CONDITION

Cranial mononeuropathy VI

Cranial mononeuropathy VI is weakness of the nerve that moves an eye outward.

WHAT IT IS
Weakness of the sixth cranial nerve controlling outward eye movement

BODY SYSTEM
Nervous system and eyes

MAIN SYMPTOMS
Horizontal double vision, inward eye turn, squinting, head turning

WHAT CAUSES IT
Small-vessel damage, pressure, injury, inflammation, infection, or tumors

HOW IT IS DIAGNOSED
Eye movement and neurological exams, often brain imaging

MAIN TREATMENT
Cause-specific care and temporary double-vision control

CAN IT BE CURED?
Sometimes - many temporary nerve palsies recover

IS IT AN EMERGENCY?
Sometimes - with severe headache or other neurological symptoms

LONG-TERM OUTLOOK
Many recover; some have persistent double vision

Overview

Cranial mononeuropathy VI is weakness or paralysis of the sixth cranial nerve. It is also called sixth nerve palsy or abducens nerve palsy.

The nerve carries signals from the brain to the lateral rectus muscle, which moves the eye outward, toward the ear. If it is not working properly, the affected eye may turn inward, usually causing horizontal double vision in which two images appear beside each other.

One or both eyes can be affected. Because the nerve follows a long route from the brainstem to the eye socket, weakness can result from small-vessel damage, increased pressure inside the skull, inflammation, injury, infection, or a growth.

Sixth nerve palsy is a condition rather than one specific disease. Finding the cause matters because treatment and recovery vary. New double vision should be medically assessed even if

you otherwise feel well.

Symptoms

The main symptom is binocular horizontal double vision. "Binocular" means the double vision disappears when either eye is covered. The images are generally side by side rather than one above the other.

Double vision may be more noticeable:

The affected eye may rest slightly inward and may not move fully toward the ear. Some people turn their head toward the affected side to bring the images together. Children may close one eye, turn their head, or develop a new inward eye turn. Young children may not be able to describe double vision.

Headache, eye pain, drooping eyelid, facial numbness, hearing changes, weakness, poor balance, or other vision changes are not typical of an isolated sixth nerve palsy. They may indicate that other nerves or parts of the brain are involved.

- When looking toward the affected side
- When looking at distant objects
- While driving, watching television, or walking in open spaces
- When tired

Causes and risk factors

In some adults, sixth nerve palsy results from reduced blood flow through the tiny vessels supplying the nerve. This microvascular palsy is more likely with diabetes, high blood pressure, high cholesterol, smoking-related damage, or other vascular risks.

Other causes include:

The nerve's long course makes it vulnerable to stretching when pressure inside the skull rises. Raised pressure may affect one or both sixth nerves.

In children, causes include injury, infection, inflammation, increased pressure, and tumors. A temporary palsy can occasionally follow a viral illness, but a new eye turn or restricted eye movement needs prompt assessment.

Sometimes no cause is identified. This is described as idiopathic.

- Increased pressure inside the skull
- Head or facial injury
- Stroke or bleeding affecting the brainstem
- Tumors or other growths along the nerve's path
- Inflammation, including blood vessel inflammation
- Infections affecting the brain or surrounding tissues
- Multiple sclerosis or another disorder affecting nerve insulation
- Problems within the eye socket
- Complications of certain medical procedures

Diagnosis

A clinician diagnoses sixth nerve palsy by examining eye alignment and movement. You may be asked to follow a target in different directions. Cover tests and prism measurements can show how alignment changes with gaze and distance.

An eye examination checks visual sharpness, pupils, eyelids, the eyes, and optic nerves. A neurological examination looks for problems with strength, sensation, balance, coordination, speech, or other cranial nerves.

These findings help distinguish sixth nerve palsy from conditions with similar patterns, including thyroid eye disease, myasthenia gravis, disease within the eye socket, or a long-standing alignment problem.

MRI of the brain and sometimes the eye sockets may be used to examine the nerve's path. CT may be appropriate after an injury or when MRI cannot be performed. The need and timing of imaging depend on age, medical history, pain, examination findings, involvement of other nerves, and whether the weakness improves.

Blood tests may check for diabetes, inflammation, infection, or other suspected causes. If increased pressure, infection, or inflammation around the brain is a concern, a lumbar puncture may be considered after imaging.

Follow-up is part of diagnosis. A palsy that worsens, affects additional nerves, or does not improve as expected may require further investigation.

Treatment and management

Treatment addresses the cause and controls double vision while the nerve recovers or eye alignment is corrected.

A presumed microvascular palsy is often monitored after an appropriate assessment. Managing diabetes, blood pressure, cholesterol, and smoking supports blood vessel health but does not guarantee recovery.

Other causes need specific treatment, such as care for infection, inflammation, increased pressure inside the skull, or a structural problem. Steroids like prednisone or hydrocortisone , antibiotics like amoxicillin or doxycycline , and other medicines are useful only for particular causes and are not routine treatment for every palsy.

