Original Contribution

Hyaluronidase offers an efficacious treatment for inaesthetic hyaluronic acid overcorrection

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Summary

Background Hyaluronic acid is generally accepted today as the "gold standard" filler agent, and its use has subsequently grown enormously. In addition, newer facial volume augmentation indications are constantly evolving. Rare adverse events, such as granulomas, have been described. However, complications are more commonly due to product misplacement or overcorrection leading to unsightly lumps and masses. Hyaluronidase treatment of these latter adverse effects can be both effective and rapid.
Objective This paper aims to confirm the efficacy of hyaluronidase injections in dissolving unsightly hyaluronic acid overcorrection.
Methods A case of hyaluronic acid overcorrection is described with evaluation of the effects of hyaluronidase.
Results The use of hyaluronidase, injected intracutaneously permits the elimination of patient discomfort and inaesthetic lumps within a few hours.
Conclusions Hyaluronidase is highly effective in eliminating HA volume overcorrection.

Keywords: filler complications, hyaluronic acid, hyaluronidase

Introduction

Hyaluronic acid (HA) is generally accepted today to have replaced collagen as the "gold standard" filler agent, and its use has subsequently grown enormously. Adverse side effects, such as granulomas, are uncommon and have been described.[1] Recently, newer facial augmentation indications, such as tear trough depressions and filling of the cheekbone area, have become popular. This in turn has led to cases of volume overcorrection and the need to propose an adequate therapy to remove the unsightly lumps and masses protruding from under the skin. We present a case report describing the rapid and complete elimination by hyaluronidase of an inaesthetic overcorrection in the eyelid area.

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Case report

A 25-year-old woman, Fitzpatrick phototype II, presented for consultation with an inaesthetic, bluish soft mass protruding from under each eyelid. Her history revealed that 1 month previously, she had undergone HA injection (Surgiderm 30XP, Corneal, France) to alleviate the sunken "dark circles" under her eyes. The patient had never had HA injections before that treatment. She reported that the treatment session itself had been uneventful, but that an excessive puffiness had remained ever since.

Examination revealed a soft, lumpy, bluish mass (Fig. 1) protruding from under each eyelid with no signs of either inflammation or hematomas. The diagnosis of overcorrection with HA was made, and dissolving the mass with the enzyme hyaluronidase was proposed. Because the patient had no known allergies, a pretreatment allergy test was not done.

After informed consent was obtained and the patient photographed (Figs 2 and 3), treatment was first applied

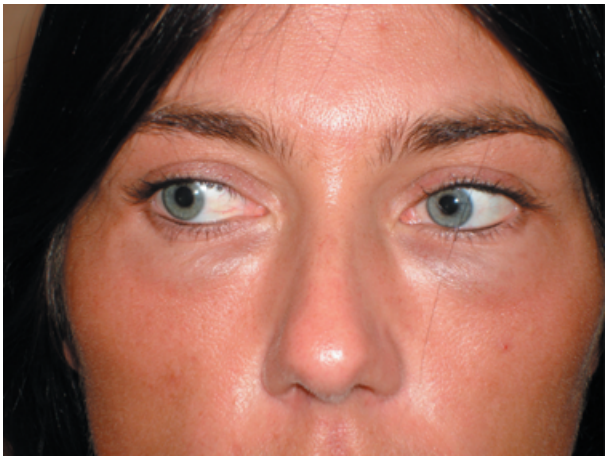

Figure 1 Puffiness aspect after injection into circles.

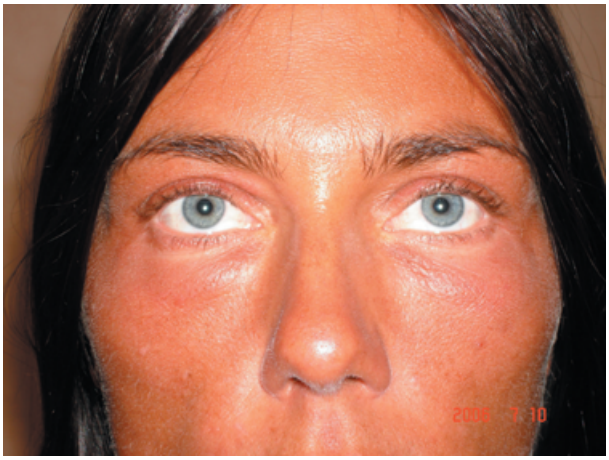

Figure 4 Sixty minutes after injection of hyaluronidase.

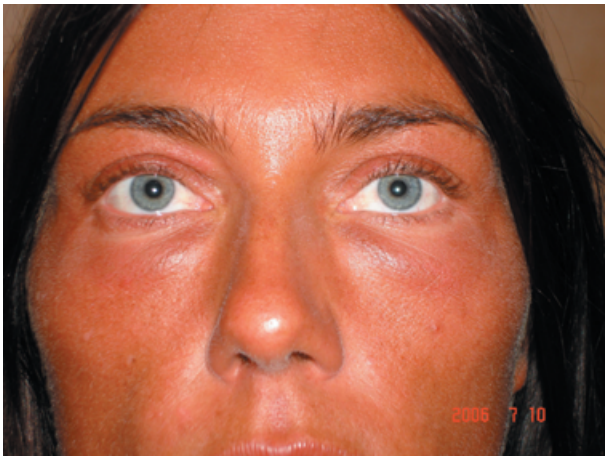

Figure 2 Before injection of hyaluronidase.

