

Foreign body reaction following social media-driven skincare trend: A case report in an adolescent

^{ID}Fatma Şule Erdem, ^{ID}Orkun Aydın, ^{ID}Bilge Akkaya, ^{ID}Ali Güngör, ^{ID}Nilden Tuygun

Department of Pediatric Emergency, Etlik City Hospital, Ankara, Türkiye

Corresponding Author: **Fatma Şule Erdem**

e-mail: dr.suleerdem@gmail.com

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ABSTRACT

Social media has become a major channel for the rapid spread of unverified health information. Hyaluronic acid (HA), widely used as a dermal filler under controlled conditions, is also promoted in skincare content online. Improper or unsupervised administration may result in foreign-body reactions and infectious complications, posing a risk especially to adolescents influenced by such trends.

A 16-year-old female presented with acute facial swelling and erythema after self-injecting a commercially available topical serum containing 1% hyaluronic acid into the nasal dorsum using a 21G syringe, imitating a social media video. Examination revealed multiple nasal injection sites with marked edema extending to the eyelids and infraorbital region, while systemic findings and laboratory tests were normal. She was treated with intravenous corticosteroid and antihistamine, followed by oral methylprednisolone, cetirizine, and amoxicillin-clavulanate. During the two-week follow-up, inflammatory findings had regressed without sequelae.

This case emphasizes the dermatological risks of unscientific cosmetic practices promoted on social media. Adolescents represent a particularly vulnerable group, underscoring the need for clinician awareness and preventive education regarding unsafe procedures outside medical supervision.

Keywords: Adolescent, foreign-body reaction, skin care, social media

Introduction

Hyaluronic acid (HA) is a volume-enhancing glycosaminoglycan with viscoelastic properties, widely used in dermatologic filler procedures under sterile and controlled conditions (1). It is commonly included in topical skincare products due to its moisturizing properties. However, the administration of non-sterile preparations, especially when administered with improper injection techniques may lead to serious adverse events such as local tissue reactions, cellulitis, abscess formation, granulomatous inflammation and, rarely, necrotizing complications (2). Beauty and care trends that have spread rapidly on social media platforms in recent years have led to practices that are far from medical supervision, especially in individuals in the adolescent age group, and can lead to serious dermatological complications (3). Short video-based platforms may increase interest in skin care

and aesthetic procedures among young individuals, leading to an increase in aesthetic procedures outside of medical supervision (4). A significant proportion of this content is not compatible with scientific guidelines and are applied without professional consultation.

In this report, we present a case of severe dermatologic complications in an adolescent patient who applied HA without medical supervision under the influence of social media.

Case Report

A 16-year-old female patient, with no known chronic disease or allergy history presented to the pediatric emergency department with complaints of facial swelling and erythema. A detailed history revealed that, after watching a video on a



Figure 1: Marked edema of the nasal dorsum, erythema at the injection sites, and diffuse periorbital swelling observed during physical examination.

social media platform, the patient had injected a commercially available topical HA serum into the nasal dorsum using a 21G syringe, with the intention of performing a filler-like procedure. According to the available product information, the serum was intended for external topical use and contained 1% multi-molecular hyaluronic acid/sodium hyaluronate. The listed excipients included aqua, propanediol, xanthan gum, hydroxyacetophenone, and sodium phytate. The product was not an injectable dermal filler and was not labeled for sterile intradermal or subcutaneous administration. Physical examination revealed four separate injection sites on the dorsum of the nose, marked erythema and edema in these areas, as well as widespread edema and tenderness in both upper eyelids and the infraorbital region (Figure – 1). The lesions detected on physical examination began on the nose approximately 2–3 hours after the application and then spread to the surrounding face. Systemic examination revealed no pathological findings, and her vital signs were within normal limits. There were no abnormal findings in the patient's laboratory examination.

The patient did not meet the diagnostic criteria for anaphylaxis and with a preliminary diagnosis of acute hypersensitivity reaction and foreign body reaction, the patient was administered 1 mg/kg intravenous methylprednisolone and 44.5 mg intravenous pheniramine (1 mg/kg). The patient was also consulted with the dermatology department, and a possible early secondary infection related to the non-sterile injection procedure was also considered. Treatment was initiated with 1 mg/kg/day oral methylprednisolone, 10 mg/day oral cetirizine for 3 days, and 2000 mg/day amoxicillin-clavulanate for 10 days. At the outpatient clinic check-up two weeks later, it was observed that the findings of infection and inflammation had significantly regressed.

