

# Treatment for Filler-Induced Alopecia with Concentrated Growth Factors

LiHong Zhang<sup>1,2</sup>, JianKe Li<sup>1,2</sup>, Xi'An Fu<sup>1,2</sup>, Hong Liu<sup>1,2</sup>, FuRen Zhang<sup>1,2</sup>

<sup>1</sup>Medical Aesthetics Department, Dermatology Hospital of Shandong First Medical University, Jinan, Shandong, People's Republic of China; <sup>2</sup>Medical Aesthetics Department, Shandong Provincial Institute of Dermatology and Venereology, Shandong Academy of Medical Science, Jinan, Shandong, People's Republic of China

Correspondence: Xi'An Fu, Medical Aesthetics Department, Dermatology Hospital of Shandong First Medical University, No. 27397 Jingshi Road, Jinan, Shandong, People's Republic of China, 250022, Tel +86-13455109433, Email f19830827@126.com

**Abstract:** Hyaluronic acid (HA) is widely used for non-surgical facial rejuvenation but is associated with risks, including rare filler-induced alopecia (FIA) in the temporal and frontal regions. While subcutaneous hyaluronidase (HAase) injection is the standard treatment, we report an alternative approach using concentrated growth factor (CGF) injections. A 29-year-old female presented with a pruritic alopecic patch in the right temporal region that appeared 20 days after receiving HA filler injection. A well-demarcated 6×4 cm alopecic patch persisted despite prior treatment with HAase. The patient subsequently underwent four CGF injections. During the ten-month follow-up, significant hair regrowth was observed. This case suggests that CGF monotherapy is a promising treatment for FIA.

**Keywords:** alopecia, hyaluronic acid, concentrated growth factors, filler complication

## Introduction

Hyaluronic acid (HA) is increasingly being used for non-surgical facial rejuvenation. Although it has aesthetic benefits, it also comes with many risks, including rare filler-induced alopecia (FIA) in the temporal and frontal regions. Superficial temporal artery (STA) embolization<sup>1</sup> and type 2 pressure-induced alopecias<sup>2</sup> may be the etiology. The current main treatment method is subcutaneous injection of hyaluronidase (HAase). We hereby report a successful case of treating alopecia after HA injection with concentrated growth factors (CGF).

## Case Presentation

A 29-year-old female presented to our department with a 7-day history of alopecia. She had received direct HA (YVOIRE) filler injections into both temples 20 days prior. That night, she developed persistent pain in the right temporal region without seeking medical attention. 7 days ago, a pruritic alopecic patch was noted in the right temporal region. She received HAase (300U) treatment 6 days pre-admission. Physical examination revealed a well-demarcated, rectangular alopecic patch (6cm × 4cm) in the right temporal region (Figure 1A). Trichoscopy examination identified characteristic signs including black dot sign, yellow dot sign, hair breakage and vellus hair (Figure 1D), supporting a provisional diagnosis of FIA. Pre-treatment ultrasound indicated the presence of a few residual HA in the alopecia area, accompanied by posterior acoustic reinforcement (Supplementary Figure 1). This indicates that no further HAase treatment is necessary.

To avoid corticosteroid-related adverse effects, the patient received four CGF injections (Supplementary Figure 2). CGF is an autologous preparation derived from the patient's venous blood. In this case, 20 mL of venous blood was collected and processed using a dedicated centrifuge (Medifuge CGF M200, Silfradent, Italy). After 15 minutes of gradient centrifugation, a pale-yellow liquid rich in highly concentrated and biologically active growth factors was obtained. The alopecic area was disinfected prior to injection, and the CGF liquid was administered in a multi-point pattern targeting the hair follicle roots at a depth of 2–3 mm, with each injection delivering approximately 0.1 mL. Injection density was maintained at 1–2 points per square centimeter. Treatment sessions were repeated at intervals of



**Figure 1** Clinical and trichoscopy images of the alopecia area: (A) Clinical photograph before treatment. (B) Clinical photograph after 2 months of treatment. (C) Clinical photograph 8 months after treatment cessation (10 months after initial treatment). (D) trichoscopy image before treatment. (E) trichoscopy image 24 days after treatment initiation.

