CASE REPORT

A Case Report on Successfully Managed Acquired Facial Lipoatrophy through Dermal Filler

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Abstract

The etiology and pathophysiological pathway of Acquired facial lipoatrophy remain unclear. It is a rare disease that is perhaps linked with immune system-related ailments, especially AIDS; the causative reasons are not well established. Since the disease manifestation is unknown, appropriate management guidelines have not yet been developed, though its management is crucial for patients' psycho-social activities. Here, a case of a 26-year-old female is presented who had a slow, progressive subcutaneous fat loss on the face, having acquired facial lipoatrophy. Acquired facial lipoatrophy can impact the psycho-social life of the patient significantly. In dermatology, the cosmetic procedure of choice is the administration of hyaluronic acid (HA) dermal fillers for skin rejuvenation and facial contouring. Dermal fillers containing HA are soft tissue fillers that are biocompatible, biodegradable, and easy to administer, with acceptable efficacy and safety. After the initial administration of the filler, this patient was followed for 24 months at regular intervals, and improvement was satisfactorily evident. This case report presents the successful outcome of HA facial filler application for the treatment of facial lipoatrophy following previously failed fat grafting, performed twice. The facial characteristics of our patient were further changed due to fat grafting failure, which was successfully restored by HA filler.

Keywords: *Acquired, lipoatrophy, face, dermal filler, hyaluronic acid.*

INTRODUCTION

The basic anatomic structure, including the bones and musculature, is integral for giving the face its contour, but the volume of subcutaneous fat strongly influences this contour. It is essential to have the subcutaneous fat present in symmetry with proper distribution in the face for a pleasant appearance [1]. A decline in facial fat tissue (lipoatrophy) is rare and may lead to depression and a disproportionate facial contour. The individuals suffering from this rare lipoatrophy may isolate socially, and it can cause depression and low self-esteem [2]. This lipoatrophy can be caused by either physiological (natural) or pathological processes. Natural lipoatrophy denotes facial adipose tissue loss due to senility, which typically begins at 20-30 years of age, progresses gradually, and is typically bilateral. In pathological facial fat loss, individuals rapidly lose facial symmetry, with greater involvement of the cheeks, temples, and pre-auricular areas [3, 4]. The molecular pathways are unclear to date, which manifests this atrophy, though quite a lot of causative reasons are established, and the topmost is HIV infection. The HIV infection itself and its antiretroviral therapy may induce tenderness of the subcutaneous fat, and the fat may lose its volume. Lupus erythematosus is also a systemic disease that may cause panniculitis, the loss of subcutaneous fat tissue due to inflammation. Local scleroderma, primarily distinguished by an inflammatory erythematous patch, also encompasses panniculitis [5].

Standard diagnostic and therapeutic guidelines are unavailable for facial lipoatrophy due to its rarity and lack of coherence, although studies on this condition have been found in the literature [6, 7]. The treatment approaches included medications, dermatological/surgical procedures, and antiretroviral substitutions. Only a very little impact was perhaps observed by substituting the highly active antiretroviral therapy (HAART) regimen; the data on the beneficial use of drugs like rosiglitazone is inconsistent and unsatisfactory. Dermatological and surgical interventions are commonly used to manage facial lipoatrophy, and some facial fillers can help restore normal facial structure [8]. Soft tissue fillers (STFs) are typically used to revitalize an aging face; they are also used to treat certain facial pathologies, including facial asymmetry, lipoatrophy, and severe scars. In modern aesthetic dermatology, STFs are considered one of the pillars of facial management alongside hyaluronic acid (HA), serving as the gold standard for revitalization, volume expansion, and contouring. An ideal filler should be safe and effective with the ease of administration [9, 10]. We present this case report demonstrating the effective use of HA dermal filler in a female patient with bilateral facial lipoatrophy and asymmetry.

