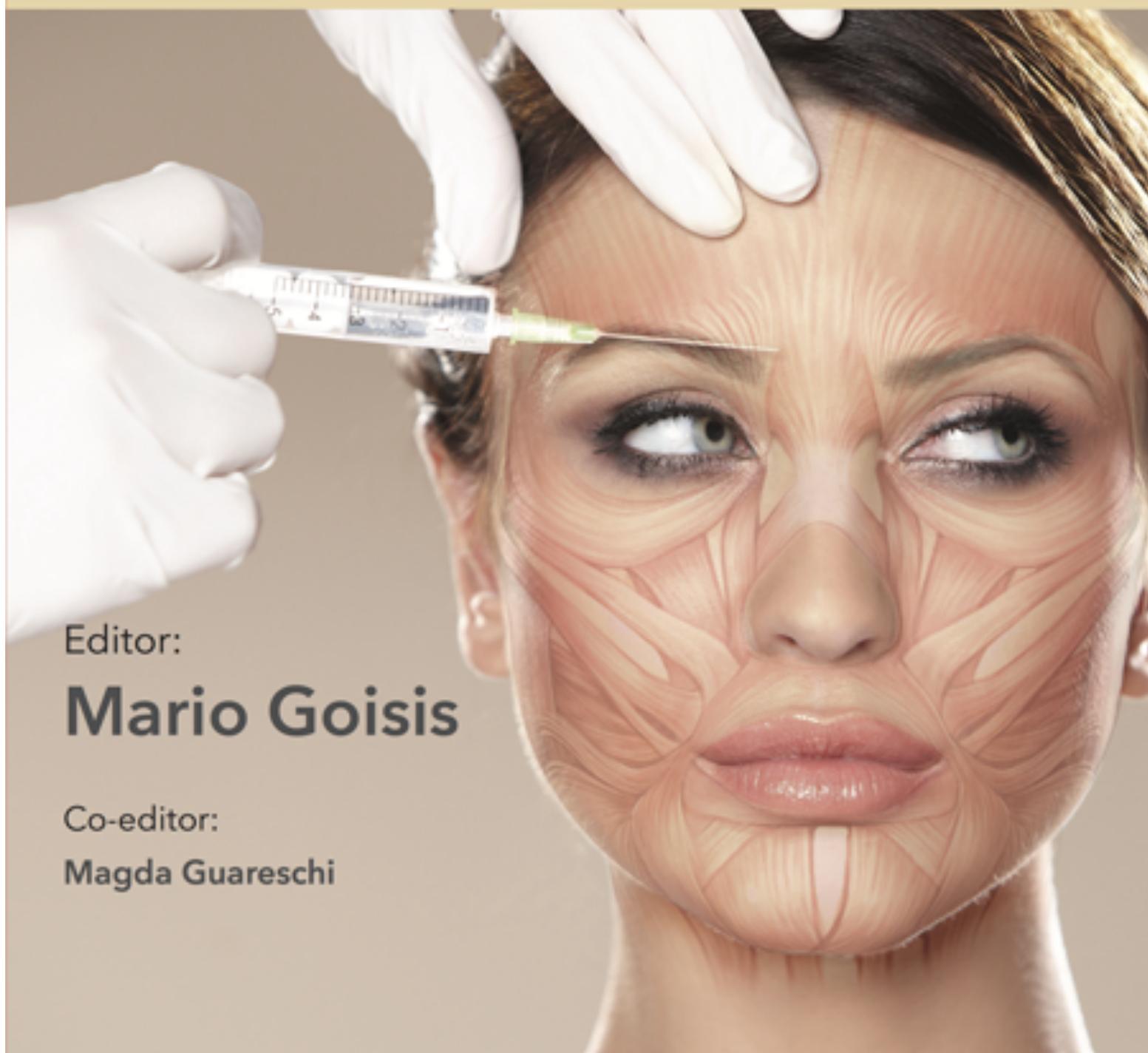


The Five Layers Simple Anatomy

For safe aesthetic and regenerative medicine



Editor:

Mario Goisis

Co-editor:

