The Unilateral Cleft Lip Repair and Primary Cleft Rhinoplasty

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VIDEO DESCRIPTION

Indications for Operation
Cleft lip repair is indicated for all patients with a cleft lip after obtaining informed consent, unless the patient has malnutrition, anemia, or inability to tolerate anesthesia. Goals of cleft lip repair are aesthetic and functional, including restoration of aesthetic facial balance, dentition, and feeding. (See video, Supplemental Digital Content 1, which describes the preoperative management of the unilateral cleft lip. Indications, contraindications, timing of surgery, and required instruments are discussed. This video is available in the “related videos” section of the full-text article on PRSGlobalOpen.com or available at http://links.lww.com/PRSGO/A298). Pre-surgical management to improve the nasal shape and align the alveolar arches can be performed passively with nasoalveolar molding or actively using a Latham device.1,2

Instrument List and Preparation
Instruments required include loupe magnification, calipers, 15C blades, tenotomy scissors, skin hooks, retractors, adson forceps, Frazier tip suction, and suture material; nasal pledgets and/or conformers are used as needed. (See video, Supplemental Digital Content 1, which describes the preoperative management of the unilateral cleft lip. Indications, contraindications, timing of surgery, and required instruments are discussed. This video is available in the “related videos” section of the full-text article on PRSGlobalOpen.com or available at http://links.lww.com/PRSGO/A298). The child is placed with neck hyperextension using a shoulder roll. The patient is then prepped and draped in a sterile fashion. (See video, Supplemental Digital Content 2, which describes key steps, including the markings, of the surgical repair of the unilateral cleft lip. The surgeon’s technique features a modified Millard rotation-advancement technique for lip repair and a modified Noordhoff cleft rhinoplasty. This video is available in the “related videos” section of the full-text article on PRSGlobalOpen.com or available at http://links.lww.com/PRSGO/A299).

Procedure Outline
Many techniques exist to repair the unilateral cleft lip and manage the primary palate.3 The following is the senior author’s description and video narration of the widely popular modified Millard rotation-advancement technique for lip repair and a modified Noordhoff cleft rhinoplasty. After appropriate induction and maintenance of anesthesia, prepping and sterile draping, the procedure commences with marking of the A, B, and C flaps under loupe magnification, which correspond to the rotation, advancement, and columnellar flaps, respectively. These marks can be made with methylene blue or simply with a marking pen as per surgeon’s preference. The peak of cupid’s bow is marked initially on the noncleft side. The distance between this point and the trough is transposed to form the new proposed cleft-side peak. Vertical lip height is ensured by transposing the distance from cupid’s peak to the alar base from the noncleft side to the cleft side. The A, B, and C flaps are then marked as the medial (M) and lateral (L) vermilion flaps. However, in the incomplete cleft lip, these M and L flaps are often discarded. (See video, Supplemental Digital Content 2, which describes key steps, including the markings, of the surgical repair of the unilateral cleft lip. The surgeon’s technique features a modified Millard rotation-advancement technique for lip repair and a modified Noordhoff cleft rhinoplasty. This video is available in the “related videos” section of the full-text article on PRSGlobalOpen.com or available at http://links.lww.com/PRSGO/A299).

All flaps are scored with a 15C blade before local anesthetic infiltration to minimize the distortion of anatomy. The cutaneous flaps are next dissected and elevated at the deep fascial plane, exposing the orbicularis oris muscle. The muscle is dissected off of the cutaneous and buccal sides of the lip for approximately 3 to 4 mm on the medial lip element and 6 to 8 mm on the lateral lip element. The muscle is also dissected from its superior attachment to the alar base. (See video, Supplemental Digital Content 2, which describes key steps, including the markings, of the surgical repair of the unilateral cleft lip. The surgeon’s...

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A limited closed cleft rhinoplasty is next performed, in which the skin and alar complex is freed off of the cleft-sided lower lateral cartilage. Further mobilization of the lip and alar complex off of the maxilla is achieved with supraperiosteal dissection to allow a tension-free closure and to reposition the alar base to achieve alar base width symmetry. Finally, a Millard gingivoperiosteoplasty is performed in the standard fashion when the alveolar arches are less than 2 mm apart.

It is critical to close the lip in 3 layers, and specific attention to the buccal mucosa is important in an effort to prevent tethering and distortion of the lip and sublabial fistula formation. Closure begins with the buccal side of the lip with 5-0 Vicryl interrupted sutures. Importantly, approximation of the orbicularis oris is done with 4-0 Vicryl buried horizontal mattress sutures in a praying hands fashion to evert the muscle and emulate the normal philtral column. This video is available in the “related videos” section of the full-text article on PRSGlobalOpen.com or available at http://links.lww.com/PRSGO/A299.

The cutaneous lip closure begins by interdigitating the cutaneous flaps, with deep closure using a few 5-0 Vicryl sutures. It is important to realign the anatomical landmarks, including the cupid’s bow, vermilion border, and alar base as any discrepancy will be obvious. The vermilion is closed with a few 5-0 Vicryl sutures, and the cutaneous lip is closed with 6-0 nylon sutures. Finally, the vestibular nasal web is obliterated, and an alar lift suture is placed using 5-0 Prolene over felt pledgets. This video is available in the “related videos” section of the full-text article on PRSGlobalOpen.com or available at http://links.lww.com/PRSGO/A299.

McComb sutures can also be used to correct the nasal deformity. Nasal conformers are used where needed.

Postoperative Care

The patient is often admitted overnight for observation and is discharged when feeding well. This video is available in the “related videos” section of the full-text article on PRSGlobalOpen.com or available at http://links.lww.com/PRSGO/A299.
Polysporin is used to dress the wound. Arm restraints are used for the first 2 weeks, along with a prescription for analgesics and antibiotics. Cutaneous nylon sutures are removed 1 week postoperatively. Taping of the lip follows for 3 weeks and scar massage and sun protection follows thereafter. Long-term follow-up is arranged with the cleft team. Although rare, acute complications include infection and dehiscence; in the long term, lip contracture, asymmetry, abnormal scarring, or fistula formation could result in the need for secondary reconstructive procedures.

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