

Lateral Canthoplasty by the Micro-Mitek Anchor System: 10-Year Review of 96 Patients

Carminio Alfano, MD, Stefano Chiummariello, MD, PhD,†
Cristiano Monarca, MD,‡ Nicolò Scuderi, MD,§
and Gianluca Scuderi, MD||*

Purpose: Lateral canthoplasty is useful to correct lower eyelid malposition, restore eyelid function, and protect the ocular surface. An effective method for fixation of soft tissue in the face, such as the lateral canthus, using the Micro-Mitek Anchor System is presented.

Patients and Methods: We report our experience in 96 patients who underwent lateral canthoplasty by Micro-Mitek Anchor. One hundred twenty-four lateral canthoplasties were performed, including, senile ectropion, tumors, trauma, cicatricial retraction, and lower eyelid malposition after blepharoplasty.

Results: The insertion of a bone anchor requires a limited dissection, and the insertion area can be determined accurately. Using the bone anchor to fixate the lateral canthus to the facial skeleton is an effective way to prevent drooping of the canthus due to gravitational forces.

Conclusions: Lateral canthoplasty using the Mitek Anchor System has the advantage of being an easy technique with accurate placement of the anchor, reducing operating time.

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The lateral canthoplasty and its various modifications are useful to correct lower eyelid malposition. The surgical procedure requires a precise knowledge of the periorbital anatomy as it relates to the specific indications for lateral canthoplasty. Careful evaluation of the specific causes of the lower eyelid malposition as well as thorough morphologic anatomic examination will assist the surgeon in deter-

mining the optimal procedure to perform. Optimal correction should address all aspects of the pathologic process, particularly the restoration and preservation of the canthal anatomy to maximize postoperative success.¹ Several surgical procedures have been described for lateral canthal tendon reattachment to provide excellent lid function and contour.²⁻¹⁰ They generally require technical skill and prolonged operating time, however. We have used a new device, the Mitek Micro G2 Anchor System (Mitek Surgical Products, DePuy Mitek Inc, Raynham, MA), to reattach the lateral canthal tendon to the lateral orbital wall and achieved excellent tendon fixation with this fast and simple technique. We report our experience in 96 patients who underwent lateral canthoplasty by Mitek. Between 1996 and 2006, 124 lateral canthoplasties using the Mitek Anchor were performed for reconstruction, including senile ectropion, tumors, trauma, cicatricial retraction, and lower eyelid malposition after blepharoplasty. Careful analysis of individual patients' anatomy and indications for lateral canthoplasty by Mitek Anchor showed an immediate successful rate of 90.3% (112/124). Currently, the Mitek Anchor is considered a consolidated, useful tool for the surgeon that provides a

*Chief Professor, Department of Plastic and Reconstructive Surgery, University of Perugia, Perugia, Italy.

†Department of Plastic and Reconstructive Surgery, University of Perugia, Perugia, Italy.

‡Department of Plastic and Reconstructive Surgery, University of Rome, "La Sapienza," Rome, Italy.

§Chief Professor, Department of Plastic and Reconstructive Surgery, University of Rome, "La Sapienza," Rome, Italy.

||Professor, Department of Ophthalmology, University of Rome, "La Sapienza" II Faculty, Rome, Italy.

Address correspondence and reprint requests to Dr Monarca: Department of Plastic and Reconstructive Surgery, University of Rome La Sapienza, Via R. Bracco 3, Rome, Italy; e-mail: cmmonarca@alice.it

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Table 1. PATIENTS AND INDICATIONS FOR MITEK ANCHOR CANTHOPLASTY

Patients	Cause	No. of Canthoplasties	%
30	Senile ectropion	40	32.3
16	Tumors	16	12.9
18	Traumas	18	14.5
12	Cicatricial retraction	12	9.7
20	Lower lid malposition after blepharoplasty	38	30.6
Total	96	124	100

