JOURNAL OF DERMATOLOGICAL TREATMENT
2024, VOL. 35, NO. 1, 2410246
https://doi.org/10.1080/09546634.2024.2410246

Taylor & Francis
Taylor & Francis Group

RESEARCH ARTICLE

OPEN ACCESS Check for updates

Anatomical consideration and techniques in thread nose augmentation with mesh scaffold implant

Gi-Woong Hong[a], Jovian Wan[b] and Kyu-Ho Yi[c,d]

[a]Sam Skin Plastic Surgery Clinic, Seoul, Korea; [b]Sihler Inc, Seoul, Korea; [c]Division in Anatomy and Developmental Biology, Department of Oral Biology, Human Identification Research Institute, BK21 FOUR Project, Yonsei University College of Dentistry, Seodaemun-gu, Seoul, Korea; [d]Maylin Clinic (Apgujeong), Seoul, Korea

ABSTRACT

Introduction: Non-surgical rhinoplasty has evolved with the introduction of volumizing threads, which offer a less invasive alternative to traditional methods by enhancing nasal contours while minimizing filler use. This technique is gaining popularity, particularly in Southeast Asia, due to its shorter recovery time, reduced risk profile, and ability to prevent the 'Avatar nose' effect. However, there is limited anatomical guidance available for its application, especially in the Asian population.

Materials and Methods: This study analyzes the anatomical layers of the nose to guide the proper placement of volumizing threads. Three cases are presented, highlighting different approaches to nasal bridge enhancement, nasal tip augmentation, and combined use of threads and fillers. The placement of threads in the deep fat layer beneath the fibromuscular layer was emphasized to avoid vascular complications.

Results: The cases demonstrated with mesh thread (Tesslift Inc., Korea) successful outcomes with well-defined nasal contours and patient satisfaction. The techniques used allowed for precise enhancements while minimizing risks associated with superficial thread placement and vascular injury.

Conclusion: Volumizing threads provide an effective and safe method for non-surgical rhinoplasty, particularly when informed by a thorough understanding of nasal anatomy. The results support the growing use of this technique in esthetic practice, especially in regions like Southeast Asia.

ARTICLE HISTORY
Received 20 August 2024
Accepted 24 September 2024

KEYWORDS
Rhinoplasty; volumizing thread; nasal cartilages; nasal septum; minimally invasive surgical procedures; mesh thread

KEYWORDS
nose; thread; cosmetic technique; rhinoplasty

Introduction

Recent innovations in non-surgical rhinoplasty now feature the use of volumizing threads, either in combination with fillers or on their own. These threads are designed to support and enhance the structure of the nasal tissues, forming a scaffold that helps maintain the shape of the nasal bridge and tip, thereby prolonging the effectiveness of the procedure. This technique minimizes the need for fillers, reducing the likelihood of an overly wide 'Avatar nose' caused by excessive filler use. Additionally, using threads alone for nose contouring provides distinct benefits, such as shorter procedure times, faster recovery, and lower risk profile compared to filler-based methods. As a result, non-surgical rhinoplasty is becoming increasingly popular in Southeast Asia. In these procedures, both volumizing mesh scaffolds and cogged threads are essential components (1). Practitioners frequently use cogged threads with barbs, although smooth monofilament threads can also be utilized. Longer threads are typically used to enhance the nasal bridge, while shorter threads are specifically employed to lift the nasal tip (2).

The initial thread-based nose reshaping technique was introduced in 2010 as an in-office procedure. This approach utilized a double-sided needle with a suture to secure the lower lateral cartilages to the glabellar periosteum, enabling the rotation and projection of the nasal tip (3). The current literature highlights the importance of standardized nasal anthropometric points, clinical landmarks, lines, and angles, all of which are essential for achieving optimal results in nose augmentation procedures (4–6). Despite the abundance of information available, there is still a notable gap in the literature regarding the use of volumizing and cogged threads alone for nose augmentation in the Asian population. Although many techniques have been studied, there is a lack of detailed guidance specifically designed for this demographic, indicating a need for further research and exploration.

The efficacy of thread-based procedures in terms of tissue support and fixation is largely dependent on the surface area of contact between the thread and the surrounding tissue. To maximize this interaction, a scaffold structure, particularly one with a mesh configuration, can significantly enhance the thread's functionality. The TESSLIFT system employs such a scaffold structure, which facilitates substantial tissue ingrowth through its porous design. This integration of surrounding tissues into the scaffold's pores results in increased volumetric tensile strength, thereby promoting a more effective, safe, and durable outcome (Figure 1).

This article aims to showcase successful cases of nose augmentation using volumizing threads and provide technical guidelines based on anatomical principles.

CONTACT Kyu-Ho Yi kyuho90@daum.net Division in Anatomy and Developmental Biology, Department of Oral Biology, Human Identification Research Institute, BK21 FOUR Project, Yonsei University College of Dentistry, Seoul, South Korea

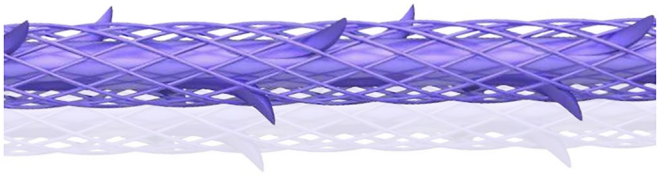

Figure 1. The mesh-based thread's scaffold structure, with pores larger than 1 mm, prevents bridging effects and scar plate formation by facilitating tissue adhesion around the pore lining, while its penetrating strands distribute forces to enhance overall tensile strength.

