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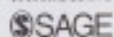




Pedicled Fat Flap to Increase Lateral Fullness in Upper Blepharoplasty

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Abstract

Introduction: The eyelid of a young person can be distinguished by the lateral fullness of the upper eyelid. With aging, lateral fullness decreases. Volume restoration in the periorbital area has been previously addressed by fat draping and grafting. More recently, techniques for regaining lateral fullness of the upper eyelid have focused on fat grafting, although effective graft take, reabsorption, and irregularities have been a concern. To address these issues, the concept of pedicled fat draping in the upper eyelid was explored.

Methods: In a retrospective study from June 2006 to August 2008, 31 patients underwent upper blepharoplasty with augmentation of the lateral fullness with a pedicled fat flap from the central fat pad. The fat from the central compartment was elevated, dissected, and then transposed to the lateral upper eyelid below the orbicularis muscle.

Results: All patients were women ranging in age from 43 to 68 years. Pre- and postoperative picture comparison demonstrated a more youthful appearance with increased lateral fullness of the upper eyelids. There were no cases of fat necrosis encountered. Increased volume remained stable over an average of one-year follow-up. No complications were recorded.

Conclusion: Transposing a pedicled fat pad from the central compartment laterally has proven to be an effective technique for achieving predictable upper lateral eyelid fullness and thus achieving a long-lasting, more youthful appearance.

Keywords

blepharoplasty, fat pad, periorbital enhancement, periorbital rejuvenation

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The periorbital region is one of the first facial regions to show signs of aging. This has popularized blepharoplasty, making it the third most common plastic surgery procedure performed in 2009 in the United States.¹ The eyelid of a young person can be distinguished by its lateral fullness in the convex surface area of the upper eyelid, from the eyebrow to the eyelid crease.² Other components that contribute to a youthful appearance of the eyes include a low supratarsal fold, absence of rhytids and excess skin, and full eyelids.³

Periorbital aging manifests through declining eyebrows, a shorter distance between the eyebrows and eyelashes, wrinkling and folding of the upper eyelid skin, loss of lateral fullness of the upper eyelid, crow's feet in the lateral corner of the eyes, excess skin of the upper eyelids, sagging and declining of the lateral eyebrows, a loose-fitting orbicularis oculi muscle, and fat herniation in the upper and lower eyelid compartments.^{1,4} Current blepharoplasty techniques have diverted from the resection of subcutaneous and compartment fat to redistributing it, as described

by Loeb⁵ and popularized by Hamra³ for the lower eyelid. Nevertheless, these modern techniques have failed to address the decrease in upper lateral fullness.

Recognizing this deficiency, there have been techniques described for regaining lateral fullness of the upper eyelid,

