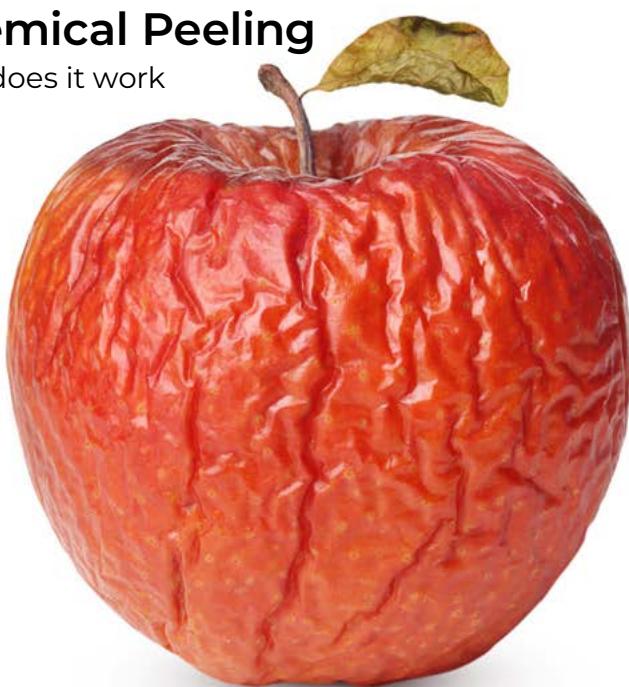


DERMATOLOGICA HELVETICA

19
Chemical Peeling
How does it work



23

Stalaktiten und Stalagmiten nach
der Filler-Behandlung
Stalactites et stalagmites après le
traitement de remplissage

51

Jahreskongress SGDV:
Was Sie wissen müssen
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Stalactites and stalagmites after filler treatment A case report of twins from the Ästhetik- und Laserzentrum Zürichsee, Meilen

Petra Becker-Wegerich, Claude Luder.

Hyaluronic acid (HA) fillers are one of most requested aesthetic procedures for beautification of the lips. HA fillers are considered safe due to their biocompatibility and biodegradability. The number of young women who visit our practice after treatment with a «quick and inexpensive» lip filler procedure is increasing. We present a case of twins who received HA lip augmentations with different products over 6 years and presented in 2020 at our Aesthetics and Laser Center Zürichsee in Meilen with lip nodules best described as stalactite and stalagmite-like changes.

Introduction

HA filler for lip contour and volume enhancement allows experienced users to model tissue safely. Knowledge of the products, injection techniques and indications, along with facial anatomy, are critical to the outcome [1].

History and Therapy

In 2012 a twenty year old healthy pair of twins presented themselves to me requesting natural lip augmentation. Personal history was unremarkable apart from treatment for acne in the past. At 1-year intervals (from 2013-2015), I injected lip volume in the Aseptic Non-Touch Technique (ANTT) using Juvederm Ultra 3 with Lidocaine (Allergan®) once and Volbella® (Allergan) twice with a blunt cannula (Softfill® 25 G, 50 mm). A longitudinal retrograde, subcutaneous-supramuscular technique was chosen. In the years leading up to 2020, the twins visited other institutes in order to obtain HA lip augmentation with cheaper products. In 2018, the twins were treated with Princess®/Saypha® Filler (by Croma), with lumps appearing for the first time thereafter (Fig. 1). Four years later they presented with painless lumps at the dry-wet boundary of the upper and lower lip mucosa, reminiscent of stalactites and stalagmites, which were particularly disturbing when laughing or kissing. Treatment with hyaluronidase (HYLASE® 150 IU, Dessau

Company) was initiated after information about the «off-label» application (Fig. 2). After the 2nd injection, the nodules almost completely resolved within 48 hours (Fig. 3). A biopsy from the lower lip showed extensive deposits of hyaluronic acid-based filler material (Fig. 4 and 6). A significant inflammatory reaction could not be observed (Fig. 5). Thus no signs of an allergic reaction of the immediate type could be identified. No increased number of eosinophilic granulocytes was found, excluding an urticarial reaction. Immunohistochemistry highlighted the presence of only a few scattered macrophages (Fig. 7). A granulomatous reaction, which had been considered as clinical differential diagnosis, however, was not observed. Both patch and intradermal testing (0,1ml) of the HA's previously injected were negative with delayed readings carried out after 3 months.



Fig. 1: Appearance of persistent stalactite and stalagmite-like HA-nodules 2.5 years after injection of hyaluronic acid.



Fig. 2: Intralesional hyaluronidase Injection of the upper lip.



Fig. 3: After removal of stalactite and stalagmite-like HA-nodules.

