

Subcision: An Ancillary Procedure to Face-Lift Operation to Improve Prominent Nasolabial Folds

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Face-lift operations have been performed to correct the stigma of aging of the lower face, and its techniques have been modified to obtain more favorable results. However, the lack of significant improvements in the appearance of nasolabial folds has been a problem in face-lift procedures, requiring surgeons to perform ancillary procedures such as fat strip, dermofat, and superficial musculoaponeurotic system (SMAS) grafting to address the issue. In this report, we describe a subcision technique using a wire scalpel or a thread as an ancillary procedure to a face-lift operation to improve the appearance of nasolabial folds. The procedure is simple, safe, easy, and effective with minimal complications.

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Key Words: Nasolabial fold, Dissection, Face lift

I. INTRODUCTION

Face-lift operations have been evolved to improve the aging lower face and maintain the longevity of effect. Despite these efforts, the nasolabial fold remains difficult to improve. Even though the technique of deep plane rhytidectomy¹, the extended subSMAS technique², and the high-SMAS technique³ were demonstrated to improve the nasolabial fold considerably, it's not easy to apply them to all patients who want to improve the aging lower face because they are highly extensive and are associated with high postoperative morbidity. Most patients want to undergo less invasive procedures, and return to the normal life as soon as possible. For the patients who do not want such invasive procedures, alternative techniques to give favorable results are recommended. Several authors performed ancillary

procedures such as fat strip⁴, dermofat graft⁵, SMAS graft⁶ concomitantly to face-lift operation to improve the appearance of nasolabial fold. Many options such as dermal fillers, fat grafts, allogenic or xenogenic materials, alloplastic implants, and laser liposuction have been used as separate entities to improve the prominent nasolabial folds; the subcision procedure, using a wire scalpel, is another method.⁷ Recently thread subcision techniques⁸ using a spinal needle cannula and thread as an alternative to a wire scalpel was introduced. Subcision was demonstrated to be easy, effective, and inexpensive procedure with minimal complications.⁸⁻¹³ We applied subcision using a wire scalpel or a thread as an ancillary procedure to our face-lift operation, which included limited subcutaneous dissection and SMAS imbrications. With additional subcision procedures, we could get the favorable and durable results in the appearance of nasolabial folds. Therefore we introduce subcision as an ancillary procedure to face-lift to improve the appearance of nasolabial folds.

II. MATERIALS AND METHODS

We performed simultaneous subcision as an ancillary procedure to improve the appearance of nasolabial folds in 12 patients who underwent face-lift operations between November 2006 and April 2012. The study population consisted of 9

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women and 3 men, ranging in age from 52 to 60 years (mean age, 58 years). In 9 patients, a wire scalpel was used for subcision: a thread was used in other 4 patients.

A. Surgical Technique

All the procedures were performed under the local anesthesia. After designing the preauricular incision line and the extent of subcutaneous dissection preoperatively (Fig. 1), 0.25% lidocaine with 1:400,000 epinephrine solution was infiltrated subcutaneously into the operative field. The preauricular incision was made, and the designated area of dissection was undermined subcutaneously with scissors. Following the subcutaneous undermining, SMAS was imbricated at several points using 3-0 Ethilon™ (Ethicon Inc., Somerville, NJ) or 3-0 Vicryl™ (Ethicon Inc., Somerville, NJ) sutures. After finishing face-lift operation, the subcision using a wire scalpel or a thread was continued. The area to be subcised (approximately 7~8 mm wide) was outlined. In 9 patients, an E.Z Surgical Wire™ (Hans Biomed Corp., Seoul, Republic of Korea) was used for subcision (Fig. 2, Left); in other 4 patients, a 20-G spinal

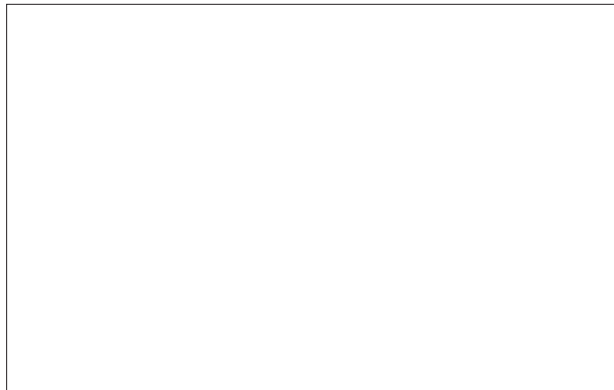
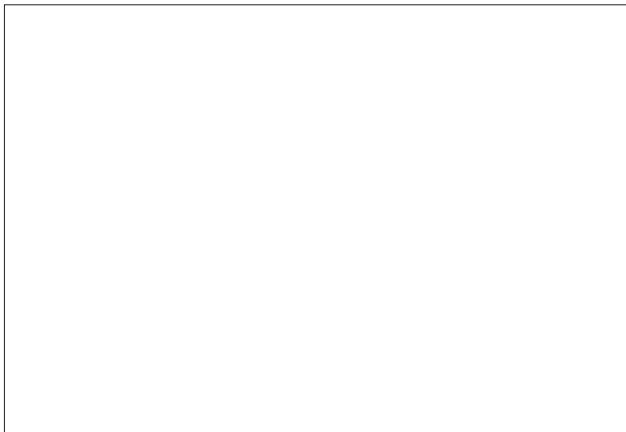


