Midface Rejuvenation: Evaluation of Surgical and Non-Surgical Techniques

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Abstract

Background: Facial aging reflects the effects of time, intrinsic and extrinsic factors on the skin, soft tissues, and deep structural components of the face, and is a complex synergy of skin textural changes and loss of facial volume. The facial manifestations of aging reflect the combined effects of gravity, progressive bone resorption, decreased tissue elasticity, and redistribution of subcutaneous fullness.

Methods: In this study, we are aiming at evaluating different techniques of midface rejuvenation, both surgical and non-surgical. In addition, we discuss how to choose the most suitable approach, according to each individual case, to achieve more natural and lasting results.

A total of 21 patients were included in this study, ages from 40 to 66 years.

• Group A: Consisted of patients undergoing a surgical procedure for midface-lifting (7 patients).

• Group B: Consisted of patients undergoing a non-surgical procedure for midface rejuvenation (7 patients).

• Group C: Consisted of patients undergoing a combined procedure of surgical and non-surgical techniques (7 patients).

As for the surgical procedure, we introduce two innovations for midface lift, through suspending the elevated midface soft tissue to:

1- Infra orbital margin by biodegradable screws.
2- Peri-ostium of infra lateral orbital rim (canthopexy is mandatory).

Discussion: As the facial rejuvenation is an elective procedure, the questions of the cost, the post-procedural convalescence, the common risks and complications, as well as the achievable desires and expectations, are among the leading factors determining which technique will be implied on the patient. In our study, we focused on these four aspects to come to a conclusion of the pros and cons of each procedure.

In addition, our innovative surgical techniques (1) Have less risk of frontal nerve injury (2) Give better cheek appearance (3) Open the nasolabial folds more perfectly and (4) Avoid ectropion and sagging of lower eyelid. All these can be done under local anesthesia.

Conclusion: No specific technique may be referred to as “the best” when addressing the facial aging. The plastic surgeon should decide the best procedure(s) for each patient individually. Therefore, selection of the method of cosmetic intervention (surgical or non-surgical or combined approach) must be based on an examination of the patient and an analysis of the face in its entirety (i.e.: The forehead area, the brows and eyelids, cheeks and mid face region, and lower face and neck). Nevertheless, we attribute the previously mentioned advantages to our innovative surgical technique.

Key Words: Face lift – Nasolabial folds – Midface rejuvenation.

Introduction

FACIAL aging reflects the effects of time, intrinsic and extrinsic factors on the skin, soft tissues, and deep structural components of the face, and is a complex synergy of skin textural changes and loss of facial volume.

During our study on the face rejuvenation that lasted around one and a half year we noticed marked progressive increase in the popularity and demand for our work especially increasing among middle and low cultured population. As the facial rejuvenation is an elective procedure, the questions of the cost, the post-procedural convalescence, the common risks and complications, as well as the achievable desires and expectations, are among the leading factors determining which technique will be implied on the patient.

Patient assessment was the first and most important step in our work and we believe that most cases of patient unsatisfaction is due to faults in patient assessment and that some complications may occur to generally ill patients like ecchymosis in hepatic patients and infection in diabetic patients.
In this study, we are aiming at evaluating different techniques of midface rejuvenation, both surgical and non-surgical. In addition, we discuss how to choose the most suitable approach, according to each individual case, to achieve more natural and lasting results. We emphasize the impact of combining surgical with non-surgical techniques in the same patient on the outcome and the patient satisfaction.

**Patients and Methods**

This practical study of midface rejuvenation was run from January 2012 to February 2013, with a minimum of 6 months post procedural follow-up.

A total of 21 patients were included, ages ranging from 40 to 66 years.

- Group A consisted of patients undergoing a surgical procedure for midface-lifting (7 patients).
- Group B consisted of patients undergoing a non-surgical procedure for midface rejuvenation (7 patients).
- Group C consisted of patients undergoing a combined procedure of surgical and non-surgical techniques (7 patients).

**Patient selection:**

**Inclusion criteria:**

1- Good general physical and psychological conditions.

