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Treatment Of Bilateral Cleft Lip and Palate. Case Report

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Abstract

Case report of a female child about eight months of age presented to our outpatient clinic with bilateral cleft lip and palate. We are as team put plan to treat such complicated cases which need complicated and prolong series of surgeries, and supported by other specialties. Bilateral cleft lip and palate is a condition where there are openings or splits in both sides of the upper lip and the roof of the mouth. It is caused by incomplete fusion of the facial structures during fetal development. It is one of the most common birth defects and can affect the appearance, feeding, speech, hearing, and dental health of the child.

Key words: Cleft Lip, Bilateral cleft palate

Introduction

Bilateral cleft lip and palate can be diagnosed before or after birth. Prenatal ultrasound can detect a cleft lip as early as the 13th week of pregnancy, but a cleft palate may be harder to see. After birth, a physical examination can confirm the presence and extent of the clefts. Sometimes, a cleft palate may be hidden by the lining of the mouth and only detected later when signs such as difficulty with feeding, swallowing, or speaking develop. (1)

Bilateral cleft lip and palate can be treated with surgery and other therapies. The goals of treatment are to improve the function and appearance of the affected areas and to prevent or treat any related complications. A team of specialists, such as surgeons, dentists, speech therapists, and genetic counselors, may be involved in the care of the child. Surgery usually involves several stages, starting from the first few months of life until late adolescence. The procedures may include repairing the cleft lip and palate, reconstructing the nose and gums, correcting the bite, and improving speech and hearing .(2)

Bilateral cleft lip and palate is not a life-threatening condition, but it can have a significant impact on the quality of life of the child and their family. With proper

treatment and support, most children with bilateral cleft lip and palate can lead normal and healthy lives (1).

Cleft lip and palate are congenital disorders that occur when the tissues of the upper lip and the roof of the mouth do not fuse properly during fetal development. The exact causes of cleft lip and

palate are not fully understood, but they are thought to be influenced by a combination of genetic and environmental factors.(3)

Some of the possible genetic factors include inheriting certain genes from one or both parents, or having a genetic syndrome that includes cleft lip or palate as one of its features. Some of the possible environmental factors include exposure to viruses, chemicals, drugs, or other substances that may interfere with normal facial development. These factors may act alone or together to increase the risk of cleft lip and palate (4).

Cleft lip and palate are among the most common birth defects, affecting about 1 in every 1,600 babies born with cleft lip with cleft palate, 1 in every 2,800 babies born with cleft lip without cleft palate, and 1 in every 1,700 babies born with cleft palate in the U.S. (1)

Some of the symptoms of cleft lip and palate are (1):

The split can be small or large, and may affect one or both sides of the face.

Difficulty with feeding, swallowing, or speaking. Milk may come out of the nose while feeding because the barrier between the mouth and nose is abnormal. Speech may have a nasal quality because of the opening in the palate.

Dental problems, such as missing, extra, or crooked teeth. The cleft may affect the gums and the alignment of the teeth.

Ear infections and hearing loss. The cleft may affect the function of the Eustachian tubes, which are responsible for draining fluid from the ears and maintaining pressure balance. This can lead to fluid buildup, infection, and hearing impairment.

A submucous cleft palate, which is a hidden cleft in the muscles of the soft palate that is covered by the lining of the mouth. This type of cleft may not be noticed at birth and may cause signs such as nasal speech, chronic ear infections, and difficulty with feeding or swallowing (1).

Some of the possible complications of cleft lip and palate are(5):

Feeding difficulties. Babies with cleft lip and palate may have trouble sucking and swallowing because the roof of the mouth is not fully formed. This can lead to poor nutrition, weight loss, and dehydration. Feeding devices, such as special bottles or nipples, may help with feeding. Some babies may need a temporary surgery to insert a device that closes the gap in the palate.(5)

Ear infections and hearing loss. Babies with cleft palate are more prone to developing fluid buildup and infection in the middle ear, which can affect their hearing. This can also delay their speech and language development. To prevent this, some babies may need tubes inserted in their ears to drain the fluid and improve the air flow.