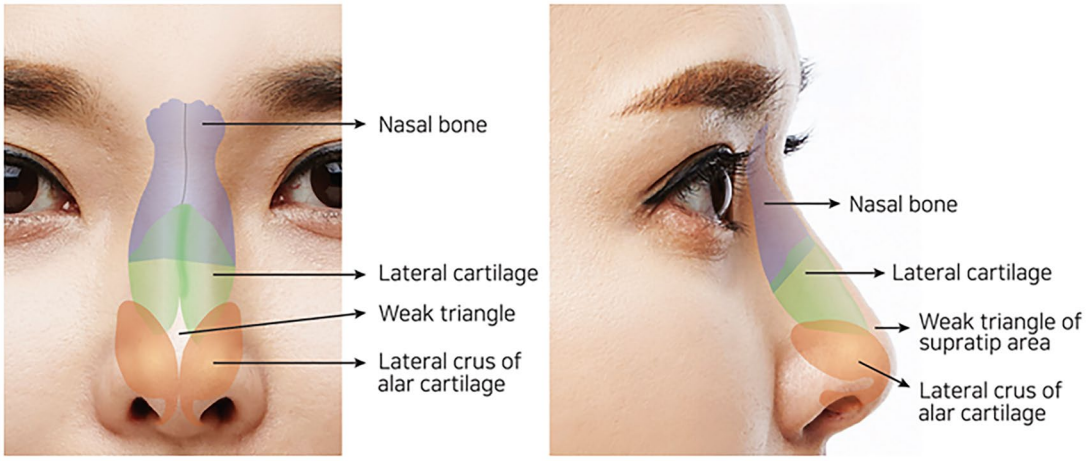

Figure 2. Weak triangle: This figure illustrates the area where the lateral crus of each alar cartilage converges at the supratip region. This triangle is solely covered by weak fibroareolar tissue, which often poses challenges when attempting to augment this specific area using fillers.

Anatomical and clinical approach

To properly perform a volumizing thread procedure for the nose, it is essential to first understand the anatomical layers of the nose. The soft tissue layers of the nose, including the skin, consist of five distinct layers: the skin, the subdermal fat layer, the fibromuscular layer (which includes the nasalis muscle connected to the SMAS), the submuscular fat layer, and the periosteum and perichondrium. The cephalic part of the nose exhibits dynamic properties, allowing the layers above and below the fibromuscular layer to move smoothly. However, in the caudal part of the nose, which includes the nasal tip and is centered around the scroll area (where the lateral nasal cartilage and alar cartilage meet), the subdermal fat layer is replaced by dense collagen fibers and fat cells. This causes the dermal layer, which covers the fibromuscular layer and subcutaneous fat, to become tightly connected, making it difficult to separate. This, combined with the thick skin of the nasal tip, results in a thicker appearance of the nasal tip.

Additionally, structurally, there is a triangular area in the supra-tip region where the lateral crus of the alar cartilage and the caudal border of the lateral nasal cartilage meet, leaving a gap in the cartilage. This area, known as the 'weak triangle,' is only covered by weak fibroareolar tissue beneath the skin, with no supportive structure beneath it. As a result, this area tends to appear more depressed and contoured compared to other parts of the nose. It is important to recognize that this anatomical feature makes it difficult to sufficiently augment this area with filler or fat grafting alone (Figure 2).

The blood vessels supplying the nose typically course at the same depth as, or immediately beneath, the fibromuscular layer. As these vessels ascend toward the nasal bridge, they become increasingly superficial. To minimize the risk of vascular injury while achieving the desired nasal contour, it is advisable to place threads in the deep fat layer located beneath the fibromuscular layer. The principal arteries of the nose include the lateral nasal artery, which arises from the facial artery, and the dorsal nasal artery, which originates from the ophthalmic artery. The columella is primarily supplied by the columellar artery, a branch of the superior labial artery derived from the facial artery. The nasal tip receives its blood supply predominantly from branches of the lateral nasal artery, while the nasal dorsum is vascularized by branches of the dorsal nasal artery and the angular artery (Figure 3).

When performing procedures near the lateral aspect of the nasal bridge, especially closer to the inner canthus, caution is necessary to avoid damaging the angular artery, which runs upward along the anatomical boundary between the nose and the medial cheek. Therefore, it is generally advisable to avoid procedures on the side of the nose. The branches of the lateral nasal artery, which primarily supply the nasal tip, can connect across the midline, meaning that there is a risk of vascular injury when working in the central region of the nasal tip. In contrast, the dorsal nasal artery, which supplies the nasal dorsum, typically courses slightly off-center with two branches running along the sides. Thus, maintaining the central position during the procedure can reduce the risk of damaging these vessels. However, it is important to note that in some individuals, particularly those of East Asian descent, a branch of the dorsal nasal artery may cross the midline, indicating that this area is not entirely without risk.

Additionally, when working in the nasal root area, it is essential to be aware of the intercanthal vein, which runs over the procerus muscle between the inner canthi. This vein connects the angular veins on both sides, forming a bridge-like structure. The intercanthal vein courses between the inner canthi in approximately 63% of cases, ascends toward the glabella in about 30%, and runs slightly below the inner canthi in around 7% of cases. To avoid injuring the intercanthal vein during procedures in the nasal root area, the skin should be elevated to include the subcutaneous layer and the procerus muscle, with the thread being inserted deeply beneath the muscle (Figure 4).

