

# Successful Treatment of Thread-Lifting Complication From APTOS Sutures Using a Simple MACS Lift and Fat Grafting

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**Abstract** Facial soft tissue lifting with subdermal sutures has a significant attraction for physician and patient alike. The case report describes a 48 year old woman who presented with pain and discomfort over the left cheek after a thread-lift procedure with anti-ptosis (APTOS) sutures performed 13 months previously. The clinical examination showed extrusion of the APTOS thread (Aptos, Moscow, Russia) accompanied by slight soft tissue tightness and tenderness along its course to the temporal area, indicating complete removal of the thread. A simple minimal access cranial suspension lift was performed with the patient under local anesthesia to remove the subdermal sutures together with autologous fat grafting to enhance the aesthetic result. At the 1 year follow-up visit, no complications were reported, and the patient was entirely satisfied with the final result.

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**Keywords** APTOS · Autologous fat grafting · Facial soft tissue lifting · MACS lift · Subdermal sutures · Thread-lift procedure

Numerous attempts have been made over the past decade to improve the appearance of a ptotic face without incisional surgery. The use of barbed suture for facial soft tissue lifting is becoming increasingly popular and attractive for physician and patient alike. The thread lift promised to correct facial aging with limited scarring, rapid recovery, minimal complications, and lower cost compared with the standard rhytidectomy.

The polypropylene anti-ptosis (APTOS) threads were first described by Sulamanidze et al. [1] in 2002. These 2-0 polypropylene sutures had bidirectional barbs and anchored to the dermis to improve the facial contour lifting of various ptotic areas of the face [2]. After 350 APTOS procedures, Lycka et al. [3] reported completely satisfactory results with no major complications and suggested that the subdermal suspension thread technique provides an effective and much safer alternative to rhytidectomy.

Nevertheless, complications have been reported with the thread-lift procedure including facial asymmetry, ecchymosis, hematoma, recurrence, expulsion and extrusion, formation of inclusion cysts, and more severe complications such as nerve damage and significant scarring [4, 5]. All these complications require additional procedures such as simple thread removal (with subsequent loss of lifting

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effect) or a more invasive procedure (e.g., rhytidectomy). However, the removal of barbed sutures could be quite challenging due to the inherent structure of the sutures.

The case report describes successful removal of extrusion APTOS thread with the patient under local anesthesia using a simple minimal access cranial suspension (MACS) lift and autologous fat grafting. The authors believe this is the first case reported in the literature with use of the MACS lift not only to remove the sutures but also to maintain the lift and enhance the facial contour.

### Case Report

A 48 year-old woman presented to our clinic reporting pain and discomfort over the left cheek after a thread-lift procedure with APTOS sutures performed 13 months previously elsewhere. Although she was satisfied with the initial result, 6 months after the procedure, slight discomfort and pain appeared over the left cheek. During the subsequent months, the symptoms became more severe, and a palpable nodule could be felt at the exit point of the thread in the left cheek.

Clinical examination showed partial expulsion of the APTOS thread accompanied by slight soft tissue tightness and tenderness along its course to the temporal area (Fig. 1). During the consultation, the patient requested a procedure with minimal risk and short downtime that would maintain the lifting effect of the previous procedure and also improve the marionette lines and forehead augmentation.

A simple MACS lift and autologous fat grafting were proposed to remove the threads from both sides, improve the marionette lines and small wrinkles in the perinasal area, and achieve augmentation of the forehead.

With the patient under local anesthesia, we performed a simple MACS lift as described originally by the authors [6, 7]. Over the cheek area, it was necessary to extend the



**Fig. 1** The APTOS thread is extruded in the left cheek (*black arrow*) accompanied by pain, discomfort, and slight tightness along its course to the temporal area

skin undermining more than 5 or 6 cm for removal of the two APTOS threads from each side with safety. Two 2-0 polydioxanone (PDS) purse-string sutures were applied and fixed to the deep temporalis fascia as described by Tonnard and Verpaele [6]. Simultaneously, fat was harvested from the abdomen and prepared for grafting according to Coleman's technique. Altogether, 36 ml of fat was injected to the face: 20 ml for forehead augmentation, 4 ml to the nasalobial folds, 4 ml to the marionette lines, 3 ml for correction of the tear-through, and 5 ml to the zygomatic area.

The postoperative period was uneventful except for mild bruising, which resolved within the next 2 weeks. The symptoms resolved completely soon after the surgery, and the patient was entirely satisfied with the final result at her follow-up visits after 6 months and 1 year (Fig. 2).

### Discussion

Facial soft tissue lifting with subdermal APTOS sutures as a minimally invasive procedure is quite an attractive method for achieving facial rejuvenation. It was first described in 2002 by Sulamanidze et al. [1], who presented a study of 186 patients. Of these 186 patients, 133 underwent thread elevation alone, and 53 underwent additional procedures concurrently. According to their study, the APTOS threads proved successful in lifting various ptotic areas of the face, and they reported only a 2.5 % failure rate.

