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A Free-Floating Technique Simplifies Lower Face Thread Lift for Premature Lower Face Aging: An Evidence-Based Case Report

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Abstract

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Background : Skin aging is a complex biological process influenced by a combination of endogenous (intrinsic) and exogenous (extrinsic) factors. A Thread Lift is a cosmetic procedure that lifts and tightens sagging tissue while enhancing facial contours, using threads made from the same material utilized in surgical wound closure. This case report aims to present a new, simplified thread lift technique available to dermatologists today, covering preventive measures, cosmetic strategies, topical and systemic therapeutic agents, and invasive procedures.

Case : A 40-years-old man, a contractor and heavy smoker who participates in outdoor sports, is frequently exposed to the sun. He has complained of sagging in the lower cheek area for the past year. A thread lift treatment was performed. On the patient's second visit, a thread lift was conducted after marking an anchoring pattern in the retaining ligament and injecting 2% lidocaine at the entry point of the lateral face area. This was followed by tumescent anesthesia using a 25G cannula along the thread lift marking. The entry point was opened using an 18G needle, and the bevel-down thread lift was inserted above the mandibular angle into the subcutaneous layer without injuring the facial muscles as per the marking. The thread lift protocol used a thread (thread 6D cog PDO threads with needles). After the thread lift is inserted into the marionette line, pull on the entry point slowly until the thread lift elevates the epidermis to the subcutaneous layer, achieving repositioning of the lower face.

Conclusion : The free-floating Thread lift technique is an aesthetic procedure with a quick healing process and minimal side effects that help prevent premature aging, making it simple and suitable for all dermatologists to perform.

Keywords : Lower Face Aging, Premature Aging, Thread Lift, Simplify Thread Lift

INTRODUCTION

Aging is the decline in function of the entire body. Any multicellular organism exposed to solar energy will undergo changes resulting in aging.¹⁻⁴ Aging can be defined as the deterioration of physiological functions necessary for survival that affects all individuals. Aging can be divided into physiological aging, which is based on increasing age, and premature aging, which is caused by extrinsic factors such as sun exposure and lifestyle.⁵⁻⁷ The aging of the skin, particularly in the facial area, is a multifaceted process that involves both intrinsic and extrinsic mechanisms, leading to various structural and physiological changes in the skin. Intrinsic aging is associated with programmed aging and cellular aging, caused by endogenous oxidative stress and cellular damage.⁸⁻¹⁰ As age increases, exposure to free radicals, sun radiation, and lifestyle choices can accelerate the aging process, resulting in what is known as premature aging. This phenomenon poses a concern for individuals who are conscious of their appearance and health.¹¹

A thread lift study is a non-surgical procedure found in databases like PubMed, Google Scholar, Cochrane Library, and ScienceDirect using search keywords: "Thread lift" OR "Suture lift" and "PDO" OR "Polydioxanone" and "Lower face" OR "Jowl sagging" AND "Premature aging." It identified 450 articles, but only 13 studies are related to this topic (see Figure 1). Table 1 shows recent 5-year studies on thread lift, including criteria and outcomes. This procedure lifts drooping and aging skin while stimulating collagen production to renew the face or neck and combat early aging. It raises and firms sagging tissue, emphasizing facial contours with threads made from the same material used in surgical wound closures. When placed under the skin, the thread can tighten tissue and add volume to the area. Although various thread lift techniques are used clinically, no single method combines simplicity with effectiveness results.^{1,12,13}

Therefore, we emphasize the use of a simplified free-floating thread lift technique for facial rejuvenation, focusing on thread types, patient selection, and how to

