Series 4:
Identifying Symptoms

MOGbytes™

A snack-sized guide to understanding MOGAD

a series brought to you by

THE MOG PROJECT

What symptoms are associated with MOGAD?

MOGAD **can look different for everyone.**

MOGAD affects different or multiple parts of the **central nervous system:**

Including	What it may cause
Brain and brain stem	**Encephalitis** (fever, headache, or seizures)
Optic nerve	**Optic neuritis** (vision problems or eye pain)
Spinal cord	**Transverse myelitis** (weakness, numbness, or mobility changes)

MOGAD, myelin oligodendrocyte glycoprotein antibody-associated disease.

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What parts of the brain are associated with some of the symptoms of MOGAD?

Different areas of the brain control different functions.
Symptoms can vary depending on where inflammation occurs.

Symptoms of Inflammation in the Cerebrum

The **cerebrum** helps with thinking, memory, emotions, movement, and processing sights and sensations.

Movement & Sensation

- Weakness, stiffness, or muscle spasms
- Numbness or changes in sensation

Mood & Behavior

- Anxiety, irritability, or mood changes
- Changes in behavior or personality

Thinking & Awareness

- Confusion or disorientation
- Changes in alertness (e.g., drowsiness or altered consciousness)
- Sleepiness or lethargy
- Trouble concentrating, thinking clearly, or remembering

Seizures

- Seizures (may include shaking, stiffness, unusual sensations, or loss of consciousness)

Communication

- Difficulty speaking or expressing thoughts (verbal or written)

Vision

- Vision changes

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The symptoms listed here are based on clinical research and may evolve as new information becomes available.

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Symptoms of Inflammation in the Cerebellum

The **cerebellum** helps keep movements smooth and coordinated, supporting balance and steadiness.

Balance & Coordination
- Lack of coordination
- Difficulty walking

Eye Movements & Vision
- Eye movement abnormalities
- Jumping vision (oscillopsia)

Swallowing
- Trouble eating and swallowing

Movement
- Tremors

Speech
- Slurred speech

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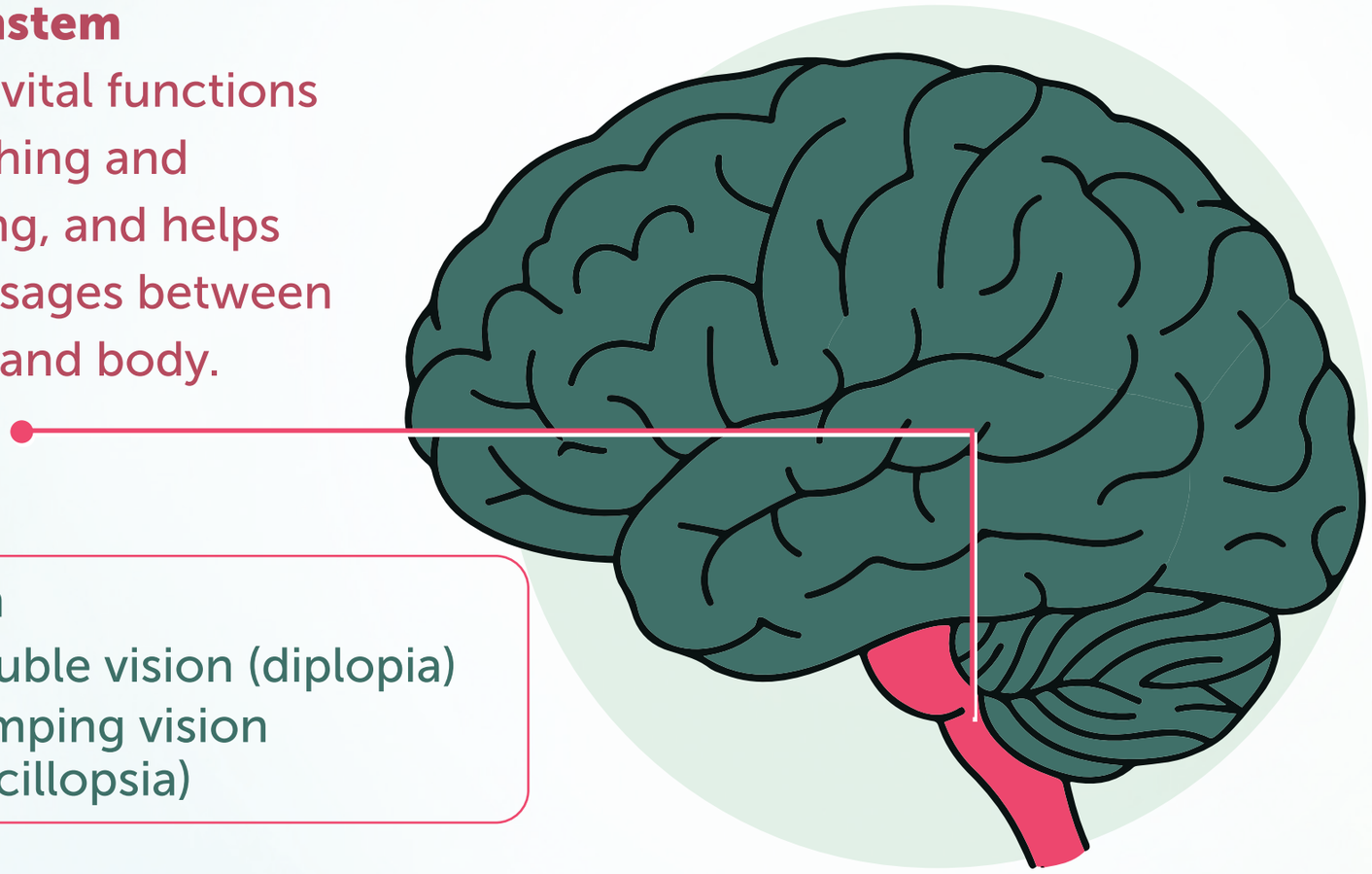
Symptoms of Inflammation in the Brainstem