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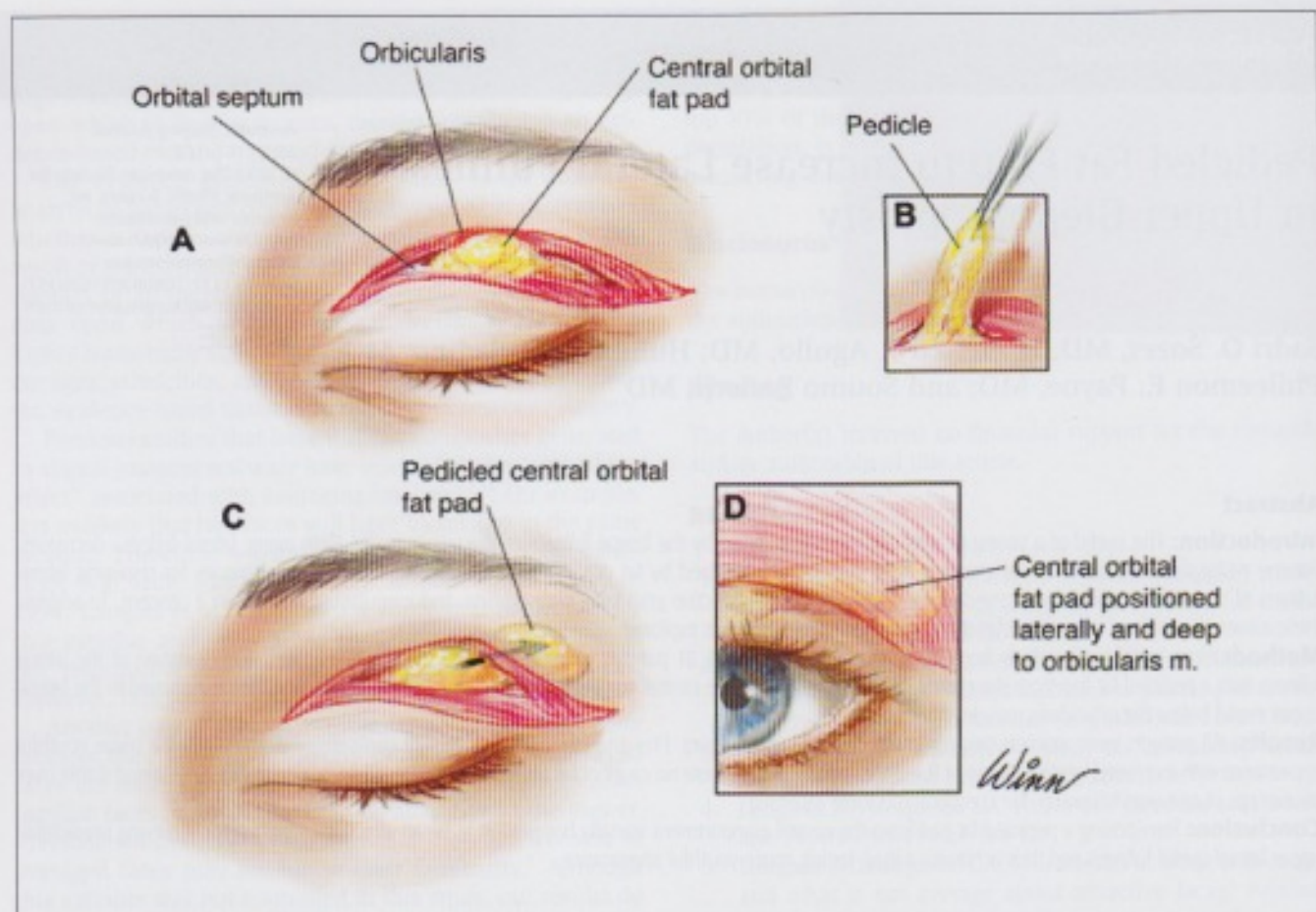


Figure 1. Surgical technique. The central fat pad (A) is dissected (B) and mobilized superiorly and laterally (C, D) under the orbicularis oculi muscle, where it is anchored to the superior orbital rim periosteum.

focusing on muscle plication and fat grafting. Instead of being removed, the orbicularis oculi muscle can be imbricated to enhance the fullness of the upper eyelid.⁶ Micro fat grafting has been extensively described in the upper eyelids.^{7,8} As an alternative, Gulyás² described utilizing fat from the central compartment of the upper eyelid as a nonvascularized graft in combination with muscle plication. Although these procedures are effective, the thin nature of the upper eyelid skin and the scant subcutaneous tissue have made irregularities, graft take, and reabsorption important concerns.⁵

The ideal technique should be simple, result in reliable augmentation of the upper lateral eyelid, and offer long-term efficacy. To address these issues, we explored the concept of pedicled fat draping in the upper eyelid.

METHODS

In a retrospective study from June 2006 to January 2009, 31 patients underwent upper blepharoplasty with augmentation of lateral fullness with a pedicled central fat pad. Patients qualified for fat redraping if they had excess or

herniated upper central fat pads. Pre- and postoperative pictures were compared, and patient and surgeon satisfaction was recorded.

Surgical Technique

The blepharoplasty incision was marked and performed in the standard fashion. The pinch test determined the amount of skin to be removed. We then excised a strip of orbicularis muscle, depending on specific patient requirements. The excess fat from the central compartment was elevated, dissected, and then transposed to the lateral upper eyelid (Figure 1). The fat flap was trimmed and shaped to fit the patient's requirements. There was no need to overfill the area, as the graft would remain stable over time with little reabsorption. The fat pad was secured to the periosteum of the superior orbital rim with a 5-0 fast-absorbing gut suture in a plane beneath the orbicularis muscle (see video at www.aestheticsurgeryjournal.com). An accurate portrayal of the end result could be observed on the table prior to closure. The skin was then closed in the preferred fashion. A forced duction test was performed prior to the start of the

