

Chapter 1 : Congenital Hand Deformities - Health Encyclopedia - University of Rochester Medical Center

Congenital hand deformities are abnormalities of a baby's hand that are present at birth. Orthopedic hand surgeons at Hassenfeld Children's Hospital at NYU Langone diagnose and treat children with all types of hand deformities.

In some cases, feelings of anger and guilt develop, especially in the mother, who may blame herself for some "failure" during the pregnancy. Parents may also become angry with health care providers for not detecting the problem during routine prenatal care. In fact, no one is at fault. Most hand differences are not hereditary do not run in families or preventable, and many cannot be detected before birth. Hand differences can be grouped based on the type of difference present. These general categories include: Problems with the formation of the entire arm or hand. Failure of parts of the hand to separate. Extra fingers or thumb. Specific congenital hand differences include the following: Syndactyly Syndactyly is the most common congenital hand difference. The word syndactyly is derived from the Greek syn, which means together, and daktylos, which means digit finger or toe. Syndactyly is a condition in which the fingers are fused together or the webbing between the fingers extends farther up the fingers than normal. Syndactyly is usually treated by surgically separating the fingers. Often skin grafts are necessary, as there may be deficient skin to provide coverage for two fingers. Casting or splinting, as well as physical therapy, also may be recommended especially in complex cases to help maximize hand function post operatively. Polydactyly Polydactyly is the presence of more than five digits poly means many. The extra finger or thumb may be attached only by skin or nerves, or it may have normal parts and be attached to a joint or an extra bone in the hand. Ulnar polydactyly, the most common type, refers to an extra finger or part of a finger that develops on or near the little finger of the hand. Ulnar refers to the ulna, the larger of the two bones of the forearm. The ulna is on the same side of the arm as the little finger. Polydactyly can be treated by surgically removing the extra digit and reconstructing the remaining digit. Thumb Radial Polydactyly Thumb Radial Polydactyly refers to the presence of multiple thumbs on one hand. This condition can be treated by removal of the additional digit and surgical reconstruction of the remaining thumb. Radial Club Hand Radial club hand refers to a condition in which the radial referring to the radius, the smaller bone of the forearm or thumb-side of the arm is malformed, causing a shortening and curving of the forearm and giving the appearance of a J-shaped club. The thumb may be small or completely absent. With a shortened forearm, people with radial club hand may have difficulty performing tasks that require two hands. This difference can occur in one unilateral or both bilateral arms. Cleft Hand The term cleft hand actually refers to a group of congenital hand differences in which the fingers or parts of fingers in the center of the hand are missing, leaving a V-shaped space or indentation called a cleft. Other differences, particularly syndactyly and polydactyly, often occur at the same time. There are many variations of cleft hand. Typical cleft hand is characterized by a gap in the palm and the absence of the middle finger or fingers. Cleft hand can be unilateral or bilateral. There are patients with a family history of clefting in both hands and feet. In typical cleft hand, the hand is almost normal in size, and the arm bones are usually normal. What causes congenital hand differences? Any disruption of this process can lead to a congenital hand difference. There are many factors that can affect the development of the human hand. These factors are generally divided into genetic and environmental. Genetic factors involve changes to the information contained within the genes responsible for hand and arm formation. Genes are the basic biological unit of heredity and are passed on to children from their parents. They contain instructions for the growth and function of each cell in the body. In the case of hand differences, the genetic changes generally occur for no apparent reason spontaneous. Less common are changes that run in families. Environmental factors include infections and certain drugs, such as thalidomide a drug used to treat nausea and some drugs used for chemotherapy. These factors may cause a breakdown in otherwise healthy tissue, altering the developmental process and leading to a difference in hand formation. Some hand differences can be explained by these factors, while others have no known cause. In some cases, the hand difference is an isolated event. In other cases, the difference is part of a syndrome that affects multiple parts of the body. What are the benefits of treatment for congenital hand differences? Options for treating hand differences include: Stretching Physical therapy to help increase strength and function

Prosthetics in the case of missing parts or bones Surgery The outlook for treatment varies with the type and complexity of the difference. When the hand difference is an isolated occurrence, the outlook is generally good. Most children can learn to adapt to their differences. If the difference is part of a syndrome, the outlook depends on the type and extent of the condition. Keep in mind that treatment cannot "cure" a hand difference, but it can help to improve function and appearance of the hand. What are the risks of treatment for congenital hand differences? Risks include nerve injury, infection, bleeding and stiffness. There is also a risk that treatment will not restore or create a normal digit or hand. Cleveland Clinic is a non-profit academic medical center. Advertising on our site helps support our mission. We do not endorse non-Cleveland Clinic products or services.

Chapter 2 : Surgery for Congenital Hand Deformities | NYU Langone Health

What are congenital hand deformities? Congenital anomalies are deformities that are present at birth. Any type of deformity in a newborn can become a challenge for the child as he or she grows. Hand deformities can be particularly disabling as the child learns to interact with the environment.