First, it is crucial to determine the upper limit of the nasal root (nasal radix) where the volumizing thread will be placed to

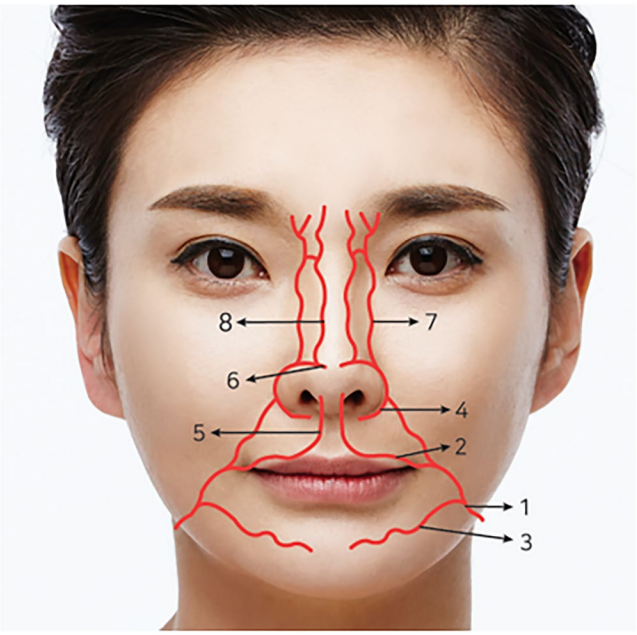

Figure 3. Nasal arterial distribution: This diagram depicts the arterial network of the nose, highlighting the following arteries: (1) Facial artery, (2) Superior labial artery, (3) Inferior labial artery, (4) Inferior alar artery, (5) Columellar artery, (6) Lateral nasal artery, (7) Angular artery, and (8) Dorsal nasal artery.

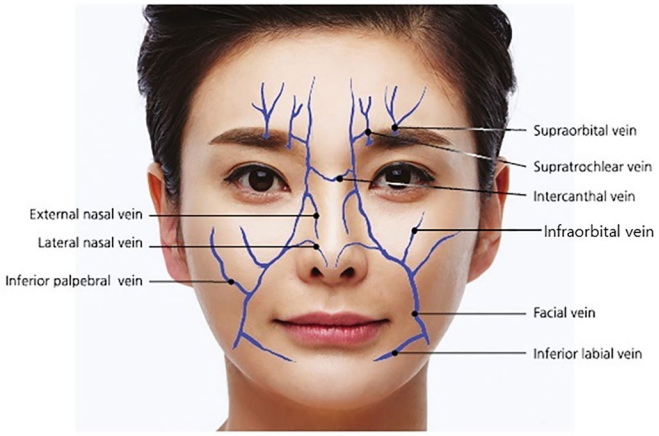

Figure 4. Nasal venous structures: This figure presents the venous anatomy of the nose, detailing the various veins involved in nasal blood drainage.

prevent the thread from being inserted too high, which could result in an 'Avatar nose' appearance. While the upper limit should be tailored to the patient's preference, it is generally advisable to set this limit along a horizontal line connecting the highest points of the eyelashes or the upper edge of the double eyelid crease. Also, the nasofrontal angle should be taken into consideration. The procedure should be confined to below this line.

After marking the upper boundary of the nasal radix, the entry point for the cannula should be established. The lowest entry point is typically created at the infratip lobule, the area between the columella and the nasal tip. When performing the procedure from this point upwards toward the nasal radix, the cannula may encounter a slight elevation followed by a dip at the boundary between the nasal bone and the lateral cartilage – often the site of a dorsal hump. Depending on the patient's case, this elevation might prevent the cannula from advancing smoothly upward, causing it to remain shallow rather than maintaining a deep insertion layer, thus

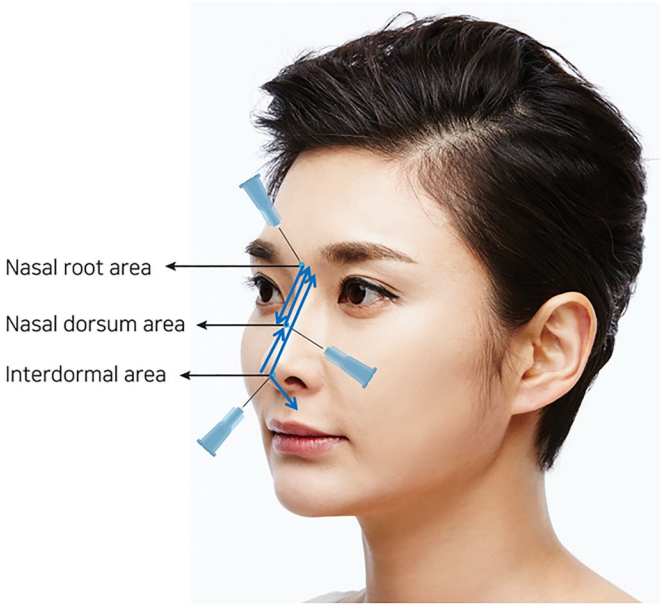

Figure 5. Potential cannula insertion sites for nasal shaping using volumizing threads: This image identifies the possible entry points for cannula insertion when performing nasal shaping procedures with volumizing threads.

increasing the risk of vascular injury. Additionally, using an overly long cannula to reach the nasal radix can be difficult to control. To elevate the nasal radix effectively, it is advisable to create an additional entry point near the nasal root on the cephalic side of the dorsal hump. Conversely, when performing the procedure from the nasal radix downward, it is recommended to create an additional entry point near the nasal root or between the eyebrows to ensure proper control and safety (Figure 5).

