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Research Article

A new surgical method for the correction of unilateral alar base retraction

Tek taraflı alar taban retraksiyonunun düzeltilmesinde yeni bir cerrahi yöntem

Oguzhan Oguz*[1], Agah Yeniceri[2]

[1]Dr. Oğuzhan Oğuz Wellnose Clinic, Istanbul, Turkey
[2]Department of Otorhinolaryngology, Ministry of Health Ankara Bilkent City Hospital, Cankaya, Turkey

Abstract

Aim: Alar base retraction is a challenging deformity to correct, and various approaches have been suggested for fixing it with or without other nasal cone deformities. We focus on the surgical techniques for correcting unilateral alar base retraction, reporting their principles, applicability, and complications, and presenting our new method.

Material and Methods: Several established methods are available to correct alar base retraction, including conchal cartilage margin grafting, non-excisional suture techniques, excisional suture techniques, and tissue rearrangement, which can be used alone or in combination Whether utilizing a closed technique or an open technique, we access underneath the periosteum through a small gingival incision made at the level of the canine tooth, and we release the soft tissue by detaching the periosteum from the bone while remaining lateral to the nares. Elevation merges with the elevation of the nasal bone periosteum. The mucosa is sutured using a single stitch.

Results: This new technique avoids the major pitfalls of traditional methods, with excellent results and high patient satisfaction. A total of 55 patients were enrolled in this study, and all completed the follow-up. Based on data before and after the operation, clinical outcomes showed significant differences in nostril height (especially on the surgical side compared to the non-surgical side), columellar length, nasolabial angle, and patient satisfaction.

Conclusion: Many methods are applicable for correcting alar base retraction, but complete correction without relapse is challenging. New surgical procedures must be developed based mainly on underlying causative factors, alar medialization capabilities without tissue trimming, and strong nasal base support that avoids potential problems, such as limited alar base widening or dislocation of alar base manipulating techniques. These principles do not interfere with or contradict any previous methods. Still, they are instead intended to build upon them and contribute to newer and more standardized results with less relapse. The context of the present techniques will help to understand and give a more concrete idea of comprehension for the newer methods.

Keywords: Alar retraction, Alar base retraction, Nasal deformity

Corresponding author*: Oguzhan Oguz, Dr. Oğuzhan Oğuz Wellnose Clinic, Istanbul, Turkey
E-mail: oguzhanoguz2023@outlook.com
Orcid: 0009 0002 7019 1386
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Öz

Amaç: Alar taban retraksiyonu düzeltilmesi zor bir deformitedir. Alar taban retraksiyonunu düzeltmek için çeşitli yaklaşımlar önerilmiştir. Tek taraflı alar taban retraksiyonunun düzeltilmesi için kullanılan cerrahi teknikler, bunların prensipleri, uygulanabilirliği ve komplikasyonlarını değerlendirmeyi ve yeni yöntemimizi sunmayı amaçladık.

Gereç ve Yöntemler: Alar baz retraksiyonunu düzeltmek için konkal kıkırdağı greft ile desteklemek, eksizyonel olmayan sütür teknikleri, eksizyonel sütür teknikleri ve dokuların yeniden düzenlenmesi dahil olmak üzere tek başına veya kombinasyon halinde kullanılabilen çeşitli yöntemler tanımlanmıştır. Yöntemimiz açık veya kapalı teknik kullanılarak yapılabilir. Kanin dişi seviyesinde yapılan küçük bir dişeti kesisinden, periostun altına ulaşıyoruz ve burun kenarında, periostu, kemikten ayırarak üzerindeki yumuşak dokuyu serbestleştiriyoruz. Elevasyonu, nazal kemik periostunun elevasyonuna kadar ilerletiyoruz. Mukozayı tek bir dikiş kullanılarak dikerek işlemi tamamlıyoruz.

Bulgular: Bu yeni tekniğin, mükemmel sonuçlar ve yüksek hasta memnuniyeti ile geleneksel yöntemlerden daha başarılı sonuçlar verdiği gösterilmiştir. Bu çalışmaya toplam 55 hasta dahil edildi ve hepsi ameliyat sonrası takibi tamamladı. Ameliyat öncesi ve sonrası ölçümler karşılaştırıldığında, burun deliği yüksekliği (özellikle cerrahi tarafta, cerrahi olmayan tarafa kıyasla), kolumellar uzunluk, nazolabial açı önemli farklılıklar gösterdi.

Sonuç: Alar taban retraksiyonunu düzeltmek için birçok yöntem uygulanabilir, ancak nüks olmaması ve tam düzeltme elde etmek zordur. Esas olarak altta yatan nedene yönelik, doku rezeksiyonu olmadan alar medializasyon ve sınırlı alar taban genişletme yapılmalıdır. Geliştirilen yeni cerrahi prosedürler, önceki yöntemleri daha iyileştirmeli veya destek olmalıdır.