In 2011, Sulamanidze et al. [8] presented the largest APTOS lifting series in the literature, reporting that the results with the first-generation APTOS thread and APTOS thread 2G (Aptos, Ltd., Moscow, Russia) were inconsistent with early relapse of deformity. However, with the latest generation of APTOS thread products, the soft tissue suspension became more effective and durable, and the incidence of complications decreased. According to their study, during a period of 12.5 years, without distinguishing between the first and the latest generation of APTOS products, the most frequent complications were asymmetry in 3 %, contour irregularities in 2.8 %, and early relapse in 2.7 % of the patients. In addition, according to their data, 609 complications occurred for 6,098 patients. Although it is not very accurate to estimate that 10 % of the patients had complications, because one patient may have had more than one complication, it seems that even in experienced hands, the technique often is followed with minor or major complications. However, in their study, it is not clear how many patients required additional procedures or thread removal.

The medical literature also has reported a number of cases involving failures and complications. Rachel et al. [9] reported that adverse events occurred in 20 (69 %) of 29 patients with the use of polypropylene threads (Contour threads, Angiotech Pharmaceuticals, Vancouver, BC).

**Fig. 2** Before and 1 year after the simple MACS lift and autologous fat grafting



The most common event was intractable pain in 11 patients, followed by dimpling in ten patients, visible or palpable threads in eight patients, thread extrusion in four patients, paresthesia in three patients, and foreign body reaction in two patients. During the follow-up period, 22 subsequent procedures were performed for 17 of the study patients. Of these 17 patients, seven underwent additional surgery for early recurrence. The subsequent procedures included thread replacement in nine cases, thread removal in five cases, subcision in three cases, face-lift in two cases, soft tissue filler in one case, radiofrequency skin tightening in one case, and lipoaugmentation in one case.

Garvey et al. [10] reported that 30 (42.3 %) of 72 patients underwent some form of revisional surgery after the original thread-lift procedure with Contour threads. Of these 72 patients 22 (31 %) underwent revisional surgery for cosmetic reasons and 9 (11.3 %) required removal of palpable threads.

Complications associated with APTOS thread also were reported by Wu [11] in 2004. As described in this report, nine of 102 patients treated with APTOS thread experienced palpable thread ends with pain, eight patients experienced thread migration, five patients experienced infection or granulomas, and five patients experienced skin dimpling or irregularities.

Helling et al. [12] presented four cases of patients who required removal of suspension sutures (Contour threads). Two patients reported chronic foreign body sensation, whereas one patient had unilateral buccal branch facial nerve paresis, and one patient had obvious dimpling.

Kaminer et al. [13] studied the long-term efficacy of anchored nonabsorbable barbed sutures (Contour Lift,

Surgical Specialties, Reading, PA) in the face and neck. According to their report, 12 (60 %) of 20 patients experienced postprocedure side effects: bruising in seven patients, swelling in six patients, pinching sensation in three patients, visibility of threads in four patients, and ear numbness in three patients. However, in all cases, the side effects were temporary and did not require intervention.

Beer [4] reported a case of delayed complication after brow ptosis correction with thread lift (Contour Lift). According to his report, 2 years after the procedure, visible cords appeared running vertically up the patient's forehead, which required thread removal via a small incision just above the eyebrow.

Silva-Siwady et al. [14] also reported a case of APTOS thread migration and partial expulsion, which required thread removal. Goldan et al. [15] described the case of a 57 year-old woman with scarring after APTOS threading. The scar biopsy showed an epidermoid inclusion cyst. Winkler et al. [16] presented two major complications: a rare case of Stensen's duct laceration and a case of chronic inflammation mandating surgical treatment.

Our study involved the case of a woman with partial expulsion of the APTOS thread accompanied by slight soft tissue tightness and tenderness along its course to the temporal area requiring thread removal. After discussing options, which included attempted simple thread removal with the possible subsequent loss of lifting effect and more invasive methods such as formal rhytidectomy, the simple MACS lift with fat grafting was chosen. The advantages of rapid recovery, the short scar, and the requirement of local anesthesia together with the enhancement of the result using fat grafting made this a reliable and attractive option.

During the MACS lift, two threads from each side were removed, and 36 ml of autologous fat was injected to the midface and forehead. We note that the forehead augmentation is a distinctly “Asian” form of plastic surgery. It is a common procedure in Asian countries because it enhances the facial profile, increasing the forehead projection. At the follow-up visit, no complications were reported, and the patient was entirely satisfied with the final result.

## Conclusion

Although facial soft tissue lifting with minimally invasive procedures such as subdermal sutures is quite attractive in selected cases, the treatment of complications might be very challenging. The simple MACS lift with fat grafting is an effective method for solving the complications after thread-lifting procedures that offers a pleasant cosmetic result.

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