When inserting the cannula through the entry point, it is essential to use your non-dominant hand to gently lift the nasal ridge. Throughout the procedure, it is crucial to avoid damaging the dorsal nasal artery, which typically runs on either side of the midline, and to ensure that the cannula is inserted along the center line of the bridge of the nose to prevent any asymmetry in the placement of the volumizing threads.

At the nasal tip, the fibromuscular layer is tightly adhered to the overlying skin, leaving the deep fat layer beneath the fibromuscular layer as the only available space for cannula insertion. As you navigate this layer, it is important to move the cannula gently, as the blood vessels spread out like a web just beneath the fibromuscular layer, making them susceptible to injury if the cannula is handled too aggressively (Figure 6).

When inserting threads, it is important to avoid placing them too shallowly in the subcutaneous tissue, as this can cause the threads to become visible beneath the skin and create a sensation of foreign material. To prevent this, the cannula should be inserted beneath the muscle, ensuring that the cannula tip reaches the desired location. Once the tip is confirmed to be in place, gently press the cannula tip with your fingers while slowly withdrawing the cannula. This technique ensures that the exposed part of the thread remains securely embedded within the tissue, without protruding through the entry point. It is crucial to adjust the depth and length of the cannula insertion to ensure that the entire thread is properly buried within the skin tissue, with no portion of the thread left exposed. If part of the thread does protrude, it should be carefully trimmed without pulling on it, as pulling could cause the internal portion of the thread to be drawn out as well. After trimming, ensure that the remaining thread is fully embedded within the skin. When placing the threads,

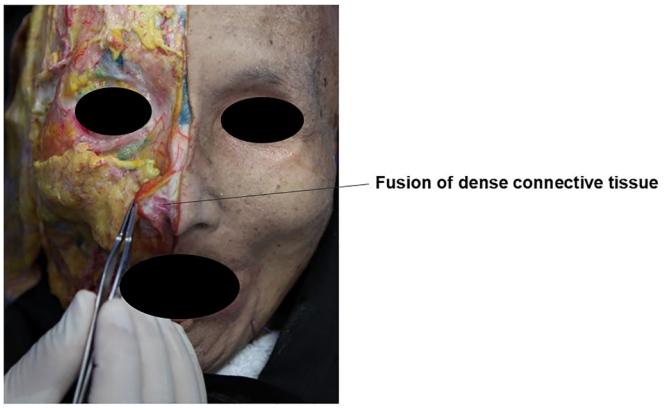

Figure 6. Tight fibrotic tissue in the nasal tip region: This figure showcases the presence of dense, fibrotic tissue located in the nasal tip area, which can impact procedural approaches and outcomes.

it is advisable to insert them deeply enough so that the threads are positioned well beyond the entry point, preventing any part of the thread from being left at the insertion site.

For the second insertion point (whether at the dorsal hump or near the nasal root), reinsert the cannula and use the same layer of tissue to place volumizing threads from the marked nasal radix point up to the area just above the dorsal hump. This ensures a continuous fill without any gaps in the nasal contour. At this time, create an entry point about 5 mm away from the point where the end of the thread is expected to be located.

Recently, volumizing scaffold type threads have been increasingly used not only to improve the contour of the tip of the nose but also to elevate a drooping tip and increase the columello-labial angle between the columella and upper lip, which often appears flattened or recessed. Similar to filler procedures, the use of volumizing threads in the columella can simultaneously enhance the contour of the columella while narrowing the alar base, improving the overall shape of the nose. As with the nasal tip, care must be taken to avoid damaging the blood vessels that are distributed like a web in the fat layer when moving the cannula.

When enhancing both the nasal bridge and tip, the infratip lobule serves as the entry point. The cannula is inserted vertically from the facial plane into the entry point. The volumizing threads are then located from the anterior nasal spine, located between the footplates of the medial crura of the alar cartilages, up to the top junction of the columella and nasal tip. During insertion, it is important to position the cannula between the medial crura, even if it is deeper than the subcutaneous fat layer to avoid damaging the columellar artery (Figure 7).

After inserting the volumizing threads into the bridge of the nose, if additional smoothing of the surface is required, a filler can be injected through the same puncture site into the subdermal or subcutaneous layers. By injecting an appropriate amount of filler into the subcutaneous layer, any irregularities or uneven areas can be corrected. If necessary, a more superficial injection into the subdermal layer can be performed to ensure a smooth and even surface.

Cases

Case 1: Nasal Bridge Enhancement with Volumizing Threads

A 34-year-old male patient presented with concerns about a flat nasal bridge and desired a more defined and elevated appearance without undergoing surgery. The upper limit of the nasal radix was marked, ensuring that the thread placement would result in

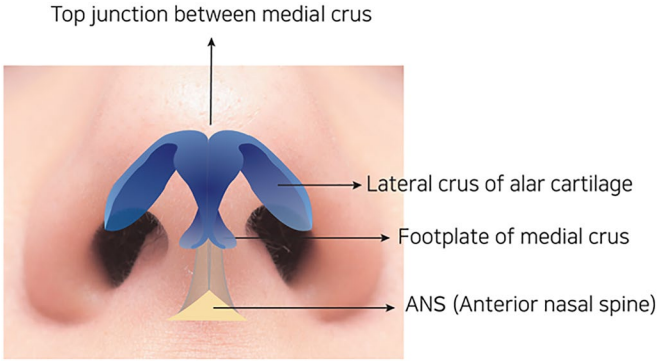

Figure 7. Filler injection for the Columella: This illustration demonstrates the technique of filler injection starting from the anterior nasal spine (ANS), situated between the footplates of the medial crura of the alar cartilages, extending to the top junction of the columella. This approach aims to increase the columella-labial angle in cases of a depressed or drooping nasal tip.