Fig. 1. Blue dot line: incision line, Yellow dot line: the extent of subcutaneous dissection, Black circle: SMAS imbrication.



needle cannula(Hakko Co Ltd., Chikuma-shi, Japan) and 4-0 Vicryl™(Ethicon Inc., Somerville, NJ) was used (Fig. 2, Right). The needle with the braided wire was inserted at point A (medial to the distal nasolabial fold) and was passed through the subdermal plane along the medial line of the designated area; the needle then exited at endpoint B (the proximal nasolabial fold). The needle and wire were then reintroduced at point B and were passed lateral to the nasolabial fold, exiting at point C (lateral to the distal nasolabial fold). Using countertraction, the outlined area was undermined with a gigli saw motion, after which the surgical wire was pulled and finally removed. While doing the “back and forth” motion, resistance could be felt often at the modiolus. Compressive dressing was done over the cheek to prevent hematoma, but ice pack was applied over the subcised area to minimize postoperative swelling and bruising.

III. RESULT

The follow-up period ranged from 6 months to 18 months (mean follow-up time, 10 months). With face-lift operation, complications such as hematoma, sensory change and motor paralysis did not occur. Only minimal complications such as swelling and bruising were encountered after subcision. Most patients returned to normal life after 7 days. All patients were satisfied with the final results. A postoperative follow-up examination showed favorable results. The nasolabial fold improvement persisted adequately in all patients with more than 6 months of follow-up (Fig. 3~5).

VI. DISCUSSION

Conventional face-lift procedures altered the contour of the jaw line, but they did not considerably improve the appearance

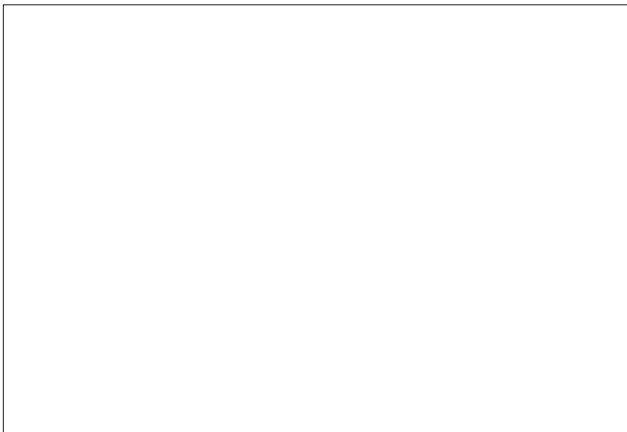


Fig. 2. (Left), Subcision using E.Z Surgical Wire™. (Right), Subcision using a 20G spinal cannula and 4-0 Vicryl.

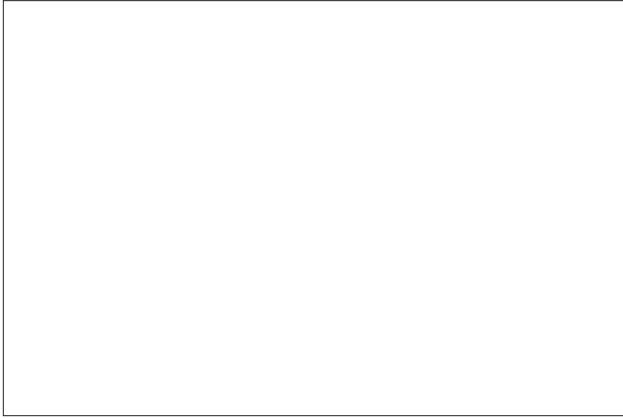


Fig. 3. A 56-year-old woman who underwent a face-lift with simultaneous wire scalpel subcision of the nasolabial folds. (Left), Preoperative photograph. (Right), One-year postoperative photograph.



Fig. 4. A 52-year-old woman who underwent augmentation genioplasty and a face-lift with simultaneous wire scalpel subcision of the nasolabial folds. (Left), Preoperative photograph. (Right), Six-month postoperative photograph.

