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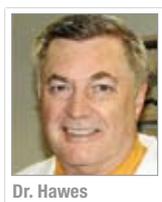
Reconstructive surgery

Techniques offer options for lid defects

By Cheryl Guttman Krader

Reviewed by Michael J. Hawes, MD, FACS

Denver—An evolution in techniques for tarsoconjunctival flaps and grafts has provided reconstructive surgeons with a variety of effective options for addressing lid defects and other problems, said **Michael J. Hawes, MD, FACS**.



Dr. Hawes

Dr. Hawes reviewed new approaches and modifications to lid reconstruction that have been introduced since the late

Wendell L. Hughes, MD, first described his tarsoconjunctival flap.

See **Lid reconstruction** on page 40

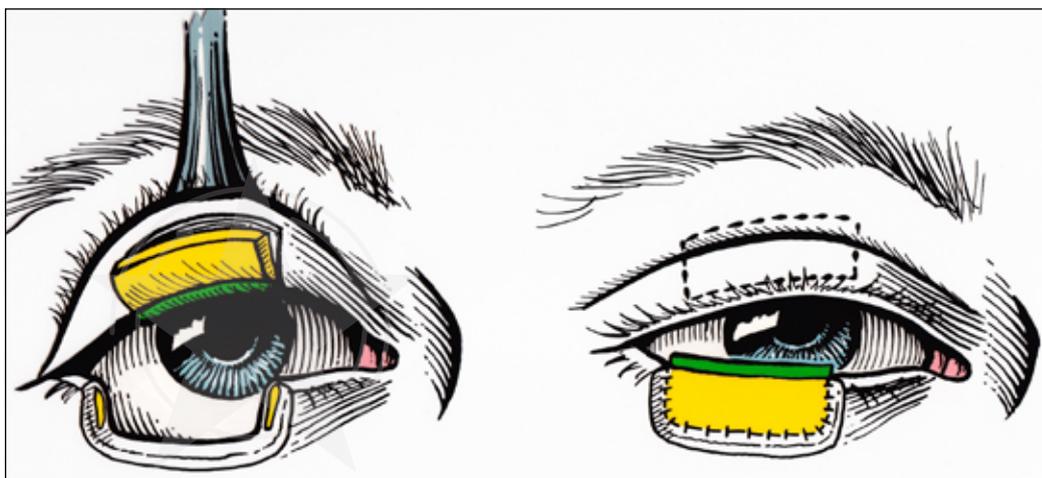


Figure 1 Free tarsoconjunctival graft (yellow and green) harvested from upper lid to repair posterior lamella of full thickness lower lid defect.

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Shorter patching, atropine benefit severe amblyopia

But younger patients enjoy greater VA improvements

By Liz Meszaros

Reviewed by Michael X. Repka, MD



Dr. Repka

Baltimore—Six hours of occlusive therapy—as opposed to all-day patching—and treatment with atropine can both be beneficial in children with severe amblyopia, according to **Michael X. Repka, MD**.

Improvements in visual acuity from both therapies, however, are greater in younger children compared with older ones.

“Severe amblyopia is a particularly difficult

problem for many parents and for their children, who are faced with both managing the treatment and then dealing with expectations as to what the outcome might be,” said Dr. Repka at Current Concepts in Ophthalmology, sponsored by Johns Hopkins University School of Medicine in association with *Ophthalmology Times*.

“Standard care has long been based on clinical consensus, as it is in most aspects of clinical medicine,” said Dr. Repka, professor of pediatric ophthalmology, The Zanvyl Krieger Children’s Eye Center, Wilmer Eye Institute, Johns Hopkins University School of Medicine, Baltimore.

See **Amblyopia** on page 18

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Lid reconstruction

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In addition, Dr. Hawes, a private practitioner in Denver, specializing in oculoplastic, facial, and reconstructive surgery, and clinical professor, Department of Ophthalmology, University of Colorado Health Sciences Center, Denver, summarized his 15-year experience with tarsoconjunctival flaps and grafts in a series of 111 eyes.

