

## Facial Rejuvenation: News

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### **Abstract:**

Facial aging is a physiological phenomenon which affects each individual, linked to several factors, and responsible for several changes that may cause discomfort to the patient.

In order to deal with these physiological changes, various techniques are available whether surgical or non-surgical to meet the demands of patients seeking a youthful and natural appearance. A good knowledge of these techniques, allows to ask the adequate indications in order to satisfy the requests of any patient.

**Key Word:** Facial aging, Remodeling, Surgery, Rejuvenation techniques

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### **I. What is facial aging? [1,2]**

Cervico-facial aging is a physiological phenomenon which affects each individual, while being unique. It is a process linked to several factors, aging affects the entire face and neck and is responsible for more pronounced wrinkles, loss of skin elasticity and pigmentary changes. However, each person is different in how he or she perceives these changes, hence the variations in rejuvenation techniques but also the exacerbation of demands by the patients who are more and more demanding in terms of results and favoring a greater natural appearance.

Facial rejuvenation aims at tightening the skin, repositioning the underlying tissues and restoring volume to the face.

### **II. What are the most commonly used techniques?**

#### **Surgical rejuvenation techniques [3,4]**

Better known as a facelift, it is the oldest surgical technique and the best method for rejuvenating the neck and face. This facelift can be cervico-facial, frontal and/or medio-facial.

The surgical facelift consists at restoring skin and musculoaponeurotic tension while restoring volumes, contours and correcting sagging. It can be performed surgically or endoscopically.

This facelift can be performed under local anesthesia with sedation or more often under general anesthesia. The choice of technique depends mainly on the degree of ptosis, adiposity and the importance of skin wrinkles.

In the classic cervicofacial lift, the incision is arched from the temporal region, intracapillary, and descending in front of the ear, usually the pretragal.

The detachment is subcutaneous in the deep fatty plane, then extended to the entire neck and the middle part of the cheeks. The superficial musculoaponeurotic system is tightened after it is section.

Among the variants of this surgical rejuvenation technique is the deep plane lift, which consists of a unitary detachment by freeing the cheek from its attachment to the deep muscles.

However, for optimal results, the facelift is combined with other procedures such as blepharoplasty, liposuction and platysmaplasty.

As it is the case with all surgeries, certain complications can occur, such as the development of a hematoma, skin necrosis or infection, unsightly scarring or even facial paralysis. Hence the importance of raising the awareness of patients by warning them against any risk of surgery.

#### **Non-surgical rejuvenation or adjuvant techniques**

- **Botulinum toxin [5-7]**

Botulinum neurotoxin, secreted by *Clostridium botulinum*, is increasingly used in plastic surgery. Several serotypes are active in humans, including serotypes A and B, which are used therapeutically.

The action of botulinum toxin is temporary and totally reversible, lasting from a few weeks to a few months, thus requiring repeated injections. It is mainly used to correct glabellar wrinkles (frown lines), canthal wrinkles (crow's feet) and forehead wrinkles.

A perfect anatomical knowledge of the skin muscles, face and muscle balances is essential for the proper use of Botulinum Toxin.

These injections are contraindicated in cases of muscle junction diseases, amyotrophic lateral sclerosis or peripheral neuropathy, hypersensitivity to the product, in case of infection or inflammation at the injection sites and in case of pregnancy and breastfeeding.

During the first few hours after the injections, it is recommended not to do intensive sports, not to lie down, and to avoid manipulating the face or giving strong massages.

A few rare, transient side effects may occur: redness, bruising, edema, sensitivity problems, fleeting eye or facial pain, etc.

- **Synthetic fillers [8,9]**

Filling products allow to attenuate certain effects of aging of the face, by acting on ptosis and atrophy as well as having a "pseudo-lifting" effect, thus allowing to delay the resort to a cervico-facial lift or even to make the result last.

Hyaluronic acid is the most commonly used product; its characteristics determine the injection site as well as the depth, the voluminous effect and its duration.

Its main indications are deep folds, such as the nasolabial fold and bitterness folds, and perioral wrinkles, glabellar wrinkles, crow's feet wrinkles, etc. It also restores the volume of the cheeks, cheekbones, lips, and brow bone, as well as ensuring skin rehydration.

Its effect lasts on average up to 18 months and its main contraindications are pregnancy and breastfeeding, autoimmune diseases known are hypersensitivity to hyaluronic acid, skin inflammation and a history of injections of non-absorbable products.

