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"SUN SHIELD" Cartilage Graft for Correction of Secondary Bilateral Cleft Lip Nasal Deformities

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Abstract— **Background** : Bilateral cleft lip nose deformity is a multi-factorial and complex deformity. Bilateral cleft lip repair presented one of the greatest challenges for plastic surgeons. Although the nasal contour in bilateral cleft lip patients is relatively symmetric compared with that in unilateral cleft lip patients, the deformities themselves are more severe. Open rhinoplasty is performed secondarily using auricular cartilage grafts. This approach has a purpose to know the application of Sun Shield Cartilage Graft for Correction of Secondary Bilateral Cleft Lip Nasal Deformities. **Methods** : A 8-years-old child woman with chief complaint of deformities on her lip and nasal. With secondary Bilateral Cleft Lip Nasal Deformities the patient underwent columella lengthening and Sun Shield Cartilage grafting with open rhinoplasty. **Result** :The nasal profiles were improved to the patients. The columellar and nostril heights were increased. The columella and the nasal dorsum were lengthened. **Conclusion:** Based on clinical results indicate that "SUN SHIELD" Cartilage Graft with open rhinoplasty is effective for correction of secondary Bilateral Cleft Lip Nasal Deformities.

Keywords: Auricular Cartilage Graft, Cartilage Graft, Columella Lengthening , Bilateral Cleft Lip Nasal

BACKGROUND

Bilateral cleft lip nose deformity is a multi-factorial and complex deformity. The hallmark of bilateral cleft lip and nose involve a short columella, wide nostrils, flared alar rims, and a poorly projected nasal tip.Bilateral cleft lip repair presented one of the greatest challenges for plastic surgeons. An aesthetically satisfying result is difficult to obtain.[1]

The goals of primary bilateral cleft lip nose surgery are, closure of the nasal floor and sill, repositioning of the alar base, achieving nasal tip projection, repositioning of the lower lateral cartilages, and reorienting the nares from horizontal to oblique position.[2] . The short columella plays a major role in the overall bilateral cleft nose deformity and should be lengthened. [1, 3]

Although the nasal contour in bilateral cleft lip patients is relatively symmetric compared with that in unilateral cleft lip patients, the deformities themselves are more severe and repairing alar rim, open rhinoplasty is performed secondarily using auricular cartilage grafts.[4] Autologous cartilage has a high resistance to infection and a low rate of resorption, which makes it an ideal graft material for rhinoplasty. [5]This approach has a purpose to know the application of Sun Shield Cartilage Graft for Correction of Secondary Bilateral Cleft Lip Nasal Deformities. We named it Sun Shield Cartilage because the shape of Conchal Cartilage Graft has a similarity to sun shield car.

CASE REPORT

A 8-years-old child woman was admitted to Plastic Surgery Division RSPAD GatotSoebroto with chief complaint of deformities on her lip and nasal. Clinical history of the patient was diagnosed with bilateral Labiognatopalatoschizis who had undergoneprimary cheiloplasty when she was 3 months, then palatoplasty when she was 12 months.With secondary Bilateral Cleft Lip Nasal Deformities the patient underwent columella lengthening and Sun Shield Cartilage grafting with open rhinoplasty.

Fig. 1. 8-years-old child woman with a secondary bilateral cleft lip and nose deformity. Photographs were taken preoperatively

The operation was performed under general anesthesia. The patient's face and both ears were exposed and prepared. We drew the forked flap, and both conchal incision designs first. For hemostasis and hydrodissection, 1% lidocaine with 1:100,000 epinephrine was infiltrated into the subperichondrial

plane above the conchal cartilage. Sun Shield Cartilage was harvested from the both conchal cavity by making an incision in the posterior conchal skin. We use a Sun Shield cartilage graft as a strut to strengthen the septum and to prevent nasal tip drooping or turn-up.

Open rhinoplasty was performed by making an incision in the forked flap design using a No. 15 blade to elevate the cutaneous flap until the nasal septum is exposed above the perichondrium. The harvested Sun Shield cartilage was arranged and inserted then sutured to the anterior septum. We did skin closure by retracting the nasal skin and forked flap to lengthen the columella, then sutured layer by layer to avoid hematoma formation in the dead space with 6-0 PDS and 6-0 Prolene.

