## Treatment of cleft lip and palate pdf

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The surgical procedures required for each patient with cleft lip and palate will vary depending upon the type and severity of the deformity. Timing and treatment typically includes a combination of the procedures explained here, performed within general time frames based on development. The Division of Plastic, Reconstructive and Oral Surgery at Children's Hospital of Philadelphia is one of the nation's leading centers for treating cleft lip and palate. Our team performs more than 1,000 surgical repair of cleft lip and cleft palate at Children's Hospital. Surgery for both cleft lip and cleft palate require general anesthesia. For more details about your child's specific procedure and follow-up care, please consult your surgeon or other members of your Cleft Lip and Palate Program team. We are available any time to answer all of your treatment questions. 1 week to 3 months of age (if needed) Babies born with unilateral cleft lip or unilateral cleft lip and palate have the option of nasoalveolar molding (NAM), a procedure performed by an orthodontist who specializes in treating craniofacial deformities. Beginning in the first few weeks after birth and continuing until the patient is ready for cleft lip repair, NAM gradually brings the palate and lip together and provides symmetry of the nose, preparing the patient for optimal surgical outcomes. The process uses an appliance consisting of a palatal plate and nasal stent which is made based on an impression of the patient's mouth. Frequent adjustments gradually tighten the device to slowly mold the palate. Nasoalveolar molding is performed by our specialized orthodontists. 3 to 6 months The goal of cleft lip surgery is to repair the separation of the lip. Cleft lip is typically repaired between 3 and 6 months of age. During those first few months, your child is monitored closely for adequate weight gain and nutrition, and to make sure that there are no issues relative to breathing while eating. There are a variety of techniques that may be used to repair a cleft lip. The most common type of cleft lip repair is a rotation advancement repair. The plastic surgeon will make an incision on each side of the cleft from the lip to the nostril. The two sides of the lip are then sutured together, using tissue from the area to rearrange and close the lip as needed. In addition to closing the lip, cleft lip may require a short hospital stay in order to complete two surgeries, about a month apart. A primary nasal repair is often performed at the time of lip repair. Although the type of repair differs from surgeon, this procedure involves liberating some of the nasal elements and realigning them to a more normal configuration with the use of stents or sutures. Nasoalveolar molding is often used after surgery to maintain this correction. After surgery for cleft lip: Your child may be irritable and feel mild pain. Your child may have to wear padded restraints on his elbows to prevent rubbing at the surgery site. Swelling, bruising and blood around stitch sites are normal. Stitches dissolve or will be removed in five to seven days. Scars will gradually fade but will not completely disappear. An intravenous (IV) catheter will be used to give your child fluids until he can drink adequately. 9 to 18 months The goal of cleft palate repair is a more complicated surgery and has the best outcome when the child is slightly older and better able to tolerate the surgery, but before significant speech development occurs. Surgical repair of the palate generally occurs around 1 year of age, following the successful repair of cleft lip if present. In some cases, a second operation is needed. There are a variety of different techniques that may be used to repair the cleft palate, such as a Zplasty or a V-Y-pushback. These procedures close the palate in three layers that form the nasal lining; the middle layers, consisting of the muscles at the back of the palate; and the final layer, which includes the oral mucosa. Palate repair closes these layers while also realigning the palate in three layers, consisting of the muscles at the back of the palate; and the final layer, which includes the oral mucosa. Palate repair closes these layers while also realigning the palate in three layers, consisting of the muscles at the back of the palate in three layers. veloplasty. This puts the muscles in a normal position that allows for the best function of the palate during speech, eating and swallowing. Surgical repair of cleft palate separates the oral and nasal cavities. This separation involves the formation of a watertight and airtight valve that is necessary for normal speech. The repair also helps with preserving facial growth and proper dental development. Once the lip and palate are repaired, typically no further surgery is performed for several years. A portion of the mouth, palate and jaw to grow. After surgery for cleft palate: Your child may experience more discomfort and pain with cleft palate repair than cleft lip repair. Your child may have nasal congestion. This can be relieved with medication. Your child may stay in the hospital for one to three days and will be given antibiotics to prevent infection. Your child may stay in the hospital for one to three days. If packing is placed on the palate, do not remove the packing until instructed. There may be bloody drainage from the nose and mouth. It is also normal to have temporary swelling, bruising and blood at the surgery site. An intravenous (IV) catheter will be used to help give your child fluids until he can drink adequately. 