CASE REPORT

History and Examination

A 26-year-old female presented with progressive, sheet-like, asymmetrical depressions in the cheeks that

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Received: October 23, 2025; Revised: February 18, 2026; Accepted: March 10, 2026
DOI: https://doi.org/10.37184/jlnh.2959-1805.4.25

developed during physical examination. Upon history taking, the patient reported that she developed erythema under her eyes, followed by loss of facial fat on both cheeks around the zygomatic bones, which was initially managed with fat grafting. The fat grafting failed twice, after which her facial characteristics changed further. Thereafter, an infection also developed under both eyes in the periorbital region, for which antibiotic cephalexin 500mg was prescribed twice daily for 10 days.

Investigation

Further investigations were done to rule out probable causes of facial lipoatrophy, such as HIV infection, metabolic disturbances, and lupus erythematosus; none was found to be a causative factor.

Management and Follow-up

The patient was then administered injectable dermal filler ELASTY® G to the affected areas; 2 x 1 ml prefilled syringes containing HA 24 mg/ml with lidocaine 0.3% were administered once only. The filler was applied bilaterally. The procedure's effect was followed for 12-24 months, and the patient responded well to treatment. The pictures of the case before (**Fig. 1**) and after (**Fig. 2**) treatment are shown, demonstrating significant improvement in facial symmetry.

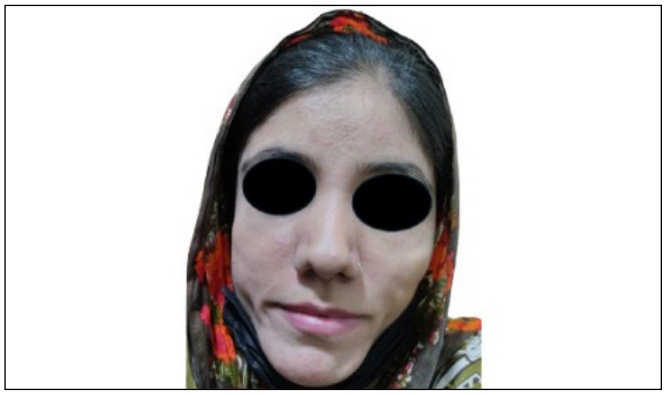

Fig. (1): Asymmetrical facial features before the application of HA filler.

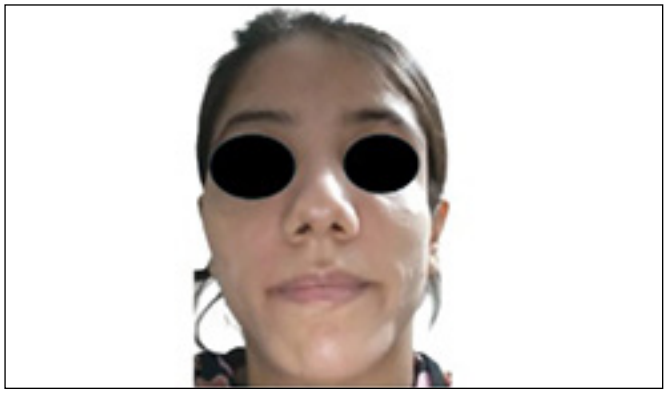

Fig. (2): Improved facial symmetry after the application of HA filler.