The **brainstem** manages vital functions like breathing and swallowing, and helps send messages between the brain and body.



Balance & Movement
- Dizziness or spinning sensation (vertigo)
- Imbalance or difficulty walking
- Motor or sensory disturbances

Vision
- Double vision (diplopia)
- Jumping vision (oscillopsia)

Facial Sensation
- Numbness, tingling, or pain in the face

Respiratory Dysfunction
- Difficulty breathing

Hearing & Speech
- Ringing or buzzing in the ears (tinnitus)
- Decreased hearing
- Slurred speech (dysarthria)

Taste & Swallowing
- Altered taste (dysgeusia)
- Difficulty swallowing foods or liquids (dysphagia)

Other Symptoms
- Nausea or vomiting
- Hiccups

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What do doctors hear from patients experiencing inflammation in the brain or brainstem, and their caregivers?

There is so much pressure with this headache.

I just can't seem to focus.

Her tantrums come out of nowhere. She is always angry.

I am so tired. I can't get through the day without a nap.

She's not making sense.

The seizures are getting worse.

I'm so nauseous I can't eat.

I stumble and lose my balance.

I have MOG fog! I can't remember anything.

I feel like I am going crazy.

He is unable to answer me when I ask him a question.

I can't muster any strength to move.

Patients | Caregivers

MOG, myelin oligodendrocyte glycoprotein.

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If diagnosed with optic neuritis (ON), what could happen?

- Blurred vision
- Complete loss of vision
- Impaired color vision
- Sensitivity to light (photophobia)
- Partial loss of vision or blind spot (scotomas and other visual field defects)
- Pain around or behind the eye, usually worse with movement

ON attacks can happen once (monophasic) or multiple times (relapsing)

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What do doctors hear from patients experiencing inflammation in the optic nerve?

My eyes hurt when I look around.

It's like a knife is piercing my head near my eyes.

Everything is blurry.

Everything looks more pale and pixelated.

I see gray smudges.

Colors don't look as bright.

I can't see anything! It's completely dark!!

Is it dark in here?

It's like I am in a smoky room.