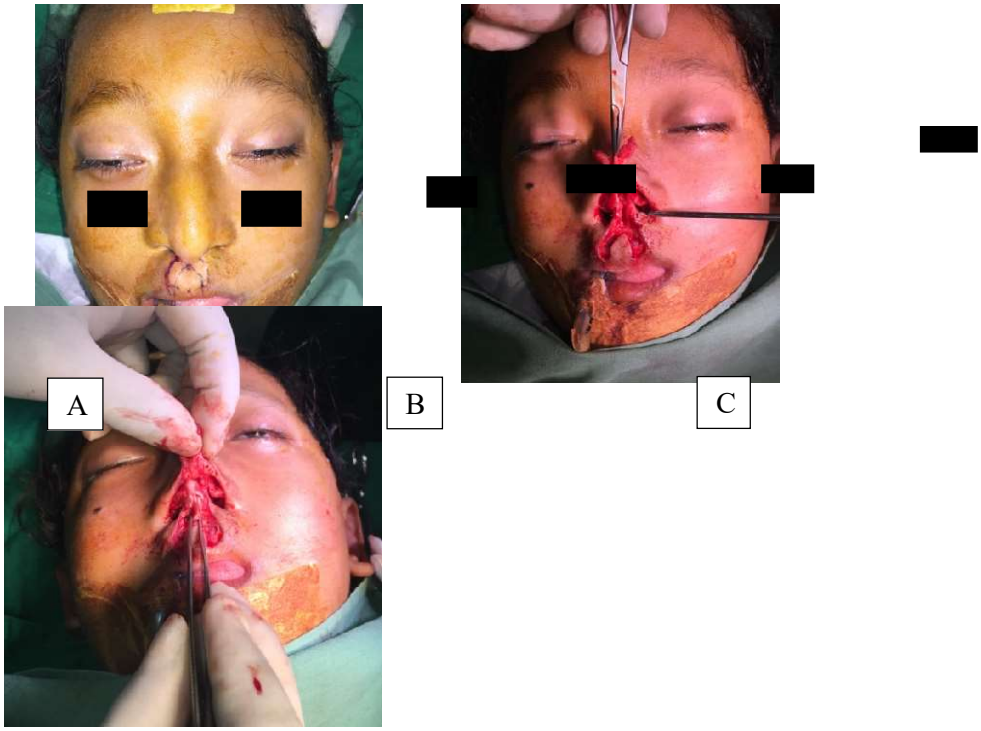

Fig. 2. Photographs were taken intraoperatively. A. Fork Flap Design, B. underwent open rhinoplasty, C. Inserting The harvested Sun Shield cartilage

Fig 3. Photographs were taken postoperatively

RESULT

After the operation, the patient was admitted to the ward. On postoperative day 1 there wasn't any complaint, so the patient was discharged from the hospital and should have postoperative evaluation 1-2 week after discharged at Plastic Surgery Polyclinic RSPAD GatotSoebroto.

The appearance of the nose and upper lip were observed . We also checked the postoperative complications, there weren't any wound dehiscence, infection, or bleeding. The nasal profiles were improved to the patients. The columellar and nostril heights were increased. The columella and the nasal dorsum were lengthened.

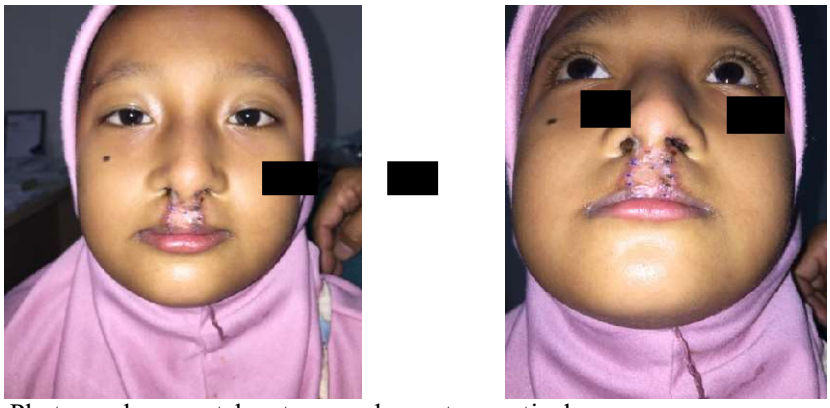

Fig.4. Photographs were taken two weeks post-operatively

Fig.5. Photographs were taken 11months post-operatively

DISSCUSSION

In bilateral cleft lip and nose, the presence of a short columella has led surgeons to perform various surgical techniques in order to correct this deformity. In this case, we used autografts "Sun Shield" Cartilage. The reason of choosing"Sun Shield" Cartilage is because compared to just straight strut, it has advantage such as provides a more advanced projection of the nasal tip to avoid a short nose (pig nose). Autografts cartilage graft presents several advantages: they are easily manipulated and highly resistant to infection, and have a low rate of resorption. The reason of choosing auricular cartilage harvest is to obtain a sufficient amount for reconstruction and to minimize the change in ear shape.Conchal cartilage is the most common type of auricular cartilage that is used as a graft material.[5,9,10]

The cartilage can be harvested by a posterior or anterior approach. The posterior approach can provide better cosmetic results by hiding the scar more efficiently, but there are limits to the amount of cymba cartilage that may be harvested. In contrast, the anterior approach may cause a noticeable scar, but allows easier dissection, with better visible landmarks for preserving the shape of the ear and a larger amount of cymba cartilage can be harvested.[5,6,7]

We applied forked flap for columella lengthening. Millard, described the use of forked flaps, banked at the time of the lip repair, to correct the columellar deficiency. A forked flap and its modified

methods are still used in many institutions, because it enables reliable lengthening of the columella and the simultaneous revision of lip scars in the cases of a moderately short columella, although it might leave noticeable scars around the columella base. [4,8]

CONCLUSION

Bilateral cleft lip nose deformity is a multi-factorial and complex deformity. This case has led surgeons to perform various surgical techniques in order to correct this deformity. Columella lengthening with forked flap is a simple and effective method to correct the columellar deficiency in bilateral cleft nose patients. Based on clinical results indicate that "SUN SHIELD" Cartilage Graft with open rhinoplasty is effective for correction of secondary Bilateral Cleft Lip Nasal Deformities.

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