Magda Guareschi

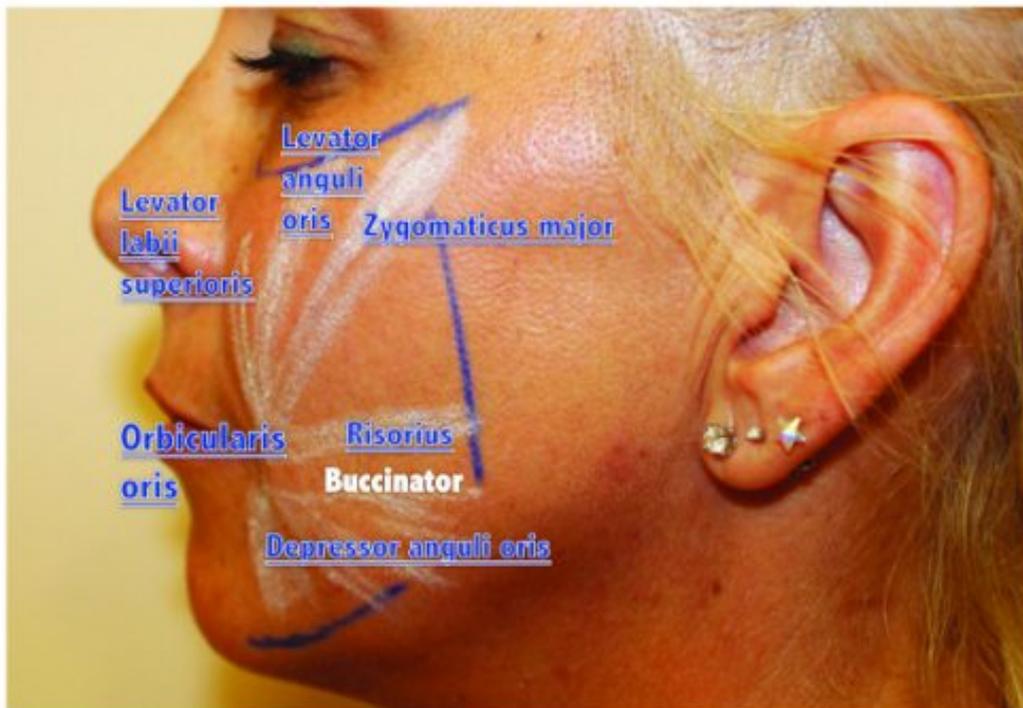
The Five Layers Simple Anatomy

For safe aesthetic and regenerative medicine

The knowledge of anatomy simplifies the injection of fillers, fat and threads. By the 5 layers anatomy-based protocol, it is easier to do medical treatments preserving the nerves and the vessels. The step by step approach is the best prevention of disastrous complications such as necrosis or blindness.



SMAS and Muscles



The modiolus is a chiasma of facial muscles held together by fibrous tissue, located lateral and slightly superior to each angle of the mouth. It is contributed to by the following muscles: orbicularis oris, levator anguli oris, depressor anguli oris, zygomaticus major, risorius, levator labii superioris.



Lateral view of the modiolus.



The modiolus is located 1,5cm lateral and slightly superior to each angle of the mouth.



In blue are marked the muscles of the lip which are not inserted in the modiolus: levator labii superioris alaeque nasi, depressor labii inferioris, mentalis.



Buccinator comes from the Latin word *buccina* meaning a "trumpet or shepherd's horn." This instrument received its name because the *bucca*, Latin meaning "cheek," was used to blow into it.

Image from *Storie della Vera Croce*, Arezzo, Italy. Painter: Piero della Francesca



The action of buccinator is to flatten the cheek area, which is useful during chewing. By keeping the food in the correct position when chewing, the buccinator assists the muscles of mastication.