Speech problems. Babies with cleft lip and palate may have difficulty producing clear and normal sounds because of the opening in the roof of the mouth and the lip. They may also have a nasal voice quality because of the air escaping through the nose. Speech therapy can help improve their speech and language skills. Some children may need additional surgery to correct the function of the muscles in the palate (10).

Dental problems. Babies with cleft lip and palate may have missing, extra, or crooked teeth because of the abnormal development of the gums and the jaw. They may also have problems with their bite alignment and their jaw growth. Dental care, such as braces, implants, or extractions, may be needed to correct these problems.

affect the development of the upper lip and the roof of the mouth. They can cause problems with feeding, speech, hearing, and dental health. Cleft lip and palate can be treated with surgery and other therapies to improve the function and appearance of the affected areas (5).

Surgery is usually done in several stages, starting from the first few months of life until late adolescence. The procedures may include repairing the cleft lip and palate, reconstructing the nose and gums, correcting the bite, and improving speech and hearing. The surgery is done under general anesthesia and may leave some scars that will fade over time.

Other treatments may include feeding assistance, support for parents, hearing tests, speech therapy, dental care, genetic counseling, social work, and psychological support. These treatments are provided by a team of specialists who work together to meet the individual needs of each child (7).

Cleft lip and palate are not life-threatening conditions, but they can have a significant impact on the quality of life of the child and their family. With proper treatment and care, most children with cleft lip and palate can lead normal and healthy lives.

Bilateral cleft lip and palate is a type of cleft lip and palate where there are openings or splits in both sides of the upper lip and the roof of the mouth. It is one of the most common birth defects and can affect the appearance, feeding, speech, hearing, and dental health of the child.

According to various sources, bilateral cleft lip and palate is the least common type of cleft lip and palate, accounting for about 9% to 15% of all cases. The incidence of cleft lip and palate varies by population, ranging from 1 to 2 per 1000 births in the developed world to 7 to 20 per 1000 births in some regions of Asia and Africa. Cleft lip is more common in males than females, while cleft palate without cleft lip is more common in females(2). Cleft lip and palate can be caused by a combination of genetic and environmental factors, such as inherited genes, exposure to viruses, chemicals, drugs, or other substances that may interfere with normal facial development.

Bilateral cleft lip and palate can be diagnosed before or after birth. Prenatal ultrasound can detect a cleft lip as early as the 13th week of pregnancy, but a cleft palate may be harder to see. After birth, a physical examination can confirm the presence and extent of the clefts. Sometimes, a cleft palate may be hidden by the lining of the mouth and only detected later when signs such as difficulty with feeding, swallowing, or speaking develop. (4)

Bilateral cleft lip and palate can be treated with surgery and other therapies. The goals of treatment are to improve the function and appearance of the affected areas and to prevent or treat any related complications. A team of specialists, such as surgeons, dentists, speech therapists, and genetic counselors, may be involved in the care of the child. Surgery usually involves several stages, starting from the first few months of life until late adolescence. The procedures may include repairing the cleft lip and palate, reconstructing the nose and gums, correcting the bite, and improving speech and hearing(5).

Bilateral cleft lip and palate is not a life-threatening condition, but it can have a significant impact on the quality of life of the child and their family. With proper treatment and support, most children with bilateral cleft lip and palate can lead normal and healthy lives.

Can it be prevented?

According to the web search results, cleft lip and palate cannot be prevented in most cases, as they are caused by a combination of genetic and environmental factors that are not fully understood. However, some possible ways to reduce the risk of these birth defects are(6)

Avoiding alcohol and tobacco use during pregnancy, as these substances may interfere with normal facial development.

Taking folic acid supplements before and during pregnancy, as this vitamin may help prevent neural tube defects and other congenital anomalies.

Having regular prenatal checkups and ultrasounds, as these can help detect a cleft lip or palate early and prepare for treatment (9).

Seeking genetic counseling if there is a family history of cleft lip or palate, or if the baby has a genetic syndrome that includes these conditions.

If there is a family history of cleft lip or palate, or if the baby has a genetic syndrome that includes these conditions.

