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Case Report

Use of Autologous Biofiller for Non-Surgical Nasal Augmentation: A Case Report

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Abstract

Background: Autologous plasma-derived biofillers are increasingly being explored as economical, biocompatible, and minimally invasive alternatives for soft-tissue augmentation. Their use has been described in facial rejuvenation and atrophic acne scars; however, their application in correction of secondary nasal contour deformities has been rarely reported.

Case Presentation: We report the case of a 20-year-old male with a postoperative contour deformity of the nose following surgery for juvenile angiofibroma performed 10 years earlier. The patient presented with a stable dorsal depression involving the middle third of the nose, resulting in aesthetic dissatisfaction.

Method: After detailed counselling and informed consent, autologous biofiller was prepared from the patient's venous blood using plasma separation followed by thermal processing to obtain a gel-like filler material. The prepared biofiller was injected carefully into the deep plane over the depressed mid-nasal dorsum using a low-pressure, small-aliquot technique with strict attention to vascular safety.

Result: Immediate post-procedure assessment showed satisfactory correction of the dorsal depression with restoration of a smoother nasal contour. No immediate adverse effects such as blanching, severe pain, skin discoloration, or vascular compromise were observed. The patient remained satisfied on follow-up, with maintained cosmetic improvement.

Conclusion: This case highlights the potential utility of autologous biofiller as a simple, cost-effective, and minimally invasive option for correction of selected postoperative nasal contour deformities. Given the autologous nature, affordability, and prior dermatologic use of biofillers, they may represent a useful alternative in carefully selected patients; however, larger studies are needed to clarify durability, standardize preparation, and better define their role in nasal augmentation.

Keywords: Autologous Biofiller; Durability; Plasma Gel

Introduction

Autologous plasma-derived biofillers have emerged as a promising option for soft-tissue augmentation because they are autologous, chairside-prepared, relatively inexpensive, and biologically well tolerated. Prepared from plasma after centrifugation and thermal processing, they form a viscous gel that can provide immediate volumetric correction and have therefore been increasingly explored in aesthetic dermatology as an economical alternative to conventional dermal fillers [1,5]. Their clinical use has been described in facial rejuvenation and, more importantly, in atrophic acne scars, where plasma gel or

biofiller has shown favorable outcomes both as monotherapy and in combination with procedures such as subcision, microneedling, and fractional carbon dioxide laser [2-5]. This prior dermatologic experience supports the practical utility of biofillers and provides a rationale for exploring their use in selected contour defects requiring minimally invasive correction.

The nose, however, remains a challenging and high-risk site for filler placement because of its limited soft-tissue envelope and complex vascular anatomy, with the potential for ischemic complications if injection is not performed carefully [8,9]. At the same time, secondary nasal contour deformities may occur after surgery for juvenile nasopharyngeal angiofibroma, a rare benign but locally aggressive vascular tumour seen predominantly in adolescent males and primarily treated surgically [6,7]. Although surgical management addresses the underlying disease, residual postoperative contour defects such as dorsal depression may persist and can produce significant aesthetic concern. Literature regarding the use of autologous biofiller for correction of such secondary nasal deformities is sparse. We therefore report the use of autologous biofiller for correction of a stable mid-nasal dorsal depression in a 20-year-old male with a history of surgery for juvenile angiofibroma 10 years earlier.

Case Report

A 20-year-old male presented with cosmetic concern related to a visible deformity over the middle third of the nose. He had a past history of surgery for juvenile angiofibroma 10 years earlier. Following the previous operation, he had developed a postoperative contour defect in the form of a dorsal depression involving the mid-nasal region. The patient sought correction of this secondary deformity with a minimally invasive procedure (Figure 1 (a and b)).

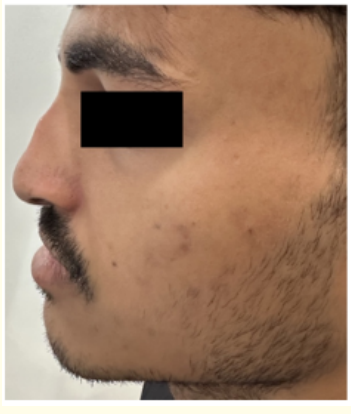

Figure 1 (a): Pre op photo showing the contour defect and caudal depression.

Figure 1 (b): Pre op photo showing the contour defect and caudal depression.