2- Midfacial aging affecting all the spectrum of the midface, including all the following features:
   a- Skin photoaging and static wrinkles.
   b- Presence of a well-defined fairly deep nasolabial fold.
   c- Presence of a well-defined lower eyelid aging changes (e.g.: Tear trough, bags, festoons, hollowness).
   d- Presence of a well-defined aging changes of the cheek (e.g.: Contour defects, ptosis, laxity).

3- If the midface was part of a whole face rejuvenation, the patient was included, but only evaluating the midface area.

4- Smoking is not exclusion by itself, but patient is strictly ordered to quit smoking at least 3 weeks before and 3 weeks after the procedure.

**Exclusion criteria:**

1- Chronic medical condition.

2- Psychological instability.

3- Absence of any of the facial inclusion criteria.

4- Previous facial trauma or operation.

5- Previous facial rejuvenating procedure.

6- Incompliance to quit smoking in the peri-procedure period.

**Clinical decision making:**

Concerning the intervention to be done for each of the three previously mentioned zones in each patient, we were committed to the following algorithm:

**A- According to the type of aging affecting each zone:**

We followed the plan in (Table 1).

**Table (1): Intervention proposed for each pattern of aging.**

| Skin photoaging e.g.: Post-acne scars, lentigo freckles seborrheic keratosis | Skin resurfacing, as chemical peeling, dermabrasion, or LASER |
| Mild to moderate wrinkles e.g.: Superficial nasolabial folds mild tear trough & dynamic wrinkles | Injection fillers, as hyaluronic acid or Ca hydroxyapatite |
| Folds, grooves, and skin sagging e.g.: Deep nasolabial folds jowls, eyelid bags | Surgical lift & tightening as midface lift and/or lower blepharoplasty |
| Loss of subcutaneous fat & hollowness | Fat injection |

**B- According to the general condition of the patient:**

In case of presence of any contraindication to the chosen intervention, we shifted to the second optimal technique so as neither to put the patient at risk nor to jeopardize the aesthetic outcome.

**C- According to the patient’s counseling:**

We discussed thoroughly with each patient the following aspects:

- The patients’ demands and expectations. Those demands that may significantly improve, those that may not greatly improve, and those that may not be improved at all.

- The intervention of choice for each zone: The reason to choose it, the cost, the expected convalescence and the possible complications.

- In case the patient was uncomfortable with any of the intervention modalities suggested, we proposed the other alternative while high lighting the fact that it may lead to less aesthetic outcome.

- Then we decided for the intervention(s) that was the most convenient for the patient and the surgeon.
Patients’ demographics:
• Age: The mean age is 47.74 years.
• Sex distribution: 19 females and 2 males.

Procedures and interventions:
7 patients underwent a single session of surgical subperiosteal midface lift through subciliary incision. We introduce two innovations, through suspending the elevated midface periosteum to either:
1- Infra orbital margin by biodegradable screws.
2- Peri-ostium of infro lateral orbital rim (canthopexy is mandatory).

Fat injection may be added if needed:
- 10ml in each cheek.
- 2-5ml in each nasolabial fold.

7 patients underwent a single session of non-surgical midfacial rejuvenation in the form of either:
- Skin resurfacing using Co2 LASER (3 cases).
- Injection with hyaluronic acid gel filler in the tear trough area, and/or the nasolabial fold, and/or the cheeks (4 cases).

7 patients underwent a combination of surgical & non-surgical procedures. This was carried either in the same session, or in 2 different sessions with a time interval in between of 2-6 weeks. The interventions done were as follows:
- Lower blepharoplasty (subciliary preseptal approach, with fat repositioning to the inferior orbital rim and excess eyelid skin excision).
- Midface lift (as previously described).
  In combination with hyaluronic acid injection in the cheeks and nasolabial folds (2 cases).
- Lower blepharoplasty (as previously described)
  In combination with lipofilling (2 cases).