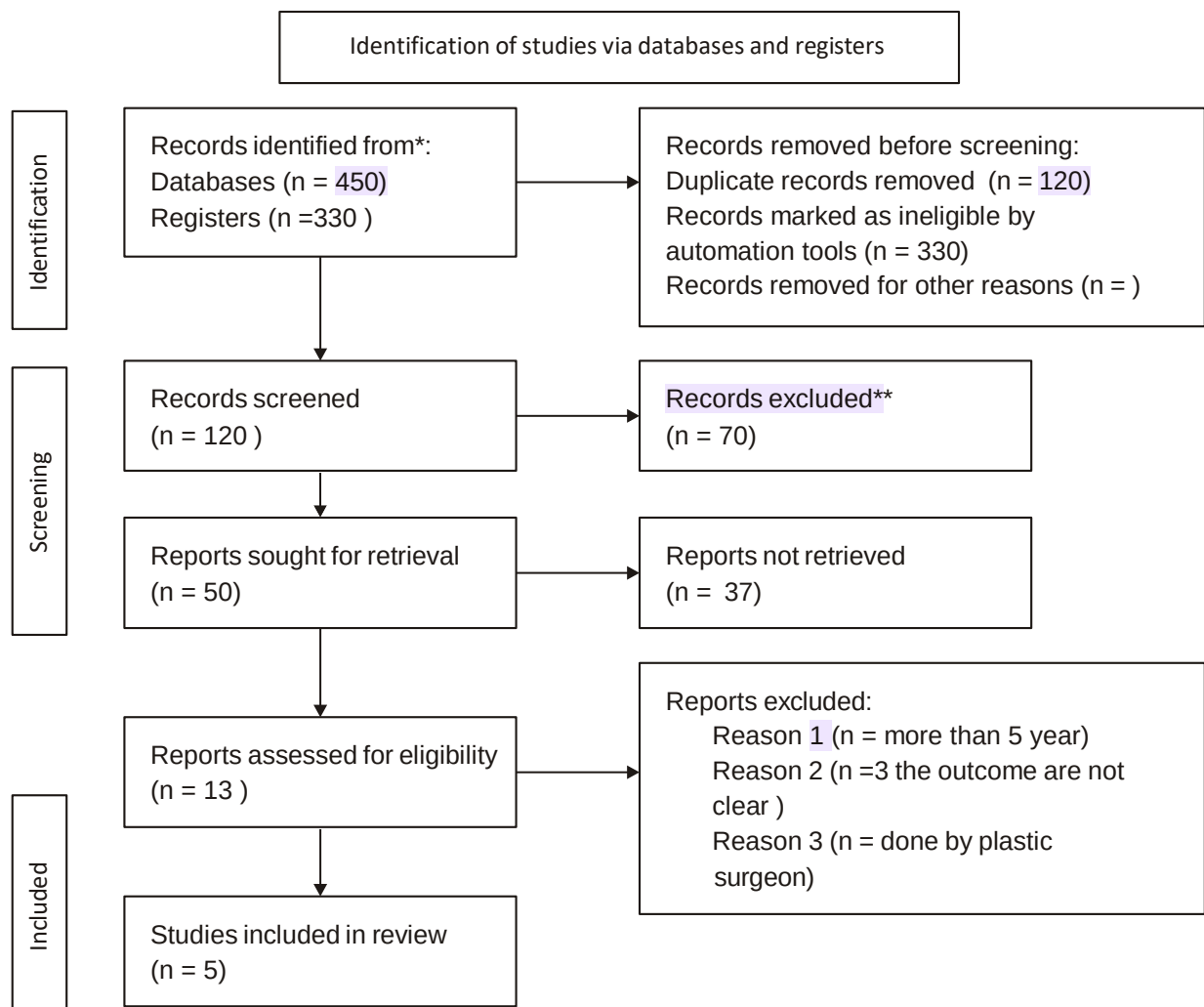


Figure 1. Flow diagram of literature searching

TABLE 1

A systematic literature review was carried out over the past 5 years

No.	Study Author & Year	Inclusion Criteria	Exclusion Criteria	Primary Outcomes
1.	Liao <i>et al.</i> (2024)	Middle-aged and elderly individuals (40-65 years) with facial skin laxity and nasolabial folds.	History of facial surgery, severe systemic diseases, or active skin infections.	Significant improvement in facial rejuvenation; combined use with fillers increased maintenance duration.
2.	Tavares <i>et al.</i> (2022)	Patients aged 30-69 years with gravitational ptosis (type I, II, or III laxity).	Skin diseases, hemophilia, use of anticoagulants, or history of malignant blood diseases.	WSRS score improved from 3.88 to 2.36 after 2 years; high patient satisfaction (GAIS score 4.01).
3.	Ojha <i>et al.</i> (2025)	Patients seeking minimally invasive facial lifting using various suture materials (PDO, PLLA, PCL).	Follow-up less than 12 months or prior major facial reconstructive surgery.	Comparison of complication rates: Swelling (16%), Skin dimpling (7%), and Ecchymosis (26%).
4.	Wan <i>et al.</i> (2024)	Individuals with subzygomatic arch (lateral cheek) depression or forehead volume loss.	Previous permanent fillers, severe skin thinning, or unrealistic aesthetic expectations.	Effective volume migration and tissue displacement; successful forehead and lateral cheek augmentation.
5.	Clinical Study to Evaluate Safety and Effectiveness of Noble Lift® Lifting adsClinical	BMI 18.5–30; requiring aesthetic treatment of mid-face/lower-face with resorbable threads.	Severe malar fat sagging, resorbable fillers within 12 months, or known bleeding disorders.	Non-inferiority of new thread models; primary endpoint measured by GAIS score at month 3.

choose the right technique for individuals showing signs of premature facial aging. This case report aims to introduce a new, easier thread lift method available to dermatologists today, covering preventive measures, cosmetic strategies, topical and systemic therapeutic agents, and invasive procedures.

CASE PRESENTATION