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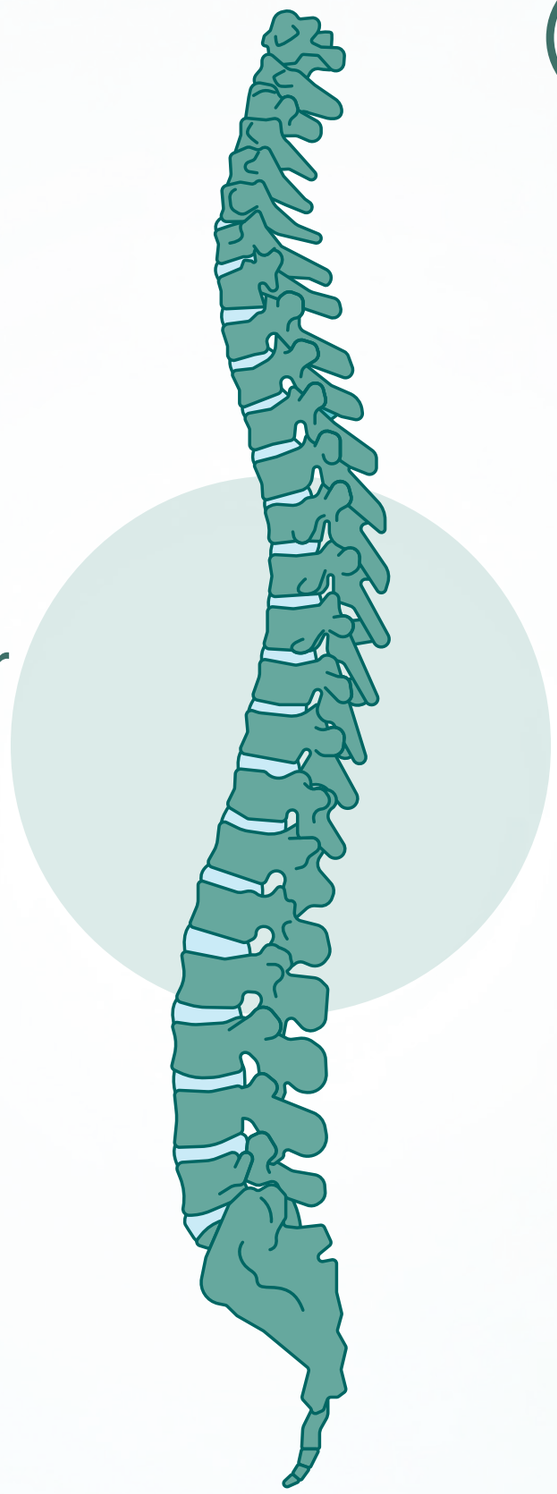
If diagnosed with transverse myelitis (TM), what could happen?

Sensory Symptoms

- Numbness, pins and needles, tingling, electrical sensation, and/or burning/cold sensations (paresthesia)
- Sensitivity to touch
- Pain radiating from your back and hip, into the legs, through the spine (radicular pain)
- An electrical shock sensation that occurs when bending the neck and shoots down the spine (Lhermitte's phenomenon)
- Band-like abdominal or chest pressure



Motor/Functional Symptoms

- Limb weakness (both sides or one side)
- Muscle stiffening or tightening, twitching (limb spasticity)
- Painful involuntary muscular contractions (painful tonic spasms)
- Bowel issues (constipation, incontinence or urgency)
- Bladder issues (urgency and/or frequency, difficulty emptying, incontinence)
- Difficulty breathing (dyspnea)

TM attacks can happen once (monophasic) or multiple times (relapsing)

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What do doctors hear from patients experiencing inflammation in the spinal cord, and their caregivers?

There is a burning pain in my body.

I have pain in my back.

I am feeling a stinging sensation.

The pain in my chest is terrible.

I have bruises from the spasms.

It feels like my ribs are being squeezed.

I am afraid I will have an accident. I can't leave the house.

I have such bad leg pain.

Suddenly her gait just looked really strange.

My legs are weak.

My belly hurts. I haven't gone in days.

I can't muster any strength to move.