DISCUSSION

STFs are commonly used to invigorate the appearance of an aging face and to manage specific medical conditions that cause structural changes, including facial asymmetry, lipoatrophy, and severe scarring. The management of these defects can also greatly ease the psychological impact of the underlying condition, positioning STFs as an effective treatment option. Facial lipoatrophy is often treated using various fillers, such as HA, to restore facial contour. For cases of morphological asymmetry, STFs are administered into the truly or seemingly underdeveloped areas of the face to help attain a more balanced facial appearance [10]. Hyaluronic Acid (HA) is a naturally occurring linear polysaccharide [11] and a key structural component of the extracellular matrix in most mature organisms, naturally present in a wide range of tissues, including the skin [12]; it also aids in the skin's moisture retention [13]. Hence, HA injections are generally used to replenish facial volume, helping regain a younger appearance [14]. Most HA products are administered as injectable solutions prepared by combining precise amounts of powdered HA with water [15]. A study of 23 patients found that cross-linked HA dermal fillers are an effective solution for managing diverse soft-tissue defects associated with facial lipoatrophy. The filler utilized in this study, Princess® FILLER, was found to be highly effective, safe, and well-tolerated by patients, achieving a treatment success rate of 94% to 100%. In most of these cases, the post-procedure benefits lasted for at least 6 months [16].

In our case, we used ELASTY® G, which contains 24 mg of cross-linked HA per mL. The cross-linked structure of HA guarantees a steady and enduring action. In an open-label study, 20 cases of HIV-related facial lipoatrophy were evaluated to assess the safety and effectiveness of the treatment. Among them, 19 patients completed follow-up, and all showed marked improvement as assessed by the Carruthers Lipoatrophy Severity Scale (grade 1) and the Global Aesthetic Improvement Scale [17]. To evaluate the current literature on the application of dermal fillers in cases with connective tissue diseases (CTDs), a systematic review was conducted. For this, 23 articles were evaluated, and morphea was found to be the most widely recognized condition, with HA as the most commonly considered filler. The majority of the articles stated promising outcomes without worsening of the disease or relapse of the condition [18]. We use ELASTY® G fillers because they have minimal adverse effects; therefore, they are ideal for sensitive skin.

The injectable fillers have a low risk profile, allowing patients to achieve the expected results without serious adverse effects. In another open-label, single-center pilot study, 21 male patients with facial lipoatrophy were recruited. A high-density HA subcutaneous injection was administered to each patient, and outcomes were measured using the Global Aesthetic Improvement Scale at 3-month intervals for up to 12 months. The patient satisfaction, changes in quality of life using the Dermatology Life Quality Index (DLQI), and any adverse effects were also assessed. Three months post-procedure, 19 of 21 patients had significant improvement/ better, whereas 2 patients underwent a touch-up. At follow-up in month 12, 16 patients exhibited sustained significant improvement/ better, and 4 patients were scored as improved. Patient satisfaction remained high over the 12 months [19]. In our study, we followed our patient for 24 months and observed positive outcomes. We administered ELASTY® G HA filler, manufactured using a three-dimensional cross-linking technology of HA. These fillers have a minimal risk of adverse effects and allergic reactions, feature high viscoelasticity, offer a virtually painless procedure, and result in minimal swelling after treatment; they also exhibit significant improvement following the first session.

CONCLUSION

Minimally invasive facial surgery using fillers to improve facial function and appearance is increasingly favored by physicians and acceptable to patients because of its advantages, such as a small wound surface, a short recovery period, and more natural results. This case report presents the successful outcome of HA facial filler application for the treatment of facial lipoatrophy following previously failed fat grafting, performed twice. The facial characteristics of our patient were further altered due to fat grafting failure, which was successfully restored by HA filler. HA is naturally present in body tissues, including the skin, and is well tolerated by the human body. It is currently the most widely used facial filler. The application of facial nonsurgical modality has good clinical prospects in the management of acquired facial lipoatrophy; HA filler injections have been documented for a wide range of possible indications in facial rehabilitation.

CONSENT FOR PUBLICATION

We took consent from the patient.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ACKNOWLEDGEMENTS

Declared none.

AUTHORS' CONTRIBUTION

SZ: Conceptualization, patient diagnosis and management, manuscript writing, and revision.

SJA: Surgical management and data acquisition.

FZ: Data collection, patient follow-up, literature review.

FS: Literature review and clinical documentation.

NU: Supervision and final manuscript review.

VZ: Literature review and proofreading.

ZZ: Patient photography, data organization, and editing support.

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