CONDITION

MSA

MSA is a progressive nervous system condition that affects movement, balance, and automatic body functions.

WHAT IT IS
Progressive condition affecting movement and automatic body functions

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Movement problems, poor balance, faintness, bladder problems

WHAT CAUSES IT
Unknown, involving abnormal alpha-synuclein protein

HOW IT IS DIAGNOSED
Neurologic assessment, autonomic tests, and brain MRI

MAIN TREATMENT
Symptom control, rehabilitation, and supportive care

CAN IT BE CURED?
No - treatments manage symptoms only

IS IT AN EMERGENCY?
Sometimes - sudden breathing difficulty or prolonged fainting

LONG-TERM OUTLOOK
Progressive, life-shortening condition needing increasing support

Overview

Multiple system atrophy, usually shortened to MSA, is a rare, progressive condition of the nervous system. "Progressive" means that it tends to worsen over time.

MSA damages nerve cells involved in movement, balance, coordination, and automatic body functions. Automatic functions happen without conscious control. They include blood pressure, bladder function, sweating, digestion, breathing during sleep, and sexual function.

The condition is linked to an abnormal build-up of a protein called alpha-synuclein in certain brain cells. Alpha-synuclein also has a role in Parkinson's disease, but MSA and Parkinson's are different conditions.

Doctors may describe two main patterns:

Many people develop features of both patterns. Problems with automatic body functions, known as autonomic dysfunction, are central to MSA and may appear before movement symptoms.

MSA matters because it can affect several parts of daily life at once. Symptoms may involve walking, speaking, eating, sleeping, using the toilet, and staying upright without becoming faint. Care often involves several professionals rather than one treatment.

- MSA-P , in which Parkinson-like movement symptoms are most noticeable
- MSA-C , in which balance and coordination problems are most noticeable

Symptoms

Symptoms differ from person to person and may not begin at the same time. Early symptoms can resemble Parkinson's disease, a balance disorder, or a bladder condition.

Movement symptoms may include:

MSA can also affect the cerebellum, the part of the brain that coordinates movement. This may cause an unsteady, wide-based walk, clumsy hand movements, or speech that sounds slow, strained, or unclear.

A fall in blood pressure when standing is common. This is called orthostatic hypotension. It may cause dizziness, blurred vision, weakness, pain across the shoulders or neck, confusion, or fainting. Symptoms may be worse after meals, in hot conditions, during illness, or after standing for a long time.

Bladder symptoms can include urgency, frequent urination, leaking urine, difficulty starting, or being unable to empty the bladder fully. Some people develop repeated urinary infections because urine remains in the bladder.

Other possible symptoms include:

Thinking and memory are often less affected than movement and automatic functions, particularly early on. However, mild changes in planning, attention, mood, or emotional control can occur.

- Slowness and stiffness
- Difficulty starting or controlling movement
- Reduced arm swing when walking
- A stooped posture

- Falls or increasing difficulty with balance
- Shaking, although the typical resting tremor of Parkinson's disease is less common
- Constipation
- Erectile dysfunction or other changes in sexual function
- Reduced sweating or problems controlling body temperature
- Cold, discoloured hands or feet
- Difficulty swallowing
- Weak, quiet, or high-pitched speech
- Noisy breathing, especially during sleep
- Acting out dreams during sleep
- Interrupted sleep or daytime tiredness
- Emotional changes, such as anxiety or depression

Causes and risk factors

The exact cause of MSA is unknown.

In MSA, alpha-synuclein collects mainly inside support cells in the brain called oligodendrocytes. These cells normally help protect nerve fibres. The protein build-up is associated with damage in brain areas that control movement, coordination, and automatic functions. Researchers do not yet know why this process starts.

MSA is not usually inherited. Most people do not have an affected family member, and no single inherited change is known to cause typical MSA. Research continues into whether combinations of genetic and environmental factors may influence risk.

Nothing you did caused MSA. There is no evidence that it results from personality, ordinary exercise, diet, or everyday stress.