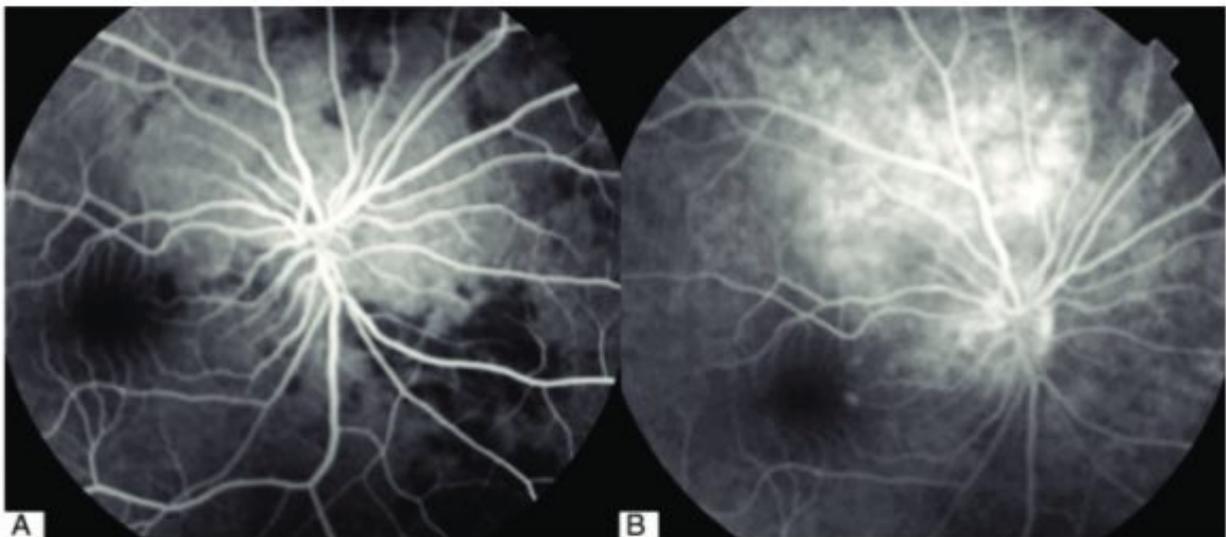
Buccinator muscle in function.

Posterior Ciliary Artery Occlusion Caused by Hyaluronic Acid Injections Into the Forehead

Medicine (Baltimore). 2016 Mar; 95(11): e3124. This is an open access article distributed under the Creative Commons Attribution License 4.0, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



An other case of serious complications after filler injection. Blindness after injection of 2 cc of Hyaluronic acid into the right frontal area.



The posterior Ciliary artery occlusion is demonstrated by Fluorescein angiography of right eye.



The thickness of hypodermis:
Area of injections are included In the area designed in brown (the thickness is minimal 0-3 mm) and in green in the frontal area (3-6 mm).



Aging

Different grades of hyperdynamic wrinkles (courtesely by Merz Company)



0

No glabellar lines



1

Mild glabellar lines



2

Moderate glabellar lines



3

Severe glabellar lines



4

Very severe glabellar lines



Injection points of botulin toxin.



Point of injection on the procerus muscle.



First glabellar injection: 2 mm laterally to the midline.



Second glabellar injection: 2 mm laterally to the midline.



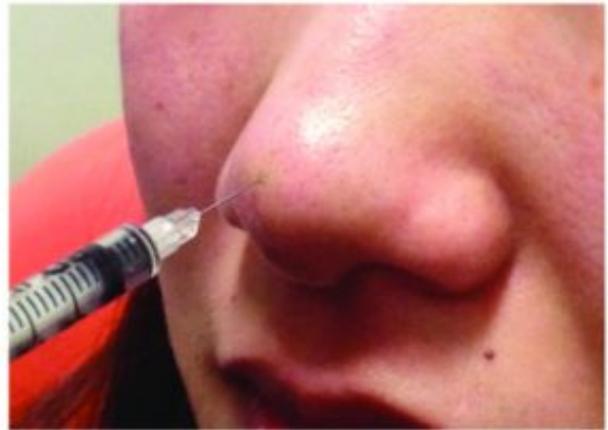
A entrance is created with a 21G needle



The dorsum of the nose is filled in a retrograde way.



The route of the cannula is demonstrated.