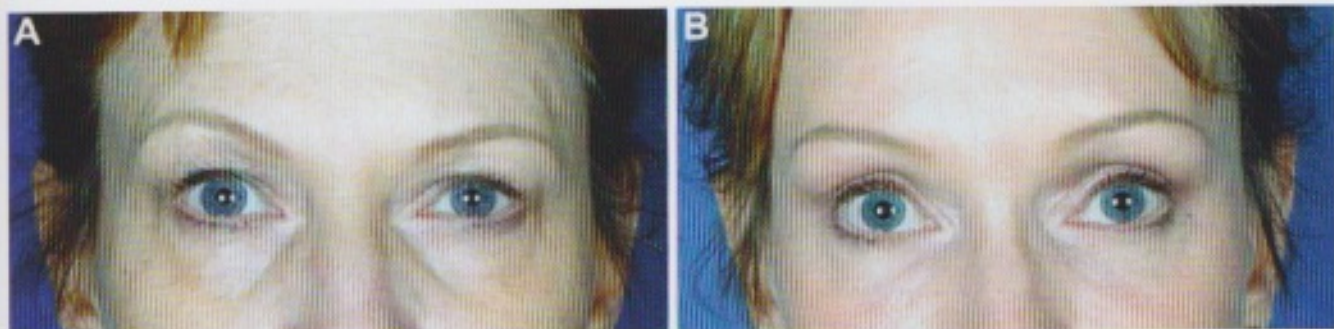


Figure 2. (A) A 65-year-old woman who presented with periorbital aging, dermatochalasis, and tear-trough deformity. (B) Twelve months after upper and lower blepharoplasty with micro fat grafting to the face.

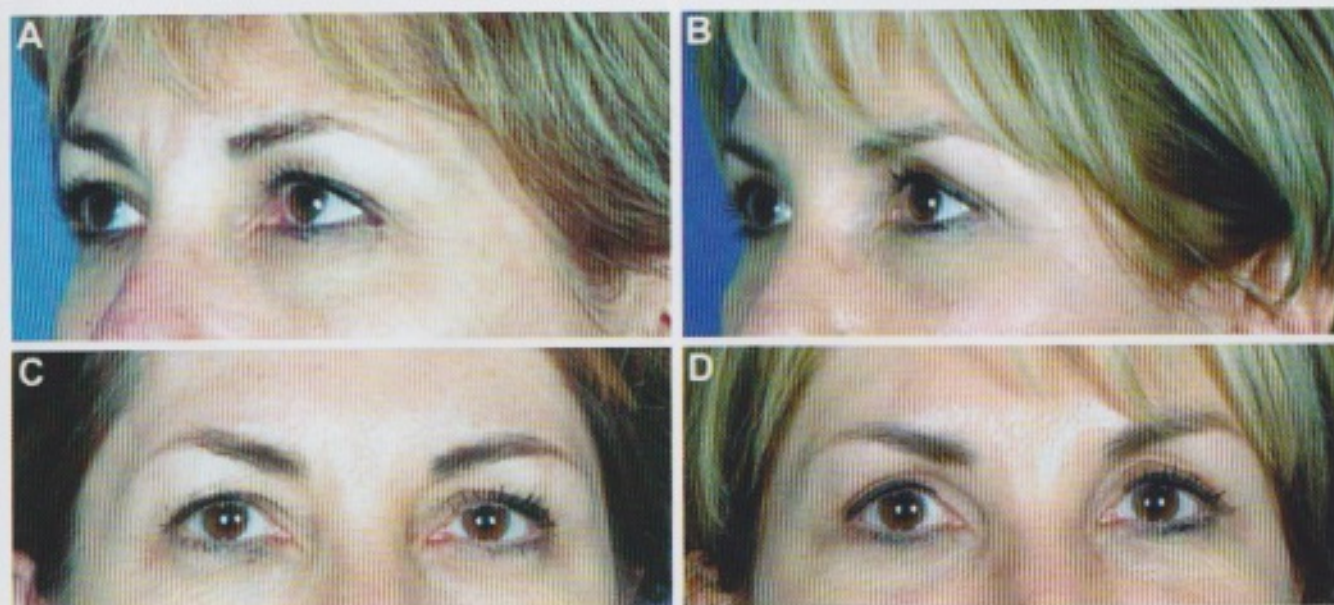


Figure 3. (A, C) A 58-year-old woman who presented with marked prominence of the superior orbital rim. (B, D) Twelve months after upper and lower blepharoplasty. This was a difficult patient in whom a traditional excisional blepharoplasty would have resulted in accentuation of the rim, but this technique was effective in improving the upper lateral fullness as well as providing soft tissue fill to attenuate the appearance of the supraorbital rim.

procedure and prior to skin closure; the results were compared to test for entrapment.

