

Invisible Incision: Description of the Transcutaneous Lower Blepharoplasty Technique

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Keywords

Invisible Incision, Surgery.

Introduction

The skin of the eyelids, with a thickness that varies between 0.5 mm in the thickest areas, close to the outer corner of the eye, and 0.05 mm in the thinnest regions, close to the inner corner, is the thinnest of the entire human body. This characteristic allows the visualization of underlying structures, such as blood vessels, which accentuates the aesthetic sensitivity of this region.

In addition to their thin thickness, the constant movement of the eyelids contributes to the early appearance of signs of aging, such as sagging, wrinkles and eyelid bags. These factors make the eye area a focus of attention in aesthetic and functional procedures, such as blepharoplasty, frequently sought after even by patients in younger age groups. This article presents an innovative technique of lower blepharoplasty with an invisible incision, which aims to improve aesthetic results and reduce signs of surgical intervention, highlighting its effectiveness and safety.

Objective

This study aims to describe an innovative transcutaneous lower blepharoplasty technique, called "Invisible Incision" (IV), evaluating the results related to healing and the rate of complications associated with this approach. Furthermore, it seeks to compare the data obtained with the information available in current literature. The constant evolution of surgical techniques, with the development of less invasive approaches and the integration of advanced technologies, combined with the growing interest in facial aesthetics, especially in the eye region, highlights the need for studies that explore safe, effective and aesthetically

improved methods, such as the technique presented in this work.

Materials and Methods

This is a prospective cohort study carried out with cases of transcutaneous lower blepharoplasty using the "Invisible Incision" (IV) technique, conducted by a single oculoplastic surgeon. The objective is to describe the surgical approach, analyze the postoperative results and compare them with data available in the literature.

The research included 232 surgeries performed on patients aged 38 to 75 years, treated at the author's private clinic, located in Porto Alegre/RS, after approval of the project by the respective ethics committees and signing of the Free and Informed Consent Form (ICF). The inclusion criteria were: presence of dermatochalasis and/or pockets of fat indicated for correction via transcutaneous technique, without previous eyelid surgery. Secondary cases or patients with Graves' ophthalmopathy were excluded.

The patients were photographed at two moments: before the procedure and between 4 and 5 months postoperatively. All photographs were captured under standardized conditions, using the same camera and photo studio. The images from the last evaluation were analyzed by a second experienced surgeon, who classified the scars according to a 4-point scale (1 - bad; 2 - fair; 3 - slight; 4 - imperceptible), for statistical analysis.

Surgical Technique

The "Invisible Incision" technique was performed under local anesthesia with sedation and infiltration of vasoconstrictor solution (neocaine 0.5% with vasoconstrictor). The procedure followed the following steps:

1. Incision

- The lateral incision, located at the junction between the upper and lower eyelids, with a maximum extension of 3 mm, is made using a CO₂ laser (SmartXide Touch DEKA®) ensuring precision and minimizing tissue damage.
- A tight ciliary incision is made along the lash line using Westcott scissors preserving the natural anatomy.

2. Dissection and Myocutaneous Flap

- Dissection of the flap in the preseptal plane up to the orbital rim, using the CO₂ laser preserving 4 to 5 mm of the supratarsal orbicularis muscle.
- Preservation of the fat pockets, treated with minimal opening of the orbital septum and light pressure on the eyeball.

3. Canthopexy

- Fixation of the lateral canthal ligament to the lateral orbital rim via a lateral incision of the outer canthus, without cantholysis.
- Suture with 6.0 mononylon, ensuring delicate traction to keep the lateral canthus elevated, preserving the natural curvature of the lower eyelid and coverage of the rim over the eyeball.

4. Removal of Excess Skin

- Removal of a strip of skin and discreet removal of the orbicularis muscle, respecting the individual anatomy.
- The residual skin was treated with CO₂ laser (SmartXide Touch, DEKA®) using a resurfacing tip, combined with drug delivery to enhance tissue regeneration and optimize post-procedure healing.

This approach was designed to optimize aesthetic results, minimizing visible scars and reducing complications. The data obtained was compared with those described in the literature to validate the efficacy and safety of the technique.