Patients | Caregivers

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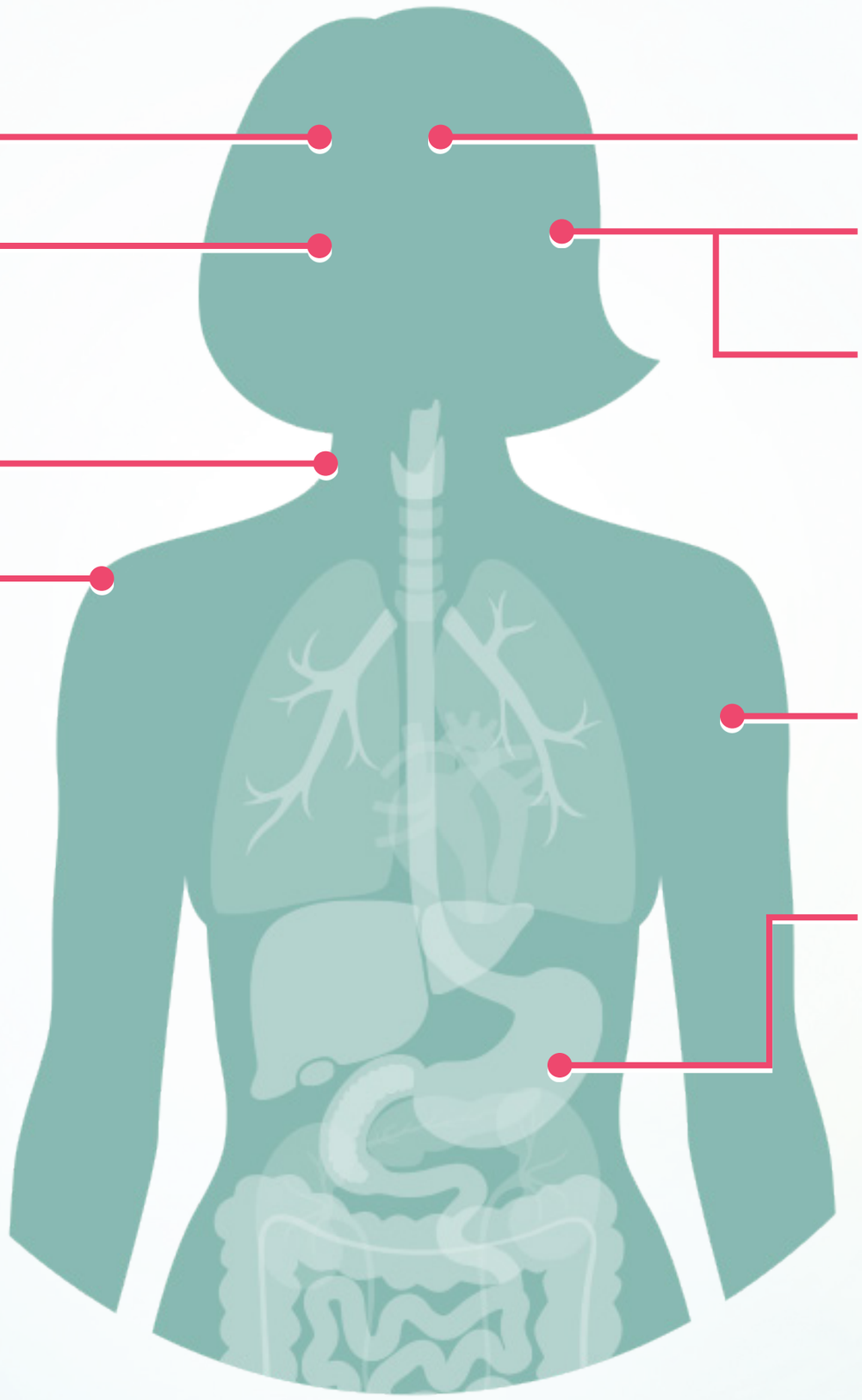
What other symptoms can occur with MOGAD?



Headache

Dizziness

Neck stiffness

Fatigue

Fever

Irritability

Anxiety

Sensitivity to heat, exercise and/or stress (Uhthoff's phenomenon)

Loss of appetite

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How do doctors diagnose MOGAD?

Doctors consider a combination of symptoms, tests, and medical history to better understand a patient's condition. They may look at:

Symptoms

- What symptoms are present and how they appear
- Which symptoms are most noticeable

Imaging tests

- MRI, OCT, and other diagnostic scans

Lab tests

- Blood tests, including MOG and AQP4 antibodies
- Spinal fluid testing (in some cases)
- Other tests based on each patient's situation

How the condition changes over time

- How the condition responds to treatment
- Changes in symptoms, scans, or lab results

AQP4, aquaporin-4; MOG, myelin oligodendrocyte glycoprotein; MOGAD, myelin oligodendrocyte glycoprotein antibody-associated disease; MRI, magnetic resonance imaging; OCT, optical coherence tomography.

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What do MOG antibody levels mean?

MOG antibody levels can help doctors better understand a patient's condition, but they are just one piece of the puzzle.

What the results can show

- A positive result helps support a diagnosis of MOGAD

How levels can change

- Levels are often higher during a relapse than during remission
- Relapses can still happen even if levels stay the same or decrease
- Some people may test positive again after previously negative results
- In patients with monophasic disease, antibody levels decrease or become negative 8–36 months after their initial attack

Important to know

- Some people may relapse even with low or negative levels

Monitoring

- Some doctors may repeat testing every 6–12 months, although it is still unclear how helpful regular monitoring is for guiding treatment

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This series is brought to you by The MOG Project in partnership with UCB.

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Inspired by **patients.**
Driven by **science.**

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