A 40-year-old man, a contractor, heavy smoker, and outdoor sports enthusiast, is frequently exposed to the sun. He has complained of sagging in the lower cheek area for the past year (Figure 2).

Six months before the examination, the patient practiced self-care by adjusting their diet, reducing sun exposure, and using sunscreen; however, complaints persisted. Non-invasive treatments such as laser and ultrasound have been performed, but there has been no significant improvement. Currently, the patient visits the dermatology clinic for consultation. From the consultation results, it was observed that the skin texture was widened, there were large pores, uneven skin color, hyperpigmentation, and sagging in the pre-jowl area (lower face), which are signs typically seen in facial skin aged 50 years. Facial analysis (photography in the

Frankfurt position) and action planning were conducted, including advice to discontinue blood-thinning medications in preparation for the thread lift procedure. The procedure done on patient's second visit, A lower face thread lift was performed to correct premature lower facial aging characterized by pre-jowl sulcus formation, marionette line deepening, and mandibular contour laxity. Pre-procedural assessment included a comprehensive facial analysis with standardized photography obtained in the Frankfurt horizontal plane to evaluate facial symmetry, degree of soft-tissue ptosis, and lower facial contour deformities. The treatment objective was to reposition descended soft tissue in the pre-jowl and marionette regions using a superolateral lifting vector anchored to the lateral facial retaining ligament complex. The patient was advised to discontinue medications and supplements associated with increased bleeding risk, including anticoagulants, antiplatelet agents, non-steroidal anti-inflammatory drugs, vitamin E, and herbal supplements, for at least 57 days prior to the procedure. Written informed consent was obtained.

The procedure start (Figure 3) with patient's was positioned in a semi-recumbent position (30–45°) to allow optimal visualization of gravitational tissue descent and



Figure 2. Premature aging of the lower face with markings (red lines) of sagging or drooping of the facial skin.



