



Do you know where your fillers go?

An ultrasonographic investigation of the lips

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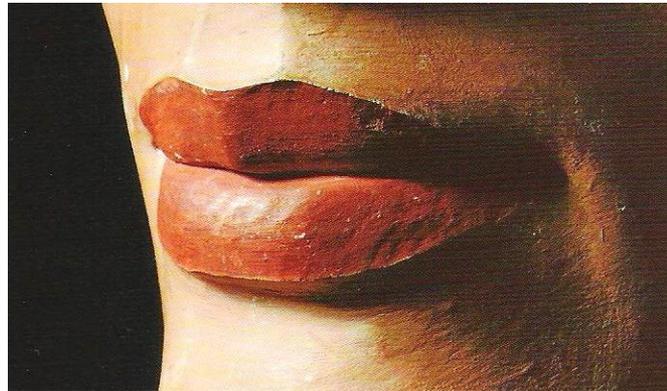


Fig. 1: lips of Nefertiti, Berlin, 2012

Background

Augmenting the perioral region with injectable fillers is most often performed by experience and palpation, without knowing the exact, final position of the injected material.

To date, there are no in vivo positioning of injectable hyaluronic acid and severe complications such as thromboembolism were rarely reported.

The lips, and especially the modi, are supplied by the submental artery.

Thus, it was our **aim** to define the blood supply in the lips immediately after injection.

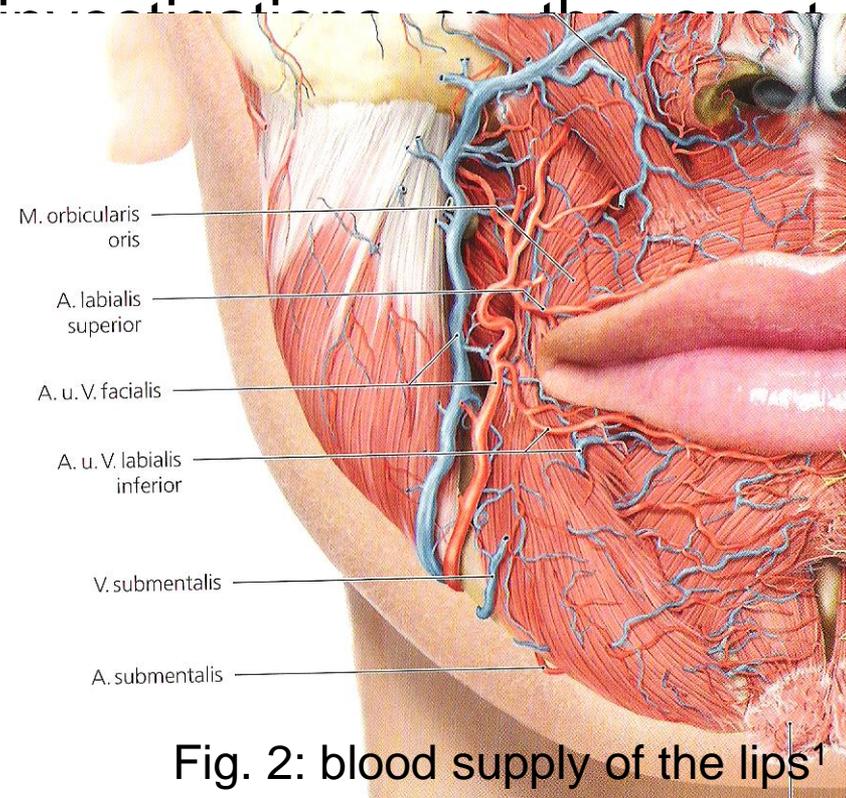


Fig. 2: blood supply of the lips¹



Material and Methods

All 9 patients were injected with Juvederm Ultra III[®] and Ultra Smile[®], and 7 additionally with unlinked hyaluronic acid (Juvederm Hydrate[®]). The exact amounts, locations and injection techniques were recorded.