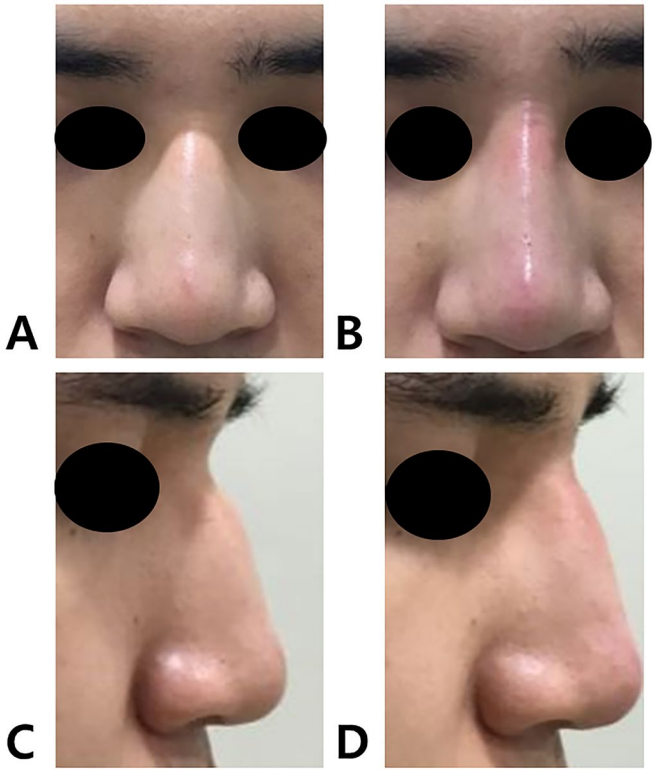

Figure 8. Case 1: Nasal bridge enhancement with volumizing threads—a 34-year-old male patient received volumizing threads to elevate and define a flat nasal bridge, avoiding the 'avatar nose' effect. Panel a and C is before the procedure and B and D is after the procedure observed from frontal and lateral aspects.

properly maintaining the nasofrontal angle. A horizontal line connecting the highest points of the eyelashes was used to set the upper boundary. The entry point was established at the infratip lobule. During the procedure, a slight elevation followed by a dip was encountered at the boundary between the nasal bone and lateral cartilage. An additional entry point was created above the dorsal hump to facilitate smooth cannula advancement. Volumizing threads were inserted into the deep fat layer beneath the fibromuscular layer, and care was taken to avoid the dorsal nasal artery. The procedure resulted in a well-defined nasal bridge, and the patient was highly satisfied with the outcome. The thread that was used are mesh based cog threads, each columellar and nasal dorsal threads each of them with two threads (Figure 8). For the dorsal

augmentation, the threads used are PDO threads with a length of 80 mm (folded length 40 mm) mounted on a 19 G cannula, USP 1 (central suture with 360degree barbs), USP 7-0 (Surrounding 3D cylindrical scaffold) (Figure 9). For the columellar, the threads used are PDO threads with a length of 50 mm (folded length 25 mm) mounted on a 19 G cannula, USP 1 (central suture with 360degree barbs), USP 7-0 (Surrounding 3D cylindrical scaffold (Figure 10).

Case 2: Nasal Tip Augmentation with Volumizing Threads

A 40-year-old male patient with a drooping nasal tip sought non-surgical rhinoplasty to lift and project the tip. The infratip lobule was selected as the entry point, and the cannula was inserted vertically from the facial plane. Volumizing threads were then carefully placed from the anterior nasal spine, between the footplates of the medial crura, extending to the top junction of the columella and nasal tip. During the procedure, attention was given to avoid damaging the columellar artery by positioning the cannula close to the medial crus and deep to the subcutaneous fat layer. The result was a noticeable elevation and projection of the nasal tip, improving both the nasal profile and the columello-labial angle. (Figure 11)

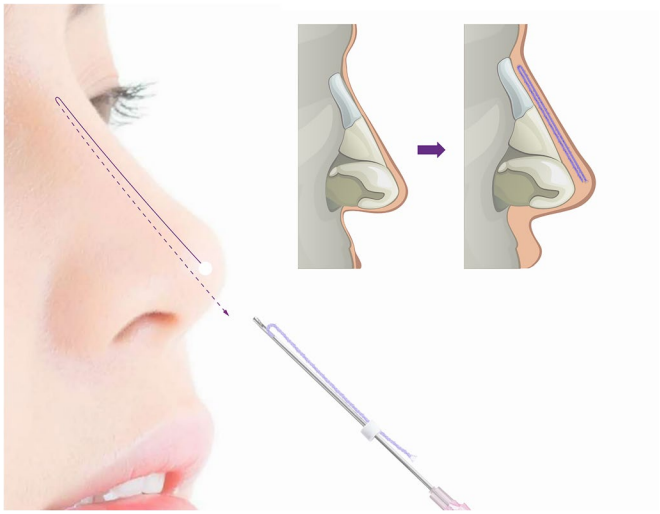

Figure 9. Dorsum augmentation employs an 80 mm PDO thread with a USP 1 Central suture and USP 7-0 surrounding scaffold, featuring a 360-degree scaffold structure with barbs, inserted using a 19 G cannula needle.

