CONDITION

Cranial mononeuropathy III

Cranial mononeuropathy III is weakness or paralysis of the nerve controlling most eye movements, the eyelid, and pupil.

WHAT IT IS
Weakness or paralysis of the third cranial nerve

BODY SYSTEM
Nervous system and eyes

MAIN SYMPTOMS
Double vision, drooping eyelid, abnormal eye position, enlarged pupil

WHAT CAUSES IT
Reduced blood flow, compression, injury, inflammation, or unknown

HOW IT IS DIAGNOSED
Eye examination and brain and blood-vessel imaging

MAIN TREATMENT
Treating the cause and managing double vision

CAN IT BE CURED?
Sometimes - temporary or treatable causes may recover

IS IT AN EMERGENCY?
Sometimes - sudden onset requires emergency assessment

LONG-TERM OUTLOOK
Many improve, but lasting eye movement problems can occur

Overview

Cranial mononeuropathy III affects the third cranial nerve, also called the oculomotor nerve. "Mononeuropathy" means that one nerve is damaged or not working normally.

The third cranial nerve controls most eye movements, lifts the upper eyelid, makes the pupil smaller in bright light, and supports close focusing. If it becomes weak or paralysed, the eyes may point in different directions, causing double vision. The eyelid may droop, and the pupil may become enlarged or react poorly to light.

The condition may affect all or part of the nerve and can be present from birth or develop later. Some causes are temporary, while others need urgent treatment.

A new third nerve palsy can be caused by pressure from a brain aneurysm, which is a

weakened, bulging area in a blood vessel. Sudden symptoms need urgent medical assessment, even if the pupil looks normal.

Symptoms

Symptoms usually affect one eye. Common symptoms include:

Double vision occurs because the eyes are not aligned and usually disappears when either eye is covered. A severely drooping eyelid may block the affected eye and temporarily hide the double vision.

A complete palsy affects most functions controlled by the third nerve. A partial palsy may affect only certain eye movements, the eyelid, or the pupil.

An enlarged pupil can indicate pressure on the nerve, including from an aneurysm. However, a normal pupil does not rule out a serious cause.

Weakness, numbness, trouble speaking, loss of balance, confusion, or reduced consciousness may mean that other nerves or parts of the brain are involved.

- Double vision, especially when both eyes are open
- A drooping upper eyelid, called ptosis
- An eye that rests outward and slightly downward
- Difficulty moving the eye inward, upward, or downward
- One pupil that is larger than the other
- Blurred vision or trouble focusing on nearby objects
- Pain around the eye or headache

Causes and risk factors

A common cause in adults is reduced blood flow through the small vessels supplying the nerve, known as a microvascular third nerve palsy. Risk is higher with diabetes, high blood pressure, high cholesterol, or smoking.

Microvascular palsies often leave pupil function unchanged, but this pattern cannot reliably identify the cause without assessment.

The nerve can also be compressed by:

A stroke can damage the area where the third nerve begins or travels, often with other

neurological symptoms. Head injury can stretch or compress the nerve and requires prompt assessment.

Less common causes include inflammation, infection, disorders affecting nerve coverings, and blood-vessel inflammation. Giant cell arteritis is an important possibility in adults over 50 who have a new headache, scalp tenderness, jaw pain while chewing, or visual symptoms.

Children may be born with a third nerve palsy or develop one after birth trauma, infection, injury, or another neurological condition. Sometimes no cause is found.

- An aneurysm
- A tumour or other mass
- Swelling or bleeding in or around the brain
- Abnormal tissue in the cavernous sinus, an area behind the eyes
- Disease within the eye socket

Diagnosis

A healthcare professional will ask when symptoms began, whether onset was sudden, and whether there is pain, headache, injury, or another neurological symptom. Medical history may identify vascular risk factors.

The eye examination checks:

A neurological examination assesses strength, sensation, coordination, speech, and other cranial nerves.

Imaging is usually important for a newly acquired third nerve palsy. MRI can show the nerve, brain, eye sockets, and nearby tissues. Magnetic resonance angiography or computed tomography angiography examines blood vessels for an aneurysm or another abnormality.

Some people need catheter angiography, an invasive test in which a thin tube is passed into an artery and contrast dye produces detailed blood-vessel images.

Blood tests may check for diabetes, inflammation, infection, or other suspected causes. If giant cell arteritis is possible, inflammation tests and further specialist assessment may be arranged urgently.

Diagnosis is not based on pupil size alone. Symptoms, examination findings, imaging, age, and changes over time all matter.

- Eye position and movement

- Eyelid drooping
- Pupil size and reaction to light
- Vision in each eye
- The pattern of double vision
- The optic nerve and retina

Treatment and management

Treatment depends on the cause and includes managing symptoms such as double vision.

An aneurysm may be treated by blocking blood flow into the weakened area, either through the blood vessels or with surgery. Stroke, infection, inflammation, tumours, and other structural causes require specific treatment. Anti-inflammatory medicines are used only when an inflammatory cause is identified or strongly suspected.

A microvascular palsy is often monitored while blood pressure, blood sugar, cholesterol, and smoking are addressed. These measures support blood-vessel health but do not cause immediate nerve recovery.

Double vision may be managed by covering one eye or placing an opaque area on one spectacle lens. This relieves double vision but does not heal the nerve. It also reduces depth perception, so use extra care on stairs and in unfamiliar places.