Results

A total of 232 cases of transcutaneous lower blepharoplasty using the "Invisible Incision" (IV) technique were evaluated, with follow-up at two time points: preoperatively and 4 to 5 months after the procedure. The results demonstrated a high rate of patient satisfaction and a low incidence of complications.

Scarring

Analysis of the scars performed by a second surgeon, using a 4-point scale, showed that 99% of the patients received scores of 3 (discreet) or 4 (imperceptible) in the evaluation between 4 and 5 months, indicating excellent aesthetic results. Only 1% of the scars were classified as reasonable (grade 2), and no cases were evaluated as poor (grade 1). In most patients, after 1 week of surgery, the lower blepharoplasty scar was already quite satisfactory, after 30 days it was quite discreet, but in some cases it was slightly reddish and after 4 to 5 months it was practically imperceptible (Figures 1 and 2).

Complications

The complication rate was low, with minimal adverse events, such as:

- **Persistent edema:** 4% of cases, resolving spontaneously by the third month.
- **Mild ectropion:** 2% of cases, corrected without the need for

surgical intervention.

- **Persistent Hematomas:** 8% of cases, resolving spontaneously within 21 to 30 days.

No cases of infection, necrosis or other serious complications were recorded.



Figure 1: Before, after 1 week and after 4 month post operative upper and lower blepharoplasty.



Figura 2: Before and after 4 month post operative upper and lower blepharoplasty.

Patient Satisfaction

Satisfaction was assessed by a questionnaire administered at the last evaluation. Most patients reported high satisfaction with the results, including regarding the natural appearance and the absence of visible scars.

Comparison with Literature

The data obtained demonstrated superior or equivalent results to the transcutaneous techniques described in the literature, especially regarding scar quality and low incidence of complications. The preservation of anatomical structures and the conservative approach in the treatment of fat pads contributed to maintaining the functionality and aesthetics of the lower eyelid. These findings confirm that the IV technique is an effective and safe alternative, with significant advantages in the aesthetic and functional aspects compared to traditional approaches.

Discussion

External lower blepharoplasty can be performed using different approaches, each adapted to the patient's clinical and aesthetic conditions. Among the techniques described, lateral access recontouring blepharoplasty stands out, offering advantages such as preservation of functional anatomy and minimization of the risk of eyelid retraction, avoiding subciliary or transconjunctival incisions. In this approach, the lateral incision is strategically positioned, with dissection under the orbicularis muscle and anterior to the orbital septum, allowing efficient treatment of the eyelid structures essential for rejuvenation [1]. The technique is indicated for patients with deep nasojugal folds, herniated fat in the lower eyelid, mild to moderate rhytids, and increased lower eyelid height [2].

Reduced incision techniques, as described in recent studies, represent a minimally invasive approach that offers significant advantages, such as shorter recovery time and reduced complication rates [2-4]. Although they vary in the number and location of incisions, these techniques share the characteristic of precisely removing the pretarsal soft tissue and performing strategic fixations, resulting in high-quality and longer-lasting aesthetic results [4]. A classical approach widely used in lower eyelid surgery is the subciliary incision, which allows the creation of a combined skin and muscle flap, associated with canthal anchorage to provide adequate structural support. However, this technique requires rigorous preoperative planning and precise surgical execution in order to minimize the risk of lower eyelid malpositions [5].

The subciliary incision in lower blepharoplasty is a technique widely used for lower eyelid rejuvenation. This approach involves making an incision just below the ciliary margin, usually 1 to 2 mm below the lash line. Precise location of the incision is crucial to minimize visible scarring and reduce the risk of complications, such as lower eyelid retraction. Some authors advocate mandatory lateral canthopexy in patients undergoing external lower blepharoplasty, due to the higher risk of eyelid retraction (16%) in patients who did not undergo canthoplasty versus the lower

