A new filler to treat the perioral area

Wayne D. Carey, Wolfgang Redka-Swoboda, and Giuseppe Sito, discuss treating the perioral area with a filler specifically designed for dynamic aesthetics

Facial ageing reflects the combined effects of genetics, time, and environment on the skin, soft tissues, and other structural components of the face. Non-surgical procedures, in particular the use of dermal fillers, have become the mainstay for rejuvenation of the ageing face. Facial rejuvenation has evolved towards the 'full face' approach, not only replacing lost volume in the midface, but also correcting specific regions, such as the tear trough and temples, which could not be properly addressed before. With the development of more sophisticated fillers and techniques, and a deeper understanding of facial anatomy, it is now possible to handle a 'full face' approach with fewer side-effects and more natural results than before.

One of the most difficult areas to treat has been the perioral region, as it is the most dynamic. Previous attempts at correcting this area with fillers often resulted in subcutaneous bumps or ridges, or over-correction because of the rheology of previous hyaluronic acid (HA) fillers. A novel HA filler has been developed (Teoxane Laboratories, Switzerland) which because of a radically different rheology, results in a smooth integration of the filler in the dermis, allowing for ridge-free wrinkle correction in a dynamic area with extremely natural results.

Perioral lines

Clinically, the perioral area can be divided into two sections, the cutaneous upper and lower lip, and the lower cheek, lateral to the commissures of the lips. Wrinkles in the cutaneous lip areas run the spectrum, from fine almost imperceptible lines, to multiple deep creases, commonly referred to as smoker's lines or a barcode. The lateral wrinkles of the lower cheeks are often called accordion lines. How evident the appearance of these lines is dependent on the quality of the skin, whether it is atrophic from chronologic ageing, or elastotic from photodamage. A recent study found that these lines were a major concern in 27% of women aged 18 to 75 years old.

The two main presentations of wrinkling in the cutaneous upper and lower lip are either a series of vertical lines radiating from the vermilion border, or a crosshatched pattern where numerous vertical and horizontal lines are present. Accordion lines of the cheeks are usually parallel vertical lines that can extend from the malar prominence to the mandible. The loss of underlying supportive tissues, as well as repeated expressive movements, is often postulated to be the origin of these lines.

The advent of a new era of dynamic fillers

Different therapies have been utilized in an attempt to correct deep perioral wrinkles. Treatments have been used to address the muscular contraction that may lead to wrinkle formation. However, there is a potential side-effect of altering natural lip movement, and the amount of correction is limited. Mesotherapy has minimal to no lifting power or durability and is indicated mainly for the improvement of atrophic, dry skin, not the correction of deep wrinkles. Complete laser ablation or deep chemical peels were commonly used, and could give excellent results, but required significant downtime for the patient, and had its own side-effects, including permanent hypopigmentation.

The use of HA fillers has become an increasingly popular method to correct perioral lines. However, this has been a very challenging area to correct not only due to the continuous movement of this cosmetic subunit, but also until recently, less than optimal products for this purpose. The continuous motion of the perioral area can make the presence of filler visible due to accumulation of product in areas of decreased resistance to repetitive movement. The more cohesive HA fillers were designed for volumizing depleted fat compartments, and can lead to over-volumization, especially in the cutaneous upper lip. The less cross-linked fillers have been used for fine lines, but have not been able to correct the deeper barcode or accordion wrinkles very successfully.

Patients are extremely wary of over-volumization of the perioral area, and overwhelmingly desire more...
A variation of this technique can be used, especially for deeper wrinkles. A sub-incision is performed initially, running the needle back and forth multiple times before injecting product in an anterograde fashion. The rationale behind this is to create a tunnel to contain the product and limit its spread for better correction.

The cross-hatching technique involves multiple threading injections in a grid pattern, in vertical and horizontal directions. Injections are performed in the sub-epidermal plane, at evenly spaced intervals of 1-2mm. A fan-like pattern of injection can also be used. For extensive lines in elastotic or thick skin, the cross-hatching treatment may be combined with the linear technique.

It should be noted that unlike other HA fillers, the injection of this resistent filler should create a visible ridge of material in order to get satisfactory results. This is reminiscent of the use of early collagen fillers. These ridges will resolve within 24–36 hours. After the procedure, the injected area should be gently massaged regularly depositing the product while moving the needle superficially along the length of the wrinkle, in order to avoid redness or visible peaks. Injections should begin from the vermilion border upwards to avoid reddening the mucosal lip accidentally.

Due to its low density, this filler is ideal for perioral lines, which visually disappear or significantly improve when the skin is stretched between fingers. This situation requires a filler that is able to stretch, so as to follow the movements of the injected zone. It should have the characteristics of fluidity, high spreading capacity and low hygroscopy to clinically achieve a natural appearance. It must also be resistant in order to provide a lasting effect.

To answer those needs, a new HA filler was developed, using a technology called Preserved Network® method. The cross-linking process was optimized controlling viscoelastic properties, reducing HA chain degradation and a lower amount of BDDE (3,4-Butanediol Diglycidyl Ether). This produced a gel consisting of long HA chains stabilized by natural and mobile interactions, requiring a lower crosslinker rate (Figure 9). This resilient gel has dynamic properties adapted to facial movements. One of the four products developed according to this new technology (TEOSYAL®RHA 1) is especially indicated for fine lines. It can be used for global face rejuvenation, including the neck and décolleté, and is particularly appropriate for the difficult perioral area.


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Injection technique for the perioral area

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The gel is injected with a 30-gauge needle to reduce pain, bruising, and risk of irregularities. It contains lidocaine to decrease pain during injection if necessary. Topical or local anaesthesia can also be used. It is helpful to mark the wrinkles before using anaesthetic cream since the subsequent swelling may obscure them, especially fine lines. Alternatively, pinching the skin while injecting or applying a frozen gel pack to the area just prior to injection often is sufficient to control injection discomfort.

Two main injection techniques can be used. A linear antero-retrograde technique for linear wrinkles, and a cross-hatching technique for barcode and纵横纹 lines when numerous fine wrinkles are present. The linear antero-retrograde technique consists of inserting the needle superficially along the length of the wrinkle, regularly depositing the product while moving the needle back and forth multiple times. One can stretch the wrinkle between two fingers while injecting, alternatively one can pinch the wrinkle while injecting, to compress the surrounding blood vessels. Injections should begin from the vermilion border upwards to avoid reddening the mucosal lip accidentally.

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