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rapid and simple method for bony reattachment, and its utility in soft tissue fixation to the bone is well recognized.^{11,12} Lateral canthoplasty with the Mitek Anchor System is an easy technique with accurate placement of the anchor and thus reduces operating time. The operation can be performed through a small incision as well and may be less invasive than conventional procedures. This new technique of lateral canthoplasty offers an excellent alternative to conventional techniques with stable results and high satisfaction for the patient.¹³⁻¹⁵

Patients and Methods

We analyzed 96 patients retrospectively who had undergone lateral canthoplasty with the Mitek Anchor System. These patients had 124 lateral canthoplasties. Bilateral lateral canthoplasty was performed in 28 patients, and 68 patients had unilateral procedures. Follow-up ranged from 6 months to 10 years. Cases were evaluated for indications of canthoplasty, number of canthoplasties performed for patients, and indications (Tables 1 and 2). Indication for the lateral canthoplasty included ectropion for 30 patients (3.1%); canthoplasty for 40 patients (32.3%), with 30 operations for 10 bilateral canthoplasties (8%); tumors for 16 patients (12.9%) with 16 operations; trauma for 18 patients (14.5%) with 18 operations; cicatricial retraction for 12 patients (9.7%) with 12 operation; lower lid malposition after blepharoplasty for 20 patients (20.8%) in 38 operations; and 18 bilat-

Table 2. NUMBER OF CANTHOPLASTIES PER PATIENT

Canthoplasties	Patients
1	68
2	28
Total	96

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Table 3. LATERAL CANTHOPLASTY BY MITEK G2 ANCHOR SYSTEM COMPLICATIONS

Causes	Complications	Monolateral	Bilateral	%
Senile ectropion	6	2	2	4.8
Tumors	—	—	—	—
Traumas	4	2	1	3.2
Cicatricial retraction	2	2	—	1.6
Lower lid malposition after blepharoplasty	—	—	—	—
Total	12 (9.6%)	6 (4.8%)	6 (4.8%)	9.6

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eral canthoplasties (30.6%). Twelve patients (9.6%) underwent a new operation to solve decreasing tension of the canthal tendon.

All the patients were reoperated with the Montandon lateral canthoplasty.⁶

Results

No major complications (eg, hemorrhagia, infection, or exposure of the anchor system) occurred in any of the patients. Twelve patients (9.6%) had minor complications, such as decreasing tension of the canthal tendon. All the patients were reoperated by Montandon lateral canthoplasty. At 12-month follow-up, 6 canthoplasties in patients with senile ectropion showed a new ectropion; 4 canthoplasties in patients with traumatic malposition of the lower lid had new ectropion at follow-up. At 6-month follow-up, 2 patients with canthoplasty for cicatricial retraction of the lower lid required intervention for scleral shown in 1 patient and for a milder eversion of temporal lid margin in the other patient; both underwent Montandon canthoplasty with successful outcome at long-term follow-up (Table 3).

Discussion

Lower eyelid position and tone are secondary to the integrity of the medial and lateral tendons and the intervening fibrous tarsal plate. The aging process causes lower lid laxity, particularly descent of the lateral canthal tendon, showing an inferior migration of the lower eyelid characterized by mild eversion of the temporal lid margin, inferiorly directed lashes, temporal lid bowing, scleral show of the involved eye, or in more severe ectropion, corneal exposure or visus deterioration.^{1,11,16,17} Further, malposition of the lateral canthus may oc-



FIGURE 1. Preoperative lower lid malposition after blepharoplasty (frontal view).

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cur during esthetic surgery, in congenital anomalies, or as sequelae of a trauma that modifies eyelid slanting. The proper anatomic relations of the canthal ligament with the fibrous supporting structures are important to avoid drooping of the lower eyelid.^{1,18,19} Indeed, the distortion of the lower eyelid as a sequela of a blepharoplasty for cutaneous laxity, edema, hematoma, or excessive resection of iatrogenic fat or skin is often due to the gravitational or cicatricial forces of the skin, combined with a patient's periorbital anatomy, which causes mechanical distraction and subsequent malposition of the lower eyelid.^{1,14,20-22} Preoperative examination of the lower lid for canthal laxity using the "snap-back" test prevents postoperative complications that may occur after canthoplasty associated with lower blepharoplasty. Lateral canthoplasty and its various modifications are useful to correct lower eyelid malposition, restore eyelid function, and protect the ocular surface. Lateral canthoplasty techniques have evolved to correct lower lid malposition, both acquired and congenital.