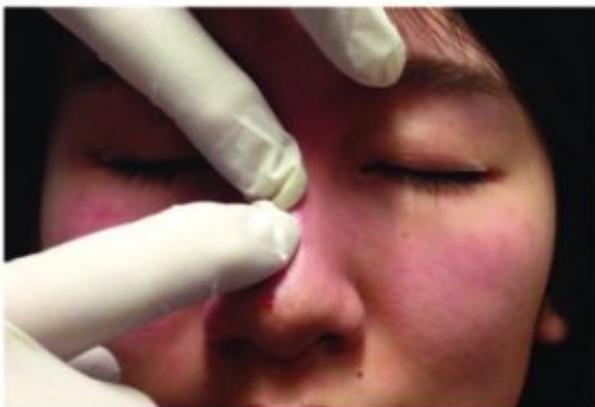
0,2cc of local anesthesia are injected in the safe point, located on the tip of the nose at the midline.



The entrance is created with a 25G needle.

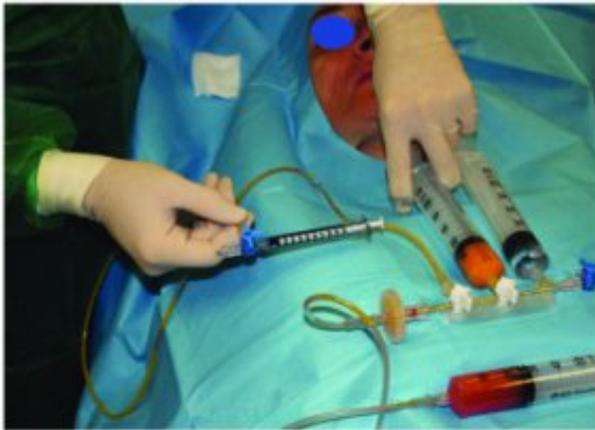


The cannula is inserted into the subcutaneous plane.

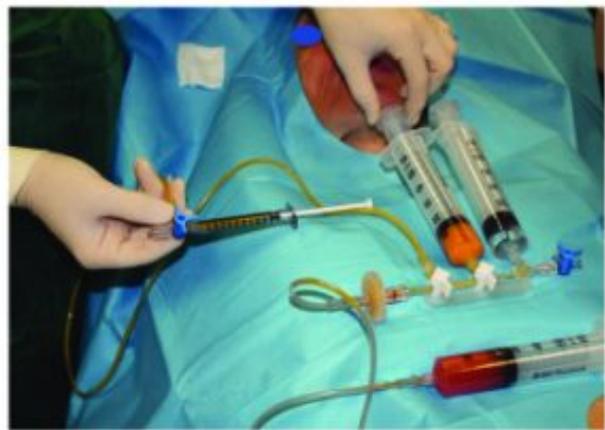


A strong massage is applied.

Nasolabial Fold Correction



The microfat is collected in the Goisis box.



The microfat is transferred into the injection syringe.



Anesthesia is done in the entrance point at the base of the nasolabial fold with 0.2 cc of local Klein solution.



An opening is created with a 21-G needle at the level of the modiolus (safe point of injection).



A 22-G blunt-tip cannula is inserted perpendicularly to skin surface and the cannula .



The cannula is then pivoted parallel to the skin plane into the muscular plane and slid toward the top of the nasolabial fold.

Nasolabial Fold Correction



An opening is created with a 26-G needle at the base of the nasolabial fold.



The cannula is inserted perpendicular to the skin plane.



The cannula is then pivoted parallel to the skin plane and slid toward the top of the nasolabial fold .