Case 3: Combined Use of Threads and Filler for Nasal Contouring

A 29-year-old female patient desired both nasal bridge enhancement and refinement of the nasal tip. The upper limit of the nasal radix was marked using a horizontal line at the level of the upper eyelid crease. Volumizing threads were first inserted to elevate the nasal bridge, with the entry point created at the infratip lobule. After the threads were placed, a filler was injected through the same puncture site to smooth the surface and address any irregularities. The filler was carefully injected into the subdermal layer, with additional injections into the subcutaneous layer to ensure a smooth contour. This combination approach resulted in a harmonious nasal shape with enhanced definition and a natural appearance. (Figure 12)

Case 4

A 35-year-old male patient desired augmentation of both the nasal bridge and nasal tip. Two mesh-based threads were inserted into each of the dorsum and columella. Figure 13 displays the patient's pre-operative appearance and immediate post-operative result.

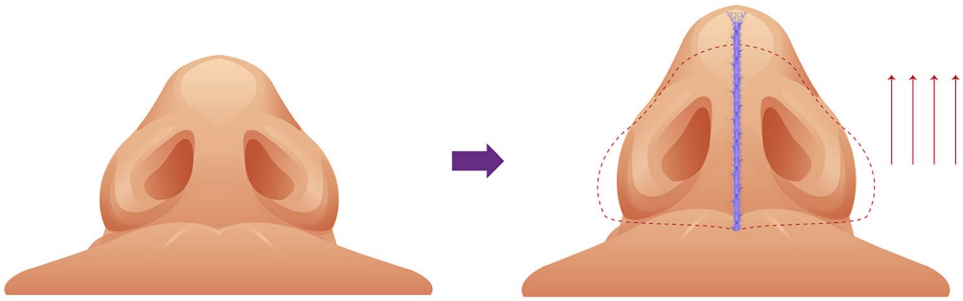

Figure 10. For columellar enhancement, a 50 mm PDO thread consisting of a USP 1 Central suture and USP 7-0 surrounding scaffold with a 360-degree scaffold structure and barbs is inserted using a 19 G cannula needle.

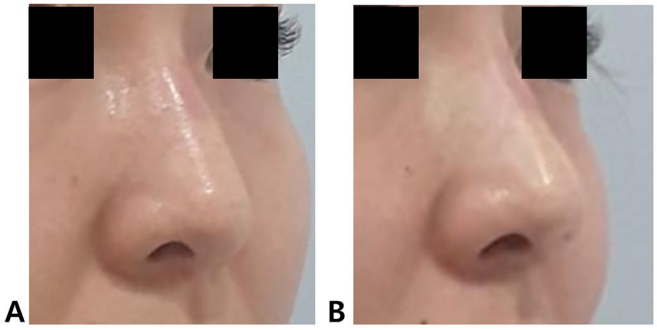

Figure 11. Case 2: Nasal tip augmentation with volumizing threads—a 40-year-old male patient underwent non-surgical rhinoplasty with volumizing threads to lift and project a drooping nasal tip, enhancing his nasal profile. Panel a is before and panel B is after the treatment.

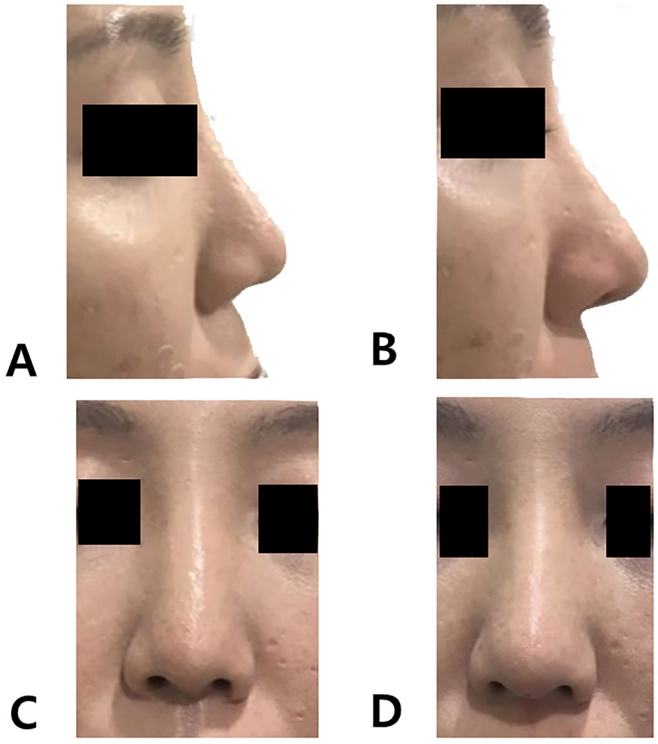

Figure 12. Case 3: Combined use of threads and filler for nasal contouring—a 29-year-old male patient had her nasal bridge and tip enhanced with volumizing threads, followed by filler injections for surface smoothing and contour refinement. Panel a and C is before the procedure and B and D is after the procedure observed from frontal and lateral aspects.