Cleft lip and palate are congenital disorders that affect the development of the upper lip and the roof of the mouth. They can cause problems with feeding, speech, hearing, and dental health. Cleft lip and palate can be treated with surgery and other therapies to improve the function and appearance of the affected areas.

There are different techniques and procedures for cleft lip and palate repair, depending on the type and severity of the cleft, the age and health of the child, and the preferences of the parents and surgeons (7).

Operative steps in surgical treatment of bilateral cleft lip and palate

Surgical treatment of bilateral cleft lip and palate figure (1) typically involves a series of procedures performed over several years to correct the lip, nose, and palate deformities (8). The specific operative steps may vary depending on the individual patient's condition and the surgeon's preference (9). However, I can provide you with a general overview of the common steps involved in the surgical treatment of bilateral cleft lip and palate:

Figure (1)

Timing: The surgical treatment is usually performed in stages, with the initial procedures typically done when the child is around 3 to 6 months old (10).

Lip Repair (Cheiloplasty):

Anesthesia: The patient is placed under general anesthesia to ensure they are unconscious and pain-free during the procedure (11).

Incisions: The surgeon makes incisions on both sides of the cleft to create flaps of tissue (12).

Tissue realignment: The flaps are carefully repositioned and sutured together to reconstruct the shape of the lip and close the cleft (13). figure (3)

Nasal correction: In some cases, the surgeon may also perform nasal correction procedures during the lip repair to improve the appearance and function of the nose (14). Figure (3).

Figure (2)

figure (3)

Palate Repair (Palatoplasty):

Anesthesia: The patient is placed under general anesthesia (15).

Incisions: The surgeon makes incisions on the edges of the cleft in the roof of the mouth (palate) (16).

Tissue realignment: The tissues on either side of the cleft are carefully repositioned and sutured together to close the cleft and create a functional palate (17).

Muscle repair: The muscles of the palate are reconstructed to improve speech and swallowing functions (18).

Nasal correction: In some cases, the surgeon may perform additional nasal correction procedures during the palate repair to enhance the aesthetic outcome and improve nasal breathing (19). figure (4)

Figure (4)

Follow-up Procedures: Additional surgeries may be required as the child grows to address any residual deformities or functional issues (20). These may include secondary palate revisions, bone grafting to support dental development, orthodontic treatment, and rhinoplasty (nose reshaping) procedures (21).

It's important to note that the above steps are a general outline, and the specific surgical approach and techniques may vary depending on the surgeon and the individual patient's needs.(22) The treatment plan is typically developed in collaboration between the surgeon, a multidisciplinary cleft team, and the child's family to ensure the best possible outcome.(23)

Some of the current techniques for cleft palate repair include V-Y pushback, double- opposing Z-plasties, two-flap palatoplasty, Furlow palatoplasty, and intravelar veloplasty (24).

Some of the current techniques for cleft lip repair include Millard rotation- advancement, Tennison triangular flap, Mohler technique, Fisher technique, and anatomical subunit approximation. (25)

Some of the new trends and challenges in cleft lip and palate repair are:

The use of prenatal ultrasound to detect cleft lip and palate as early as the 13th week of pregnancy. This can help prepare the parents and the medical team for treatment planning and counseling.(26)

The use of a C-flap technique for unilateral cleft lip repair. This technique involves creating a C-shaped flap from the lateral lip element and rotating it to fill the defect in the medial lip element. This technique can achieve a more natural-looking Cupid's bow and philtrum.(27)

The use of tissue engineering and stem cell therapy to regenerate bone, cartilage, muscle, and skin in cleft lip and palate patients. This can potentially reduce the need for multiple surgeries and donor site morbidity.(28)

The use of three-dimensional (3D) imaging, printing, and simulation to plan and execute cleft lip and palate surgeries. This can help improve accuracy, efficiency, and outcomes of the procedures.(29)

The use of telemedicine and mobile health applications to provide remote consultation, diagnosis, monitoring, and follow-up for cleft lip and palate patients. This can help increase access to care and reduce costs for patients in low-resource settings. (30)

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