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Foreign Body Granuloma after Nasolabial Folds Injected with a New Generation Hyaluronic Filler

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Authors' contributions

This work was carried out in collaboration between all authors. Authors VK and IG wrote the first draft of the manuscript. Author RD made the treatment protocol. Author VB provided the final revision and optimized the literature search. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Nowadays, dermal fillers are used in aesthetic medicine very often, hence, a large number of complications after hyaluronic acid products application may occur. Upon early diagnosis and adequate treatment, almost any adverse reaction can be avoided. Proper injection technique, approved products and detailed anatomical education decrease the risk of long-term sequelae. Herein, a clinical case of foreign body granuloma formation in the area of nasolabial fold after injection of hyaluronic filler is described. A short overview of the pharmacodynamics and possible side effects of the injectable hyaluronic fillers is also presented.

Keywords: Hyaluronic acid fillers; foreign body granuloma; complication.

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1. INTRODUCTION

A wide variety of dermal fillers is now available for soft tissue augmentation. Hyaluronic acid (HA) fillers are the most popular products used for temporary restoration of lost volume. HA is a linear polysaccharide composed of repeating disaccharide units of glucoronic acid and N-acetylglucosamine [1]. Over the past decades, various forms of HA fillers have been developed. They differ in many aspects: The type and degree of cross-linking, extrusion force, total HA concentration and skin bio availability [2].

Unfortunately, with the expanding usage of dermal fillers, the frequency of complications arises. The adverse reactions can be divided into four major categories: 1. mild and severe; 2. early and delayed [3]; 3. product- or technique-related; 4. inflammatory and non-inflammatory.

Herein, a case of foreign body granulomas, arising 3 months after HA injection, is described. The case is presented after informed consent has been taken by the patient.

2. CASE REPORT

A 48-year-old Caucasian female presented with painful, red lesions in the area of the nasolabial folds. The symptoms started 3 months after the injection of 2 ml HA product using a new cross-linking technique (CLH-advance 2, 25mg HA/ml) in the middle face, applied by a beautician. On clinical examination, well-defined, tender erythematous nodules in the area of nasolabial folds with diffuse swelling and focal accumulation of pus were seen (Fig. 1). The laboratory findings showed leucocytosis with neutrophilia (white blood cells 14.23; normal ranges: 3,5-10,5; granulocytes 9,77; normal ranges: 1,56- 6,13). The skin biopsy revealed deep dermal inflammatory infiltrate consisting of epithelioid cells, multinucleated giant cells, and neutrophils around amorphous mucinous artificial material, consistent with foreign body granuloma reaction (Fig. 2).

Bacterial swab proved negative. Methylprednisolone 40 mg /24 h, combined with Metronidazole 2 x 500 mg/24h and Clindamycin 2 x 600 mg/24 h were introduced with fast improvement in the following ten days. On the 14th day a 1:1 mixture of triamcinolone and lidocaine was injected intralesionally, combined with 300UI of hyaluronidase. At the 4-week follow-up visit the nodules were reduced in size, the fluctuation disappeared, and only post-inflammatory hyperpigmented macules marked the zones of previous intervention (Fig. 3).

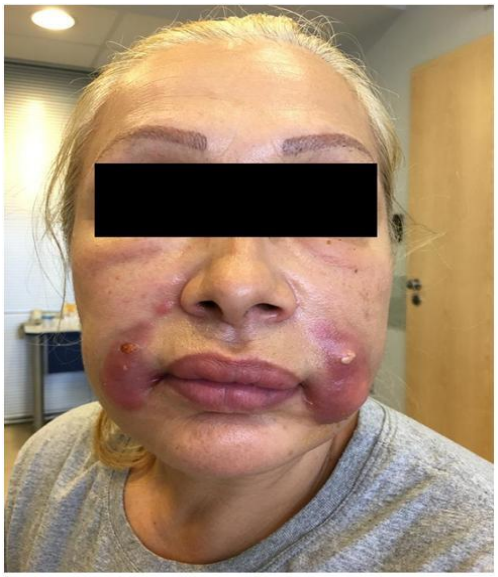

Fig. 1. Well-defined, tender, fluctuating erythematous nodules in the nasolabial folds