Photographic documentation, as well as high resolution ultrasonography were performed. A Hitachi Hi Vision Avius ultrasound system with linear scanner (frequency range: 6-14 MHz) supplied images of the orbicularis oris muscle and the surrounding lip tissue. Blood vessels were detected by colour Doppler flow mapping.

The examinations were performed before, immediately after and 18 days after injection in 5 patients. Due to time constraints, 4 patients were examined only once on day 1 and on day 18.

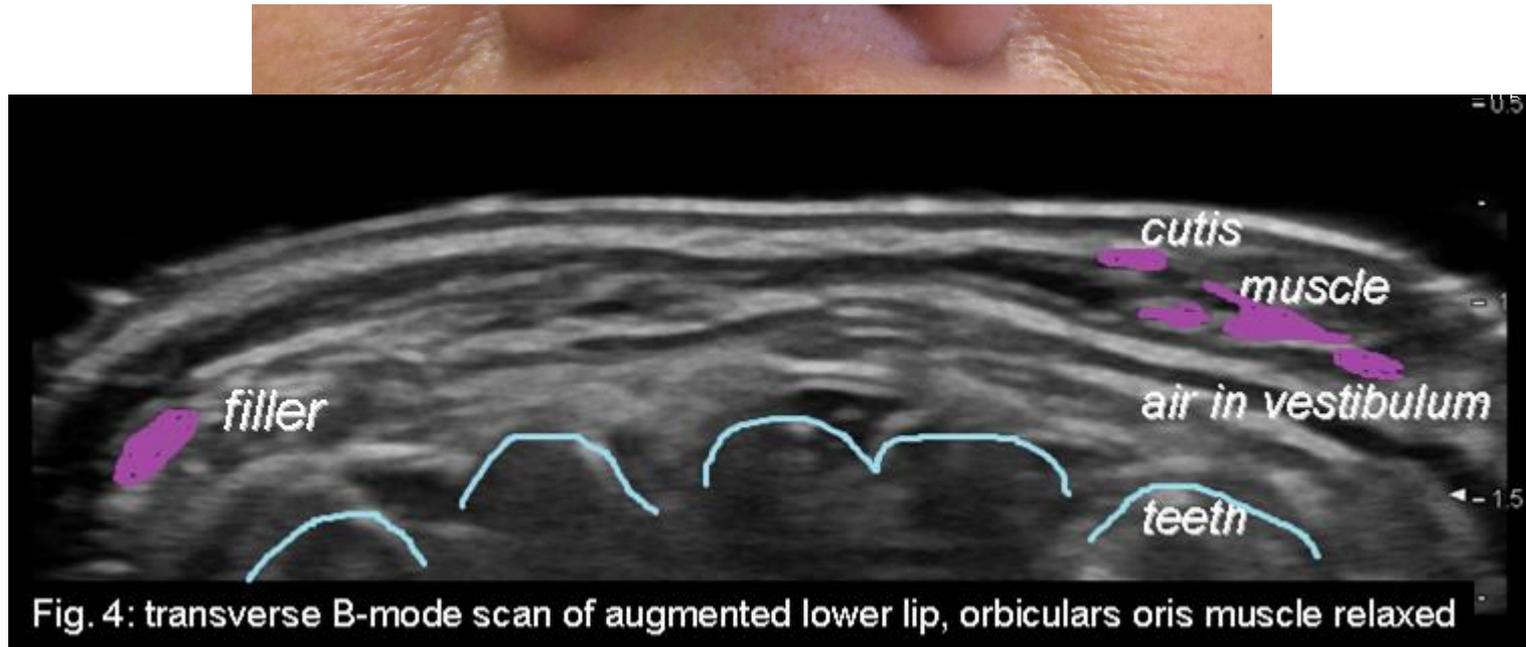


Fig. 3: systematic B-mode ultrasonography of the lips

1. static, at seven defined points (bars, T= transverse plane, S= sagittal plane)
2. dynamic (from midline to right and from midline to left modiolus)
3. Doppler sonography for identification of flow and vessels

Results

- Injected material distributed well within the lip tissue, and no embolism or thrombosis occurred.
- Some of this filler material was deposited in the deep layer (pars peripheralis) of the orbicularis oris muscle.
- However, the injected material came up to 1 mm close to the arteries and veins of the lips.