Diagnosis

There is no single blood test or scan that confirms MSA during life. Diagnosis is based on the pattern of symptoms, examination findings, test results, and how the condition changes over time.

A neurologist will usually ask about movement, balance, falls, faintness, bladder function,

bowel habits, swallowing, sleep, and sexual function. Blood pressure may be measured after lying down and again after standing. A neurologic examination checks muscle stiffness, speed of movement, coordination, eye movements, reflexes, speech, and walking.

Tests may include:

MSA can be difficult to distinguish from Parkinson's disease, pure autonomic failure, progressive supranuclear palsy, or some coordination disorders. A person's diagnosis may therefore become clearer during follow-up.

Response to levodopa, a medicine used for Parkinson's symptoms, may provide useful information. Some people with MSA improve with it, but the benefit is often incomplete or does not last. A limited response does not confirm MSA by itself.

A fully certain diagnosis requires examination of brain tissue after death. In practice, specialists use internationally defined criteria to make a clinical diagnosis and guide care during life.

- Brain MRI: This can identify changes that support MSA and help rule out other causes. MRI findings are not always present early and are not specific enough to diagnose MSA alone.
- Autonomic testing: Heart rate, blood pressure, and sweating may be assessed to see how automatic functions respond.
- Bladder tests: An ultrasound can measure urine left after urination. More detailed bladder testing may sometimes be needed.
- Sleep or breathing assessment: A sleep study or examination of the vocal cords may be used if there is noisy breathing, choking, or suspected sleep-related breathing problems.
- Swallowing assessment: This checks whether food or drink is entering the airway.

Treatment and management

There is currently no treatment that cures MSA or reliably stops its progression. Care focuses on relieving symptoms, maintaining independence, preventing avoidable complications, and supporting quality of life.

Movement treatment may include Parkinson's medicines. Levodopa helps some people with stiffness or slowness, although the response is often smaller than in Parkinson's disease. These medicines may worsen low blood pressure or cause other effects, so treatment needs regular review.

Physiotherapy can help with walking, posture, strength, flexibility, and safer ways to move. A physiotherapist may recommend a suitable walking aid or wheelchair as needs change. Occupational therapy can help with dressing, bathing, transfers, seating, and adapting the

home.

Management of low blood pressure may involve:

These measures require individual guidance because MSA may also cause high blood pressure while lying flat.

Bladder care depends on whether the main problem is urgency, leaking, or incomplete emptying. Options may include bladder training, medicines, absorbent products, or a catheter. A catheter is a thin tube used to drain urine. Treatment should account for blood pressure effects and the risk of urine retention.

A speech and language therapist can help with communication and swallowing. Changes in food texture, eating position, or swallowing technique may make meals safer. If swallowing becomes severely limited, tube feeding may be discussed. This is a personal decision made after considering expected benefits, burdens, and the person's wishes.

Noisy breathing called stridor can happen when the vocal cords narrow the airway. Assessment may include a sleep study and examination by an ear, nose, and throat specialist. Treatment can include continuous positive airway pressure, known as CPAP, or, in selected cases, a surgical airway called a tracheostomy.

Support may also include treatment for constipation, sleep problems, pain, mood symptoms, and sexual difficulties. Palliative care can help with comfort, planning, and quality of life at any stage; it is not limited to the final days of life.

- Rising slowly and pausing before walking
- Drinking enough fluid if medically appropriate
- Reviewing medicines that may lower blood pressure
- Compression garments or an abdominal binder
- Adjusting meals or sleeping position
- Medicines that help maintain blood pressure

Complications

Balance problems and low blood pressure can lead to falls, fractures, or head injuries. A person may become less active after falls, which can add to weakness and stiffness.

Difficulty swallowing can cause weight loss, dehydration, or food and liquid entering the lungs. This is called aspiration and can lead to pneumonia.

Incomplete bladder emptying may cause repeated urinary infections or, less often, kidney

problems. Catheters can improve drainage but also require care to reduce infection and blockage.