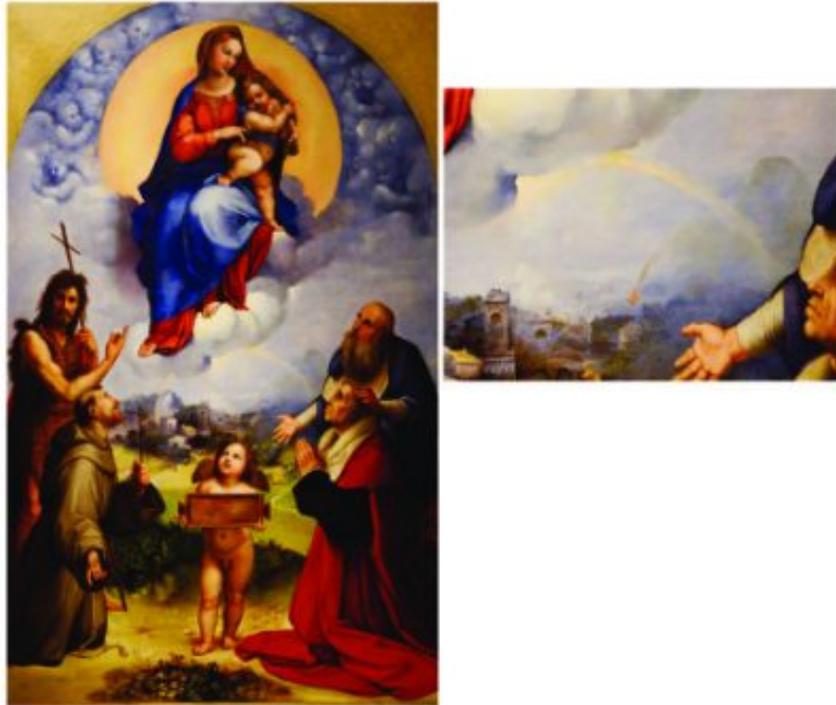


The Hyaluronic acid is delivered slowly while the cannula is withdrawn with retrograde injection.



A strong massage is applied.





The **Madonna of Foligno** is a painting by the Italian High Renaissance painter Raphael. The painting was executed for Sigismondo de' Conti, chamberlain to Pope Julius II. Conti commissioned the painting to commemorate his survival of a meteor that exploded near him in Foligno, his home town. He credited his safety to heavenly intervention.

Aging superficial fat compartments



Sigismondo de Conti shows increase of nasolabial and jowl superficial fat pad.

Cheek and Marionette Lines

Aging superficial fat compartments



Sigismondo de Conti shows decrease of medial, middle and lateral cheek superficial fat pad.

Aging deep fat compartments



Sigismondo de Conti shows decrease of lateral Suborbicularis oculi fat (lateral SOOF). **The hypotrophy of lateral SOOF decreases the projection of the malar area and cheekbone, facilitating the ptosis of superficial fat compartments of the cheek.**

Aging deep fat compartments



With aging, the **buccal and the medial cheek deep fat pads** decrease in volume. This leads to the formation of jowls and nasolabial fold.

Filling of the cheeks with hyaluronic acid

- Plane: subcutaneous



Operating time:

The procedure usually takes from 10 to 15 minutes.

Materials:

1 cc of Hyaluronic acid

27 G cannula

26G sharp needle

disinfecting alcohol

4 bandages

1 cc of Local anesthetic (Lidocaine, Mepivacaine) with Adrenaline 1:200 000
(equal to 1 mg/40 mL of solution)

1cc syringe

Plane of injection: hypodermis



The direction of the cannula is demonstrated.



The HA is distributed with a fan technique.

Cheek and Marionette Lines



0,5 cc of local anesthesia are injected at the level of the modiolus.



An opening is created with a 26-G needle.



A 27-G blunt-tip cannula is inserted perpendicularly to skin surface.



The cannula is then pivoted parallel to the skin plane and the HA is delivered slowly while the cannula is withdrawn with retrograde injection.



The HA is distributed with a fan technique.

Cheek and Marionette Lines



The suture can move freely.



The first needle of the suture is inserted into the first entry point.



The tip of needle exit in the first exit point.



The needle is removed.



The same procedure is performed in the second entry and exit point.



Entrance.



A traction is applied to the suture.

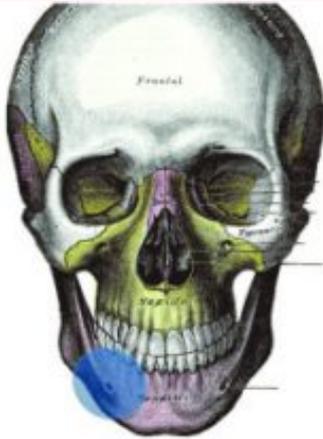


The suture is cut at the exit point.



