

Facial Rejuvenation with Absorbable and Barbed Thread Lift: Case Series with Mint Lift™

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Abstract

Introduction: The use of bidirectional barbed threads is a minimally invasive technique for facial rejuvenation, capable of making the middle and lower thirds of the face skin firmer. This study aims to report a series of cases using polydioxanone absorbable monofilament synthetic threads called Mint Lift™ (HansBiomed Corp. and HansBiomed Daeduk institute, Seoul, South Korea) in facial rejuvenation and remodeling.

Method: We report 6 cases with mild to moderate sagging skin in the middle and lower third of the face treated with Mint Lift™. Four patients were female and two were males, an average age of 42.5 years.

We perform the preoperative marking to indicate the two exit points of each hemiface, where the thread passes through the skin, according to the design desired for the patient. The threads were introduced into the upper portion of the auricular helix insertion (temporal region) anchored between the superficial and deep temporal fascia layers. After this, a cannula was inserted into the subcutaneous tissue for the passage and exit of the thread lines. The treatment did not interfere with patients' routine, was comfortable for most of them, and its application was safe. There was evident clinical improvement in the photographic records, mainly perceived in the patients.

Conclusion: The procedure has proven to be safe, and an important improvement was evident in the immediate postoperative period. It is a relatively fast, well tolerated procedure that can be associated with other procedures and as an alternative to conventional plastic surgery. Serious complications were not observed after the application, and the effect was shown to be long-lasting during follow-up.

Keywords: Thread lifting; Polydioxanone; Facial rejuvenation; Facial ptosis

Introduction

Facial aging process changes the face shape due to sagging of soft tissues and skin, and the most affected areas are the eyelashes, cheeks, jaw and neck. The gold standard for facial rejuvenation is the face lift surgery [1,2]. However, it is a more invasive surgical procedure and requires a longer recovery time [2].

The recent introduction of absorbable barbed threads producing a mechanical tensile effect (lifting effect) associated with the chemical effect (neocollagenesis [3]) for this type of anti-aging procedure is a good alternative, due to the shorter recovery time and patient inactivity in relation to the conventional plastic surgery [2]. In addition to the threads, it allows the association with other non-surgical procedures, such as botulinum toxin use and/or cutaneous filling in facial remodelling [1].

In this paper, we report six cases in which Mint Lift™ (HansBiomed Corp and HansBiomed Daeduk institute, Seoul, South Korea) were used to evaluate the surgical results in relation to the mandibular contour and nasolabial folds.

Method

We observed treatment of lower third of the face with mild to moderate ptosis in six patients with Mint lift™ in May 2016. Patients were healthy and had not undergone any surgical procedure or implants or cutaneous filling procedures in the past 12 months. The patients were evaluated through photos and patient satisfaction index.

The aim of the treatment of the lower third of the face is to promote the mechanical effect (lifting) and chemical effect (neocollagenesis) with the improvement of the nasolabial folds, jaw, and jawbone contour.

Mint Lift™ is a monofilament and absorbable synthetic yarn (polydioxanone) manufactured by HansBiomed Corp and HansBiomed Daeduk institute (HansBiomed Corp. and HansBiomed Daeduk institute, Seoul, South Korea), which belongs to the class III medical devices. The wire length is 43 cm, thickness defined as (USB size 1-0), violet in color, becomes translucent 1 month after its insertion, with bidirectional helical barbs in order to provide strong initial skin anchorage. The yarn is not attached to the needle and is initially inserted by means of a curved needle (5/8) (Figures 1A and 1B) and, later, by means of a blunt end wire (or cannula or inner pipe) (gauge 18) coupled to another external and disposable cutting tip guide (trocar).

