

# MSA Overview

Dysautonomia Center

# What is MSA?

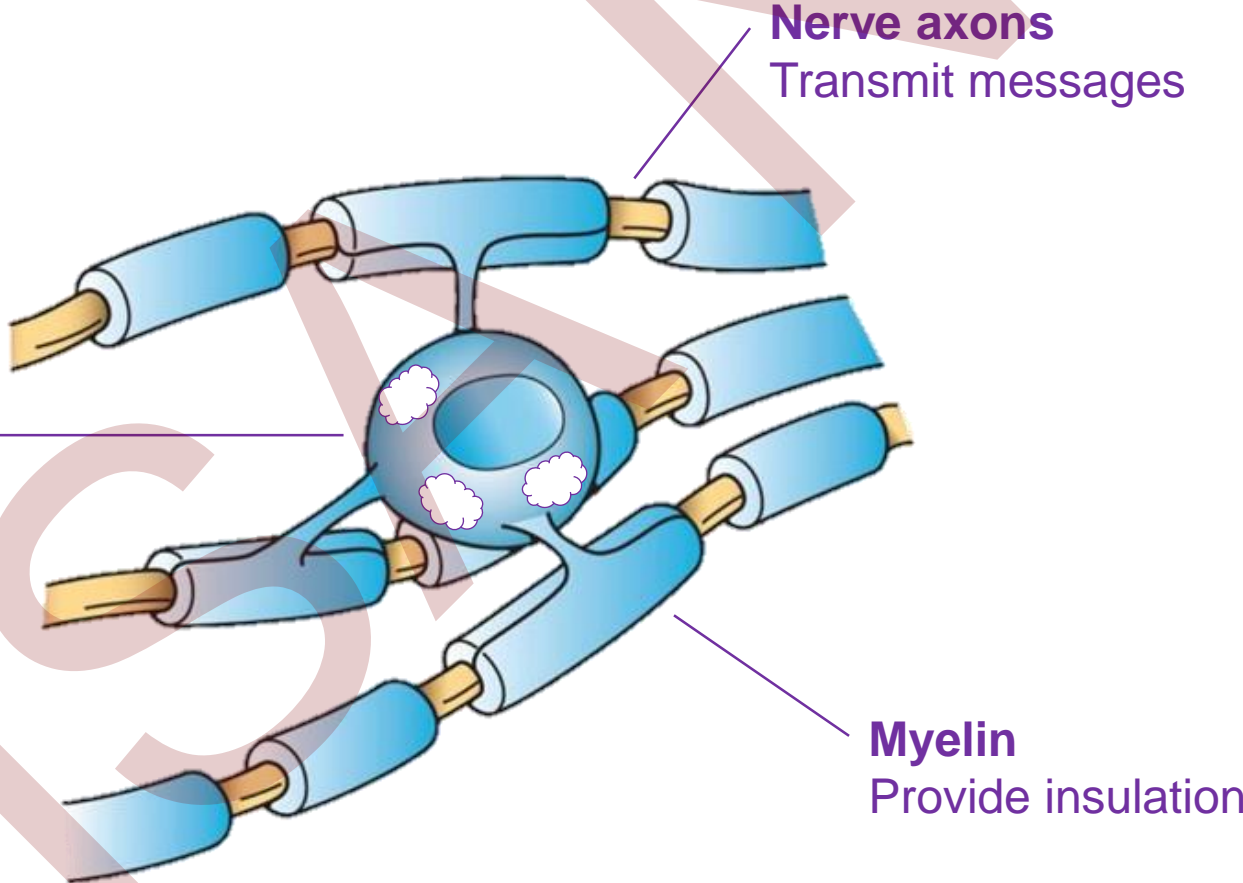
- Sporadic
- Adult onset
- Neurodegenerative disease
- Progressively affects movement and autonomic functions (blood pressure, GI motility, urination, sexual function, sweating, breathing)

