Fryns syndrome

Fryns syndrome is a condition that affects the development of many parts of the body. The features of this disorder vary widely among affected individuals and overlap with the signs and symptoms of several other disorders. These factors can make Fryns syndrome difficult to diagnose.

Most people with Fryns syndrome have a defect in the muscle that separates the abdomen from the chest cavity (the diaphragm). The most common defect is a congenital diaphragmatic hernia, which is a hole in the diaphragm that develops before birth. This hole allows the stomach and intestines to move into the chest and crowd the heart and lungs. As a result, the lungs often do not develop properly (pulmonary hypoplasia), which can cause life-threatening breathing difficulties in affected infants.

Other major signs of Fryns syndrome include abnormalities of the fingers and toes and distinctive facial features. The tips of the fingers and toes tend to be underdeveloped, resulting in a short and stubby appearance with small or absent nails. Most affected individuals have several unusual facial features, including widely spaced eyes (hypertelorism), a broad and flat nasal bridge, a thick nasal tip, a wide space between the nose and upper lip (a long philtrum), a large mouth (macrostomia), and a small chin (micrognathia). Many also have low-set and abnormally shaped ears.

Several additional features have been reported in people with Fryns syndrome. These include small eyes (microphthalmia), clouding of the clear outer covering of the eye (the cornea), and an opening in the roof of the mouth (cleft palate) with or without a split in the lip (cleft lip). Fryns syndrome can also affect the development of the brain, cardiovascular system, gastrointestinal system, kidneys, and genitalia.

Most people with Fryns syndrome die before birth or in early infancy from pulmonary hypoplasia caused by a congenital diaphragmatic hernia. However, a few affected individuals have lived into childhood. Many of these children have had severe developmental delay and intellectual disability.

Frequency

The worldwide incidence of Fryns syndrome is unknown. More than 50 affected individuals have been reported in the medical literature. Studies suggest that Fryns syndrome occurs in 1.3 to 10 percent of all cases of congenital diaphragmatic hernia.

Causes

The cause of Fryns syndrome is unknown. The disorder is thought to be genetic because it tends to run in families and has features similar to those of other genetic disorders. Duplications and deletions in several chromosome regions have been
associated with congenital diaphragmatic hernia and some of the other features of Fryns syndrome. However, no specific genetic change has been found to cause all of the signs and symptoms of this disorder.

Inheritance Pattern

Fryns syndrome appears to be inherited in an autosomal recessive pattern, which means both copies of a gene in each cell have mutations. However, no associated gene has been identified. The parents of an individual with an autosomal recessive condition each carry one copy of the altered gene, but they typically do not show signs and symptoms of the condition.

Other Names for This Condition

• diaphragmatic hernia, abnormal face, and distal limb anomalies

Diagnosis & Management

Genetic Testing Information

• What is genetic testing?
https://primer/testing/genetictesting

• Genetic Testing Registry: Fryns syndrome

Research Studies from ClinicalTrials.gov

• ClinicalTrials.gov
https://clinicaltrials.gov/ct2/results?cond=%22Fryns+syndrome%22

Other Diagnosis and Management Resources

• Children's Hospital of Philadelphia: Treatment of Congenital Diaphragmatic Hernia
https://www.chop.edu/conditions-diseases/congenital-diaphragmatic-hernia-cdh

• GeneReview: Fryns Syndrome
https://www.ncbi.nlm.nih.gov/books/NBK1459

• Seattle Children's Hospital: Treatment of Congenital Diaphragmatic Hernia
https://www.seattlechildrens.org/conditions/digestive-gastrointestinal-conditions/congenital-diaphragmatic-hernia
Additional Information & Resources

Health Information from MedlinePlus

- Encyclopedia: Diaphragmatic Hernia
  https://medlineplus.gov/ency/article/001135.htm
- Health Topic: Craniofacial Abnormalities
  https://medlineplus.gov/craniofacialabnormalities.html
- Health Topic: Hernia
  https://medlineplus.gov/hernia.html

Genetic and Rare Diseases Information Center

- Fryns syndrome
  https://rarediseases.info.nih.gov/diseases/3699/fryns-syndrome

Educational Resources

- Boston Children's Hospital: Congenital Diaphragmatic Hernia
  http://www.childrenshospital.org/conditions-and-treatments/conditions/c/congenital-diaphragmatic-hernia
- Cincinnati Children's Hospital Medical Center: Congenital Diaphragmatic Hernia
  https://www.cincinnatichildrens.org/health/c/diaphragmatic-hernias
- MalaCards: fryns syndrome
  https://www.malacards.org/card/fryns_syndrome
- Orphanet: Fryns syndrome
  https://www.orpha.net/consor/cgi-bin/OC_Exp.php?Lng=EN&Expert=2059

Patient Support and Advocacy Resources

- CHERUBS - The Association of Congenital Diaphragmatic Hernia Research, Awareness and Support
  http://www.cherubs-cdh.org/
- Children's Craniofacial Association
  https://ccakids.org/
- National Organization for Rare Disorders (NORD)
  https://rarediseases.org/rare-diseases/fryns-syndrome/

Clinical Information from GeneReviews

- Fryns Syndrome
  https://www.ncbi.nlm.nih.gov/books/NBK1459
Scientific Articles on PubMed

- PubMed
  https://www.ncbi.nlm.nih.gov/pubmed?term=%28%28fryns+syndrome%5BTIAB%5D%29+NOT+%28Lujan%5BTIAB%5D%29%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+3600+days%22%5Bdp%5D

Catalog of Genes and Diseases from OMIM

- FRYNS SYNDROME
  http://omim.org/entry/229850

Sources for This Summary

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  Citation on PubMed: https://www.ncbi.nlm.nih.gov/pubmed/3239572

  Citation on PubMed: https://www.ncbi.nlm.nih.gov/pubmed/12483630

  Citation on PubMed: https://www.ncbi.nlm.nih.gov/pubmed/11146459

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  Free article on PubMed Central: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1736126/

  Citation on PubMed: https://www.ncbi.nlm.nih.gov/pubmed/20301632
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