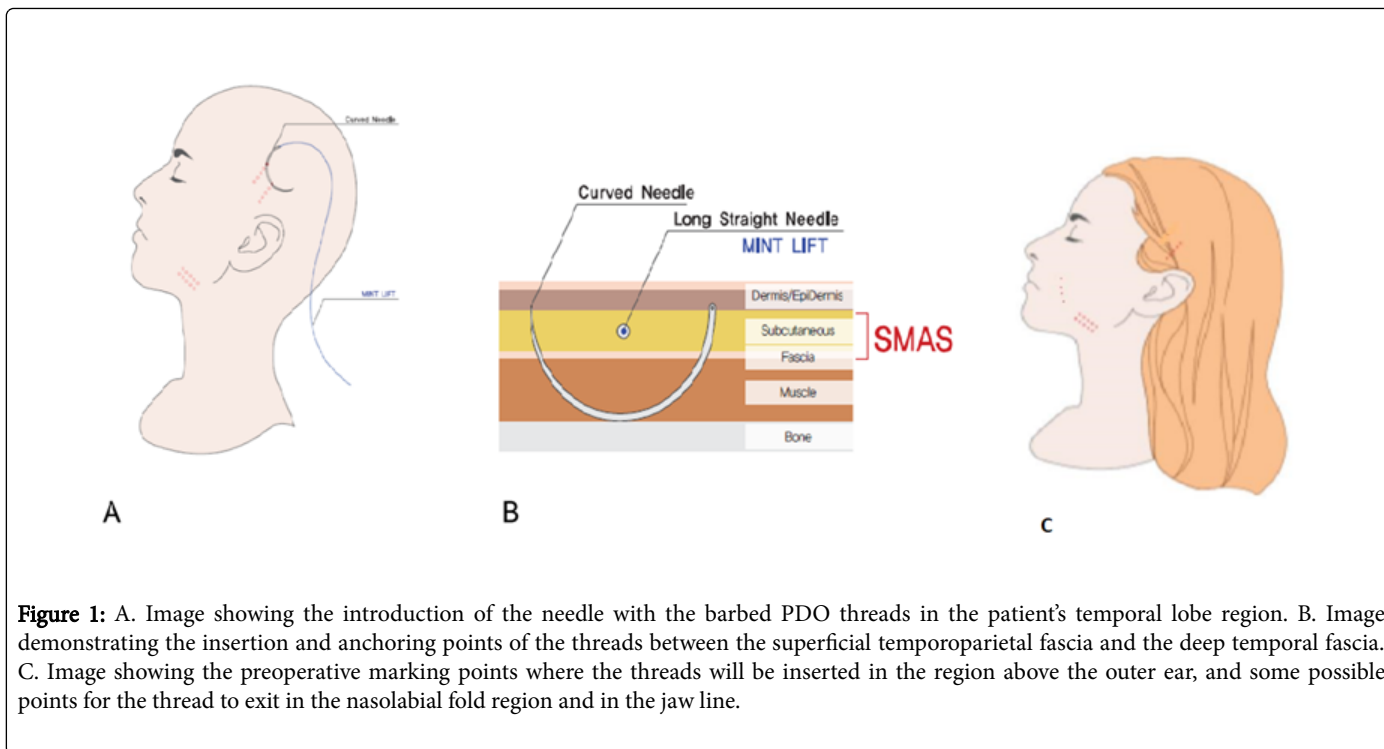


Figure 1: A. Image showing the introduction of the needle with the barbed PDO threads in the patient's temporal lobe region. B. Image demonstrating the insertion and anchoring points of the threads between the superficial temporoparietal fascia and the deep temporal fascia. C. Image showing the preoperative marking points where the threads will be inserted in the region above the outer ear, and some possible points for the thread to exit in the nasolabial fold region and in the jaw line.

Preoperative markings

Insertion point: Make a 5-point straight line 5 to 7 mm apart from 10 mm from the upper portion of the auricular helix insertion (temporal area - Figure 1C). The hair must be sanitized and fixed to prevent it from being trapped under the skin. At this point you can enter the number of yarns you need (1 to 3 wires, Figure 2A).

Exit point: prior to the marking procedure further evaluation is required, because you need to know how many yarns will be inserted, and also to be able to direct the tensile force in the face lowest part (Figures 2B-2F). The first point is 2 cm from the labial commissure and/or from 1.5 cm of the nasolabial fold midpoint. For the second point, it is necessary to draw a line from the 5 to 7 mm labial commissure toward the lower cheek and/or another point just below this one (Figures 2B-2F).

The procedure is performed under infiltration anesthesia (2% lidocaine hydrochloride with epinephrine hemitartrate 1: 200,000 ratio) at the needle insertion point and the exit point. The curved needle is inserted at the deep plane insertion point between the superficial temporoparietal fascia and the deep temporal fascia in order to achieve greater lift and tensile effect (Figure 1B). The yarn exit point depends on the lifting need of each patient, being directed to the nasolabial fold or another region presenting a greater ptosis in the mandible.

A blunt cannula externally attached to the trocar (Figures 2C-2F) is used to introduce the yarns and perform tunneling, as well as protect the tissues integrity. The cannula starts to enter in a deep plane between the superficial temporoparietal fascia and the deep temporal fascia, and as soon as it becomes more superficial, being at the level between the subcutaneous and the superficial muscular aponeurotic system. When reaching the exit point, the cannula is partially and proximally removed, exposing the external cutting guide (trocar) that pierces the skin (Figures 2E and 2F). After that, the cannula is

completely removed to pass the yarn through the trocar (Figure 2F), and thereafter the trocar is distally removed and the yarn is subcutaneously positioned. At the end, the yarn is pulled and the part of the yarn that is outside the skin must be removed by cutting with scissors.