**What causes MSA?**

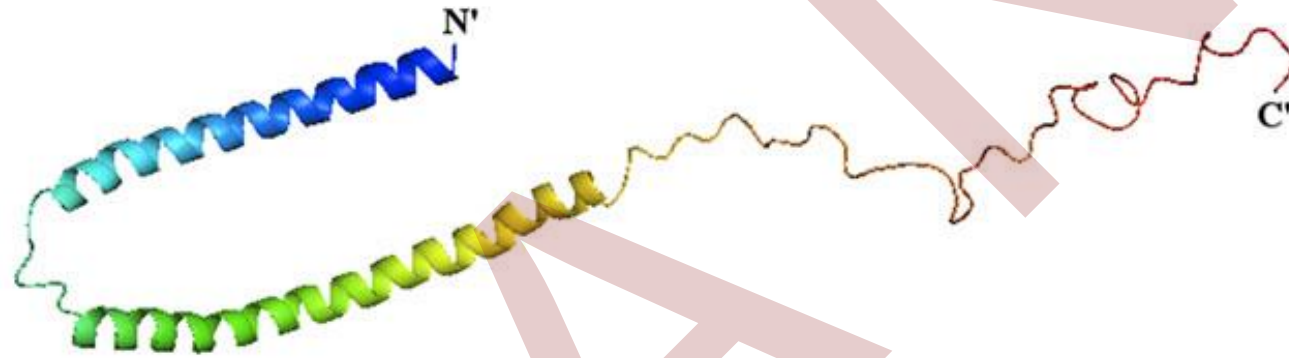
# The biology of MSA

## Oligodendroglia

**Oligodendrocyte**  
Supports multiple  
neurons



# $\alpha$ -synuclein



- 140 amino acid protein
- Produced normally by cells in the nervous system

**How is MSA diagnosed?**

# Diagnosis of MSA

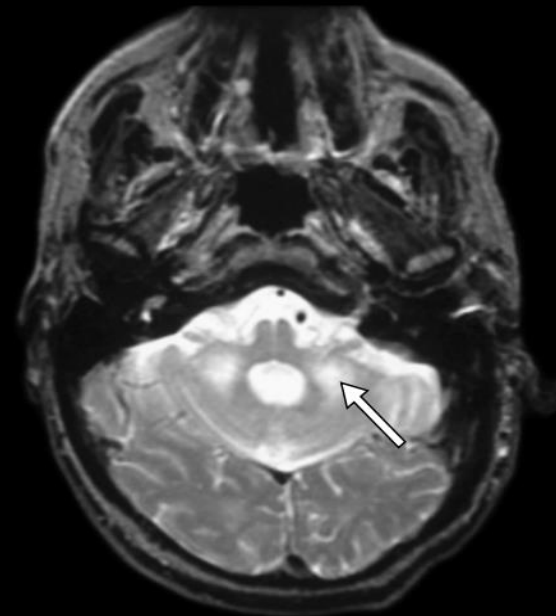
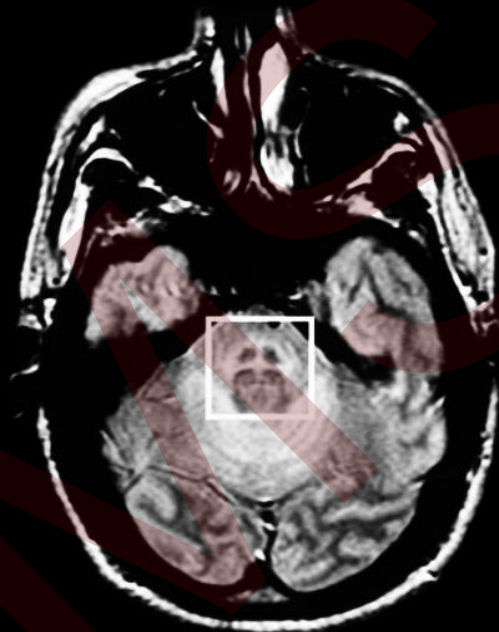
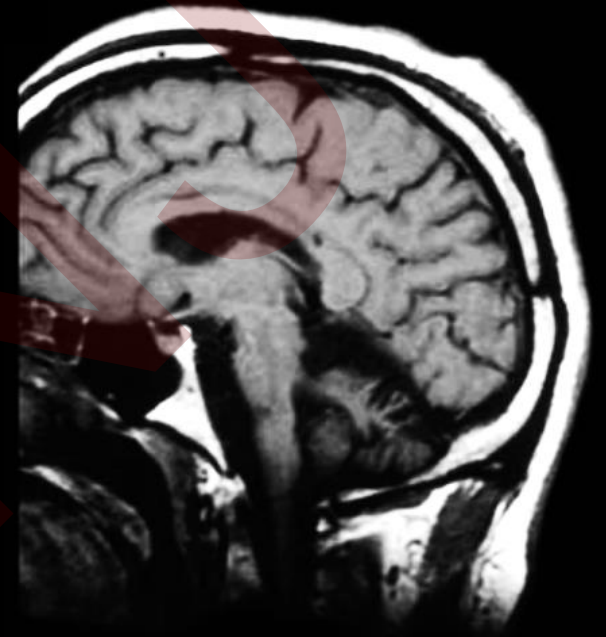
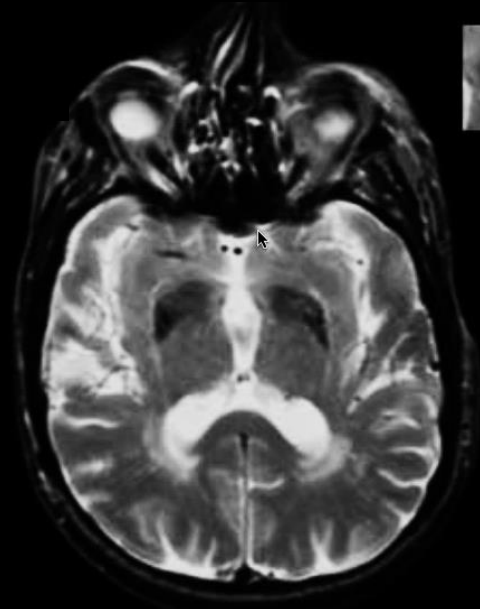
- Definite diagnosis of MSA requires examining the brain at autopsy
- Clinical diagnosis of MSA is reached with consensus criteria (i.e., a checklist). “Probable MSA” requires the 1<sup>st</sup> criterion AND the 2<sup>nd</sup> OR 3<sup>rd</sup>
  1. Autonomic dysfunction (orthostatic hypotension and/or bladder dysfunction)
  2. Parkinsonian syndrome that does not respond well to levodopa
  3. Cerebellar syndrome

# Diagnosis of MSA

Other tests can be useful to support the diagnosis

- Brain MRI
- Smell test (smell is preserved in MSA, but reduced in PD)
- Sleep study to check for REM behavior disorder
- Autonomic testing
- Urodynamic testing