Figure 3. (A) Mapping with marker (red line) before the procedure, (B) lower face lift (yellow line) with skin tightening level (blue arrow) as the target face lift

to facilitate accurate vector planning. The treatment area, including the lateral cheek, mandibular border, and pre-jowl region, was prepared using povidone-iodine solution followed by 70% alcohol to maintain strict aseptic conditions. Facial markings were performed with

the patient in an upright position. The entry point was located in the lateral facial region superior to the mandibular angle, an area considered relatively safe due to its distance from major neurovascular structures. The target zone included the marionette line and pre-jowl

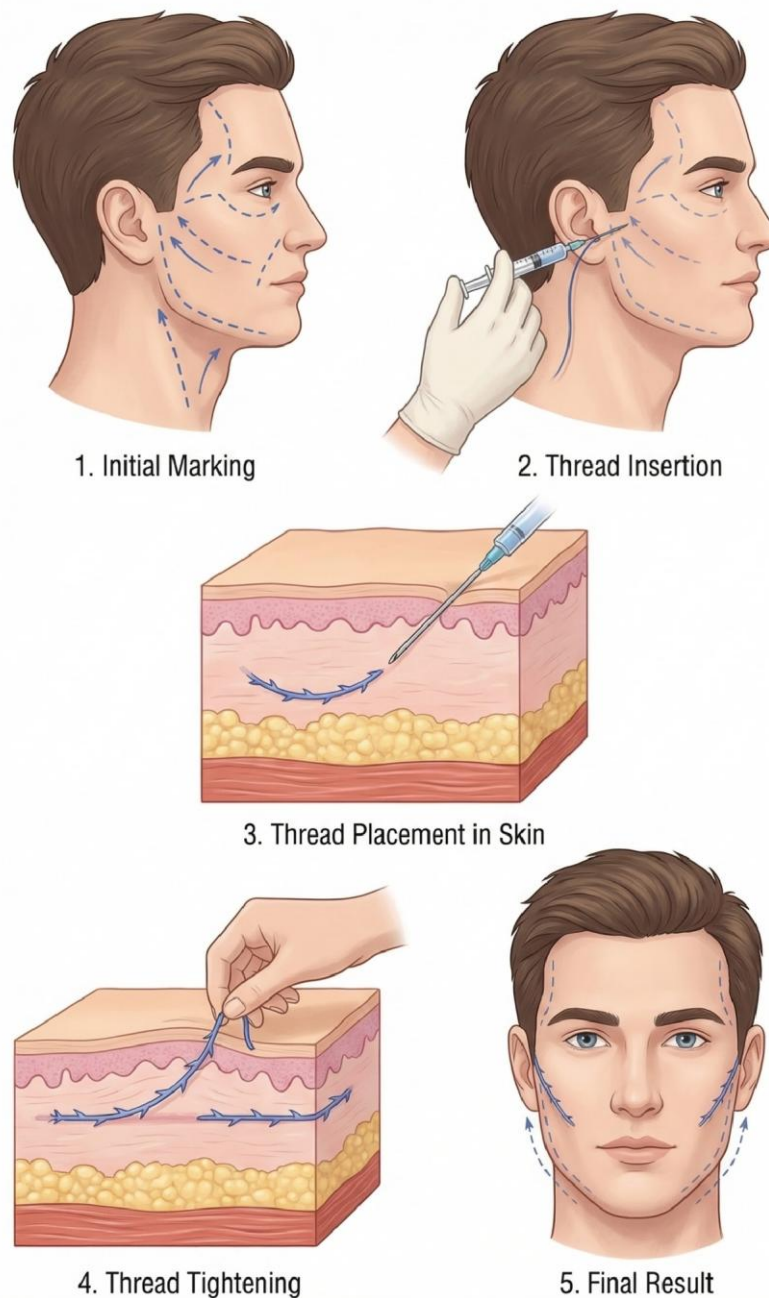


Figure 4. The illustration of “free-floating Thread lift technique Procedure” (Step-by-Step)

sulcus. The lifting vectors were designed in a superolateral direction toward the zygomatic retaining ligament and lateral temporal fascia, structures that provide strong anchoring support for mechanical lifting.