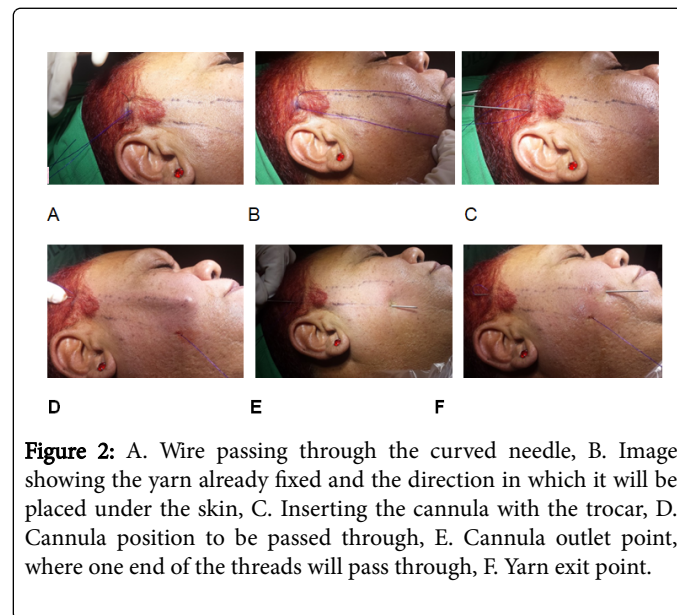


Figure 2: A. Wire passing through the curved needle, B. Image showing the yarn already fixed and the direction in which it will be placed under the skin, C. Inserting the cannula with the trocar, D. Cannula position to be passed through, E. Cannula outlet point, where one end of the threads will pass through, F. Yarn exit point.

Results

Four female and two male patients with an average age of 42.5 years (ranging from 55 to 35 years old). All the patients were satisfied and presented improvement in the mandible contour and attenuation of the nasolabial folds (Figures 3A-3C).

The most common immediate post-surgical complication and present in all patients was moderate intensity pain at the insertion point (temporal lobe area). Two patients presented ecchymosis.

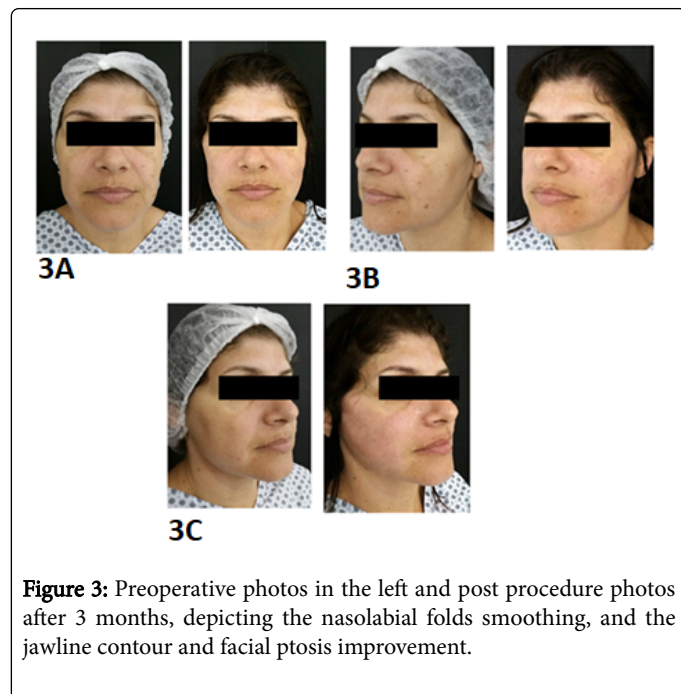


Figure 3: Preoperative photos in the left and post procedure photos after 3 months, depicting the nasolabial folds smoothing, and the jawline contour and facial ptosis improvement.

The patients were instructed not to practice physical exercises for two weeks and to apply cold compresses for 72 h in the temporal lobe region.

All patients had stable results during the follow-up period.

Discussion

Surgical facelift is still the best option for the rejuvenation and repositioning of the facial tissues affected by ptosis [1], however, it demands a greater recovery time for the patient, in spite of greater surgical risks.

The thread lifting was introduced to contribute to the facial rejuvenation treatments while reducing the postoperative morbidity [4]. They have excellent results in the middle and lower third of the face and present an elevated patient satisfaction index [2].

Patients with better indications for Mint Lift application are those having mild to moderate skin sagging, malar adipose tissue ptosis, marked nasolabial folds and irregular mandibular contour [5].

The immediate effect (mechanical effect) produced by the yarn is possible due to the barbs arranged helically and bidirectionally. This tensile force produced on both sides allows the barbs to act as a hook without wire slip. This is an advantage over unidirectional yarns [6,7]. We believe that these barbs associated with the surgical technique and the threads chemical effect (neocollagenesis induction) allow a better pulling of the support threads [8].

We observed in this study the presence of edema and ecchymoses, which are considered common and transient complications after the

surgical procedures [9]. Our patients did not show other types of complications reported in the literature, such as asymmetry, extrusion, palpable and visible yarns, neuropraxia, infection and poor results [1,9,10].

The patients were satisfied with the post-procedure result, and the jawbone contour improvement, nasolabial folds and jaw line attenuation, and maintenance of this result during the patients' follow-up period.

Thus, the use of Mint Lift™ was safe in these patients and the surgical technique was excellent for jawbone contour, ptosis of the malar adipose tissue and improvement of the nasolabial folds.

Conclusion

Mint Lift™ is an alternative for remodeling and facial rejuvenation of the middle and lower third of the face in patients with mild to moderate skin flaccidity, considered to be minimally invasive and can be performed in a shorter time and under local anesthesia. It has great indication in patients who do not wish to undergo the conventional surgical procedure, do not have a long time available for recovery, or that do have contraindication to surgery due to anesthetic sedation.

And finally, an important factor that must be observed when analyzing the results obtained with this technique is the correct selection of patients treated.

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