

Rejuvenation of Dorsal Fingers with Hyaluronic Acid Skin Boosters and Dermal Fillers for a Young Patient - A Case Report

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Abstract

Hand rejuvenation is an increasingly sought-after treatment as patients look to address early signs of aging, even in younger populations. This case report highlights a unique case of rejuvenation of dorsal fingers in a 29-year-old female patient who experienced moderate volume loss, fine lines, and mild skin laxity due to genetic predisposition. By using a combination of hyaluronic acid-based skin boosters and dermal fillers, we achieved improved volume, skin hydration, and elasticity, leading to a youthful appearance of the dorsal fingers. This minimally invasive approach highlights the potential of combined treatments in achieving optimal and natural results, while emphasizing on safe injection techniques due to the intricate vascular network of fingers.

Keywords: *Hyaluronic acid fillers; Dorsal fingers rejuvenation; Early aging*

1. Introduction

Signs of aging in the dorsal surface of hands and fingers often manifest as skin thinning, wrinkles, volume depletion, and the prominence of veins and tendons. These signs can occur at a younger age in individuals with genetic predispositions, or in those exposed to environmental stressors (such as UV exposure, smoking, dehydration, etc.) that accelerate the loss of skin elasticity, collagen, and hyaluronic acid (HA) [1].

HA is a highly adaptable glycosaminoglycan which is widely distributed throughout the body - found in nearly all biological tissues and fluids, with the greatest concentrations found in the extracellular matrix of soft connective tissues, particularly the skin. HA plays essential roles in various biological functions, such as cell signalling, wound healing, tissue regeneration,

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structural development, and matrix organization [2]. HA-based fillers and skin boosters have gained popularity as effective treatments for hand rejuvenation. These agents not only provide immediate volume restoration but also enhance skin hydration and elasticity by promoting collagen synthesis over time [3].

However, the use of HA fillers for fingers rejuvenation is limited due to the intricate vascular structure in the dorsal hand. To safely and effectively restore volume, injection techniques must specifically target subcutaneous layers and perforating septa to provide consistent results while minimizing the risk of vascular compromise [4]. In this case, we present the use of hyaluronic acid skin boosters and dermal fillers for the rejuvenation of dorsal fingers in a young patient, aiming to enhance skin volume and texture with minimal invasiveness and high patient satisfaction.

2. Case Presentation

2.1 Patient profile

A 29-year-old female patient presented with concerns regarding her hands, specifically the dorsal fingers, which showed moderate volume loss, fine lines, and mild wrinkling. She noted that these signs had developed despite her age, a condition that was attributed to genetic predisposition. She reported having previously been prescribed glycolic acid for topical application to address darkened fingers. However, her primary concern was the presence of wrinkles. Upon examination, the patient exhibited visible vein prominence and mild skin laxity on the dorsal fingers, although her general skin health was good.

2.2 Treatment objectives

The primary objectives of the treatment were to restore volume, reduce fine lines, and enhance the hydration and elasticity of the skin on the dorsal fingers. Given her young age, it was important to achieve these results while maintaining a natural appearance and avoiding overcorrection.

2.3 Procedure

First Session: HA Skin Boosters

The first phase involved the use of a 12 mg/ml concentration hyaluronic acid skin booster, which was injected into the dorsal surface of each finger using a 32G 1/2" needle. Injection techniques included tenting, serial puncture, and micro-droplet methods to ensure even distribution and maximize the hydration effect. 0.3 ml of the skin booster was injected per finger, totalling 1.5 ml for each hand.

Second Session: HA Dermal Fillers

After a 30-day period, a second session was conducted to address residual volume loss and enhance overall appearance with 15 mg/ml concentration hyaluronic acid dermal fillers. This was administered using a 25G cannula via tunnelling and linear retrograde threading techniques. 0.2 ml was injected per finger, totalling 1 ml for each hand. The product was gently moulded following injection to ensure an even and natural appearance across the fingers.

3. Results

The patient demonstrated significant improvement in hand appearance, including restored volume, smoothness, and elasticity of the dorsal fingers. Fine lines were notably reduced, and the patient reported satisfaction with the natural look and feel of her hands. One-month follow-up assessments showed sustained improvements with minimal product degradation (FIG. 1(a) & 1(b)).

