



**University
Hospitals Sussex**
NHS Foundation Trust

Fourth (IV) Nerve Palsy

Orthoptic Department
St Richard's Hospital
Southlands Hospital

Patient information

This leaflet is intended to answer some of the questions of patients or carers of patients, diagnosed with Fourth Nerve Palsy under the care of University Hospitals Sussex NHS Foundation Trust.

What is a fourth (IV) nerve palsy (also known as Trochlear nerve palsy or superior oblique palsy)?

Our eyes are controlled by six muscles which move the eyes from side to side and up and down.

A fourth nerve palsy is a weakness of the IV (fourth) cranial nerve inside the brain which is responsible for moving the superior oblique muscle. This muscle usually moves the eye downwards and outwards and is also able to rotate the eye slightly.

Electrical signals are normally sent along the nerve to initiate a movement of the eye. In fourth nerve palsy these signals are unable to reach the muscle meaning it cannot move as it usually would.

What does it mean?

A weakness of this nerve results in the affected eye being out of alignment with the other, this may result in double vision. The affected eye does not move downwards in the way it ought to.

Usually patients with double vision notice that they can see one image higher than the other and this is often worse when looking downwards. The condition may occur in one or both eyes.

What causes fourth nerve palsy?

This weakness can be present from birth (congenital) or acquired through damage to the nerve.

Congenital Fourth Nerve Palsy

This occurs during development in the womb and is thought to be caused by either a dysfunction of the nerve or a weakness of the muscle tendon. The exact cause is unclear.

Some congenital palsies may not be diagnosed until much later in life. This is due to the brain's ability to adapt and patients may have no symptoms for many years.

Acquired Fourth Nerve Palsy

May be caused by conditions such as diabetes and hypertension or, in old age, small vessel disease or vascular changes. Damage may also occur as a result of trauma and is sometimes seen in patients who have had road traffic accidents or other 'closed head trauma'. Fourth nerve palsy may be seen in patients who have had a stroke and in rare cases of patients with a brain or ocular (eye) tumour. Neurological conditions such as MS can also cause fourth nerve palsy.

What are the symptoms?

Double vision (diplopia) may occur suddenly in acquired cases. In congenital cases the onset of double vision may be intermittent or gradual and is caused by a problem controlling the weakness due to illness, stress or by other eye conditions which alter vision such as the start of cataracts.

Symptoms are more obvious looking down and this may affect close work and cause problems managing steps and stairs. People with this eye condition often try to adopt a characteristic head tilt, to reduce their double vision.

How is it diagnosed?

This will be confirmed by the Orthoptist who will assess your eye movements and your ability to control the deviation of your eyes. A detailed history will help find the most likely cause. Some cases are found to long-standing and the orthoptist can detect signs of this in the clinic.

If the condition is believed to be a new condition with no obvious cause or it seems to be changing over time the ophthalmologist may perform the following investigations:

- Blood pressure check
- Blood tests
- CT or MRI scan to help isolate the cause.

How can it be treated?

The vast majority of fourth nerve palsies recover over a period of time without any intervention. Prisms may be added to glasses to join the double vision while investigations are being done and while the palsy is recovering. Covering one eye may alleviate the symptoms if prisms are not suitable. In cases where recovery does not occur or where recovery is not complete, surgery may be indicated or long-term use of prisms.

Progress will be monitored by the Orthoptist and Ophthalmologist and any treatment will be discussed and carried out when and if appropriate.

Contact numbers

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