Third Nerve Palsy

What is a third nerve palsy?

The third cranial nerve controls the movement of four of the six eye muscles. These muscles move the eye inward, up and down, and they control torsion (rotating the eye downward and toward the ear on the same side). The third cranial nerve also controls constriction of the pupil, the position of the upper eyelid, and the ability of the eye to focus. A complete third nerve palsy causes a completely closed eyelid and deviation of the eye outward and downward. The eye cannot move inward or up, and the pupil is typically enlarged and does not react normally to light. A partial third nerve palsy affects, to varying degrees, any of the functions controlled by the third cranial nerve.

What are the Symptoms of Third Nerve Palsy?

Older children and adults with third nerve palsy usually have double vision (diplopia) due to misalignment of the eyes. If a droopy eyelid (ptosis) covers the pupil, diplopia may not be noticeable. Ptosis of the eyelid or an enlarged pupil may be the first sign of a third nerve palsy. Young children usually do not complain of double vision. Figure 1 demonstrates outward position of the eye underneath the droopy eyelid signifying the palsy. In this case, the third nerve palsy is partial, so the eye is not deviated downward. Figure 2 demonstrates the droopy eyelid.

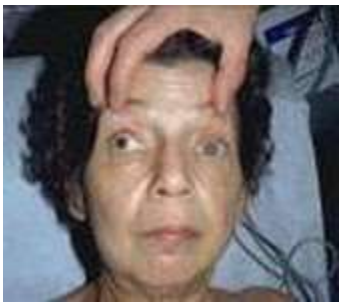

Figure 1

Figure 2

What causes third nerve palsy?

A third nerve palsy may be present at birth (congenital), and the exact cause may not be clear. Acquired third nerve palsy can be associated with head injury, infection, vaccination, migraine, brain tumor, aneurysm, diabetes, or high blood pressure.

What problems develop in children with third nerve palsy?

Children may develop amblyopia in the involved eye. Amblyopia can often be treated by patching the unaffected eye. Patching may be necessary for several years, sometimes until age 12 years. Children with severe third nerve palsy often do not have binocular vision (simultaneous perception with both eyes), and stereopsis (three-dimensional vision) is often absent. An abnormal head posture may allow binocular vision. A partial palsy can be associated with the development of binocular vision.

What can be done to correct third nerve palsy?

Unfortunately, there is no treatment to re-establish function of the weak nerve if it is a congenital case. An acquired third nerve palsy may resolve, depending on the cause. Relief of pressure on the third nerve from a tumor or blood vessel (aneurysm) with surgery may improve the third nerve palsy.

The ophthalmologist will usually wait at least 6 months after onset for possible spontaneous improvement. During this observation period, patching one eye can alleviate double vision. Prism spectacles may relieve diplopia for some patients. If the palsy is present after 6 months, eye muscle surgery can be performed to realign the eyes so that the eyes are straight when the patient is looking straight ahead, and eyelid surgery can be done to help the ptosis in certain cases. The more severe the third nerve palsy, the more difficult it is to re-establish eye movements and single vision when the patient is attempting to use both eyes together. Residual diplopia can be quite bothersome for some patients. Multiple surgeries may be required to achieve good ocular alignment in straight-ahead gaze, and surgery on the uninvolved eye may be necessary. Most patients will continue to have eye misalignment when looking in other gaze directions.

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