Temporary ways to control double vision include covering one eye, placing translucent tape over one spectacle lens, or using a prism. A prism bends light to help combine the images. A temporary stick-on prism can be adjusted as alignment changes.

Covering one eye stops double vision but reduces depth perception and the width of the visual field. Take extra care on stairs, near traffic, and in unfamiliar places. Do not drive with uncontrolled double vision. Driving and reporting rules vary by location.

Children need specialist guidance before an eye is regularly covered. Prolonged misalignment or inappropriate patching can interfere with visual development.

If significant misalignment remains after the condition stabilizes, options may include prism glasses, botulinum toxin injections into an eye muscle, or eye muscle surgery. These improve alignment but do not repair the nerve. Surgery is generally considered only after enough time has passed to assess recovery and confirm stable alignment.

Complications

Persistent double vision can interfere with reading, driving, work, balance, and walking. Eye strain, headaches, nausea, or neck discomfort may result from repeatedly turning the head.

Reduced depth perception increases the risk of misjudging steps, curbs, or distances, especially in people with poor vision, balance problems, or a risk of falling.

Persistent muscle imbalance may require prism correction or surgery. In young children, ongoing misalignment can contribute to amblyopia, or lazy eye, when the developing brain relies less on one eye. Early assessment and follow-up help protect vision.

Complications from the underlying cause may be more serious than the eye movement problem, so new or unexpected symptoms should be reassessed.

Prevention

Many cases cannot be prevented, including those caused by unpredictable infection, inflammation, tumors, pressure changes, or unknown processes.

Managing diabetes, blood pressure, cholesterol, and smoking may reduce the overall risk of small-vessel nerve damage but cannot prevent every microvascular palsy.

Seat belts, protective equipment, and fall-prevention measures can reduce the risk of head injury. If you have sixth nerve palsy, attend follow-up appointments so a changing or persistent cause can be identified.

Living with it and what to expect

The course depends on the cause and severity of nerve injury. Many microvascular palsies begin improving within several weeks and recover over a few months. As recovery occurs, the double images may move closer together and outward eye movement may improve.

Recovery can take longer after severe injury. Weakness caused by an ongoing or structural condition may persist until that problem is treated. Some people have permanent eye misalignment or restricted movement.

Regular follow-up allows alignment and nerve function to be measured. If improvement does not occur as expected or the condition worsens, additional imaging or tests may be needed.

Temporary prism correction or covering one lens may make daily activities easier. Adjusting screen distance, using handrails, and allowing extra time in unfamiliar places can help when depth perception is reduced.

Most adults do not lose sharp eyesight from an isolated sixth nerve palsy. The main problem is that the eyes do not point in the same direction. Treatment can often reduce double vision even if nerve function does not fully return.

When to get medical help

Arrange a prompt medical assessment for new double vision, a new inward eye turn, or difficulty moving an eye outward. This applies even if covering either eye removes the second image and you have no other symptoms.

Seek emergency care if double vision begins with:

If you are over 50, new double vision with a new headache, scalp tenderness, jaw pain while

chewing, or loss of vision needs urgent same-day assessment. These symptoms can occur with inflammation of the arteries supplying the head and eyes.

For an established palsy, routine follow-up remains important. Contact the treating service sooner if double vision worsens, pain develops, another eye movement becomes limited, or there is no improvement within the expected follow-up period.

A new eye turn, unusual head posture, or possible double vision in a child should be assessed promptly.

- Sudden severe headache
- New weakness, numbness, facial drooping, or trouble speaking
- Confusion, fainting, severe dizziness, or difficulty walking
- Sudden loss or major reduction of vision
- Fever, stiff neck, or repeated vomiting
- A significant head injury
- Rapidly worsening symptoms or several new neurological symptoms

Common questions

Is cranial mononeuropathy VI the same as sixth nerve palsy?

Yes. Both describe reduced function of the sixth cranial nerve. "Abducens nerve palsy" is another name.

Will my double vision go away?

It may. Many temporary or microvascular palsies recover over several weeks to months. Recovery is less predictable when the nerve is seriously injured or remains affected by pressure, inflammation, or a structural problem.

Does a sixth nerve palsy mean I have had a stroke?

Not necessarily. Stroke is one possible cause, but there are many others. Symptoms, examination findings, and imaging help determine whether a stroke is likely.

Can I drive with sixth nerve palsy?

Do not drive with uncontrolled double vision. Covering an eye may stop double vision but reduces depth perception and may not meet local driving requirements. Follow local licensing rules and medical advice.

Will wearing an eye patch make the weak eye worse?

In adults, temporary covering usually does not weaken the eye or prevent nerve recovery; it only blocks one image. Children require specialist advice because covering can affect developing vision.

Can eye exercises repair the sixth nerve?

Eye exercises do not usually repair an injured sixth nerve. They may help selected coordination problems but are not a standard cure. Prisms, temporary covering, and treatment of the cause are more commonly used.

Sources

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