RESULTS

All nine patients were women, ranging in age from 43 to 68 years (mean, 52). Patients were followed for an average of two years. Pre- and postoperative picture comparison showed a more youthful appearance, with increased lateral fullness of the upper eyelids (Figures 2-5). There were no cases of fat necrosis encountered. The transposed fat tissue was not palpable. There were no visible irregularities in any of these cases. Increased volume remained stable over the average of two years follow-up. No complications were recorded. Patient and surgeon satisfaction was good to excellent in all cases.

Figure 3 depicts a difficult patient with marked prominence of the superior orbital rim. A traditional excisional blepharoplasty would have resulted in accentuation of the rim, but this technique was effective in improving the upper lateral fullness, as well as providing soft tissue fill to attenuate the appearance of the supraorbital rim.

DISCUSSION

Aging is still a process that cannot be arrested or reversed, particularly on the face, which is perhaps the most evident part of the body. Within the face, the upper one-third is the area of most concern because its rejuvenation provides a significant improvement in the overall aging process. Among the upper one-third, the periorbital area is the essential portion. This is why blepharoplasty has become

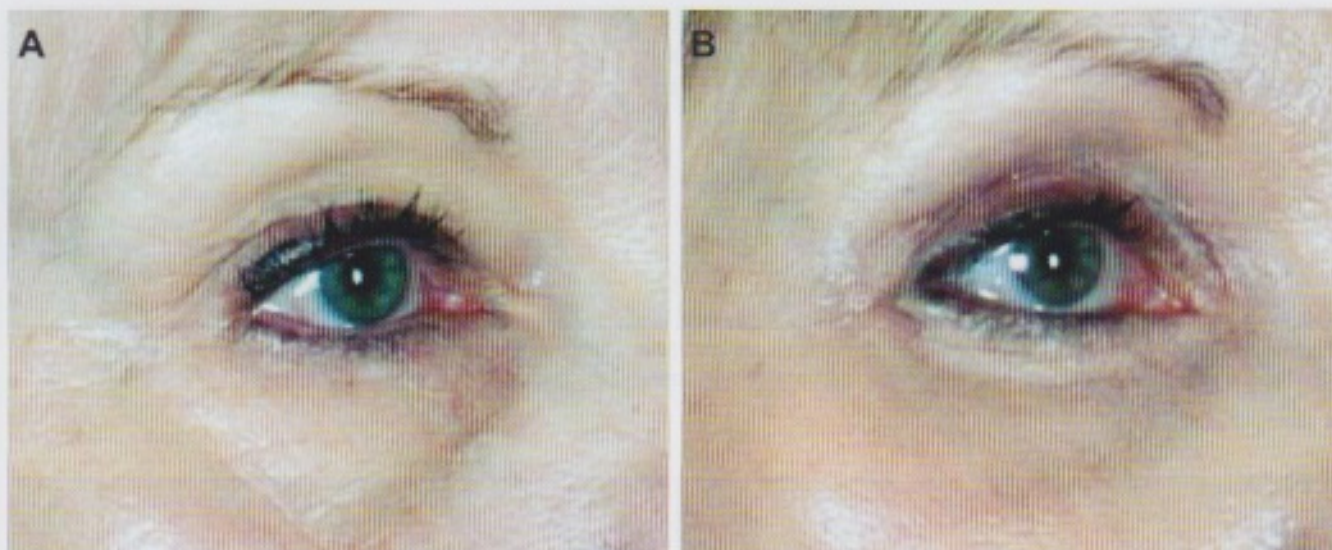


Figure 4. (A) A 61-year-old woman who presented with facial and periorbital aging. (B) Twelve months after upper and lower blepharoplasty with forehead lift.