Evaluation of the results:
The results were comparatively evaluated and given scores according to the following prospects:

a- The patient’s satisfaction:
- The patient is dissatisfied, the expectations are not met.
- The patient is somehow satisfied, some but not all the expectations are fulfilled.
- The patient is completely satisfied The occurrence of complications:

b- Complications:
- No complications.
- Complications that spontaneously resolved.
- Complications necessitating intervention.

c- The financial cost:
The lowest cost is expressed as X, and all the costs are expressed as multiplication of X (e.g.: 1.2 X, 2.5 X,...).

d- The time of convalescence:
The time for edema and hematoma to subside, and the patient regains social activity, expressed in weeks.

Results
The results were evaluated, given scores and depicted in the following figure.

Fig. (1): Chart depicts all the parameters that were recorded in our study as percentages of each other (the highest score being the 100%).
Cases Presentation

Surgical midface lift with lipofilling of cheeks and nasolabial folds.

Pre-operative Post-operative

This patient was decided to undergo lower blepharoplasty and lipo-filling of the cheeks and nasolabial folds according to the local examination.

But as she suffered uncontrolled hypertension, she was shifted to Co2 LASER to lower eyelids, cheeks and nasolabial folds.

Midface lift + hyaluronic acid injection in the cheeks & nasolabial folds.
Discussion

In our study, the patient’s satisfaction is at its highest rate following midface rejuvenation surgeries, and followed by combined surgical and non-surgical procedures and least satisfied after one session of non-surgical procedures. Zelickson, [1] suggested that “A high rate of satisfaction despite modest improvement and substantial patient expense may reflect thorough pretreatment patient education and realistic expectations of clinical results”. Also Nuveen, [2] stated that “While injection fillers are effective in their own way, facelift surgery can offer long-lasting benefits that can extend over a decade or more. As well, while these procedures treat the appearance of aging, only face lift surgery can tighten the skin and underlying tissues to provide deep facial rejuvenation”. Truswell, [3] suggests that surgical midface lift can work as a solitary procedure or can be combined with other non-invasive procedures to “benefit from the collagen stimulation effect of the other non-invasive techniques to maintain the rejuvenation effect”.

Concerning post procedural complications, non-surgical techniques have lower incidence of complications compared to surgical and combined techniques which have almost equal complications rate. Zelickson, [1] agreed that non-surgical facial rejuvenation “generally have modest results, however, treatments have been well tolerated with minimum adverse effects and negligible recovery time”.

As for the convalescence time, our study demonstrated that it is longest following surgical procedures, followed by combined intervention, and least for non-surgical interventions. “There is no question that injectable fillers are associated with less down time and lower cost, but will accomplish different objectives than a blepharoplasty or face lift” Stephen, [4]. “An understanding of the synergy achieved by combining multiple procedures, surgical and non-surgical, will create a more dramatic rejuvenation with minimal additional surgical time, risk or downtime” [5].

In our study, we realized that the least cost is for one session of non-surgical intervention, and the highest is for the surgical interventions, and the combined procedures lie in between, towards the highest cost. Clark, [6] highlighted the fact that “While an individual might end up spending the equivalent of the cost of a face lift should they undergo repeated non-surgical cosmetic procedures over time, the outlay of cash for each set of procedures is often less onerous and thus seems more financially accessible than surgical options in the short term”.

Conclusion:

No specific technique may be referred to as "the best" when addressing the facial aging. The plastic surgeon should decide the best procedure(s) for each patient individually. Therefore, selection of the method of cosmetic intervention (surgical or non-surgical or combined approach) must be based on an examination of the patient and an analysis of the face in its entirety (ie, brow and forehead area, eyelids, cheeks and mid face region, and lower face and neck). Only then, following a thorough discussion with the patient regarding the advantages and disadvantages of each type of treatment, can a treatment strategy be formulated.

In addition, we proved that our innovative surgical techniques (1) Have less risk of frontal nerve injury (2) Give better cheek appearance (3) Open the nasolabial folds more perfectly and (4) Avoid ectropion and sagging of lower eyelid. All these can be done under local anesthesia.

References