levator aponeurosis and levator sheath were dissected again and advanced to the upper of the split-tarsal plate, while the orbicularis oculi muscle was left intact. Outcome measures include margin reflex distance-1, lid slit distance for ptosis correction, width of tarsal plate for excision and eyelid symmetry.

RESULTS: Complete or near complete correction of ptosis (degree of ptosis<1mm) was achieved in all the 5 eyelids in postoperative follow-up. The preoperative MRD1 ranged from -4 to 0mm with the mean of -3mm while the postoperative ranged from 2.5 mm and 3.6 mm with a mean of 3.2 mm. The width of tarsal plate to excise ranged from 1.5 mm to 2.0 mm with a mean of 3.52mm. The preoperative lid slit distance ranged from 0mm to 5 mm with a mean of 3.52mm while the postoperative ranged from 5 mm to 10.1 mm with the mean of 8.8 mm. The most common complication was lagophthalmos. Immediate postoperative lagophthalmos was transient in all cases and were recovered to normal within 4 weeks.

CONCLUSION: The Tu flap procedure and split-tarsal plate dissection provided significant improvement in patients with severe blepharoptosis and poor levator function with under correction. This method may also use in patients during operation in the first time. It would encourage faster postoperative recovery and overall clinical outcome.

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Minimal Invasive Techniques for Periorbital Rejuvenation

Ahmad N. Saad, MD; Tracy Leong, MD; Marek Dobke, MD, PhD; Steven R. Cohen, MD

BACKGROUND: The lower eyelid anatomy is very complex and variable. Many operative and non-operative interventions have been described and to improve the aesthetic properties of the lower eyelid and cheek region. In general, the more invasive the procedure, the higher the risks and complications. As our knowledge of orbital soft tissue and bony aging deepens, our focus in minimizing invasive surgical interventions has accelerated. Herein, we describe a series of minimally invasive techniques that can be customized to enhance outcomes of brow, lower eyelid and cheek rejuvenation.

METHODS: The lower eyelid is evaluated for lateral and medial canthal position, degree of scleral show, globe protrusion, inferior, lateral and superior orbital rim position relative to the anterior cornea and dorsal nasal height. The regional anatomy of the orbit is analyzed in the context of eyebrow position, the brow shape, the inclination of the forehead and the relative prominence of the zygomatic-orbital and maxillary bones. The deep and superficial fat compartments of the orbital region and lower eyelid are assessed. The degree and extent of tear trough deformity is noted. The degree of excess skin and the extent of textural and pigmentedary changes of the skin surface are noted along with the tone of the lower eyelid.

RESULTS: Diagnosis of the presenting deformities associated with periorbital and eyelid aging led us to formulate 4 minimally invasive procedures that can be used alone or in combination with other eyelid procedures and during face and browlift:

1. Superficial Cell Grafting and Deep Compartment Fat Injection. A specially designed, disposable, off the shelf fat drawing and cell grafting kit is used. Fat is injected through 18-gauge needle incisions with a variety of small, disposable cannulae.
2. Minimally invasive release of the orbitomalar ligament is carried out through 3mm incisions after volume restoration if needed.
3. Pinch blepharoplasty and chemical peel or laser resurfacing is then performed if indicated for skin laxity and/or photodamage.
4. Marionette browlift with shuttle needles

Over a 6 years’ period, these procedures have been carried out in 120 patients having either lower eyelid surgery either alone or in combination with other procedures. Case examples will be presented for each of the 4 techniques and their limitations will be discussed.

CONCLUSIONS: Using a precise diagnostic workup, complex orbital and eyelid aging can be addressed using a simplified treatment algorithm which alters the current treatment philosophy of fat reduction and skin muscle flap dissection for lower eyelid surgery in many cases without compromising outstanding surgical outcomes.

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A Systematic Review of Studies Comparing Efficacy and Complications among Various Spacer Grafts in the Treatment of Lower Eyelid Retraction

Kevin Lewis, BA; Eugene Park, MD; Mohammed S. Alghoul, MD

INTRODUCTION: Lower eyelid retraction is a common but challenging complication following blepharoplasty. A wide array of techniques has been described to address this problem including the use of posterior lamellar spacer grafts. No consensus exists on the best available spacer graft material. We performed a systematical review of studies comparing efficacy and complication rates among various spacer graft materials to determine the best available lower eyelid spacer graft.

MATERIALS AND METHODS: Two independent reviewers conducted a search of all available literature from 1985 to the present using the Pubmed, Ovid MEDLINE, and Cochrane library databases in strict adherence to PRISMA guidelines. Inclusion criteria were that studies provide original content, assess the treatment of lower eyelid retraction using a spacer graft, and report quantitative outcomes data. Case reports, review articles, studies using non-human subjects, and studies providing only qualitative or subjective assessments of outcomes were excluded.

RESULTS: 18 articles qualified for inclusion in this systematic review. Materials evaluated included auricular cartilage, hard palate mucosa, dermis, porous polyethylene, acellular dermal matrix, sclera, and tarsocconjunctiva. The majority of patients in all studies achieved a significant level of lower eyelid elevation with a small minority of patients developing complications. The set of studies included only one prospective, randomized trial, which showed that the use of a scleral graft in lower eyelid retraction results in greater eyelid elevation over time compared to the use of antimetabolites 5-fluorouracil and mitomycin C. However, a review of the evidence reveals unique sets of advantages and disadvantages associated with the various materials currently available. Notable trends include consistently high rates of donor site complications with the use of hard palate mucosa, and high rates of implant exposure and removal with the use of Medpor. There is strong evidence that graft contracture rate over time is higher with Alloderm compared to hard palate mucosa.

CONCLUSION: An analysis of all results did not reveal one graft material that is clearly superior to the rest in terms of efficacy. Further, high quality research, in the form of prospective, randomized, controlled trials will be necessary to clarify advantages of certain spacer grafts over others.

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Disparities in Cosmetic Procedures Performed by Plastic Surgery Residents

Jason Silvestre, BS; Joseph M. Serletti, MD; Benjamin Chang, MD

BACKGROUND: Recent efforts in the accreditation of plastic surgery residency programs have sought to improve the resident operative experience. Yet, adequate exposure to cosmetic surgery remains problematic. This study assesses the variability in cosmetic procedures performed by plastic surgery residents in the U.S.

METHODS: National operative case logs of chief residents in independent and integrated plastic surgery residency programs were analyzed (2011 – 2015). The number of cosmetic procedures performed by integrated and independent