3–4 weeks. Following CGF treatment, trichoscopy at 24 days demonstrated locally visible upright regrowing hairs (Figure 1E). After two months, significant hair regrowth was observed clinically (Figure 1B). At the 8-month post-treatment follow-up (10 months after initial treatment), the alopecic area showed complete hair recovery without evidence of recurrence (Figure 1C).

CGF therapy is generally regarded as safe; however, it is contraindicated in patients with active malignant tumors in the head and neck region, hematologic disorders, severe hyperlipidemia, coagulation abnormalities, active systemic or localized infections, or acute skin inflammation at the treatment site. Commonly reported adverse effects include transient pain, erythema, pruritus, mild bleeding, and, in rare cases, infection. Most of these reactions are mild and self-resolving.

## Discussion

Current conventional treatments for post-filling alopecia included HAase, corticosteroids, and topical minoxidil. However, these options exhibit certain limitations. For instance, long-term use of corticosteroids carries adverse risks, while topical minoxidil acts slowly (Table 1). The pathophysiology of FIA involves a complex interplay of vascular, including mechanical trauma (contributing to thrombosis and mechanical compression), inflammatory cascade responses, and disruption of the hair growth cycle (resulting in follicular ischemia and hypoxia).<sup>2</sup> Early subcutaneous injection of HAase is crucial for dissolving HA fillers and alleviating vascular obstruction, yet it cannot completely solve the follicular injury caused by ischemia and hypoxia.<sup>3</sup> In the present case, immediate HAase injection upon the onset of pain could potentially have prevented hair loss.

Bioactive substances such as platelet-rich plasma (PRP) have demonstrated efficacy in treating FIA.<sup>4</sup> As a third-generation platelet concentrate, CGF is rich in platelets, fibrin, abundant growth factors and CD34<sup>+</sup> stem cells, demonstrating significant therapeutic potential for FIA. CGF can sustain the release of key growth factors—including vascular endothelial growth factor (VEGF), platelet-derived growth factor (PDGF) and transforming growth factor- $\beta$

**Table 1** Comparison of Different FIA Treatment Methods

Therapy Method	Mechanism	Advantage	Limitation
HAase	Degrades HA to relieve mechanical compression or embolism	Rapid HA clearance	Targets HA only; cannot repair existing follicular damage
Glucocorticoids	Suppresses inflammation; improves follicular microenvironment	Well-established anti-inflammatory efficacy	Long-term use may cause risks such as skin atrophy and infection
Minoxidil	Vasodilation; promotes hair growth	High safety profile; non-invasive	Slow onset (3–6 months); limited efficacy in acute follicular damage
CGF	Releases growth factors (VEGF, TGF- $\beta$ )	Promotes angiogenesis and follicle repair	Complex preparation process, higher treatment cost, or need for specialized equipment

**Abbreviations:** FIA, Filler-induced alopecia; HA, Hyaluronic acid; CGF, Concentrated growth factors; VEGF, Vascular endothelial growth factor; TGF- $\beta$ , Transforming growth factor- $\beta$ .

(TGF- $\beta$ )—over several weeks.<sup>5</sup> These factors promote neovascularization, improve local microcirculation, and provide sustained nutritional support to hair follicles, thereby establishing a conducive microenvironment for hair regrowth.<sup>6</sup> Furthermore, the CD34<sup>+</sup> stem cells present in CGF may directly participate in follicular repair and regeneration through differentiation into follicular epithelial cells or via paracrine signaling, facilitating the transition of hair follicles from the resting phase to the active growth phase.<sup>7</sup>

Currently, only two studies have reported significant therapeutic outcomes in the treatment of filler-induced alopecia (FIA) using combination therapies based on concentrated growth factor (CGF): one combining CGF with autologous chylated fat,<sup>3</sup> and another employing CGF alongside microneedling and topical 5% minoxidil.<sup>8</sup> In contrast, the present case report demonstrates that a single regimen of CGF monotherapy achieved clinically favorable results. Compared to the previously reported combination approaches, the use of CGF alone simplifies the treatment protocol and correspondingly reduces associated costs for patients. Moreover, no treatment-related adverse effects were observed throughout the course of therapy.