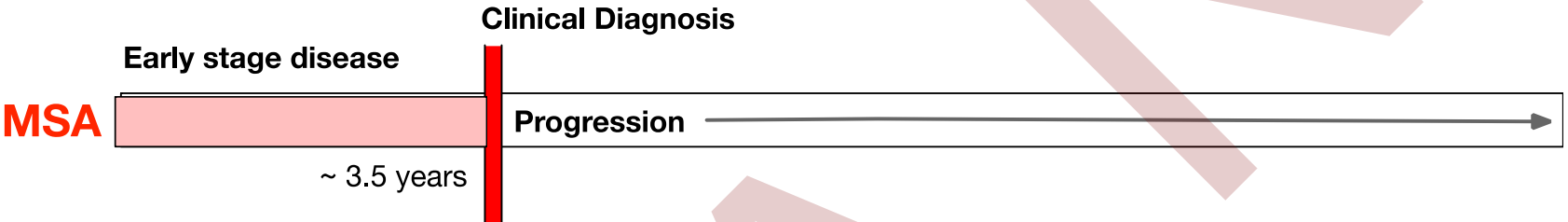


# Diagnosis of MSA

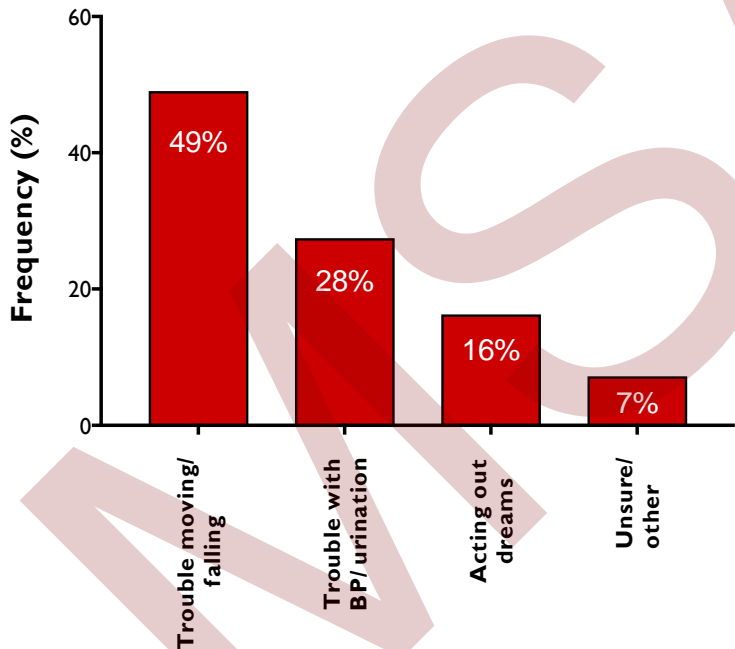
Because of the multi-system presentation, MSA can be difficult to diagnose:

- Patients presenting with parkinsonism may be misdiagnosed as PD
- Patients presenting with urinary symptoms may be misdiagnosed with prostate problems
- Patients presenting with orthostatic hypotension may be misdiagnosed as pure autonomic failure

# Diagnostic delay



Why did it take so long, what are we not recognizing?



Well described for many years  
None of these features alone  
can predict that a patient has  
MSA



**How do we treat MSA?**

# Treatment

Unfortunately there is no treatment that can slow or stop the progression of MSA – clinical trials

# Treatment

Treatment is aimed at improving quality of life and treating symptoms

- ✓ Parkinsonism: A minority of patients with parkinsonian symptoms respond to levodopa
- ✓ Neurogenic orthostatic hypotension: It can be treated
- ✓ Bladder dysfunction: May require intermittent self-catheterization

**NONE OF THESE TREATMENTS ARE PROVEN TO SLOW THE PROGRESSION OF THE DISEASE**

# Treatment

Treatment is aimed at improving quality of life and treating symptoms

- ✓ Constipation is managed with a combination of fiber and laxatives
- ✓ Sleep disordered breathing can be treated with CPAP or BiPAP
- ✓ Dysphagia may require tracheostomy

**NONE OF THESE TREATMENTS ARE PROVEN TO SLOW THE PROGRESSION OF THE DISEASE**

# Treatment

Treatment is aimed at improving quality of life and treating symptoms

- ✓ Physical therapy and speech therapy may help cope with dysfunction
- ✓ Pain medications may be required for some patients
- ✓ Antidepressants might be necessary

**NONE OF THESE TREATMENTS ARE PROVEN TO SLOW THE PROGRESSION OF THE DISEASE**