

Gorlin-Chaudhry-Moss Syndrome

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Gorlin-Chaudhry-Moss syndrome is a condition that affects many parts of the body. The signs and symptoms of this disorder are apparent from birth or infancy.

Keywords: genetic conditions

1. Introduction

Gorlin-Chaudhry-Moss syndrome is characterized by the premature closure of certain bones of the skull (craniosynostosis) during development, which affects the shape of the head and face. Many people with this disorder have a premature fusion of skull bones along the coronal suture, the growth line that goes over the head from ear to ear. These changes can result in a head that is abnormally wide and pointed at the top (acrobrachycephaly). Affected individuals also have distinctive facial characteristics that can include a flat or sunken appearance of the middle of the face (midface hypoplasia), and small eyes (microphthalmia) with narrowed openings (narrowed palpebral fissures). Affected individuals may also have farsightedness (hyperopia) and dental problems such as small teeth (microdontia) or fewer teeth than normal (hypodontia).

Many people with Gorlin-Chaudhry-Moss syndrome have a lack of fatty tissue under the skin (lipodystrophy). The lack of fat, together with thin, wrinkled, loose skin and veins visible beneath the skin, makes affected individuals look older than their biological age. This appearance of premature aging is sometimes described as progeroid.

Affected individuals also have excessive hair growth (hypertrichosis) on their face and body. They have a low hairline on the forehead and their scalp hair is often coarse. People with Gorlin-Chaudhry-Moss syndrome also have shortened bones at the ends of the fingers and toes (short distal phalanges). Affected females have unusually small external genital folds (hypoplasia of the labia majora).

Some individuals with Gorlin-Chaudhry-Moss syndrome have mild developmental delay but intelligence is usually normal in this disorder, as is life expectancy.

2. Frequency

Gorlin-Chaudhry-Moss syndrome is an extremely rare condition. Approximately ten affected individuals have been described in the medical literature. All known individuals with this condition have been female.

3. Causes

Gorlin-Chaudhry-Moss syndrome can be caused by mutations in the *SLC25A24* gene. This gene provides instructions for producing a protein that transports molecules across the inner membrane of the mitochondria, the energy-producing centers in cells. Among these molecules is ATP, which is the cell's main energy source. Transportation of ATP within the mitochondria is essential for normal energy production, the formation and breakdown (metabolism) of various molecules, and protein production within cells.

The mutations that cause Gorlin-Chaudhry-Moss syndrome are thought to alter the structure of the protein produced from the *SLC25A24* gene, which likely decreases its ability to transport molecules across the mitochondrial inner membrane. As a result, there is an increase in mitochondrial size (mitochondria swelling), breakage of mitochondria into smaller pieces, and an overall decrease in energy production. This increase in abnormal mitochondria and decrease in cellular energy can lead to cell death. While altered cellular energy production and increased cell death are likely responsible for the features of Gorlin-Chaudhry-Moss syndrome, it is unclear how these changes lead to the specific signs and symptoms of the condition.

In some affected individuals, no mutation in the *SLC25A24* gene has been found. Changes in other unknown genes may cause the disorder in these cases.

3.1. The gene associated with Gorlin-Chaudhry-Moss syndrome

- *SLC25A24*

4. Inheritance

In individuals with an *SLC25A24* gene mutation, Gorlin-Chaudhry-Moss syndrome is inherited in an autosomal dominant pattern, which means one copy of the altered gene in each cell is sufficient to cause the disorder. In these cases, the condition results from new (de novo) mutations in the gene that occur during the formation of reproductive cells (eggs or sperm) or in early embryonic development.

Since all known individuals with Gorlin-Chaudhry-Moss syndrome have been female, there are likely other unknown, sex-related factors involved in the inheritance of this condition.

5. Other Names for This Condition

- craniofacial dysostosis, hypertrichosis, hypoplasia of labia majora, dental and eye anomalies, patent ductus arteriosus, and normal intelligence
- craniofacial dysostosis, patent ductus arteriosus, hypertrichosis, hypoplasia of labia majora, dental and eye anomalies
- GCM syndrome
- GCMS
- Gorlin Chaudhry Moss syndrome

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