Congenital mirror movements of the hands

Primary motor tracts from the cerebral cortex cross over in the brainstem and then synapse at the level of the spinal cord (corticospinal tracts). From there, the nerve impulses are transmitted to a peripheral nerve. This means that the left hand is controlled by the right hemisphere of the brain and the right hand by the left hemisphere. In normal circumstances and also in a number of neurological disorders, planned movements may be accompanied by motor activity in the ipsilateral extremity. These unplanned movements are known as mirror movements (1). Studies have shown that in individuals with hereditary mirror movements, a greater than normal proportion of fibres in the corticospinal tracts do not cross the midline (1). Mild mirror movements may be considered normal, while more pronounced mirror movements are seen in various congenital and hereditary disorders and in essential tremor, Parkinson's disease, corticobasal degeneration and other serious neurodegenerative diseases (2).

Congenital hereditary mirror movements are characterised by distinct, early-onset mirror movements that persist throughout life in the absence of other neurological symptoms. The condition is associated with mutations in three known genes and can be inherited in either an autosomal dominant or recessive manner. The genes encode proteins that affect the maturation of the central nervous system, such as ensuring that the corticospinal tracts cross over correctly in the brainstem (1).

The video and images show a person with autosomal dominant mirror movements. The video shows that the person is unable to move the fingers without experiencing mirror movements in the other hand. The condition can be improved to some degree by increasing the subject's awareness of the movements and through adjustments such as immobilising the hand that is not in use.

The patient has consented to the publication of the article, images and video.

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