

Moebius Syndrome Overview

Moebius syndrome is a rare neurological disorder that affects one or more cranial nerves, most often those responsible for controlling facial muscles. In the majority of cases, the sixth and seventh cranial nerves are absent from birth (congenitally absent). This absence results in the characteristic facial paralysis and other symptoms associated with the condition. The syndrome is named after Dr. Paul Julius Moebius, who first described it in 1888.

Symptoms

The presentation of Moebius syndrome varies depending on which cranial nerves are involved. Symptoms are present from birth and, while the sixth and seventh cranial nerves are most commonly affected, additional cranial nerves may also be impacted.

- Facial paralysis (palsy)
- Lack of facial expression; children cannot smile or frown (often described as a “mask-like” facial appearance)
- Inability to move the eyes laterally; infants turn their heads rather than tracking objects with their eyes
- Eyelids that do not close completely, even during sleep
- Dry, irritated eyes
- Small chin and mouth; difficulty fully closing the mouth
- Dental issues related to a small jaw, misaligned teeth, or constant mouth opening (increased cavity risk)
- Drooling, feeding difficulties, and poor sucking reflex in infancy
- Cleft palate
- Head tilting when swallowing
- Webbing of the fingers or toes (syndactyly)
- Crossed eyes (strabismus)
- Short tongue
- Low muscle tone (hypotonia)
- Abnormal spinal curvature (scoliosis)
- Respiratory challenges
- Sleep disturbances
- Upper body weakness, sometimes delaying motor skill development
- Ear abnormalities, which may lead to chronic ear infections
- Hearing loss (when certain cranial nerves are affected)
- Skeletal abnormalities of the hands, feet, or limbs (including clubfoot)
- Speech, swallowing, and vision disorders
- Underdeveloped chest wall muscles (which may include reduced breast tissue development)

Associated Conditions

In some cases, Moebius syndrome is accompanied by Poland syndrome, a condition characterized by underdevelopment or absence of part of the large chest muscle (pectoralis

major) on one side of the body. This can give the chest a concave appearance, cause upper body weakness, and sometimes result in ribcage abnormalities. Poland syndrome may also involve hand malformations on the same side, and in rare cases, internal organ abnormalities. Additionally, studies suggest that 20–30% of children with Moebius syndrome have also been diagnosed with autism spectrum disorder (ASD). However, this association may be overstated. Because individuals with Moebius syndrome cannot produce facial expressions and may have difficulty making eye contact, these physical traits can sometimes be mistaken for autistic behaviors, even though they are due to neurological and muscular limitations. Some children with Moebius syndrome may experience motor, speech, or developmental delays. Most, however, have normal intellectual ability, though speech challenges and distinctive facial features may lead to misconceptions.

Causes

The precise cause of Moebius syndrome remains unknown. Current research suggests that, like many rare conditions, it likely results from a combination of genetic and environmental factors. Further studies are needed to understand its origins.

For additional information and resources, please visit: www.moebiussyndrome.org