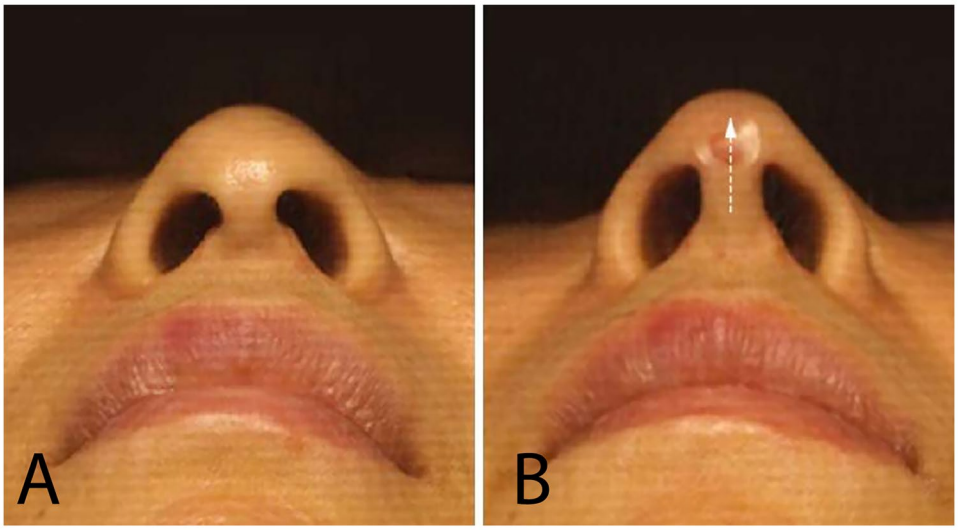

Figure 13. In a 35-year-old male seeking nasal bridge and tip augmentation, two mesh-based threads were inserted into both the dorsum and columella, with panel a showing the pretreatment appearance and panel B displaying the post-treatment result.

Case 5

A 29-year-old male patient presented with mild nasal deviation and sought correction along with augmentation of both the nasal bridge and nasal tip. Two mesh-based threads were inserted into each of the dorsum and columella (Figure 14). Figure 15 shows the pre- and immediate post-operative photographs.

Case 6

A 39-year-old female patient presented with an acute nasolabial angle and downward-directed nasal tip. To correct the patient's nasal shape, two threads were inserted into each of the dorsum and columella. Figure 16 depicts the immediate post-operative result.

Discussion

The cases presented in this article underscore the importance of understanding nasal anatomy and the strategic use of volumizing scaffold type threads in non-surgical rhinoplasty. The use of threads allows for precise enhancement of nasal contours, particularly in the nasal bridge and tip, which are critical areas for achieving esthetically pleasing results. By carefully navigating the

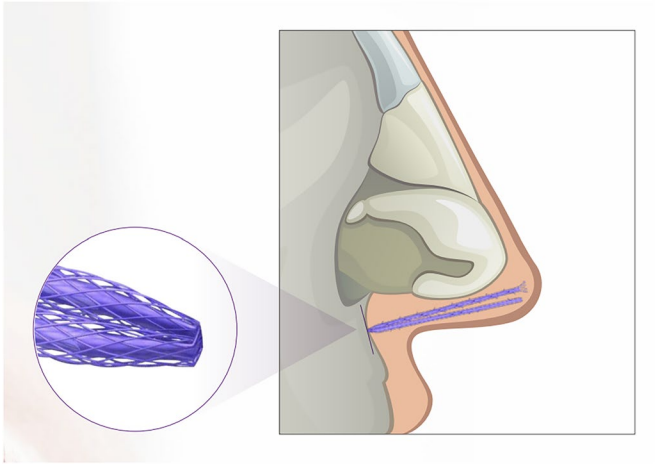

Figure 14. Two mesh-based threads were inserted into the nasal tip to augment columella.

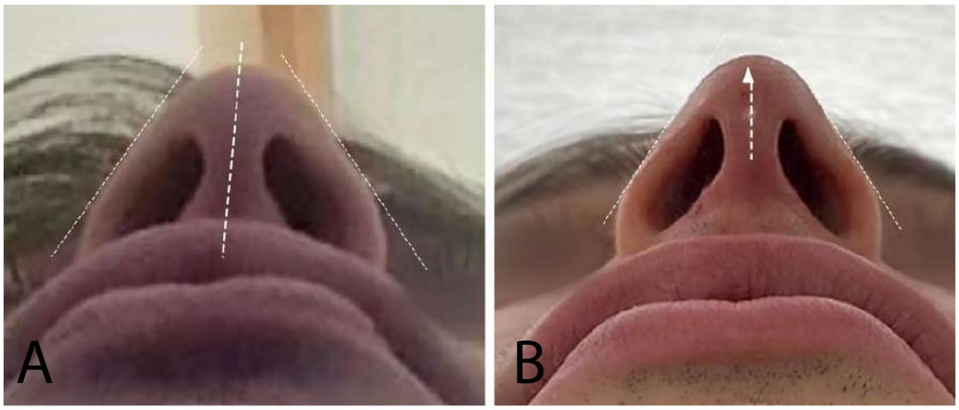

Figure 15. A 29-year-old male patient presented with mild nasal deviation and sought correction along with augmentation of both the nasal bridge and nasal tip. Two mesh-based threads were inserted into each of the dorsum and columella. The panel a shows the pre- and panel B is immediate post-operative photographs.

Figure 16. A 39-year-old female patient presented with an acute nasolabial angle and downward-directed nasal tip. To correct the patient's nasal shape, two threads were inserted into each of the dorsum and columella. Panel a depicts the immediate and panel B shows post-operative result.

anatomical layers, especially the fibromuscular layer and underlying fat, practitioners can minimize the risk of complications such as vascular injury, ensuring both patient safety and satisfaction. These cases illustrate how threads can be used effectively to create subtle yet impactful changes, enhancing the overall facial profile without the need for invasive surgery.

One of the key advantages of using volumizing threads, as demonstrated in these cases, is the ability to avoid the common pitfall of overfilling, which can lead to an unnatural, overly broad nasal appearance often referred to as the 'Avatar nose.' By placing threads in the deep fat layer, the procedure supports the nasal structure while maintaining a natural look. This method not only

reduces the need for excessive filler but also extends the longevity of the results. The cases highlight how maintaining the central placement of the cannula and avoiding superficial insertion are crucial steps in achieving a symmetrical and natural contour.