risk (1%) in the group that underwent canthoplasty [6-8]. The subciliary incision allows direct access to underlying structures such as the orbicularis muscle, orbital septum, and fat pads. The technique involves creating a flap of skin and muscle, which is carefully dissected to expose and treat the desired structures. Orbital fat removal or redistribution can be performed to smooth out under-eye bags, and excess skin can be excised to improve the overall appearance of the lower eyelid [9]. The choice of the exact location of the incision, approximately 1 to 2 mm below the lash line, is based on anatomical and aesthetic considerations. This position allows the scar to blend well into the natural shadow of the lash line, resulting in a more natural and less noticeable appearance after healing. The subciliary incision technique is indicated for patients with excess skin, prominent fat pads, and rhytids in the lower eyelid. However, it is important for the surgeon to have experience and technical skill to avoid complications such as scar retraction and ectropion [5]. Studies indicate that the malposition of the lower eyelid observed after blepharoplasty of this region cannot be attributed to denervation of the zygomatic branch of the facial nerve. Any acute or residual denervation of the orbicularis subciliary muscle does not have significant clinical relevance. The crucial importance of adequate support of the lower eyelid and canthal anchorage to prevent unwanted positioning changes is emphasized. Blepharoplasty, being a complex procedure, requires detailed preoperative planning, careful intraoperative evaluation and precise technical execution to achieve ideal aesthetic results and ensure patient safety [10].

Blepharoplasty remains among the most sought-after procedures in facial cosmetic surgery. Although serious complications such as blindness, retrobulbar hematoma and ectropion are rare, minor complications are more frequent, including hematoma, dry eye syndrome, infections, atypical lesions, eyelid malposition and scarring. The management of these complications may require prolonged monitoring or even surgical reintervention [11].

Some authors advocate an integrated approach combining techniques that include transconjunctival fat removal, skin flap removal while maintaining the orbicularis oculi intact, canthopexy, and trichloroacetic acid peeling as an alternative to minimize the risk of complications [12].

A detailed preoperative analysis is essential to identify patients who may be at greater risk of functional problems after blepharoplasty, ensuring greater safety and satisfactory results [13]. Lower blepharoplasty is one of the most challenging procedures in ocular plastic surgery due to the delicacy of the skin and the aesthetic importance of the eyelids in facial expression. One of the biggest concerns of patients who undergo this type of surgery is the visibility of scars, a factor that can directly impact self-esteem and satisfaction with the results. In this context, the innovative surgical technique called "Invisible Incision" for lower blepharoplasty was developed with the aim of providing superior aesthetic results, with imperceptible scars and faster recovery.

The Invisible Incision technique in lower blepharoplasty is based

on a careful approach that positions the incisions in a strategically chosen location, close to the eyelashes. This approach allows access to the structures necessary for removal or repositioning of fat pads and removal of a strip of skin. In addition, it ensures that the scar remains hidden, minimizing the risk of scarring.

A total of 232 patients who underwent lower blepharoplasty using the IV approach were monitored and evaluated. The results reinforce the efficacy and safety of the technique, with an extremely positive postoperative evolution in almost all cases. During the follow-up period, it was observed that the healing process was excellent already at the 40-day evaluation, reflecting the precision of the surgical technique and the benefits of a well-positioned and minimally invasive incision.

In the vast majority of patients, the scar was already very subtle 30 days after the procedure. Over time, the incision became even more imperceptible, meeting the patients' expectations of ideal aesthetic results. These findings demonstrate that the IV technique not only delivers on the promise of minimally visible scars, but also contributes to a rapid and aesthetically satisfactory recovery, which is of paramount importance for patient confidence and satisfaction.

The inclusion of 232 patients in this study provides a robust sample to validate the consistency of the results. The appropriate positioning of the scar, combined with surgical precision, promoted a uniform and natural healing pattern. Detailed analysis of the data reaffirms that the Invisible Incision is a safe and effective alternative, which combines aesthetic benefits with an optimized recovery process, consolidating itself as a cutting-edge technique in lower eyelid cosmetic surgery.

Conclusion

Preliminary results in patients undergoing lower blepharoplasty with the IV technique are promising. A significant reduction in visible scars has been observed compared to conventional techniques; however, this technique requires a high level of surgical skill and an in-depth understanding of the eyelid anatomy to ensure the safety and efficacy of the procedure. Mastering the Invisible Incision technique in lower blepharoplasty represents a significant evolution in the field of ocular plastic surgery, providing a solution that meets one of the main demands of patients: obtaining natural results and invisible scars. To consolidate the applicability and efficacy of this approach, clinical studies with larger samples and long-term follow-up are essential, reinforcing the relevance of the technique as a cutting-edge option in eyelid aesthetic surgery.

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