5 to 7 years (if needed) Due to the clefting of the alveolus, or gum, and the cleft itself, approximately 25 percent of patients with cleft lip and palate will require palatal expansion as a pre-surgical procedure prior to bone grafting. The palates in patients with clefts tend to be narrow and collapsed. Palatal expansion prepares your child for subsequent bone grafting by pushing out and aligning the alveolar segments, creating space for permanent teeth. A device is fixed to either the bone or teeth, and with a jack screw, the palate is transversely widened to a normal state. This is done during the mixed dentition phase, when your orthodontist, working closely with your plastic surgeon. Once palatal expansion is complete, alveolar fistulas that were left open at the time of initial lip and palate repair are generally addressed. 6 to 9 years Alveolar bone grafting creates a more complete dental arch, and space for permanent teeth to erupt, by placing bone along the alveolus where it is deficient. Soft bone, generally taken from the hip, is packed in to any remaining opening of the palate. The bone graft is secured with a surgical splint as it heals and solidifies. At this time, procedures are also performed to close any fistulas (openings) between the gum and nose. Closing the fistulas with local tissue prevents the escape of fluid into the nose which leads to nasal regurgitation and leakage of fluids during eating. After the bone graft is placed, permanent teeth may erupt in abnormal positions. Once the bone graft is placed and any fistulas are closed, orthodontic treatment can move teeth into the space created (see Phase I orthodontics). 6 to 9 years If the patient has a significant nasal deformity, an intermediate rhinoplasty may be performed. This is a procedure in which the nose is opened and the cartilage is rearranged to improve the nasal shape and airway. In cases where a less significant nasal deformity is present, your plastic surgeon may perform a tip rhinoplasty. This procedure addresses just the tip of the nose, providing greater symmetry and improving the nasal airway. 6 to 9 years Orthodontic treatment may consist of several phases of treatment, lasting several years each. Phase I orthodontic movement may be required to align teeth. Planning for orthodontic treatment is generally assessed 6 months after the bone graft is done, and treatment during early adolescence or adolescence or adolescent years. During Phase II orthodontics, teeth are leveled and aligned, missing teeth may be replaced, and teeth that are out of position or fail to erupt may be brought down into the dental arch or removed. This phase of orthodontia includes treatment for atopic eruption of teeth and other potential complications that emerge as a result of bone grafting. In general, patients with cleft lip and palate may have missing or displaced teeth that have to be removed. Many of these patients, even after final orthodontia to move and shape teeth into a more appropriate position. Patients may also need a bridge constructed or dental implants placed. The need for long-term orthodontic treatment varies by the patient. 14 to 18 years Cleft palate patients commonly have underdevelopment of the maxillary retrusion. In these cases, the upper jaw and teeth project further than the lower jaw. In severe cases of maxillary retrusion, the upper jaw may need to be cut and brought forward in a procedure called a LeFort I osteotomy and advancement. This surgery is generally done at skeletal maturity, when the patient is between 14 and 18 years old. Follow-up care will include any necessary orthognathic surgical orthodontics related to jaw discrepancies. Children seen at a younger age with severe maxillary retrusion may undergo an intermediate phase called a distraction osteogenesis. This procedure is reserved for younger patients or adolescents with a severe maxillary retrusion that prevents the jaw from being moved forward in a single stage. Distraction for severe deformities involves cutting the jaw, applying a halo device called a distractor, and then gradually pulling the jaw forward over a several week period. The jaw is then held in this position for six to eight weeks while the new bone that has been created solidifies. Adolescence or adulthood As the patient grows, secondary speech procedures and secondary palatal or lip procedures may be done based on the function, appearance and scarring. Some patients will undergo a final cleft rhinoplasty once they have reached skeletal maturity. This procedure may need to be done in stages. Secondary lip revision to improve the scars and correct irregularities may also be performed at this time. The goal of treatment is to complete all procedures by the time a patient reaches skeletal maturity (usually around age 18). This process sometimes extends well into the late teens or early 20's due to the complexity of the cases, but the goal is to have the patient finished with their cleft care at this point in time.