Generally, well tolerated, hyaluronic acid filling may present some rare and reversible side effects such as overcorrection, hematoma, hypersensitivity or even granuloma.

- **Facial lipofilling [1,2]**

Facial lipofilling is the transfer of a patient's own fat, known as "autologous", taken from one area of his or her body and injected after purification into different areas of the face. This procedure can be performed under local anesthesia and results in a smoother and more radiant skin.

Its effect is appreciated within 3 to 6 months after the procedure as it is more durable than synthetic products.

We talk about macrofat, microfat or nanofat depending on the size and the plane where this autologous fat will be injected after it's treatment.

The complications which can be observed following lipofilling are imperfections, infection, edema, hematoma and ecchymosis, and nodules of cytosteonecrosis that can occur in case of injection of large quantities or in monobloc; vascular perforations and intravascular injections are rare.

- **Tensor wires [10-12]**

Tensor wires is an evolution in the medical treatment of ptosis and sagging skin of the face. The principle of this minimally invasive technique is to pull and tighten the superficial tissues of the face, without any detachment, by hooking the deep surface of the skin and the surface of the SMAS which adhere to each other. This suspension can be done with absorbable or non-absorbable sutures, when the ptosis of the cheekbones and jowls are in their early stages with firm, slightly wrinkled skin and in cases where surgery is refused.

### **Other adjuvant techniques**

- **Facial lipolysis [13]**

Lipolysis or lipotomy, consists in destroying the fat cells in the subcutaneous tissue. This non-surgical technique can be chemical (by injecting a chemical solution for local fat deposits), physical (by ultrasound or cold) and thermal.

- **Non-ablative tissue stimulation techniques**

Other techniques play a role in facial rejuvenation, and help to maintain and sustain the results of surgical techniques, including:

Platelet-rich plasma PRP helps improve skin tone, texture and hydration while acting on the depth of fine lines and wrinkles. Injected intradermally or subcutaneously, PRP is obtained after centrifugation of the whole blood. [14,15]

Mesotherapy consists of injecting essential amino acids, vitamins (A, C, E, etc.), minerals and hyaluronic acids into the epidermis and dermis for their hydrating effect. [16]

Techniques based on the use of lights can also be used. There are IPL devices (intense pulse lights) that are designed to treat vascular and pigmentary lesions as well as fine lines, allowing to obtain a smooth and radiant skin; as well as LED phototherapy that constitutes a preventive treatment. [17,18]

Radiofrequency acts by the effect of heat, thus improving local microcirculation, it leads to a retraction of collagen fibers and a production of new collagen, responsible for skin firmness and tone. [19]

Carboxytherapy or carbon dioxide therapy, known for its effects on skin healing, acts at the level of skin microcirculation by repairing collagen and destroying localized fatty deposits, which improves the appearance of fine lines and wrinkles and elasticity. [20,21]

Microneedling stimulates collagen production as a result of microperforations in the skin using sterilized miniature needles, which reduces fine lines and wrinkles, hyperpigmentation, brown spots, and scars, as well as improving skin elasticity. [22]

#### • Skin resurfacing techniques [23-25]

These techniques consist in creating wounds in the skin, of variable depth: superficial (damage to the epidermis and/or papillary dermis), medium (damage to the reticular dermis), or deep (deep dermis). This resurfacing can be mechanical, chemical or thermal.

Mechanical resurfacing: or dermabrasion by sanding or planing, aimed at eliminating the superficial layer of the skin; the epidermis, and can go as far as the superficial dermis. It essentially treats the signs of solar aging, elastosis and superficial or medium wrinkles.

Chemical resurfacing: or peeling, consists of the application of exfoliating agents on the skin, leading to the destruction of parts of the epidermis and/or dermis, in order to improve pigmentation and fine lines. However, it is important to respect the rules of its application and its indications for an optimal result.

Thermal resurfacing: or laser-abrasion; it relies on thermal energy to injure the skin. Depending on the desired effect, we distinguish between ablative laser, fractional laser (ablative or non-ablative) and remodeling laser. Like the above-mentioned resurfacing procedures, the laser aims to reduce wrinkles.

### III. Conclusion

Facial aging, a natural process, is perceived differently by each individual. Medical progress has made it possible to remedy it according to the expectations of each individual. However, each technique has its advantages and disadvantages as well as some complications. Their knowledge, the mastery of each technique and a good communication between doctor and patient will allow to obtain an optimal result.

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