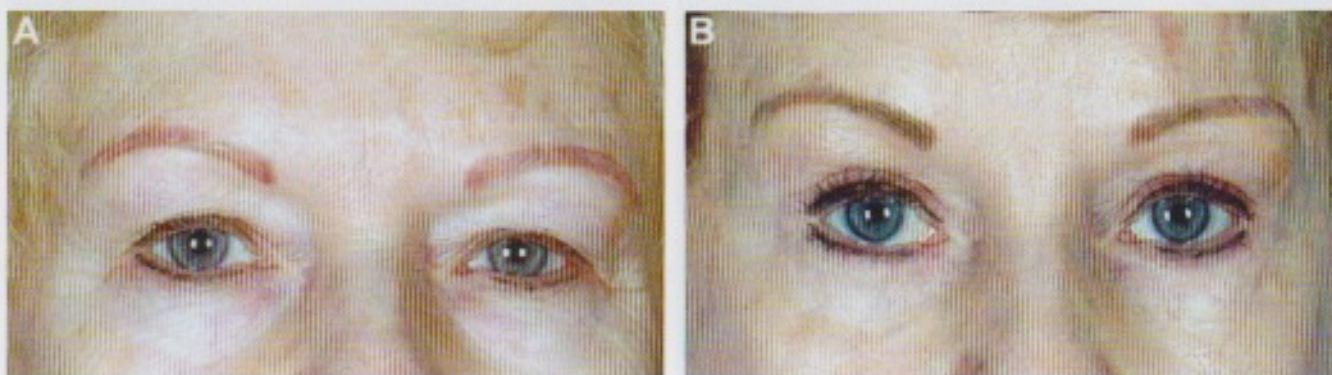


Figure 5. (A) A 73-year-old woman who presented with facial aging and loss of upper lateral eyelid fullness. (B) Twelve months after upper and lower blepharoplasty.

one of the most common rejuvenating procedures performed alone or in combination with other interventions.¹

As stated previously, periorbital aging manifests in a variety of ways and different methods have been described to address each of the defects. Instead of removing it, the orbicularis oculi muscle can be imbricated to enhance the fullness of the upper eyelid.⁶ This technique is limited by the amount of orbicularis that can be imbricated and only results in a cylindrical augmentation of the upper eyelid, which may be perceivable through the thin upper lid skin. Recognizing the importance of improving the decreased upper lateral fullness, Gulyás² introduced the use of a nonvascularized fat graft taken from the excess fat in the medial compartment. Although he described excellent results, macro fat grafting in our hands has been unpredictable. Coleman⁷ described micro fat grafting in the periorbital region, as did Fagien⁶ in the upper eyelid. The effectiveness of this technique is well recognized, but results and degree of graft take vary greatly from patient to patient and surgeon to surgeon. Also, the thin nature of

the upper lid skin and scant subcutaneous tissue make proper placement, degree of reabsorption of graft, and palpability of the graft critical.

In the mid-1990s, Hamra⁵ popularized Loeb's technique of redraping of the excess lower eyelid fat to address the tear trough deformity and areas of volume loss. We adapted these techniques to correct the upper lateral fullness of the eyelid by transposing a pedicle fat pad from the central compartment, thus creating a long-lasting autologous filler that enhances the youthful appearance of the face. The technique is simple and easy to adapt into the upper blepharoplasty technique, without the need for the extra instrumentation and operative time that micro fat grafting entails.

The fat pad from the central compartment of the upper eyelid can be carefully dissected, maintaining its blood supply from the superior peripheral arcade, fed by the angular artery as well as the orbital branches off of the ophthalmic artery. The fat pad is then redraped to reach the lateral compartment.⁸ This is a very simple addition to the blepharoplasty

procedure with a short learning curve. It is very effective in providing upper lateral fullness of the upper eyelid and an enduring result. Other benefits include the ability to trim the fat flap to a specific size and shape according to the patient's need and an intraoperative appearance that closely approximates the final outcome.

So far we have performed the procedure in 31 patients with excellent immediate and late results (at two years follow-up). The procedure is limited to those patients with an excess or herniation of the central fat pad, although this represents the majority of the cases. Patients with scarce subcutaneous and compartmental fat are not ideal candidates, as a hollow upper eyelid will result.

CONCLUSION

Transposing a pedicled fat pad from the central compartment laterally has proven to be a simple and effective technique for achieving predictable upper lateral eyelid fullness and thus achieving a long-lasting, more youthful appearance.

Disclosures

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