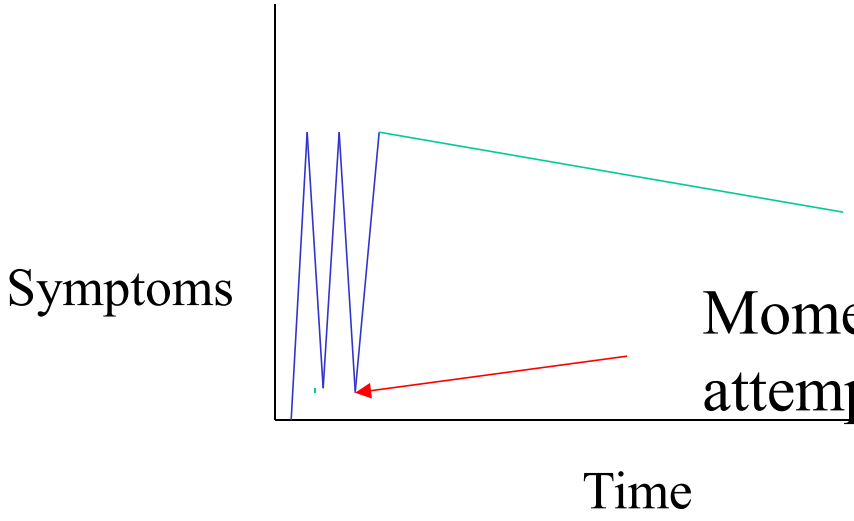

In the hospital, the goal is to minimize exacerbation if possible – importance of repeated NIH, with focus on motor symptoms!

If exacerbation occurs, try to see if it is blood pressure dependent

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Management

Make sure pt is euvolemic to slightly hypervolemic – bolus fluids, start maintenance fluids

Hold antihypertensives and see if there is a pressure above which sxs resolve

Consider holding off on therapy, bed rest, even head of bed flat to maximize intracranial perfusion

Make sure BG is being kept < 180

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Therapeutics

As this condition typically is related to small vessel disease, dual antiplatelets is standard, as well as statin. Studies have compared anticoagulation to DAPT without demonstrating a clear benefit. Heparin is sometimes used for severe pontine infarcts or if a thrombus is visualized on imaging.

The goal for therapy is to maintain vessel patency and brain perfusion until collaterals have a chance to take over.

Despite optimal medical management some patients may continue to progress regardless of treatment.

Cases -1

50 year old male with pmh of HTN, smoking, presented with a few day hx of recurrent facial droop and diploplia. On presentation his SBP is 190, and has a subtle facial asymmetry. He is admitted, started on DAPT, and hypertensives.

Pontine symptoms

The following day he has a disconjugate gaze, upper and lower facial palsy. His BP is in the 160s. BP medications are stopped, he is bloused 1 L, and put on bed rest. MRI is normal.

Over the next few days he is unable to start medications without recurrence of symptoms.

He is discharged with instructions to abstain from smoking, stay hydrated and refrain from physical exertion. He follows up a few weeks later in neurology clinic and is successfully put on antihypertensives.

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Cases - 2

A 65 yo female with pmh of diabetes and smoking but not HTN presents with mild left arm and leg weakness and a BP of 190. She is started on DAPT, and a day later antihypertensives. Her BP dropsto the 160s and her weakness becomes markedly worse. MRI shows a subcortical capsular infarct

BP meds are held, she is given fluids and put on bed rest. Two day later her BP spontaneously improves to the 130s. She remains asymptomatic.

Cases - 3

A 70 year old man with pmh HTN, HLD and DM presents after having an episode in the morning of left face and arm weakness, now resolved. BP is in the 180s. MRI shows very subtle diffusion restriction in the pons. Pt is loaded on DAPT. He subsequently develops facial droop and dense LUE paralysis. Despite fluids and permissive HTN, symptoms do not improve significantly over the following days.

Take Away

Much of the emphasis currently is on hyperacute management – thrombectomy, TNK/TPA, etc. However appropriate management following admission can also play an important role in minimizing symptoms. Basic management like ensuring proper volume status, BG control, permissive HTN for an appropriate period, can significantly aid in the recovery process.