

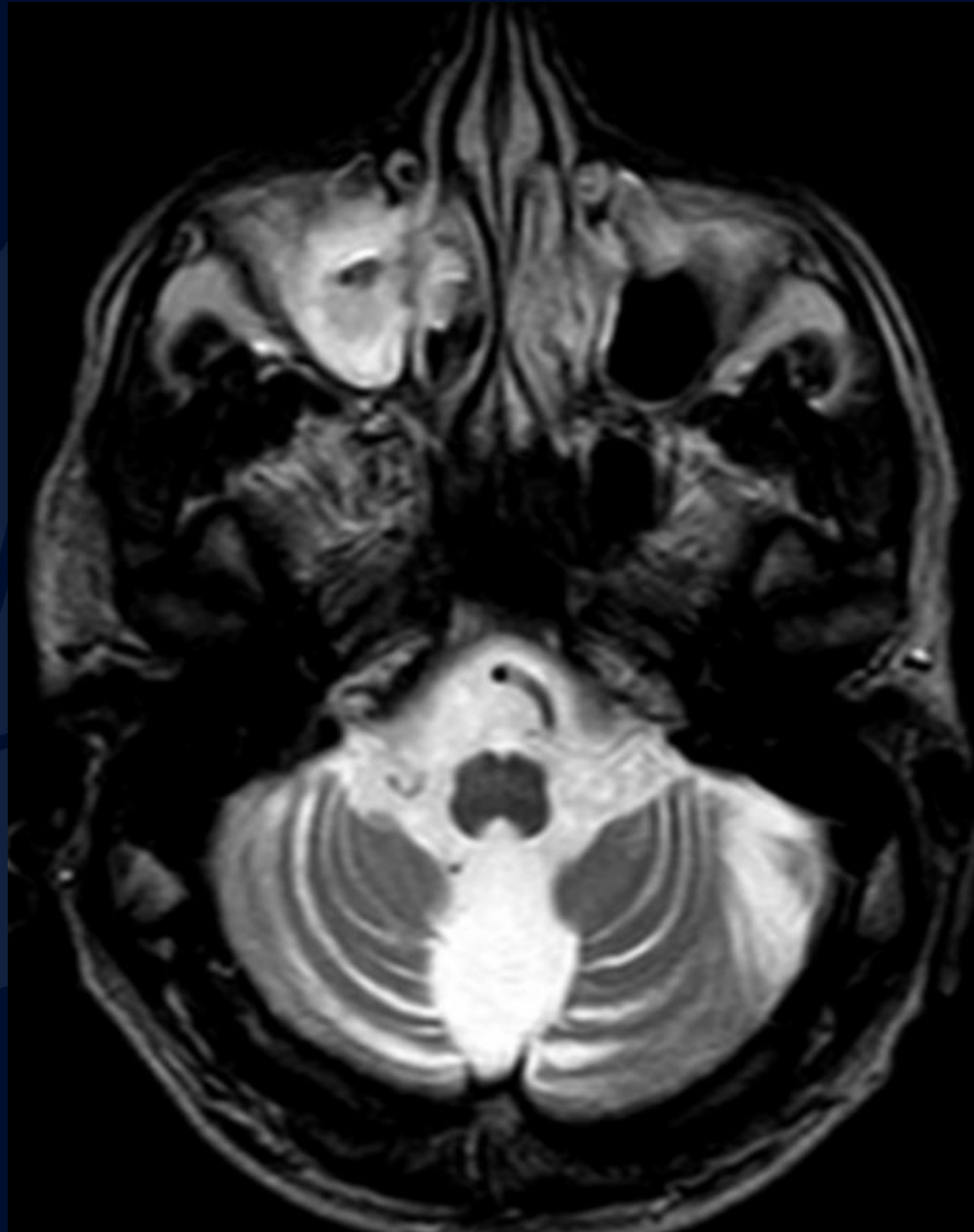
# 56-year-old man with a history of treatment resistant Parkinson's Disease

Seamus Rafferty, MS3

# T2 Axial



# T2 Axial



T2 Axial



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.