On clinical examination, a localized depression was noted over the middle nasal dorsum, resulting in an irregular dorsal aesthetic line and loss of smooth nasal contour. The overlying skin was healthy, with no erythema, ulceration, or evidence of active inflammation. There was no history suggestive of recent trauma, prior filler injection, or recurrent swelling at the treatment site. In view of the patient's desire for a nonsurgical correction and considering the autologous, economical, and biocompatible nature of plasma biofiller, correction with autologous biofiller was planned after detailed counselling regarding expected benefits, temporary nature of improvement, and the need for careful injection in a high-risk vascular area [1-5].

After obtaining written informed consent, autologous biofiller was prepared from the patient's venous blood using a standard plasma-gel preparation protocol [5].

For preparation of the biofiller, 20 mL of venous blood was collected under aseptic precautions in sterile sodium citrate vacuotainer. The samples were first centrifuged at 1500 rpm for 10 minutes, which separated the blood into three layers: an upper plasma layer, a middle fibrin layer, and a lower red cell layer. The plasma from all bulbs was then pooled into a single sterile tube and centrifuged again at 3000 rpm for 10 minutes to obtain the upper platelet-poor plasma fraction, measuring approximately 4–5 mL, while avoiding disturbance of the platelet-rich clot.

This platelet-poor plasma was transferred into five 1 mL luer-lock syringes, heated in a hot water bath at 80°C–100°C for 5 minutes until it became opaque, and then immediately placed in a cold bath at 0°C–6°C for another 5 minutes. This process converted the platelet-poor plasma into a viscous semisolid gel that could then be used as an autologous biofiller [5] (Figure 2).

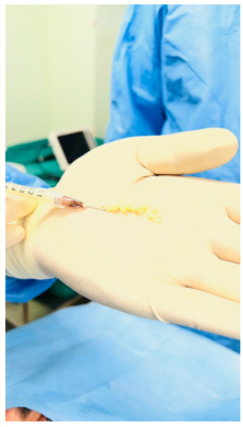

Figure 2: The consistency of the prepared Biofiller.

The nose was cleaned with antiseptic solution, and the deformity was corrected by placing the biofiller in the deep plane over the depressed mid-dorsal area using 30 G needles, with slow aliquot deposition and minimal-pressure technique. Care was taken to avoid superficial placement and intravascular injection. A total of 4 mL of biofiller was used to achieve correction of the dorsal depression and restoration of a smoother nasal profile (Figure 3).

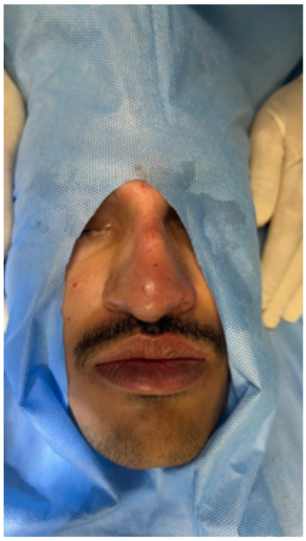

Figure 3: Immediately Post injection of biofiller (4 ml).

Immediate post-procedure assessment showed visible improvement in the contour of the middle nasal dorsum with better dorsal continuity and soft-tissue augmentation at the depressed site. No immediate adverse effects such as severe pain, blanching, livedo, discoloration, or vascular compromise were observed. At follow-up after 4 weeks, the patient showed satisfactory cosmetic improvement with maintained correction of the deformity and no major complications. The patient reported subjective satisfaction with the outcome (Figure 4,5,6).

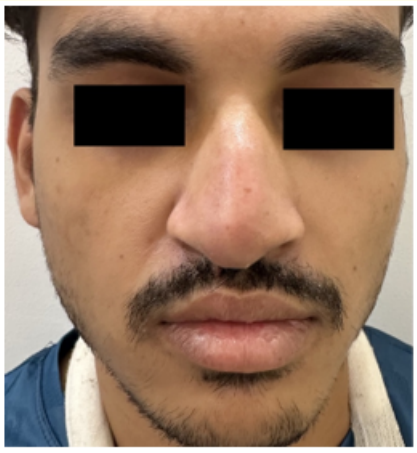

Figure 4: 3 weeks post Biofiller injection.

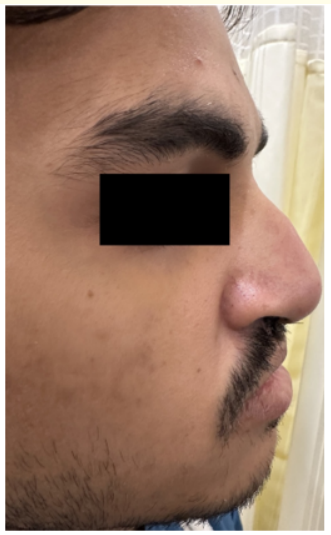

Figure 5: 3 weeks post Biofiller injection.