Therefore, we propose the following clinical management strategy for FIA: 1. Early identification: Suspect vascular complications and intervene promptly if persistent pain, skin blanching, or other signs occur after HA injection. 2. Diagnosis and evaluation: Utilize skin ultrasound to detect residual HA deposits, guiding subsequent therapeutic decisions. 3. Stepwise treatment: Prioritize HAase injection for HA dissolution when residue is confirmed. After confirming complete HA clearance, apply regenerative therapies (eg, CGF) to alopecic areas to minimize corticosteroid dependency. 4. Future Directions: Explore combination regimens (eg, CGF with low-dose corticosteroids or minoxidil) to optimize acute alopecia repair efficacy.

This study is subject to several limitations. First, as a single-case report, its findings lack generalizability to broader populations. Second, clinical evaluations in this case relied primarily on observational and photographic assessment, lacking objective quantitative measures of hair regrowth.

## Conclusion

This case report suggests that CGF injection monotherapy represents a promising approach for the treatment of FIA, although robust large-scale studies are warranted to validate its long-term efficacy and optimal treatment protocol.

## Ethical Approval

This case report is based on a retrospective review of a standard clinical procedure. Institutional policies do not require ethics committee approval for the publication of anonymized individual case reports where the treatment is within standard care. Written informed consent was obtained from the patient for the publication of this case report and any accompanying images.

## Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

## Funding

Shandong Provincial Medical and Health Development Project (202320000607).

## Disclosure

The authors report no conflicts of interest in this work.

## References

1. Zheng C, Fu Q, Zhou GW, et al. Efficacy of percutaneous superficial temporal arterial hyaluronidase injection for hyaluronic acid filler–induced necrosis of frontotemporal skin and/or the ipsilateral scalp with subsequent alopecia. *Aesthet Surg.* 2023;43(2):NP77–NP83. doi:10.1093/asj/sjac270
2. Corona-Rodarte E, Cano-Aguilar LE, Baldassarri-Ortego LF, et al. Pressure alopecias: a review. *J Am Acad Dermatol.* 2024;90(1):125–132. doi:10.1016/j.jaad.2023.07.009
3. Tang S, Zhou G, Fu Q, et al. Clinical efficacy of composite autologous chylated fat and concentrated growth factors for treating postinjection alopecia after facial fillers: a single-center retrospective study. *J Cosmet Dermatol.* 2025;24(6):e70269. doi:10.1111/jocd.70269
4. Guo Y, Wei W, Zhang A, et al. The combination of platelet-rich plasma with botulinum toxin A in the treatment of hyaluronic acid embolic cutaneous necrosis and alopecia. *Dermatol Ther.* 2022;35(6). doi:10.1111/dth.15442
5. Li G, Wang H. Novel applications of concentrated growth factors in facial rejuvenation and plastic surgery. *Facial Plast Surg.* 2024;40(1):112–119. doi:10.1055/a-1987-3459
6. Gao J, Xiao Q, Lu Y, et al. Higher percentage of CD34&#x003C;/sc>#x003E; + stem cells and elevated efficacy in androgenetic alopecia treatment observed in CGF&#x003C;/sc>#x003E; prepared from 640 nm laser-pretreated blood: a preliminary study. *J Cosmet Dermatol.* 2024;23(6):2249–2255. doi:10.1111/jocd.16249
7. Xiao Q, Chu W, Guo J, et al. CGF therapy: bridging androgenetic alopecia observations to psoriasis treatment via IL-17 pathway. *Stem Cell Res Ther.* 2024;15(1):353. doi:10.1186/s13287-024-03959-y
8. Jia L, Xiong J, Zhao C, et al. Alopecia secondary to hyaluronic acid injection: a case report and literature review. *Clin Cosmet Invest Dermatol.* 2025;18:1565–1577. doi:10.2147/CCID.S524217

Clinical, Cosmetic and Investigational Dermatology

Publish your work in this journal

Clinical, Cosmetic and Investigational Dermatology is an international, peer-reviewed, open access, online journal that focuses on the latest clinical and experimental research in all aspects of skin disease and cosmetic interventions. This journal is indexed on CAS. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/clinical-cosmetic-and-investigational-dermatology-journal>

**Dovepress**  
Taylor & Francis Group