Anahtar Kelimeler: Alar Retraksiyon, Alar Baz Retraksiyonu, Alar taban

Introduction

Alar base retraction is a challenging deformity to correct, and various approaches have been suggested for correcting alar base retraction with or without other nasal cone deformities. We focus on the surgical techniques for correcting unilateral alar base retraction, reporting their principles, applicability, and complications, and presenting our new method. Unilateral alar base retraction can significantly impact a patient's quality of life. The depression of the affected alar base and nasolabial region can severely affect the patient's appearance. Current treatments for alar base retraction include implanting various materials to elevate the retracted alar base, repairing cartilage attachment, advancing alar base flaps, using filler injections and botulinum toxins, and repositioning the nasal tip. Regardless of the treatment method, the outcome is tied to the degree of improvement in clinical symptoms. However, clinical data and experience indicate that these commonly used methods for this condition have limitations, including minimal effects, loss of effectiveness, and the risk of infections, crusting, fibrosis, and more. Consequently, most patients require additional treatment to enhance the final clinical outcome. It is essential to develop a new, practical clinical approach to treat alar base retraction to overcome the limitations of these previous closed surgical procedures. [1,2,3]

This study aimed to visualize a new, innovative technique for treating unilateral alar base retraction and to apply this method. The primary outcome of interest was increased patient satisfaction and improved appearance after treatment compared to conventional correction. Notably, the assessment of alar stance was of particular interest. [2,3,4]

The alar base in rhinoplasty is a critical anatomical area that significantly impacts the aesthetic appearance of the nose due to its close contact with the mid-aspect of the philtrum laterally and its deep relationship to the nostril floor. In the area of the alar base, two large striated muscles, the zygomaticus minor muscle laterally and the levator labii superioris alaeque nasi cranially, pass from inside the nose to the upper nasomaxillary area, carrying the perinasal soft tissue over it. These striated muscles are followed caudally by the alar cartilages, the only structural elements of the alae of the nose. Unilateral alar base retraction is mainly visible in clinical pictures. As for etiology, it is assumed that both developmental and physical trauma processes are effective. The retraction causes asymmetry in the nasal valve, a decrease in nasal function, and aesthetic impairment due to the reduction of the nasal airway and the caudal movement of the alar side to the other side. [5,6]

Understanding the relationship of the skin, subcutaneous

tissue, skin muscle fascia, alar cartilage, lateral crus, medial crus, nostril sill, and vestibular skin is essential to understanding the retraction of the alar base. Therefore, we must take a general view of the anatomy of the alar base. For effective treatment, it is necessary to understand how the structures of the alar base are implicated by pathology. All these interactions are essential to address the disease effectively. Therefore, the relationship between the structures of the alar base and the causes of retraction is very complex. From this point of view, this ratio is to be tried to be solved anatomically. Because the nature of the issue does not allow us to deal with pathology alone. In short, we have an interdisciplinary relationship between anatomy, pathology, and surgical methods. [7,8]

In this study, we developed an innovative surgical method to correct alar base retraction more effectively and safely. We have found that most current treatment methods have some limitations and side effects that will unsatisfactorily influence the clinical effect.

Material and Methods

A total of 55 patients were enrolled in this study, and all completed the follow-up. Based on data before and after the operation, clinical outcomes showed significant differences in nostril height (especially on the surgical side compared to the non-surgical side), columellar length, nasolabial angle, and patient satisfaction.

Technique

The technique aims to correct unilateral alar retractions from the opposite view without interfering with the mimic muscles and minimizing damage to the soft tissues. Whether utilizing a closed technique or an open technique, we access underneath the periosteum through a small gingival incision made at the level of the canine tooth, and we release the soft tissue by detaching the periosteum from the bone while remaining lateral to the nares. (Figure 1,2) Elevation merges with the elevation of the nasal bone periosteum. The mucosa is sutured using a single stitch. Following the post-operative elevation, there may be some downward drop on the adhering side. It is a simple and effective surgical method. And it has a very low complication rate. The only complication was upper lip swelling that lasted about two weeks in some patients.

Two ENT specialists, other than the authors, who didn't know the surgeon and the applied method, evaluated the procedure's success through the preoperative and postoperative photos.

Figure 1: Planning the elevation of the soft tissue by detaching the periosteum from the bone while remaining lateral to the nares.