Congenital Hand Deformities What are congenital hand deformities? Congenital anomalies are deformities that are present at birth. Any type of deformity in a newborn can become a challenge for the child as he or she grows. Hand deformities can be particularly disabling as the child learns to interact with the environment through the use of his or her hands. The degree of deformity varies from a minor deformity, such as unequal fingers, to a severe deformity, such as total absence of a bone. Early consultation with a hand surgeon is an important part of the treatment process for the child born with a hand deformity. Even if reconstructive surgery is not possible, there are many different types of prosthetic devices that can be used to increase function. What are the different classifications of congenital hand deformities? The classifications for hand deformities can vary. This classification has been accepted by the American Society for Surgery of the Hand. There are currently 7 groups of deformities of the hand: Problems in formation of the parts This occurs when parts of the body stop developing while the baby is in the womb. This causes either a complete absence of a part of the body, such as the hand, or a missing structure, such as part of the arm bone. In the case of the complete missing part, surgery is not done. Types of these classification include: There may be shortening of the bone, a small thumb, or absence of the thumb. Deformities of the wrist are usually operated on around 6 months of age. An ulnar club hand is less common than a radial club hand. This deformity may involve underdevelopment of the ulnar bone the bone in the forearm on the side of the little finger , or complete absence of the bone. Failure of parts of the hand to separate With this type of deformity, the parts of the hand, either the bones or the tissues, fail to separate in the womb. The most common type of this classification is syndactyly. There is a familial tendency to develop this deformity. If the fingers are completely fused together, it is considered complete. This involves fusion between only the tissues of the fingers. This involves fusion between the bones. Another example of failure of the hand to separate is seen in contractures of the hand. Contractures of the hand may also develop as a result of a problem with the cells in the womb. A contracture is an abnormal pulling forward of the fingers of the hand. One of the common types of this classification includes congenital triggering. Congenital triggering occurs when one of the fingers is unable to extend. It is usually seen in the thumb. Some of these cases improve on their own. Surgery is usually not done until the second year of life, but preferably before the age of 3. Duplications of fingers Duplication of fingers is also known as polydactyly. The little finger is the finger that is most often affected. Undergrowth of fingers Underdeveloped fingers or thumbs are associated with many congenital hand deformities. Surgical treatment is not always required to correct these deformities. Underdeveloped fingers may include: The finger is small Bones are underdeveloped or missing There is complete absence of a finger Overgrowth of fingers Overgrowth of fingers is also known as macrodactyly, which causes an abnormally large finger. In this situation, the hand and the forearm may also be involved. In this rare condition, all parts of the finger or thumb are affected; however, in most cases, only one finger is involved usually the index finger. Surgical treatment of this condition is complex and the outcomes may be less than desirable. Sometimes, amputation of the enlarged finger is recommended. Ring constrictions are congenital present at birth. This condition may be associated with other birth defects, such as clubfoot, cleft lip, or cleft palate. The cause of the ring constrictions is unknown. Some theories suggest that amniotic banding may lead to ring constrictions around a finger or limb. In a few cases, the finger may need to be amputated. Other generalized problems with the skeletal system These are a rare and complex group of problems. Treatment for congenital hand deformities Treatment may include: Splinting of the affected limbs Tendon transfers External appliances to help realign misshapen fingers or hands Physical therapy to help increase the strength and function of the hand Correction of contractures Skin grafts. These involve replacing or attaching skin to a part of the hand that is missing skin or has been removed during a procedure.

Chapter 3 : Hand Deformities & Disorders | Cleveland Clinic

This book is a classic must-have for any hand surgeon who cares for patients with congenital hand differences. While many advances have been made over the past three decades, the fundamentals discussed within this text will give the reader a broad fund of knowledge that is widely applicable to their patients.

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Chapter 4 : Congenital Hand Conditions | The British Society for Surgery of the Hand

Congenital anomalies are deformities that are present at birth. Any type of deformity in a newborn infant can become a challenge for the child as he/she grows. Hand deformities can be particularly disabling as the child learns to interact with the environment through the use of his/her hands.