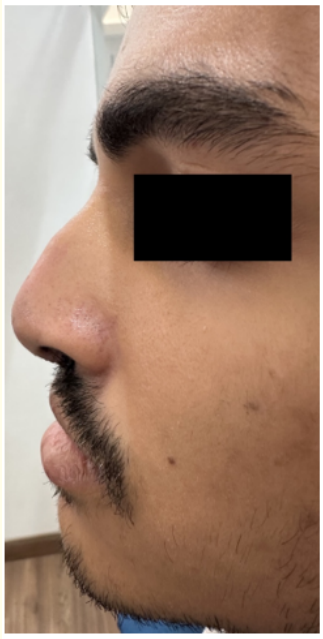

Figure 6: 3 weeks post Biofiller injection.

Discussion

Autologous plasma-derived biofillers are emerging as a useful option for soft-tissue augmentation because they are autologous, inexpensive, chairside-prepared, and associated with minimal risk of immunogenic reaction or disease transmission [1,5]. Plasma biofiller is generated from platelet-poor plasma after thermal processing, producing a viscous gel that can provide immediate volumetric correction while retaining the practical advantages of an autologous material [1,5]. These properties make biofillers particularly attractive in aesthetic dermatology, especially in patients seeking a cost-effective alternative to conventional dermal fillers [1,5].

The clinical use of biofillers has been described most commonly in facial rejuvenation and atrophic acne scars [1-5]. Previous studies have shown that plasma gel can improve atrophic acne scars both as monotherapy and in combination with modalities such as microneedling, subcision, and fractional carbon dioxide laser, with good tolerability and favorable patient satisfaction [2-5].

This prior experience is important because it supports the volumizing potential, safety, and practical applicability of biofillers in dermatologic practice, even though their use for nasal contour correction remains relatively less reported [1-5].

In the present case, biofiller was used to correct a localized postoperative dorsal depression of the mid nose. Such a defect is well suited to a minimally invasive filling approach when the goal is soft-tissue camouflage and restoration of contour rather than major structural reconstruction. The autologous nature of the material, its affordability, and ease of preparation made it a particularly suitable option in this young patient. In addition, because the material is derived from the patient's own plasma, it may be more acceptable to patients who are reluctant to undergo treatment with synthetic fillers [1,5].

However, the use of any filler material in the nose requires great caution because nasal augmentation is associated with a significant risk of vascular compromise. Inadvertent intravascular injection may result in tissue ischemia, skin necrosis, and, in rare but devastating cases, visual loss [8,9]. Therefore, although autologous biofiller may appear inherently safer from the standpoint of biocompatibility, the same anatomical and technical precautions that apply to other fillers remain essential. Deep-plane placement, slow injection with minimal pressure, use of small aliquots, and careful real-time monitoring for blanching or disproportionate pain are critical steps in reducing procedural risk [8,9].

Another important consideration is that the present evidence base for biofillers is still limited. Most published studies involve acne scars, facial rejuvenation, or combination procedures, and there remains a relative lack of robust long-term data regarding durability, standardization of preparation, ideal rheological properties, and comparative performance against established fillers [1-5]. For this reason, the current case is relevant in showing that autologous biofiller can also be applied to selected secondary nasal contour deformities with satisfactory short-term cosmetic improvement and without immediate major adverse effects.

Overall, this case supports the view that biofillers may serve as a practical and economical autologous alternative for correction of selected contour defects of the nose. Their advantages include low cost, biocompatibility, easy preparation, and prior dermatologic experience in scar correction and rejuvenation [1-5]. Nevertheless, careful patient selection, meticulous technique, and longer follow-up are essential, and larger studies are needed before their role in nasal augmentation can be more clearly defined.

Conclusion

This case highlights the potential role of autologous biofiller as a simple, economical, and minimally invasive option for correction of selected postoperative nasal contour deformities. In the present patient, biofiller provided satisfactory correction of the mid-nasal dorsal depression with good immediate cosmetic improvement and no immediate major adverse effects. Given its autologous origin, low cost, and prior use in acne scars and facial rejuvenation, biofiller may represent a useful alternative in carefully selected cases; however, nasal injections must still be approached with strict attention to vascular safety, and larger studies are needed to clarify long-term durability, standardize technique, and better define its role in nasal contour correction.

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