Take-Home Message

A variety of flaps and grafts can be used successfully for eyelid and other periocular reconstructive procedures, including a modification of the classic Hughes tarsoconjunctival flap, which was originally published more than 60 years ago.

“Free tarsoconjunctival grafts are versatile and have become my most frequently used reconstructive technique for closing major lower lid defects, and the addition of a superior conjunctival fringe and anterior lamella skin muscle flap may enhance the technique,” Dr. Hawes said.

“However, the classic Hughes tarsoconjunctival flap is still useful and my treatment of choice in major lower lid defects involving more than 75% of the lid or in those with a compromised vascular supply,” he said.

Other useful variations include the tarsal pillar flap for corneal protection and the mini-Hughes flap for covering an exposed anophthalmic socket, whereas rotational, advancement, and lateral and inferior conjunctival pedicle flaps are playing increasingly larger roles in

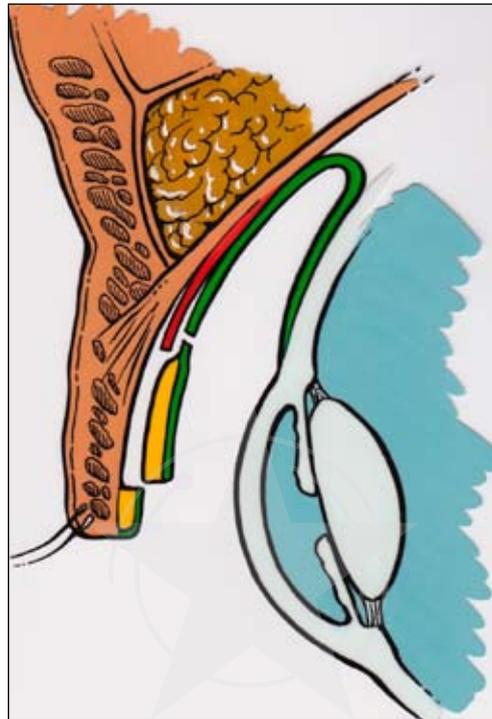


Figure 2 Lateral view of free tarsoconjunctival graft (yellow and green) being harvested from upper lid.

eyelid reconstruction, Dr. Hawes said.

The study

His series included cases performed between 1994 and 2009. The patients had an average age of 66 years at the time of their reconstructive procedure and an average follow-up of 18.8 months with a minimum of 2 months. Just over two-thirds of the cases were performed to manage lower lid defects and the rest were nearly equally distributed between upper lid defect cases and procedures to cover the cornea or an anophthalmic socket.

The distribution of cases highlighted his changing preference toward free tarsoconjunc-

tival grafts, which ultimately accounted for 70 of the 111 procedures, and his belief that the Hughes flap still is preferred in older patients and for larger defects. Compared with the eyes where a free tarsoconjunctival graft procedure was performed, the group with a Hughes flap was older on average (aged 73 years versus aged 63 years) and had larger defects (72% versus 52% of the lid).

“The biggest advantage of the free tarsoconjunctival graft is that it is a single-stage procedure, and so it is also chosen when that feature is important to the patient and feasible in the surgeon’s opinion,” Dr. Hawes said.

Further comparing the Hughes flap and free tarsoconjunctival graft, Dr. Hawes said that because the Hughes flap is classically covered with a skin graft while the free tarsoconjunctival graft usually is covered with a myocutaneous flap, the latter may have a better aesthetic outcome in terms of color and thickness match.

“However, taking the myocutaneous flap from the upper lid can result in asymmetry,” he said.

Complications

Redness of the reconstructed lid margin was the most common complication in the series and occurred twice as often among eyes with a Hughes flap compared with the free tarsoconjunctival graft cases (37% versus 19%). Other complications included notching of the upper lid and donor site granuloma formation.