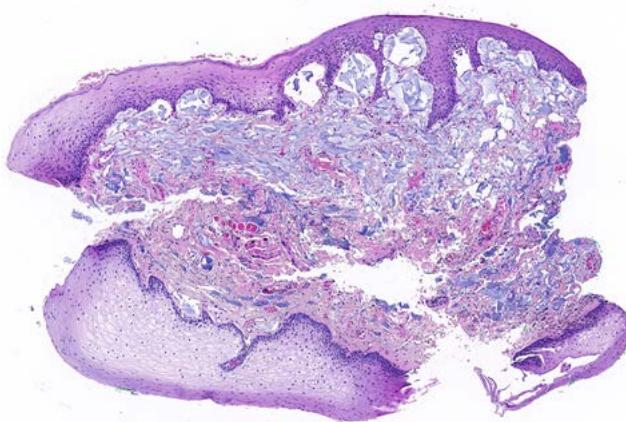


Fig. 4: Deposits of hyaluronic acid-based filler material with the characteristic blue color, in the subepithelial connective tissue (H&E, magnification X2,5).

Histopathological Examination of skin from a stalagmite remnant of the right lower lip (March 2022)

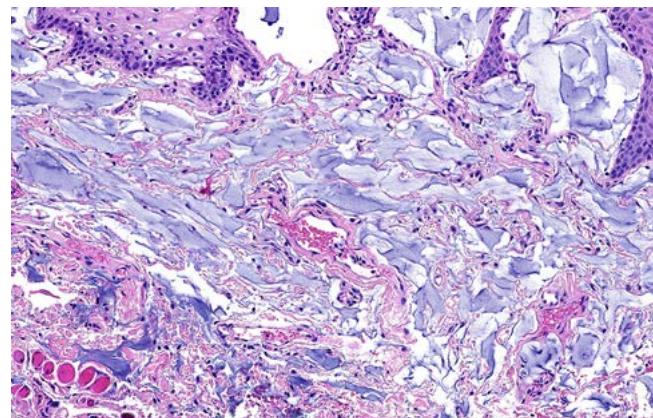


Fig. 5: Deposits of filler material without significant inflammatory reaction (H&E, magnification X 2,5).

Discussion

Growing experience in the treatment and prevention of side effects has led to the development of classification and more precise treatment guidelines by expert groups [2,4,5,6,7]. Possible causes for HA lumps after lip injections are incorrect technique resulting in misplacement, incorrect product selection, a possible genetic predisposition, infections, vaccinations, and medications (e.g. interferon) [5,6].

A distinction is made between:

1. Noninflammatory nodules (N-I N), which appear immediately within 4 weeks but rarely later after injection. If they are bothersome, they can be expressed or dissolved with hyaluronidase, depending on their extent [2,4,5].
2. Inflammatory nodules (I N) appearing weeks to months later, such as biofilms, foreign body granulomas or hypersensitivity reactions of the delayed type [3,2,4,5,6]. Delayed nodules may also occur due to migration of filler material.
In our cases the development of N-I nodules with long persistence is remarkable. The following reasons need to be considered:

1. The rheological property of the filler and/or a too superficial application with too much volume in a very mobile region [3,4,6,7]. (Fig. 1, 2 subepithelial deposition of HA filler material).
2. Multiple injections, which may lead to activation of a biofilm (often culture negative, PCR investigation recommended). In our case, a history of acne predisposes to biofilm formation. Propionibacterium acnes may show a strong immunostimulatory capacity and may stimulate inflammatory opportunistic infections.
3. A genetically determined variability of the degradability of the filler material [4].

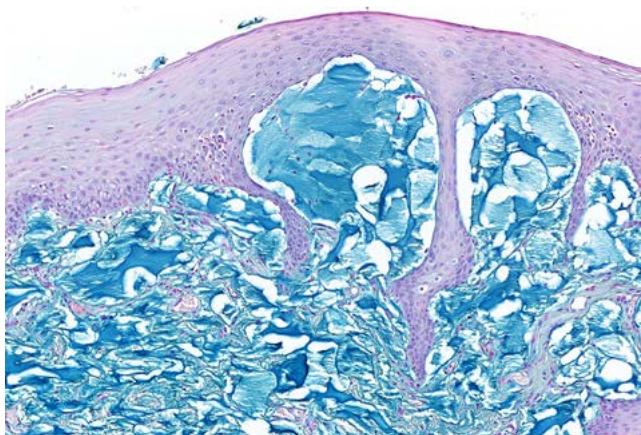


Fig. 6: Characteristic blue color of the hyaluronic acid-based filler material (Alcian blue, magnification X8).

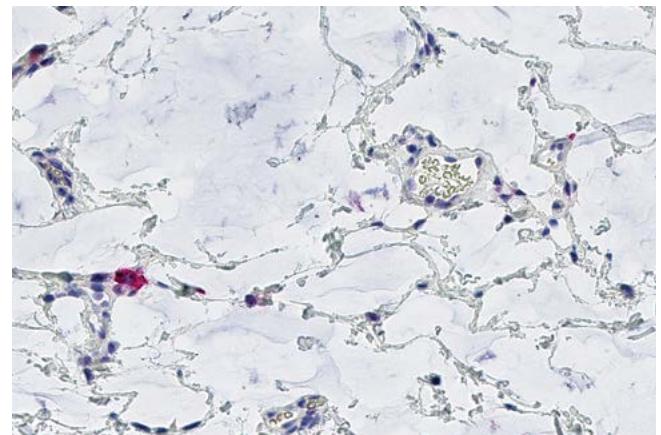


Fig. 7: Presence of few scattered histiocytes within the deposits of the filler material (immunohistochemistry, APAAP, Magnification X400). No granulomatous reaction is present.