In our analysis we retrospectively evaluated 96 patients treated with 124 lateral canthoplasty with a new device, the Mitek G2 Anchor System, in reattaching the lateral canthal tendon to the lateral orbital wall. We achieved excellent tendon fixation with this rapid and simple technique (Figs 1-8).



FIGURE 2. Postoperative lower lid malposition correction by the Mitek system (frontal view; 6 years postoperative follow-up).

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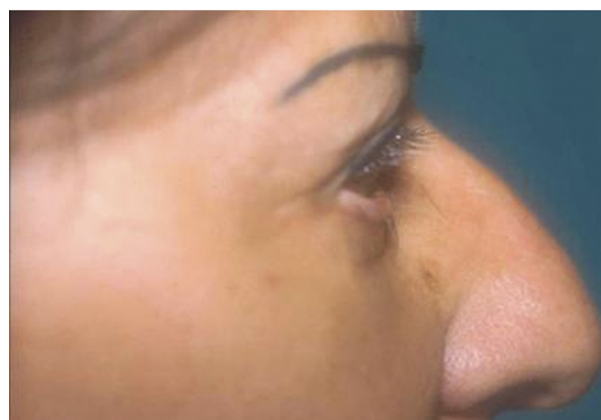


FIGURE 3. Preoperative lower lid malposition after blepharoplasty (lateral view).

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We have applied this technique to various pathologies, with a success rate of 90.3% (112/124). No major complications (eg, hemorrhagia, infection, or exposure of the anchor system) have occurred in any patient. Twelve patients (9.6%) had minor complications, such as decreasing tension of the canthal tendon. All the patients were reoperated with Montandon lateral canthoplasty.⁶ Six canthoplasties in patients with senile ectropion who showed a new ectropion at 12-month follow-up underwent Montandon canthoplasty associated with pentagonal wedge resection to manage the excessive tissue laxity, resolving the pathology at long-term follow-up. Four canthoplasties in patients with traumatic malposition of the lower lid who had a new ectropion at early follow-up underwent Montandon canthoplasty without other complications at long-term follow-up. One patient who underwent canthoplasty with cicatricial retraction of the lower lid had a scleral show at early follow-up, and another had



FIGURE 4. Postoperative lower lid malposition correction by the Mitek system (lateral view; 6 years postoperative follow-up).

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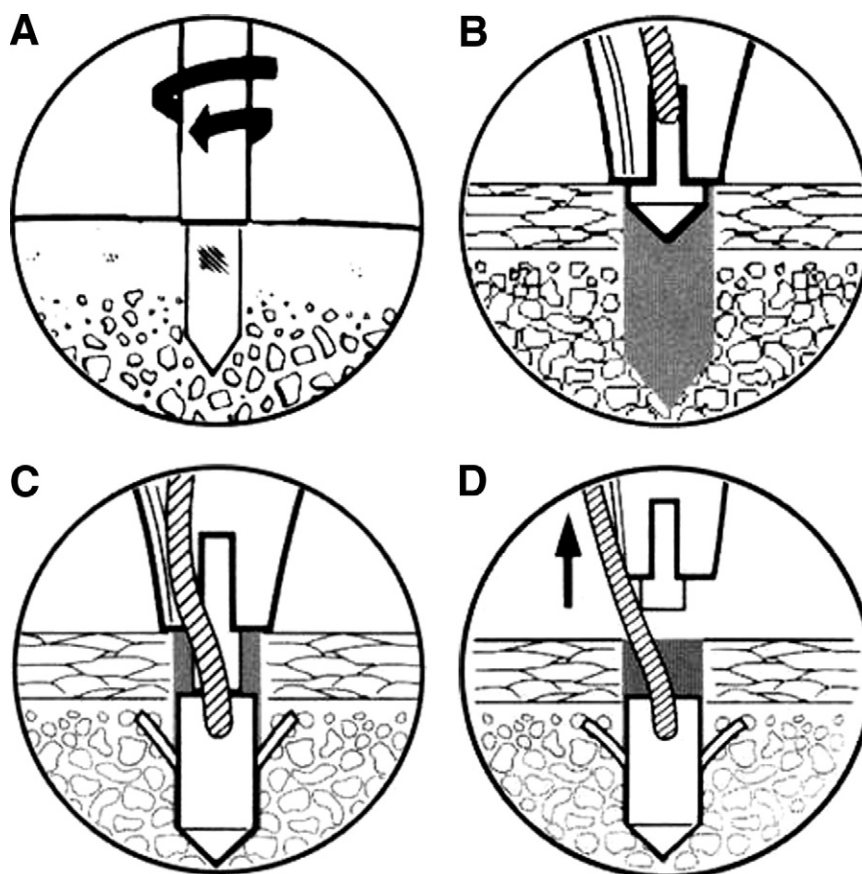