Special attention was given to avoiding critical anatomical danger zones during thread placement. The thread trajectory was planned to remain within the subcutaneous plane superficial to the superficial musculoaponeurotic system (SMAS) to minimize the risk

of injury to deeper neurovascular structures. Care was taken to avoid the course of the facial artery, which typically runs along the anterior border of the masseter muscle before crossing the mandibular border toward the nasolabial fold. In addition, the insertion pathway was planned to avoid the marginal mandibular branch of the facial nerve, which runs inferior to the mandibular border and supplies the depressor muscles of the lower lip. Maintaining a superficial subcutaneous plane and lateral



Before Treatment

After Treatment

Figure 5. Before and after view of thread lift on the lower face

entry point helped reduce the risk of nerve injury and vascular complications. Topical anesthesia (Figure 3A & 3B) using lidocaine 9% cream was applied to the treatment area for approximately 10–15 minutes to reduce procedural discomfort. After removal of the topical anesthetic, local infiltration with 2% lidocaine was administered at the entry point. Tumescence anesthesia containing lidocaine was subsequently injected along the marked thread pathway using a 25-gauge cannula, providing hydrodissection within the subcutaneous layer, improving patient comfort, and facilitating atraumatic thread passage. A skin entry point was created using an 18-gauge needle, allowing smooth introduction of the thread needle into the subcutaneous tissue. The thread lift procedure used Thread 6D, a bidirectional, barbed polydioxanone (PDO) thread designed for mechanical lifting and stimulation of collagen neogenesis. Each thread measured 19–21 cm in length with an approximate needle gauge of 19G, allowing adequate reach from the lateral entry point to the marionette and pre-jowl regions. A total of two threads were inserted on each side of the lower face following the pre-marked vectors.

The thread needle was inserted through the entry point and advanced along the pre-marked path within the subcutaneous layer above the SMAS, carefully avoiding penetration into deeper muscle tissues. The thread was guided toward the marionette line and pre-jowl area using a free-floating technique, allowing the cog barbs to catch onto the fibrous septa within the subcutaneous fat. Once the thread reached the target

location, the needle was removed while keeping the thread in place. Gentle tension was applied from the entry point to activate the cog barbs and lift the sagging tissues mechanically. This maneuver repositioned the soft tissue upward and outward, enhancing the contour of the jawline and reducing the prominence of the marionette line and pre-jowl depression. After achieving the desired lifting effect, the excess thread at the entry site was trimmed flush with the skin surface. Gentle manual molding of the treated area was performed to minimize irregularities and ensure smooth contouring of the lifted tissue. The patient was then asked to sit upright to evaluate the immediate lifting effect and to assess facial symmetry, skin dimpling, or tension irregularities. The same procedure was subsequently performed on the contralateral side to achieve balanced bilateral lifting. Following completion of the procedure, the treated areas were carefully examined for immediate complications, including bleeding, hematoma formation, skin dimpling, or thread extrusion. Standardized post-procedure photographs were obtained to document the immediate aesthetic outcome.

Post-procedure instructions (Figure 5) included avoiding excessive facial movements, vigorous chewing, facial massage, and strenuous physical activity for at least one week. Patients were also advised to sleep in a supine position with the head elevated and avoid external pressure on the treated areas for approximately two weeks. Follow-up visits were scheduled to monitor healing, evaluate treatment outcomes, and identify any delayed complications.

DISCUSSION

Skin aging is a complex biological process influenced by a combination of intrinsic (endogenous) and extrinsic (exogenous) factors. Premature lower facial aging is characterized by soft tissue descent, loss of skin elasticity, and the development of structural changes such as the marionette line and pre-jowl sulcus. These changes are commonly associated with intrinsic aging, environmental exposure, and lifestyle factors, including chronic ultraviolet radiation and smoking. In the present case, the patient exhibited features of lower facial aging that were disproportionate to chronological age, likely related to prolonged sun exposure and smoking, both of which contribute to collagen degradation, elastin fragmentation, and reduced dermal structural integrity.^{14,15}

Thread lifting with polydioxanone (PDO) cog threads has become a minimally invasive alternative to surgical rhytidectomy for correcting mild to moderate facial ptosis. PDO threads deliver an immediate mechanical lift by engaging barbed structures within the subcutaneous fibrous septa. Besides providing mechanical support, PDO materials promote neocollagenesis, fibroblast growth, and tissue remodeling during biodegradation. The hydrolysis of PDO threads generally takes about 6–8 months, during which collagen buildup and fibrosis around the thread help maintain lifting and skin tightening effects.¹⁶