For the dorsum augmentation, the threads used are PDO threads with a length of 80 mm (folded length 40 mm) mounted on a 19 G cannula, USP 1 (central suture with 360degree barbs), USP 7-0 (Surrounding 3D cylindrical scaffold). For the columellar, the threads used are PDO threads with a length of 50 mm (folded length 25 mm) mounted on a 19 G cannula, USP 1 (central suture with 360degree barbs), USP 7-0 (Surrounding 3D cylindrical scaffold. The conventional nose threads spread and deform the gap between both medial crus of nasal columella on either side, resulting in a sharp decrease in the nasal tip projection effect and problems in the subsequent surgery. Effective and continuous nasal tip projection due to the gap being brought to the center by tissue ingrowth into the proper mesh pore. In other words, scaffold-type threads also have a role of medial crura fixation without obliterating of the natural flair of the caudal borders.

Scaffold-type threads that maintain adequate pores induce tissue ingrowth while also preventing the bridging effect. The tissue recognizes the scaffold pore lining as a foreign substance, while fibrous encapsulation causes adhesion with the surrounding tissue. The diameter of pores should be maintained around 0.5 to 1.5 mm to prevent inflammation, granuloma, and other complications. Cogs (barbs) act as a just assistant so that the tissue adhesion through the scaffold pores happens quickly after the procedure. Thus, the pressure on the cogs is dispersed across the entire scaffold. Conventional monofilament threads suffer from the 'cheese-wiring phenomenon,' where the thread cuts through the tissue inducing migration, leading to ineffective fixation. Scaffolds avoid the cheese-wiring issue due to their tissue adhesion, ensuring firm fixation. The scaffold sutures better resisted pull-through than conventional sutures (7). The study of Dumaian et al. (8) demonstrated and found that Mesh suture demonstrated greater resistance to pull-through than standard sutures *in vitro*. Histological examination at 8 and 90 days showed complete tissues integration of the mesh suture. In tissue repair application, the mesh serves to mechanically strengthen the weakened area while simultaneously promoting long-term stability by acting as a scaffold for new tissue ingrowth.

The combination of threads and filler, as seen in Case 3, provides an excellent example of how these two modalities can complement each other. While the threads create a solid framework that defines the nasal shape, the filler can be used to refine the surface, smooth out irregularities, and address any minor asymmetries. This dual approach is particularly useful in patients who require both structural enhancement and fine-tuning of the nasal surface. The ability to use the same puncture site for both threads and filler also minimizes trauma and reduces recovery time, making it a favorable option for patients seeking minimally invasive esthetic enhancements.

In conclusion, volumizing scaffold type threads offer a versatile and effective tool for non-surgical rhinoplasty, particularly when combined with an in-depth understanding of nasal anatomy. The careful placement of threads, with attention to the underlying vascular structures, allows for significant esthetic improvements with minimal risk. The cases presented demonstrate that with the right technique and consideration of individual anatomical variations, practitioners can achieve results that are both natural and long-lasting. This highlights the growing popularity of non-surgical rhinoplasty in Southeast Asia and the potential for further innovation and refinement in this field.

Author contributions

Conceptualization: Gi-Woong Hong; Jovian Wan; Kyu-Ho Yi. *Writing—Original Draft Preparation*: Gi-Woong Hong; Jovian Wan; Kyu-Ho Yi. *Writing—Review & Editing*: Gi-Woong Hong; Jovian Wan; Kyu-Ho Yi. *Visualization*: Gi-Woong Hong; Jovian Wan; Kyu-Ho Yi. *Supervision*: Kyu-Ho Yi. All authors have reviewed and approved the article for submission.

Disclosure statement

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article. This study was conducted in compliance with the principles set forth in the Declaration of Helsinki.

Funding

The author(s) reported there is no funding associated with the work featured in this article.

References

1. Kim P, Ahn JT. Structured nonsurgical Asian rhinoplasty. Aesthetic Plast Surg. 2012;36(3):698–703. doi:10.1007/s00266-012-9869-2.
2. Park SY, Kim S-B, Suwanchinda A, et al. Non-surgical rhinoplasty through minimal invasive nose thread procedures: adverse effects and prevention methods. Skin Res Technol. 2024;30(2):e13590. doi:10.1111/srt.13590.
3. Tiryaki KT. Shuttle lifting of the nose: a minimally invasive approach for nose reshaping. Aesthet Surg J. 2010;30(2):176–183. doi:10.1177/1090820X10369157.
4. Minh Trieu N, Truong Thinh N. The anthropometric measurement of nasal landmark locations by digital 2D photogrammetry using the convolutional neural network. Diagnostics. 2023;13(5):91. doi:10.3390/diagnostics13050891.
5. Kutubidze A. Nasal dorsal aesthetic lines and rhinoplasty technical tricks. Plast Aesthet Res. 2015;2(6):315. doi:10.4103/2347-9264.169495.
6. Çakir B, Doğan T, Öreroğlu AR, et al. Rhinoplasty: surface aesthetics and surgical techniques. Aesthet Surg J. 2013;33(3):363–375. doi:10.1177/1090820X13478968.
7. Souza JM, Dumanian ZP, Gurjala AN, et al. *In vivo* evaluation of a novel mesh suture design for abdominal wall closure. Plast Reconstr Surg. 2015;135(2):322e–330e. doi:10.1097/PRS.0000000000000910.
8. Dumanian GA, Tulaimat A, Dumanian ZP. Experimental study of the characteristics of a novel mesh suture. Br J Surg. 2015;102(10):1285–1292. doi:10.1002/bjs.9853.