Dr. Hawes said he manages lid margin redness by covering the area with an additional full-thickness skin graft, although other options include laser treatment or cautery to the lid margin.

The series also included several cases of lower lid defects treated with the Hewes flap,

Hughes tarsoconjunctival flap versus free tarsoconjunctival graft

Wendell L. Hughes, MD, first published his flap technique for lower eyelid reconstruction in his 1943 textbook, but the modern-day procedure reflects a modification, which Dr. Hughes introduced in 1976. The current technique splits the upper lid transversely into two layers by making an incision 3 to 3.5 mm above the lid margin and carries the dissection high into the superior fornix.

Michael J. Hawes, MD, FACS, became interested in using a free tarsoconjunctival graft for lower lid reconstruction based on his experience with a case in 1984 where he performed a Hughes tarsoconjunctival flap for a major reconstruction. While three “peep-holes” developed and eventually coalesced to result in total flap dehiscence, the procedure was successful and suggested a role for a free tarsoconjunctival graft for lower lid reconstruction.

Researching this idea, Dr. Hawes found that it had been previously proposed, first in 1918 and then by Dr. Hughes himself in 1943. A seminal article on this technique was written by Chuck Leone, MD, in 1979 and a few years later, it was advocated and popularized by several other authors.

The tissue for the tarsoconjunctival free graft is harvested from the upper lid, although it also can be used to repair upper lid defects. Then, the anterior lamella is covered with a myocutaneous flap taken from the upper lid. As a further modification, Arthur Grove, MD, suggested using a conjunctival fringe of 1 to 2 mm in the free graft area to help with reconstruction of the lid margin. **OT**

—Cheryl Guttman Krader

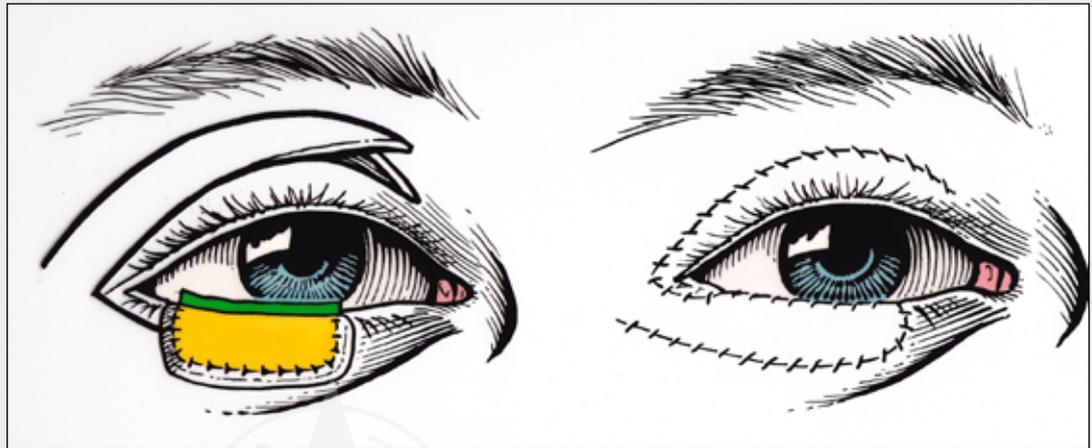
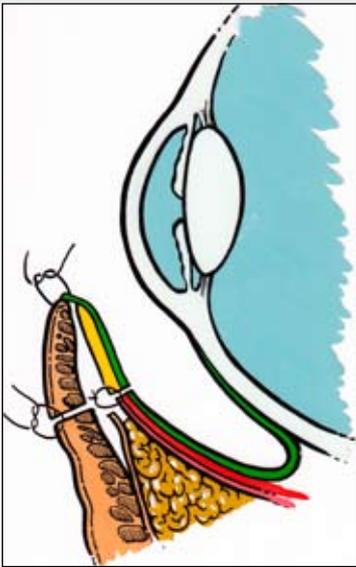


Figure 3 (Left) Lateral view of free tarsconjunctival graft (yellow and green) covered by myocutaneous flap anteriorly.