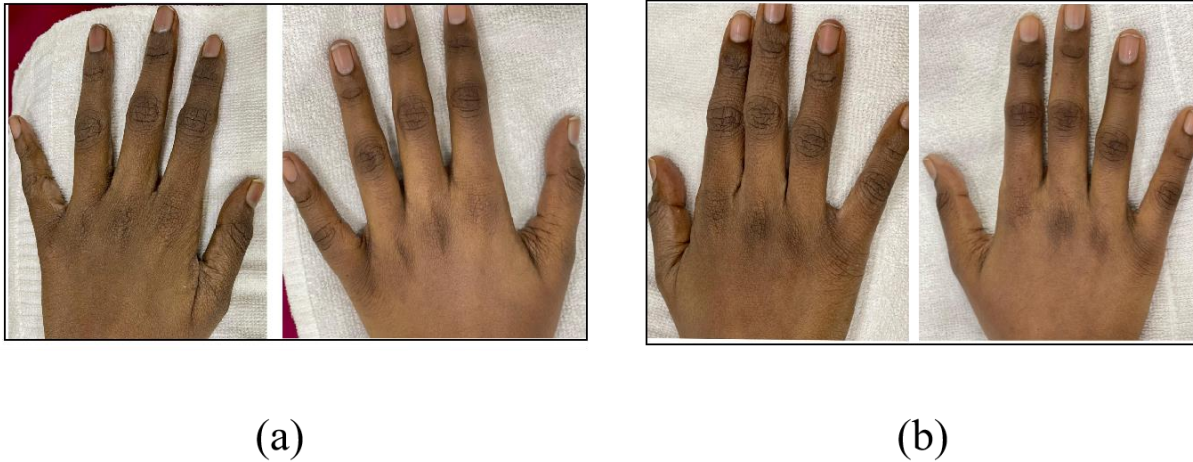


FIG. 1. Pre-treatment and post-treatment images of (a) left dorsal fingers and (b) right dorsal fingers.

4. Discussion

This case underscores the effectiveness and potential of HA skin boosters and dermal fillers for dorsal fingers and hand rejuvenation, particularly for young patients experiencing early signs of aging due to genetic factors. The treatment approach in this case, using HA products in a two-step process, highlights how minimally invasive interventions can significantly enhance volume, hydration, and skin texture while preserving a natural look and feel.

Unlike other body areas, the dorsal fingers are thin-skinned, with minimal subcutaneous fat, making it susceptible to early signs of aging, including volume loss, fine lines, and visible veins and tendons. Furthermore, the intricate vascular network and limited soft tissue support in this area increase the risk of complications if filler products are injected improperly.

In analysing the anatomy of the dorsal hand and its response to filler injections, previous studies, such as those by Fournier, have noted compartmentalization following fat grafts injection in the dorsal hands [5]. This effect, observed as uneven filler distribution, may be due to the presence of septal adhesions with perforating arteries, as seen through lead oxide injections and subsequent dissection. These septa can potentially restrict filler movement, resulting in a lumpy or sectioned appearance when fillers are manipulated manually.

However, through careful injection techniques and the targeted placement of HA skin boosters and dermal fillers, practitioners can safely and effectively address these challenges while minimizing risks. Techniques such as serial puncture, micro-droplet

injections, and retrograde threading allowed for precise filler placement within the subcutaneous layers, thereby avoiding vascular compromise and enhancing the aesthetic outcome [2].

HA-based treatments provide several benefits, including immediate volume restoration and improved skin hydration. HA acts as a humectant, attracting water and supporting extracellular matrix integrity, leading to enhanced elasticity and a more youthful appearance. Over time, HA also promotes collagen synthesis, further supporting long-term skin integrity and resilience. This dual action of HA—immediate volumizing effects and gradual collagen stimulation—makes it an ideal choice for hand rejuvenation [3].

In this case, the two-step approach optimized both superficial hydration and deeper volumization, which allowed for natural, gradual improvements, meeting the patient's needs for a subtle and youthful outcome.

- The skin boosters used in the first session targeted surface hydration, improving the fine lines and texture of the skin. The skin booster consisted of a cross-linked hyaluronic acid booster. This gradually provides hydration for up to 9 months and boosts collagen synthesis [6].
- The second session, using dermal fillers, provided additional structural support, creating a more refined contour of the dorsal fingers without overcorrection. Dermal fillers consist of partially cross-linked hyaluronic acid gels, which behave as structured solids that expand by absorbing moisture to enhance shape, volume, and contour while filling wrinkles. The degree of crosslinking impacts stiffness and flow, allowing the gel to maintain a balance between elasticity and viscosity. This cross-linked structure resists enzymatic breakdown, giving fillers a lasting effect of 9-12 months [7].

The results observed in this patient align with existing literature on the benefits of HA fillers and skin boosters for hand rejuvenation [8-11]. Studies indicate that when applied with the appropriate techniques and in the correct anatomical planes, HA fillers can be safely used in the hands and dorsal fingers with minimal side effects and high patient satisfaction. Thus, it highlights the versatility of HA fillers and boosters for enhancing aesthetics in younger populations concerned with early signs of aging. Further research and additional case reports will be essential to deepen our understanding of these treatments and to refine techniques for optimal long-term outcomes.

5. Conclusion

This case report highlights the transformative potential of hyaluronic acid-based skin boosters and dermal fillers for dorsal fingers rejuvenation in young patients. By addressing genetic predispositions to early aging, this minimally invasive two-step approach successfully restored volume, improved skin texture, and enhanced hydration with a natural aesthetic outcome. The injection techniques employed ensured patient safety and minimized risks, making this a reliable and replicable method for practitioners. Long-term studies and broader clinical experiences are encouraged to expand our understanding and optimize treatment protocols for sustained patient satisfaction.

6. Conflict of Interest

The author declares no conflict of interest.

7. Authorship Criteria

I attest that the treatment procedures described, and the drafting of this manuscript were conducted solely by me. I confirm that this manuscript adheres to all guidelines as per the authorship requirements, reflecting accurate, honest efforts and valid data.

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