Prism lenses may bring the two images closer together but can be less effective when alignment varies in different directions.

If misalignment remains after the condition stabilises, eye-muscle surgery may improve eye position and reduce double vision in useful viewing directions. It may not restore movement in every direction. Persistent eyelid drooping can sometimes be treated separately.

Driving may be unsafe or legally prohibited when double vision is present or vision standards are not met. Follow local rules and seek specific advice before driving.

Complications

Possible complications include:

Children with eye misalignment or a drooping eyelid may develop amblyopia, or lazy eye, in which the brain does not develop normal vision from the affected eye. Early assessment is important.

An aneurysm-related palsy can occur before or with bleeding around the brain. Stroke, tumours, and severe head injuries may also cause complications beyond eye symptoms.

- Persistent double vision
- Permanent eye misalignment
- Ongoing eyelid drooping
- An enlarged pupil with light sensitivity
- Reduced depth perception
- Difficulty reading, walking, working, or driving
- Reduced vision in a child if visual development is disrupted

Prevention

Not every third nerve palsy can be prevented. Congenital cases, many tumours and aneurysms, and cases with no known cause have no reliable prevention method.

Managing diabetes, blood pressure, cholesterol, and smoking may reduce small-vessel damage, stroke, and other cardiovascular problems, although it cannot guarantee prevention.

Seat belts, helmets, and suitable protective equipment can reduce the risk of head injury. Routine medical and eye follow-up may identify changes, but it cannot replace urgent assessment when symptoms begin suddenly.

Living with it and what to expect

Recovery depends mainly on the cause and the extent of nerve damage.

Many microvascular third nerve palsies begin improving within several weeks and recover over a few months. Eye movement, eyelid position, and pupil function may recover at different rates, and some symptoms can persist.

Recovery after compression, trauma, stroke, or inflammation is less predictable. Treating the cause may prevent further damage without immediately restoring nerve function. The final outcome may not be clear for months.

Temporary measures can make daily activities easier while alignment changes. If symptoms remain stable, prisms or surgery may be considered. Repeated eye measurements are sometimes needed, and follow-up may include repeat imaging or monitoring of the underlying condition.

A microvascular palsy can recur or later affect another eye movement nerve. Managing vascular health remains important after recovery.

For reduced depth perception, use good lighting, take breaks while reading, use handrails, and take care on steps. Optical aids, rehabilitation, or surgery may improve function when symptoms persist.

When to get medical help

Seek emergency medical assessment for a new or sudden drooping eyelid, abnormal eye position, double vision, or enlarged pupil. A serious blood-vessel or brain problem cannot be excluded safely at home.

Call emergency services if symptoms occur with:

People over 50 should seek urgent same-day care for new double vision or eyelid drooping with a new headache, scalp tenderness, jaw pain while chewing, fever, unexplained weight loss, or any loss of vision. These may indicate giant cell arteritis.

After urgent causes have been assessed, attend planned follow-up. Contact your healthcare team sooner if symptoms worsen, the pupil becomes larger, new pain develops, another neurological symptom appears, or recovery does not follow the expected pattern.

- A sudden severe headache
- Neck stiffness, vomiting, or collapse
- Weakness or numbness on one side
- Trouble speaking, walking, or staying awake
- New confusion or a seizure
- Recent significant head injury
- Sudden loss of vision

Common questions

Is cranial mononeuropathy III the same as third nerve palsy?

Yes. Both describe weakness or paralysis of the third cranial, or oculomotor, nerve.

Will my double vision go away?

It may improve if a temporary microvascular palsy recovers. Lasting nerve damage can cause

persistent misalignment, but prisms, covering one eye, or eye-muscle surgery may help.

Does an enlarged pupil mean I have an aneurysm?

Not always, but an enlarged or poorly reacting pupil with a new third nerve palsy raises concern about pressure on the nerve and requires emergency assessment.

Can an aneurysm be ruled out if my pupil is normal?

No. A normal pupil does not safely exclude an aneurysm. Imaging and a complete clinical assessment are more reliable.

How long does recovery take?

Microvascular palsies often improve over weeks to a few months. Recovery from trauma, compression, stroke, or inflammation may take longer and can be incomplete.

Can I drive with third nerve palsy?

Double vision and reduced depth perception can make driving unsafe. Do not drive until your vision meets local requirements and you have received appropriate advice.

Sources

- MedlinePlus Medical Encyclopedia. Cranial mononeuropathy III . U.S. National Library of Medicine
- American College of Radiology. ACR Appropriateness Criteria: Cranial Neuropathy . Revised 2022
- North American Neuro-Ophthalmology Society. Microvascular Cranial Nerve Palsy . Patient information
- Bruce BB, Biousse V, Newman NJ. Third nerve palsies . Seminars in Neurology . 2007;27(3):257-268
- Patel SV, Holmes JM, Hodge DO, Burke JP. Diabetes and hypertension in isolated sixth nerve palsy and other causes of ocular motor palsy . Ophthalmology . 2005;112(5):760-763
- Thompson HS, Miller NR. Disorders of pupillary function, accommodation, and lacrimation . In: Walsh and Hoyt's Clinical Neuro-Ophthalmology . Lippincott Williams & Wilkins