Breathing complications may include sleep apnoea, in which breathing repeatedly pauses during sleep, or stridor from narrowed vocal cords. These problems need assessment because they can disrupt sleep and, in some cases, become serious.

Reduced mobility can increase the risk of pressure injuries, blood clots, constipation, and loss of independence. Regular review can identify equipment, therapy, or additional care that may reduce these risks.

Prevention

MSA cannot currently be prevented. Its cause is unknown, and there is no established screening test for people without symptoms.

Because MSA is not usually inherited, relatives do not generally need genetic testing solely because one family member has it. Genetic advice may still be considered when several relatives have similar neurologic symptoms or when the diagnosis is uncertain.

Although lifestyle changes cannot prevent MSA, practical safety measures may reduce complications. These include reviewing fall risks, addressing swallowing problems early, maintaining appropriate activity, and following an agreed plan for blood pressure and bladder symptoms.

Living with it and what to expect

MSA usually changes over months and years rather than remaining stable. The rate and order of change are not the same for everyone. Some people first notice bladder or blood pressure problems, while others first develop stiffness, slowness, or poor coordination.

Symptoms generally spread across more than one body system. Walking aids may eventually be needed, followed by a wheelchair for longer distances or daily mobility. Speech and swallowing can become more difficult. Help with personal care often increases over time.

Thinking skills may remain relatively preserved, so people can stay involved in decisions even when speech or movement becomes limited. Communication aids, written plans, and early discussions about future care can help preserve choice.

Regular follow-up usually focuses on falls, fainting, bladder emptying, nutrition, swallowing, breathing, sleep, and equipment needs. Reviews are also a chance to discuss work, driving,

caregiving, finances, emotional health, and support at home.

MSA is a life-shortening condition, but no single timeline predicts an individual person's course. Some symptoms can be eased, and rehabilitation, equipment, and coordinated support can help people remain active and connected for as long as possible.

When to get medical help

Arrange routine medical review for new or gradually worsening symptoms, including more frequent falls, increasing faintness, changes in urination, constipation that is difficult to manage, weight loss, new sleep problems, or reduced benefit from treatment.

Seek prompt medical advice for:

Call emergency services for severe breathing difficulty, prolonged unresponsiveness, blue or grey lips, a serious fall or head injury, or stroke-like symptoms such as sudden one-sided weakness or sudden loss of speech.

- Repeated fainting or fainting with an injury
- New noisy breathing, especially during sleep
- Choking, coughing during meals, or repeated chest infections
- Inability to empty the bladder
- Fever, pain, or confusion that could suggest a urinary infection
- A rapid decline in walking, speech, swallowing, or alertness

Common questions

Is MSA the same as Parkinson's disease?

No. Both can cause stiffness, slowness, and balance problems, but MSA usually causes earlier or more prominent problems with blood pressure, bladder control, coordination, or breathing. Parkinson's medicines may also provide less benefit in MSA.

Is MSA a form of dementia?

MSA is not primarily a dementia. Many people retain memory and understanding, especially early in the condition. Mild changes in attention, planning, mood, or emotional control can occur, but severe dementia is not a typical early feature.

Is MSA hereditary?

MSA is not usually inherited. Most cases occur without a family history. Researchers are studying possible genetic influences, but typical MSA is not linked to one predictable gene passed through families.

How quickly does MSA progress?

MSA progresses over time, but there is no precise schedule. The pace depends on the pattern and severity of movement, blood pressure, bladder, swallowing, and breathing problems. Follow-up is more useful than comparing one person's course with another's.

Can someone with MSA still exercise?

Appropriate activity can support strength, flexibility, comfort, and confidence. Exercise may need to be adapted because of poor balance or low blood pressure. A physiotherapist can help identify safer activities and suitable support.

Can MSA be cured?

There is currently no cure and no proven treatment that stops the condition. Treatment can still make a meaningful difference by reducing symptoms, improving safety, and supporting communication, mobility, nutrition, and comfort.

Sources

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