The 2 cut sutures.

Aging



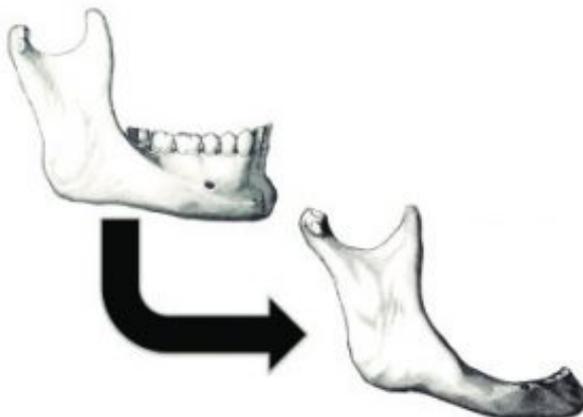
The area of maximum bone resorption of the mandible is indicated (blue circle).



The aging of the area is related to bone resorption.



The area of maximum bone resorption is indicated (blue circle).



The bone resorption of the mandible is increased in case of loss of teeth.



Relationship between edentulous mandible and young mandible



0.5 cc of Radiesse is injected.



Radiesse is injected in the second safe point in the supra-periosteal layer as a bolus.



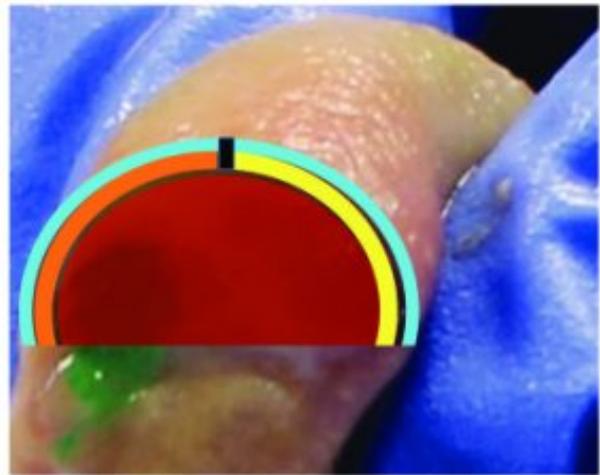
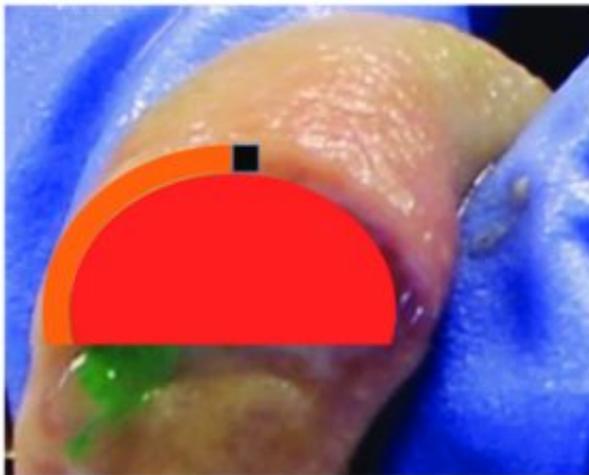
0.5 cc of Radiesse is injected, with a total of 1cc of injected material.



A strong massage is applied.



Massage.



In orange: submuscular fat pad
 Rohrich and Pessa first described the pad of fat deep to the orbicularis muscle of the lip. The wet-dry border of the lip (black point) appears to be the most anterior boundary of the submuscular lip fat. The lateral boundary is the zygomaticus muscle.
 Plast Reconstr Surg. 2009 Jul;124(1):266-71. doi: 10.1097/PRS.0b013e3181811e2e.
 The anatomy and clinical implications of perioral submuscular fat.
 Rohrich RJ1, Pessa JE.

Different planes of the lower lip.



The direction of the cannula is demonstrated



The entrance is created with a 21G needle.



The cannula is inserted at 90 degree.