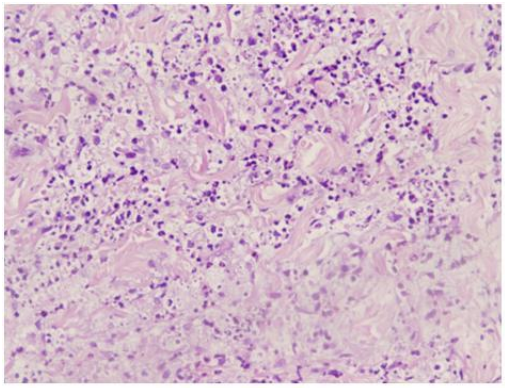

Fig. 2. Foreign body granulomas around amorphous mucinous artificial material

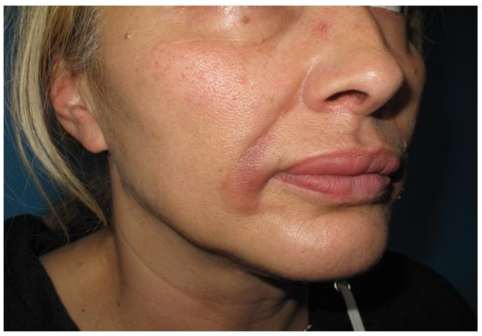

Fig. 3. Post-inflammatory hyperpigmented macules at sites of former granulomas

3. DISCUSSION

Since the use of synthetic fillers for soft tissue augmentation increases over the last decade, profound knowledge of facial anatomy is vitally important for proper application. Aseptic conditions critically minimize the risk of complications. Appropriate patient and product selection should not be underestimated [4].

All types of fillers for soft tissue augmentation can cause adverse reactions. These complications can be categorized according to time of onset, severity, and cause [5]. Granulomatous reactions generally have a delayed onset, appear as red papules, plaques or nodules with a firm consistency, and lead to fibrosis in late stages. If fluctuance is present, an infectious etiology must be ruled out [6].

Foreign body granuloma is a chronic inflammatory reaction that entraps a foreign body to prevent its migration. The reaction occurs due to the immune system inability to enzymatically degrade or phagocytose foreign body material [7]. Unfortunately, the pathogenesis still remains unknown. It usually evolve months and years after the application of HA products. Foreign body granuloma show various clinical and histological features depending on the type of injected filler. Three main histopathological types of foreign body granulomas are described up to now. Collagen and HA products cause cystic granulomas, which can evolve into a sterile abscess. Permanent injectable fluids like silicone cause edematous granulomas. Particulate injectables like “Sculptra” or “Artecoll” cause sclerosing granulomas [8]. The case presented features epithelioid and multinucleated giant cells admixed with neutrophils as markers of acute inflammation.

Vycross technology uses a combination of both low- and high-weight HA molecules, which results in a highly well-shapeable crosslinked gel that safely forms microspheric “pearls” or a jelly [9]. This technology also provides less swelling and less pain during the application. Injection of synthetic fillers for soft tissue augmentation is increasing over the last decade [10]. Despite greater safety and comfortability of vycross products in comparison with hyalcross fillers, adverse reactions do occur. Herein, we confirm the possibility of unexpected granuloma formation upon application of this new generation HA fillers.

The treatment of foreign body granulomas must stop inflammatory cells invasion and proliferation. Systemic steroids and antibiotics, followed by application of intralesional steroid or hyaluronidase can lead to a complete resolution of the skin lesions [11].

4. CONCLUSION

The reported case illustrates severe complication after 2ml HA dermal filler application by an unqualified injector without medical degree, proving evidence that the best treatment of choice for foreign body granuloma formation is prevention. The experts of filler injection must be familiar with each filler material, the injection techniques, and the potential complications. Despite the technological HA fillers improvement, adverse reactions are quite common. Collecting and sharing this experience is important to improve our knowledge and develop consistent, and effective application protocols.

CONSENT

The case is presented after informed consent has been taken by the patient.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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