Anomalies can be relatively minor such as an angulation of the small finger: The care of children with congenital hand anomalies usually involves a team of healthcare professionals, including hand surgeons from the BSSH. Most congenital-hand surgery is carried out in hospitals with experience in the care of children. The birth of a child with a hand anomaly has a profound and immediate emotional impact. Expert advice, in the first few days or weeks after birth, should provide reassurance and help dispel inappropriate fears. If a hand anomaly is observed at the week fetal anomaly scan, an appointment can be arranged prior to birth. The parents should be provided with an explanation of: The incidence of the individual anomaly. An explanation of the likely cause of the anomaly. A single gene mutation is present in most cases, teratogenic, and vascular disruption can also be implicated. Syndactyly fused-digits and polydactyly extra-digits are the most common anomalies. Trigger thumb is relatively common in children but is not a congenital anomaly, as it is not seen at birth. Surgery is considered appropriate in about two thirds of children with hand anomalies. A significant proportion of children with hand anomalies, particularly those children with anomalies on the pre-axial radial side of the limb, will have anomalies affecting other organs, such as the heart or kidneys. A separate appointment with a consultant in clinical genetics will help quantify the likely risk for siblings and future off-spring. For most children radiological X-ray examination of the limb is unlikely to be helpful in the first months after birth, and can be delayed until a second consultation, usually between 10 and 14 months of age. Some anomalies can require earlier intervention: Patterns of grip start to develop in the first year of life, basic control of the hand is established by about three years, the majority of congenital hand surgery is carried between one and four years of age. Many of the children with congenital hand anomalies will have other medical problems. Surgery should be timed to minimize the number of visits to hospital and the number of general anaesthetics given to younger children. The objectives of surgery include correction of skeletal and soft-tissue mal-alignment. Extra bones, mal-positioned bones, and abnormal fusions should be corrected at the first operation. Abnormal attachment, connection and alignment of tendons should be corrected. Initial surgery, for example for thumb duplication, should include a thorough assessment and correction of both bone and soft tissue abnormalities. Failure to recognize the abnormalities at any initial surgery can result in a higher rate of secondary surgery. Children should be followed up at increasing infrequent intervals until they reach skeletal maturity. Changes in the demands placed upon the hands, associated with increasing intensity of course-work or exams can be addressed by assessment by an occupational therapist. Careful documentation and audit over many years is needed to help make the best possible decisions for the care of future generations with congenital hand anomalies.

Chapter 5 : Congenital Hand Deformities | Stanford Health Care

Congenital anomalies are deformities that your child has at birth. Congenital hand deformities are particularly disabling for children and present a challenge to the orthopedic specialist. These deformities vary from minor types, such as a digital disproportion, to severe forms, such as the total absence of a bone.

One in 20 children is born with some hand difference. These can be either major or minor. Some possible differences include missing parts failure of formation , webbed or fused parts of the hand failures of separation , extra parts in the hand duplication , or parts that are larger or smaller than normal. Examples of common differences include: Webbed fingers, called syndactyly Figure 1 An extra small finger, called polydactyly Figure 2 An extra thumb, called radial polydactyly Figure 3 CAUSES During fetal development, the upper limb is formed between four and eight weeks of pregnancy. Many steps are needed to form a normal arm and hand. If any of these steps fail, then a congenital hand difference can result. Some of these differences have genetic causes, but many of these differences occur without a known cause. Research is being done to try to understand these processes. Some differences appear similar but have different diagnoses. It is important that your child be evaluated by a hand specialist to help determine if any treatment is needed. Your hand specialist may refer you to a genetics specialist to help make an overall diagnosis for your child. Sometimes the remaining finger or thumb requires surgery for reconstruction. All babies born with these problems should have a complete assessment by a hand specialist who treats these conditions. Sometimes a child may need hand therapy. Sometimes, no treatment is necessary. Coping with congenital hand differences At first, parents may feel shock, anger or guilt. These are normal emotions. Most of the time there is nothing that parents or doctors could have done differently to prevent the hand difference. Talk to your hand specialist about support groups or professionals that may be able to help you and your child adjust. Find a hand surgeon near you.

Chapter 6 : The Care of Congenital Hand Anomalies by Adrian E. Flatt | eBay

Of the 1% to 2% of babies born with congenital defects, 10% are born with malformations to the hand. These anomalies occur in early pregnancy and are sometimes diagnosed by ultrasound during pregnancy. When they are not, they often come as a surprise to parents. The cause of congenital hand.

Chapter 7 : Congenital Hand Deformities - Massachusetts General Hospital, Boston, MA

Also known as: Congenital hand deformities, congenital hand anomalies, congenital hand differences What are congenital hand malformations? Any problem with the hands that develops in a fetus while it's still in the uterus is known as a congenital hand malformation.

Chapter 8 : Congenital Hand Deformities

In this congenital (present at birth) condition, a problem occurs with the ulnar (pinky side) of the hand and wrist when the fetus is developing in the womb. Depending on the severity of the condition, the child may have problems with function of the hand, fingers and elbow.

Chapter 9 : Congenital Hand Surgeon Missouri | Orthopedic Surgeons St. Louis

A study by Goldfarb et al of congenital upper limb anomalies in a group of Midwestern US patients found that of extremities with a malformation, 62% had anomalies of the hand plate alone, with radial polydactyly (15%), symbrachydactyly (13%), and cleft hand (11%) being the most common of these.