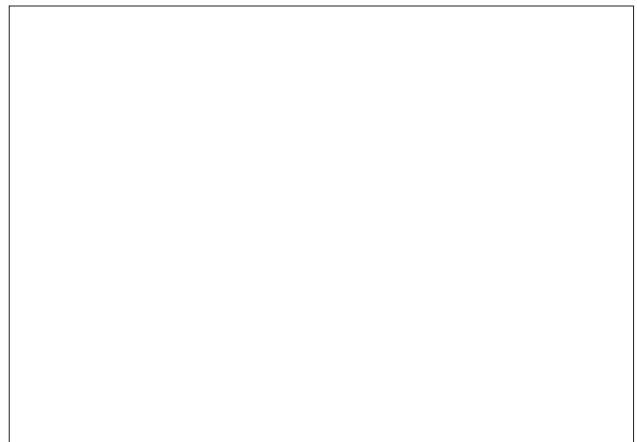


Fig. 5. A 60-year-old woman who underwent a face-lift with simultaneous thread subcision of the nasolabial folds. (Left), Preoperative photograph. (Right), Six-month postoperative photograph.

of nasolabial folds. Hence, surgeons often perform ancillary procedures such as fat strip,⁴ dermofat,⁵ and SMAS grafting⁶ underneath the nasolabial folds to improve their appearance. Hamra¹ reported that subSMAS dissection should be extended superiorly over the zygomaticus muscles and medially beyond

the nasolabial folds to achieve a significant improvement in redundant nasolabial folds. The deep-plane rhytidectomy and extended sub-SMAS dissection techniques were demonstrated to considerably improve the appearance of nasolabial folds; however, they are highly extensive and are associated with high

postoperative morbidity. Moreover, they require a long learning curve. Subcision, known as one of modalities to correct prominent nasolabial folds, was first introduced by Norman Orentreich,⁹ who reported that subcision with tri-beveled hypodermic needles was effective in correcting various types of skin depressions. He postulated that a skin depression would be lifted by the releasing action of the procedure and the formation of fibrotic tissue in the normal course of wound healing. Individual propensity for fibroplasia in the subcised area depends on skin tension, which may cause internal hypertrophic scarring.⁹ After the introduction of subcision, several authors⁹⁻¹³ reported that subcision with a wire scalpel, which was introduced by Sulamanidze et al,¹³ is effective for treating depressed scars, wrinkles, and folds. Wire scalpel subcision is a simple and inexpensive procedure with minimal complications. When wire scalpel is not available, a 20-G spinal needle cannula and 4-0 VicrylTM can be used as an alternative to wire scalpel for subcision.⁸ We performed an ancillary subcision procedure using a wire scalpel or a thread to improve the appearance of nasolabial folds in our patients who were undergoing face-lift operation. Our face-lift operation involved limited subcutaneous undermining through the preauricular incision and SMAS imbrications. We postulate that subcision performed in conjunction with face-lift surgery would be more effective than subcision performed alone owing to the increased skin tension at the nasolabial folds, which creates more fibroplasias. Although the face-lift technique used in our study involved limited subcutaneous dissection with SMAS imbrications, we believe that subcision procedure performed concomitantly with other face-lift techniques will also achieve the same favorable results. To obtain optimal results from subcision, it is essential to induce the formation of adequate amounts of scar tissue in the subcised area. The amount of fibroplasia after subcision varies with skin tension and the number of subcision procedures performed.⁹ Moreover, in our experience, the extent of subcision can also affect the amount of fibroplasia, with a width of 7–8 mm being adequate. More extensive undermining might induce hematoma and even internal hypertrophic scarring, whereas less undermining causes undercorrection. In our study as well as other studies, subcision was performed in the subdermal plane; we have not found literature documenting any other plane used for subcision. It is our opinion that the plane of subcision might affect the postoperative results. Nasolabial folds become prominent due to the attenuation of retaining ligaments, atrophy of cheek adipose tissue, and repeated facial movements. An anatomic and histologic study by Yousif et al¹⁴ reported that a fascial-fatty layer exists in the superficial subdermal space, extending from the upper lip, across the nasolabial fold, to the

cheek mass. In addition, the SMAS continues medial to the nasolabial fold as the superficial portion of the orbicularis oris in the upper lip, separate from the overlying fascial layer. They also revealed that traction on the SMAS could deepen the nasolabial fold, while traction on the fascial-fatty layer could flatten the fold. In order to enhance the efficacy of subcision and obtain consistent results with subcision, the plane of subcision should be reappraised. Disruption of the SMAS at the nasolabial fold through subcision may lessen the deepening of the nasolabial fold caused by repeated facial movements. Theoretically, division of the SMAS at the nasolabial fold seems possible only if a wire scalpel needle or cannula used for thread subcision passes through the subdermal plane medial to the fold and under the sub-SMAS plane lateral to the fold. However, passing the needle or cannula under the sub-SMAS plane lateral to the nasolabial fold seems as if it would be difficult. Future studies on various factors influencing fibroplasia may provide insights to further develop the subcision technique and obtain more consistent results.

V. CONCLUSION

When doing a conventional face-lift operation, we suggest the simultaneous use of subcision as an ancillary procedure to improve the appearance of nasolabial folds.

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