We suggest a diagnostic work-up to be performed in all patients with nodule formation not responding to hyaluronidase treatment with focus on investigating for biofilm, granuloma formation and type 4-allergic reaction.

For further reading we recommend a review article by Heydenrych et al. which provides an outstanding guide for all filler users with an updated 10-point treatment plan for the prevention and treatment of filler complications [4].

Conclusion

In our twin case report we suspect the cause of the formation of superficial nodules to be a too superficial placement of HA that may not be rheologically suitable in the location of the wet-dry border of lips. This highlights the importance of the user's knowledge of the anatomic basis, the differential diagnosis of nodule formation and the rheological properties of the products.

- The management of side effects and complications after HA injections should be implemented according to current guidelines if non-resolution of both non-inflammatory and inflammatory nodules.
- In case of HA-nodules cannot be dissolved with hyaluronidase, further diagnostic workup should be performed to exclude biofilms, granulomas, abscess or type 4- allergic reaction, in order to adapt treatment.

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Conflict of interest: The authors declare no conflicts of interest.

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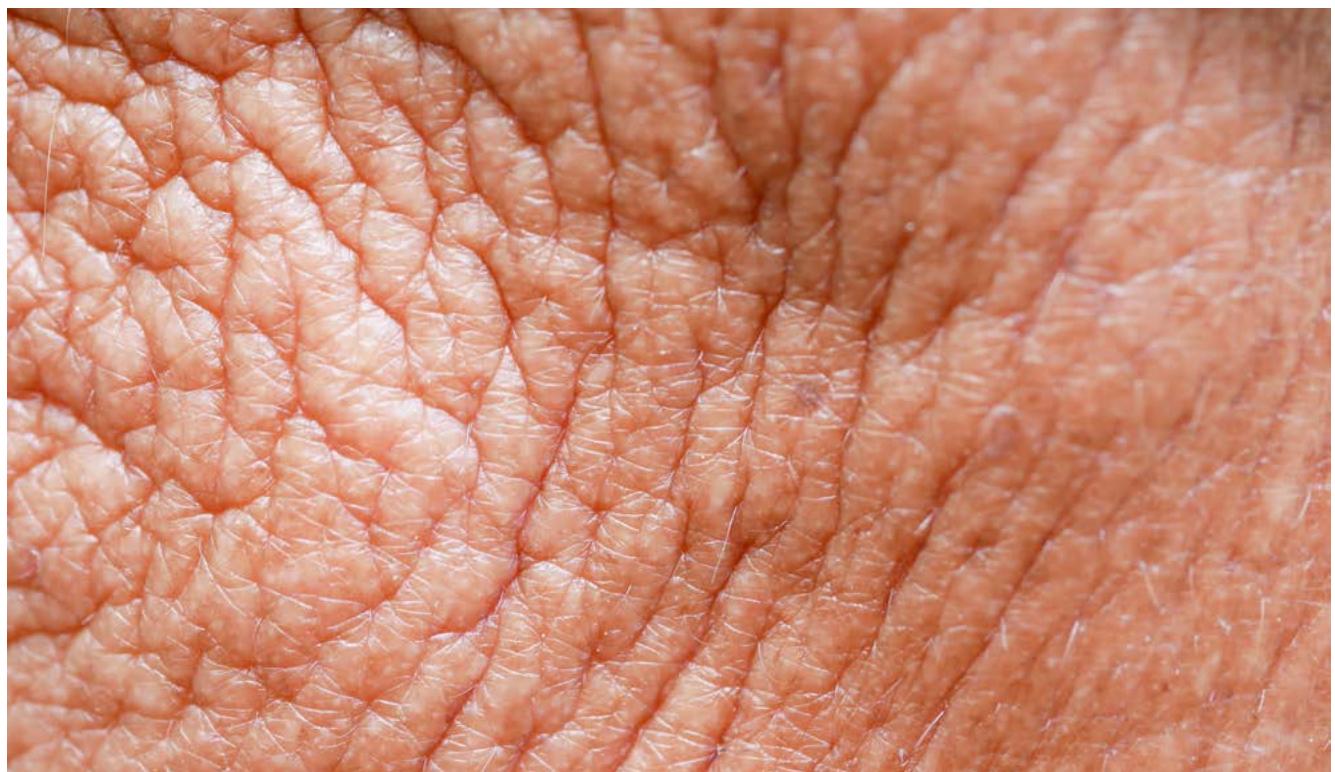
Acknowledgments:

Prof. Werner Kempf for the dermatohistopathologic findings and photographs (copyright, Kempf & Pfalz, Histologic Diagnostics, Affoltern Strasse 65, 8050 Zurich).

My practice colleague Dr. Myriam Wyss Fopp for the allergologic workup. The two patients for permission to publish the photographs.

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Symbolic picture