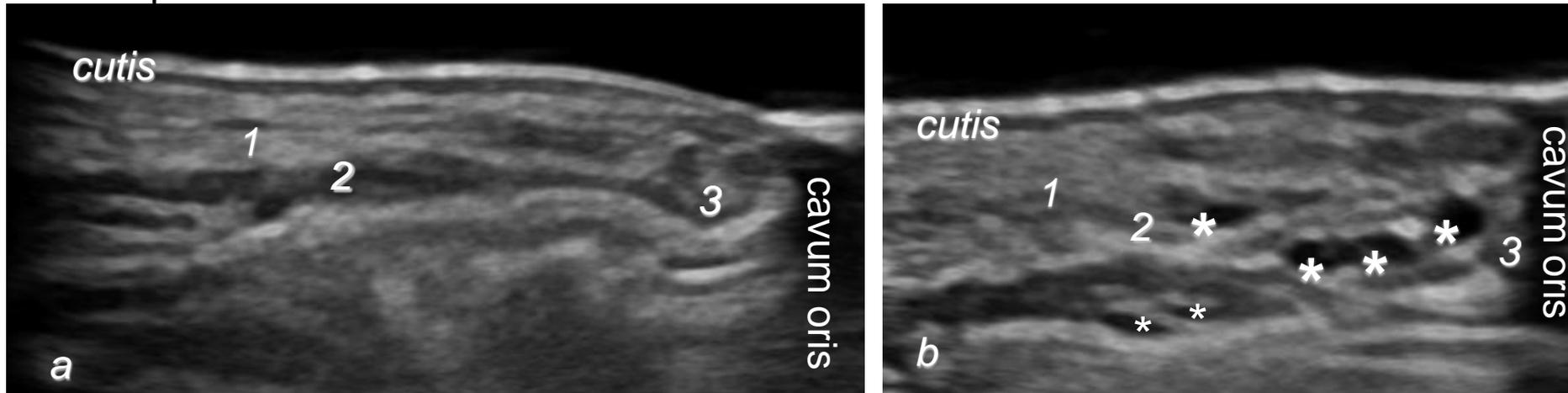


Fig. 5: paramedian, sagittal sonography scan of the right upper lip on day 1: a) before and b) immediately after injection, with multiple intramuscular filler deposits; muscle structure bulged and thickened by injected material (female patient, aged 64 years). Orbicularis oris muscle: 1) superficial and deep layer [divided into 2) pars peripheralis and 3) pars marginalis], * filler deposits.



Conclusions and Discussion

- In our 9 patients, no compression of lip structures occurred, nor did any severe complications result from injection.
- It is crucial to know the exact anatomy to minimize complications and risks when injecting fillers. Position of injectables depends on the technique such as depot, channel or tower ².
- Adverse events such as bruising or thrombosis can be avoided by ultrasonographic control. One should always have hyaluronidase as a rescue medication at hand.
- When in doubt, the exact location of injected fillers should be controlled by Doppler ultrasound to avoid injury of arteries or veins.
- Maybe intramuscular depots cannot be so well massaged and distributed

Acknowledgements:

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References:

1. R. Radlanski, K. Wesker: Das Gesicht. Bildatlas klinische Anatomie, KVM, Berlin 2012
2. G. Sattler, B. Sommer: Bildatlas der ästhetischen Augmentationsverfahren mit Fillern, KVM, Berlin 2010
3. G. Lemperle, P. Rullan, N. Gauthier-Hazan: Avoiding and Treating Dermal Filler Complications, Plastic Reconstr Surg 2006 (Sept, Suppl1) 92S-107S
4. J. Niamtu III: Complications in Fillers and Botox, Oral Maxillofacial Surg Clin N Am 21 (2009) 13-21