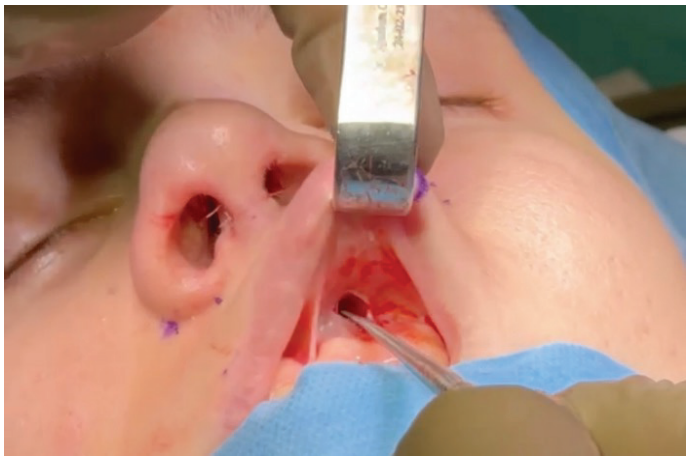

Figure 2: Access underneath the periosteum through a small gingival incision made at the level of the canine tooth

The same procedure can be performed endonasally, but it is not advisable because it excludes the vestibule skin and mucosa, which can cause soft tissue trauma and potential valve issues. Furthermore, the nares (Webster's triangle) are retracted laterally during the intraoral approach.

Results

This series of 55 patients included 19 males and 36 females—38 with left-sided ABR and 17 with right-sided ABR. The length of follow-up ranged from 8 to 25 months. A senior member of the surgical team and each patient independently rated the nasal profile as satisfactory or very satisfactory in all cases, in addition to being pleased with the degree of elevation. Furthermore, the minimally invasive technique was reflected in the low agreement on all points, with patient recovery being rated as either satisfactory or very satisfactory.

Surgical treatment generally does not require lengthy recovery

because incisions do not extend into the nasal vestibule. A 3-week waiting time is recommended between treating the alar base and the tip of the nose. The time necessary to correct an additional functional or aesthetic defect is relative and varies depending on the cause and type. No complications were observed in the cases discussed above. Still, complications that could be expected are bleeding during surgery and hematomas, which were not observed at any time during the study follow-up.

These data suggest that the proposed technique has great potential to improve the quality of life for patients affected by unilateral retraction of the alar base.

A potential disadvantage of these techniques is that new incisions are made, which increases the recovery period and might result in additional scar formation. Our described surgical technique offers significant advantages over existing methods for the following reasons: This new technique avoids the major pitfalls of traditional techniques, with excellent results and high patient satisfaction (figure3 -5).

Figure 3A-B: Preoperative and Postoperative views of a female patient

Figure 4A-B: Preoperative and Postoperative views of a female patient

Figure 5A-B: Preoperative and Postoperative views of a male patient

Discussion

Several established methods are available to correct alar base retraction, including conchal cartilage margin grafting, non-excisional suture techniques, excisional suture techniques, and tissue rearrangement, which can be used alone or in combination. Many methods exist for correcting alar base retraction, but achieving complete correction without relapse remains challenging. New surgical procedures should be developed primarily based on underlying causative factors, alar medialization capabilities without tissue trimming, and robust nasal base support that prevents potential issues, such as limited alar base widening or dislocation from alar base manipulation techniques. These principles do not contradict any previous methods. Instead, they aim to build upon them and contribute to newer, more standardized results with reduced relapse. Understanding the context of the current techniques will provide a clearer understanding of the newer methods. [9,10]

A new surgical method for correcting unilateral alar base retraction has been developed. This technique fundamentally differs from the existing techniques for the correction of alar base retraction in terms of the use of the graft and the design of the dissection area. The limitations of conventional techniques include recurrent alar retraction, technical errors, visually speculative results rather than functional results, the possibility of acute traction side effects on the alar margin, an extended learning or adaptation period for the new technique, and the high cost. In contrast, the goal of the developed method is to minimize the disadvantages and limit the invasiveness of incision, flap, and suture.

Conclusions

A new surgical procedure is presented in two perspectives: function and aesthetic outcome. This new surgical method for correcting unilateral alar base retraction has been developed in the process of convergence with the development of polishing or direct surgical implementation using surgical instruments and grafting. The desired result of the surgery is to significantly reduce the physical deformity through less invasive dissection and suturing, with the expected outcome being the improvement of patient satisfaction. [11,12]

We have developed a new surgical technique that offers a variety of advantages over existing methods. To conclude our discussion, we compare our techniques to those detailed. A traditional method for the correction of alar base retraction is the use of only tip contour grafts. The use of a dissection technique in the revision settings of bilateral alar base retraction has been described. The case series highlighted using an alar rim onlay graft in conjunction with an alar rim repositioning flap to correct bilateral alar base retraction. From the analysis, it is recommended that the primary use of the technique be before using a secondary procedure. [13,14]

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