In this case, 6D cog PDO threads were selected because of their multidirectional barbed configuration, which offers stronger tissue anchoring and enhanced lifting ability compared to mono or smooth threads. Using bidirectional cog threads allows the barbs to engage surrounding soft tissue structures, thereby redistributing the gravitational forces responsible for lower facial sagging. Placement within the subcutaneous layer superficial to the superficial musculoaponeurotic system (SMAS) enables effective tissue repositioning while reducing the risk of injury to deeper anatomical structures. Anatomical considerations are crucial for the safety and success of thread lift procedures. The lower face contains vital neurovascular structures, including the facial artery and the marginal mandibular branch of the facial nerve. The facial artery generally runs along the anterior border of the masseter muscle before crossing the mandibular border toward the nasolabial fold, while the marginal mandibular nerve travels inferior to the mandibular border to innervate the depressor muscles of the lower lip. In this technique, the entry point was positioned in the lateral facial region above the mandibular angle, and the thread was advanced in a superficial subcutaneous plane. This approach helps reduce the risk of neurovascular injury while ensuring effective engagement of fibrous septa within the subcutaneous tissue. The lifting vectors used in this case

were directed superolaterally toward the zygomatic retaining ligament complex, which provides a stable anchoring point for soft tissue suspension. Retaining ligaments of the face serve as structural support systems that connect the superficial soft tissues to deeper fascial layers and the periosteum. Utilizing these anatomical structures as anchoring points enhances the stability of thread fixation and improves the durability of lifting outcomes. The vector orientation is particularly important in the correction of pre-jowl deformity, as it allows redistribution of sagging tissue toward areas of stronger ligamentous support. The free-floating insertion technique used in this procedure enables the cog barbs to engage the fibrous septa within the subcutaneous adipose layer without rigid fixation at the distal endpoint. This technique allows gradual tissue repositioning while reducing the risk of excessive tension or skin dimpling. Following activation of the barbs through gentle traction, the lifted tissues are repositioned along the predetermined vector, resulting in improved mandibular contour and reduction of the marionette line.¹⁷

Previous studies have reported that thread lifting procedures using PDO cog threads are associated with high patient satisfaction and relatively low complication rates when performed with proper anatomical knowledge and technique. The most common adverse events include transient swelling, bruising, mild pain, and temporary skin dimpling. More serious complications, such as nerve injury, infection, or thread extrusion, are uncommon but may occur if the procedure is performed in an incorrect anatomical plane or near major neurovascular structures.^{18–21}

Although thread lifting offers several advantages, including minimal invasiveness, short recovery time, and immediate aesthetic improvement, the longevity of results remains limited compared with surgical facelifting procedures. The durability of PDO thread lifting is influenced by multiple factors, including thread type, insertion technique, patient age, skin quality, and lifestyle factors such as smoking and sun exposure.^{12,19,22–25}

CONCLUSION

Although natural aging is genetically determined, extrinsic aging can be prevented. Aesthetic dermatology should contribute to “healthy aging,” not only in cosmetic terms by attempting to erase the traces of time on the skin but also by playing an important role in preventing premature aging. This simple technique can regenerate and delay skin aging by combining knowledge of potential local and systemic therapies, instrumental devices, and non-invasive procedures. Mapping prior to implementing thread tightening procedures can boost every dermatologist's confidence and help achieve an excellent facelift without serious

complications in cases of premature lower facial aging. Overall, this case demonstrates that the use of multidirectional cog PDO threads with a superolateral vector anchored to the lateral facial retaining ligaments can provide effective correction of premature lower facial aging with minimal complications when performed with careful anatomical planning and proper technique.

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The figure of this manuscript was created in Illustrae.co website

CONFLICTS OF INTEREST

There are no conflicts of interest.

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