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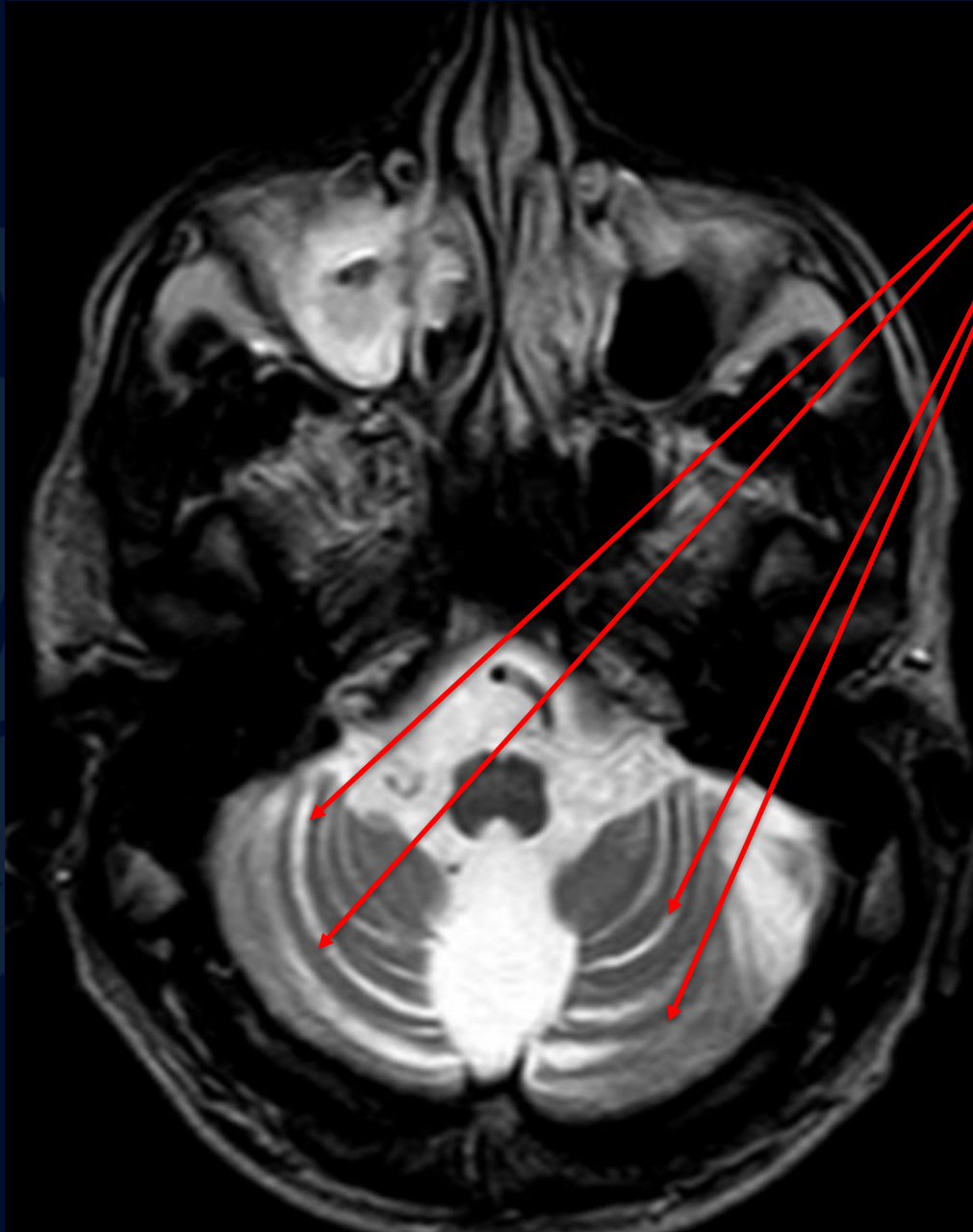
# Multiple System Atrophy (MSA)

# T2 Axial



“Hot cross bun sign”  
+ sign shaped  
T2 hyperintensity

# T2 Axial



Prominent  
cerebellar folia



# T2 Axial



Diffuse  
cerebellar  
atrophy

# Multiple System Atrophy

- Progressive neurodegenerative disease classically presenting with varying combinations of autonomic failure, parkinsonianism, and cerebellar syndrome
- Mean age of onset 55-60 years; prevalence: 4 per 100,000
- Average survival from onset of motor symptoms 8-9 years
- Can be difficult to distinguish from other disorders, particularly in the early stages. DDx:
  - Pure autonomic failure (PAF)
  - Parkinson's Disease
  - Any adult-onset ataxia: alcohol, lead, vitamin E deficiency, spinocerebellar ataxias, fragile-X, late-onset Friedreich ataxia
- Treatment: symptom targeted medical and behavioral modifications / palliative care

# MSA Imaging Findings

- To meet the definition of “clinically established” MSA-p at least one of the following MRI markers is required:
  - Atrophy of:
    - Putamen
    - Middle cerebellar peduncle
    - Pons
    - Cerebellum
  - “Hot cross bun” sign
  - Increased diffusivity of:
    - Putamen
    - Middle cerebellar peduncle

# References

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- Palma JA, Norcliffe-Kaufmann L, Kaufmann H. Diagnosis of multiple system atrophy. *Auton Neurosci*. 2018 May;211:15-25. doi: 10.1016/j.autneu.2017.10.007. Epub 2017 Oct 23. PMID: 29111419; PMCID: PMC5869112.
- [https://radiopaedia.org/cases/5465/studies/7194?lang=us&source\\_of=https%3A%2F%2Fradiopaedia.org%2Farticles%2Fmultiple-system-atrophy%3Flang%3Dus](https://radiopaedia.org/cases/5465/studies/7194?lang=us&source_of=https%3A%2F%2Fradiopaedia.org%2Farticles%2Fmultiple-system-atrophy%3Flang%3Dus)