Figure 5 Total disappearance of product.

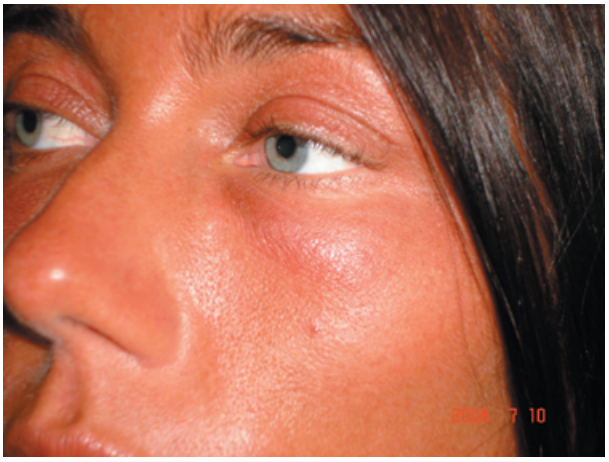

Figure 3 Before injection of hyaluronidase.

to her left eyelid. A 4% bovine-derived hyaluronidase powder (Desinfitral, Aesthetic Dermal-UK); 1 vial (1500 UI) was diluted with 4 mL of physiologic saline; 0.3 mL (112.5 UI) was then injected intradermally and deep into the left eyelid mass using serial puncture technique. No anesthesia was used, and the patient experienced no pain during the procedure.

Within 10 min, the mass started to clinically diminish, and when the patient went home 1 h later, approximately 50% of the mass had already disappeared (Fig. 4). When the patient returned for follow-up 1 week later, she reported that the lumpy mass had completely disappeared within 12 h of the treatment, without any side effects (Figs 5 and 6). The right eye was then treated with the same protocol and produced the same results.

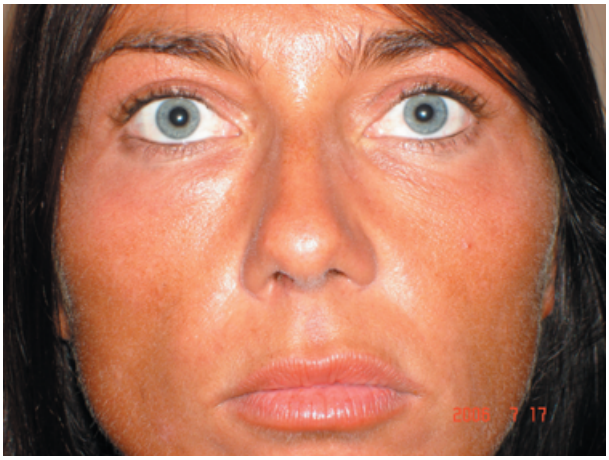

Figure 6 Eight days after injection of hyaluronidase (left eye only).

Discussion

In Europe, since 1996, aesthetic practitioners routinely use injectable HA as fillers for facial rejuvenation.[1–3] Adverse side effects are uncommon and well described[1,4–6] and are most often technique dependent. Documented allergic reactions to HA are very rare,[7] and no pretreatment HA skin allergy testing is mandatory. Recently, HA injections with larger-sized particles and more viscous products (Voluma, Corneal; Sub-Q, Q-Medical, Sweden) are becoming increasingly popular for volume augmentation. Injections must be deep enough to avoid lumpy aspects.

Around eyes, injections must be done very carefully with less viscous HA, particularly in the eyelid and tear trough, to avoid bluish aspect due to Tyndall effect.

This has led to newer adverse events related mostly to excessive HA overcorrection presenting as inaesthetic, soft, protruding masses under the skin. Lambros[8] reported the successful use of hyaluronidase to reverse excess HA filling. We present a case report of rapid resolution of such an overcorrection with a simple, in-office procedure also utilizing the enzyme hyaluronidase.

Hyaluronidase is a soluble protein that hydrolyzes complex hyaluronan glycosaminoglycan polysaccharides. Most products available are bovine, ovine, or cobra-venom derived. Hyaluronidase is extremely well tolerated with only very rare allergic events reported.[9,10] With the present animal-derived products, immediate or delayed hypersensitivity as well as angioedema have been reported. However, details concerning these reactions are very scant.

HA injections are growing up with increasing risks of overcorrection or complications, thus the importance of hyaluronidase.[8,9,11]

As the use of hyaluronidase will undoubtedly increase vastly, we recommend for the moment, performing a 72-h skin test before hyaluronidase treatment unless in an emergent situation (e.g., impending necrosis from an HA thrombus). A positive reaction can reasonably be considered if erythema, pruritus, or edema is present at the test site. Recently, to reduce the risk of animal pathogen contamination during *in vitro* fertilization procedures, a new recombinant human hyaluronidase (Cumulase, from Halozyme, USA) has been introduced. The purity of this hyaluronidase is up to 100-fold higher than currently used bovine preparations. Presently, however, there are no long-term data yet available concerning the allergic profile of this product.

In conclusion, as utilizing HA for facial rejuvenation and newer augmentation procedures becomes ever more popular, we recommend, as does Hirsch, that keeping hyaluronidase on site is a necessary precaution for all aesthetic practitioners.

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