FIGURE 5. Mitek G2 Anchor system device.

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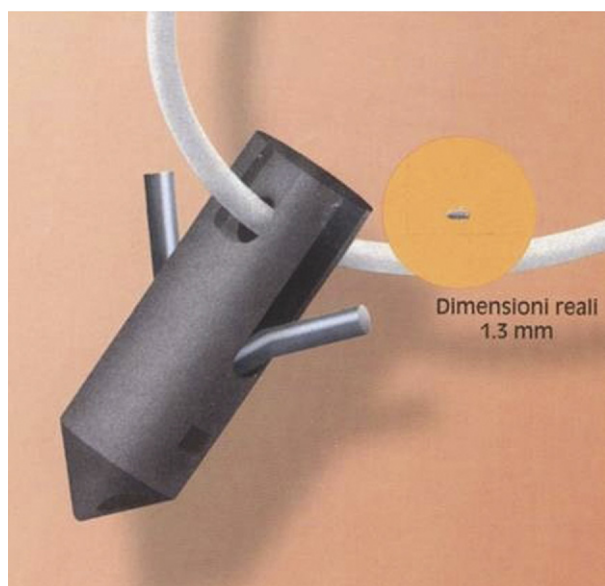


FIGURE 6. Mitek G2 Anchor system device close-up.

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milder eversion of temporal lid margin; both underwent Montandon canthoplasty with successful outcome at long-term follow-up.

Currently, the Mitek Anchor is an efficient tool for the surgeon and provides a simple and rapid method for bony reattachment. Its utility in soft tissue fixation to the bone is well recognized.^{7,8} Lateral canthoplasty by the Mitek Anchor is an easy technique that allows accurate placement of the anchor, thus reducing op-

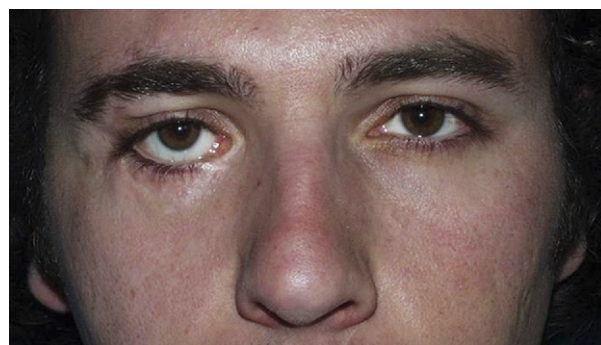


FIGURE 7. Preoperative posttraumatic lower lid malposition.

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FIGURE 8. Postoperative posttraumatic correction by the Mitek Anchor system (24-month postoperative follow-up).

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erating time. The surgical procedure is performed through a small incision and is less invasive than conventional procedures. This technique of lateral canthoplasty has produced excellent results in our experience and offers an excellent alternative to conventional techniques with stable results at long term follow-up and high patient satisfaction.

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