Discussion

In this report, we presented an adolescent patient who developed an acute inflammatory reaction following the intradermal injection of a topical HA product, influenced by skincare content shared on social media platforms.

Several diagnostic possibilities should be considered in such presentations. An acute allergic or irritant reaction may present with rapid-onset erythema and edema, particularly when cosmetic ingredients are introduced into the dermis rather than applied topically. In contrast, a foreign-body-type inflammatory reaction is supported by the direct intradermal deposition of HA and cosmetic excipients into tissue, especially when the preparation is not designed or validated for injection. Early bacterial infection is also an important consideration after any non-sterile injection, particularly in the centrafacial region; however, in our patient, the very rapid onset, absence of fever or purulent discharge, normal laboratory parameters, and favorable clinical course without abscess formation suggested that acute inflammation predominated over established infection. Because histopathological examination and microbiological culture were not performed, the diagnosis should be interpreted as a clinical foreign-body-type inflammatory reaction with possible early secondary infection rather than histologically proven granulomatous inflammation.

Over the past decade, social media usage among children and adolescents has increased substantially. Alongside this rise, skincare products have become widely marketed across these platforms, particularly through short-form video applications such as TikTok. Recent studies have noted a growing interest in pediatric skincare routines within this demographic, often driven by influencers and unverified online content (5,6). These trends have led to the unsupervised use of dermatological products, posing potential clinical risks.

Brinkset al.(5) highlighted that skincare products disseminated on social media—especially among adolescents—are frequently adopted without medical guidance or safety evaluation. Similarly, Hales et al. (4) reported that many pediatric skincare videos shared on TikTok promoted products unsuitable for children's skin physiology, with only 26.2% recommending sunscreen use. In their content analysis, a significant number of potential contact allergens were identified, raising concerns regarding allergic contact dermatitis and irritant reactions. While the 2023 guidelines from the American Academy of Pediatrics (AAP) emphasize that pediatric skincare products should be fragrance-free, dye-free, and hypoallergenic, current online content rarely reflects these evidence-based recommendations (7).

The clinical presentation in our case—marked facial erythema and periorbital edema following the injection of a topical HA serum—illustrates an emerging and underrecognized risk pattern. The use of a product not intended for injections, combined with non-sterile technique and lack of training, resulted in a significant inflammatory response requiring systemic therapy. This type of application appears to align with “do-it-yourself filler” videos that have gained

popularity on TikTok (8). While filler-related complications are more frequently reported in adults, the imitation of these procedures by adolescents introduces new safety concerns in the pediatric population (6,9).

Our patient stated that she had seen this procedure in a TikTok video, had never performed such an injection before, and was unaware of the exact composition of the substance she was administering. This emphasizes not only the vulnerability of adolescents to misleading content but also the absence of appropriate filters or warnings on widely accessed platforms. The case exemplifies how unregulated aesthetic experimentation can lead to serious dermatologic complications and necessitate emergency care.

Raising awareness among parents, educators, and healthcare professionals is critical in addressing these emerging trends. Promoting evidence-based skincare education and improving the visibility of pediatric-specific recommendations on digital platforms may serve as an effective preventive strategy (4). Furthermore, clinicians should remain vigilant about nontraditional causes of dermatologic presentations in adolescents and proactively inquire about social media influences during history-taking.

Conclusion

In conclusion, this case highlights the clinical risks associated with unsupervised, social media-driven skincare behaviors in adolescents. Pediatricians and pediatric emergency physicians should adopt an education-centered approach and remain alert to the evolving impact of digital media on health behaviors. Documenting and sharing similar cases will enhance clinical awareness and help address existing gaps in literature.

Contribution of the authors

Study concept and design: FŞE, AG, OA; Analysis and interpretation of data: FŞE, BA; Drafting of the manuscript: FŞE, AG; Critical revision of the manuscript for important intellectual content: FŞE, NT.

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Conflict of interest

The authors declare that there is no conflict of interest.

Consent for publication

Written informed consent for publication was obtained from the patient's parents.

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