Figure 4 (Above) Free tarsconjunctival graft (yellow and green) covered by myocutaneous flap anteriorly. (Illustrations courtesy of Michael J. Hawes, MD, FACS)

a tarsconjunctival technique described by Eva Hewes, MD, to reconstruct lower lid lateral defects extending to the lateral canthus. The procedure includes a laterally based tarsconjunctival flap raised from the upper lid and rotated into the lower lid defect along with placement of a suture at the lateral canthus to adjust lower lid tension properly and anterior lamellar repair with a skin graft or myocutaneous flap.

Upper lid techniques

Dr. Hawes' series highlighted three techniques for upper lid reconstruction. These included the rotational tarsconjunctival flap, which typically is used for upper lid lateral defects but also can be used for upper lid medial and lower lid lateral defects.

The technique for this flap involves creating a vertical incision in the remaining tarsus to allow 90° tissue rotation. The flap is fixed to the lateral canthus using a mattress suture.

A tarsconjunctival advancement flap from upper lid to upper lid is another reconstruction technique that usually is used when there is a central defect sparing the superior tarsus. Dr. Hawes said he had seven such cases in his series with an average defect size involving 57% of the upper lid. In this procedure, Müller's muscle is stripped away, as when performing a Hughes flap, but the tissue is brought to the upper lid margin instead of to the lower lid.

A third technique for upper lid reconstruc-

tion is the reverse Hughes tarsconjunctival flap, also known as the Leone tarsconjunctival flap, named after Chuck Leone, MD, who first described it as an alternative to the Cutler-Beard flap. Dr. Hawes said he uses it for major upper lid defects.

"The Cutler-Beard flap is a good operation but it tends to leave the upper lid margin with no tarsus," he said. "Therefore, the margin may roll inward and irritate the eye.

"The Leone flap brings tarsus up from the lower lid about 2 or 3 mm to form a new lid margin," he added. "Then, in a second stage, the remaining upper lid tissue is joined to the lower lid. The drawback of this procedure is that it is done in two stages."

Other indications

The mini-Hughes or "patch-flap" is used to repair an exposed implant in an anophthalmic socket and was described in two different articles published in 1998, 2 months apart, by independent groups. Dr. Hawes said he used the variation described by Martin and Ghabrial in 12 cases with consistently good results. The technique involves refreshing the defect, bringing the tarsconjunctival flap from the upper lid, and rotating it 180° to cover the defect.

The tarsal pillar flap is used to manage keratopathies expected to respond to narrowing of the palpebral fissure. Dr. Hawes reported he had seven such cases in his series and all improved

when treated with this flap.

The technique involves bringing a 3-mm flap of tarsus and conjunctiva down from the upper lid onto a lower lid recipient bed, sparing about 3 to 3.5 mm of tissue from the upper lid closest to the lid margin. The recipient bed can be located nasally or temporally, but should not be made too low to avoid entropion. The flap is attached with a mattress suture with a crossed sword technique to keep from cutting the stitch. **OT**

Editor's note: The American Society of Ophthalmic Plastic and Reconstructive Surgery honored Dr. Hawes with its 2009 Wendell L. Hughes Lecture Award. Dr. Hawes joins the ranks of prior recipients, among them the most prominent and innovative contributors to the advancement of ophthalmic plastic and reconstructive surgery. Dr. Hawes delivered his lecture on "The Evolution of Tarsconjunctival Flaps and Grafts" at the 2009 annual meeting of the American Academy of Ophthalmology. He acknowledged the contributions of his co-authors Arthur Grove, MD, Boston, and Eric Hink, MD, Aurora, CO, in preparing his presentation.

Focal Point

The free tarsconjunctival graft is a single-stage procedure, and it is chosen when that feature is important to the patient and feasible in the surgeon's opinion, Dr. Hawes said.

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Michael J. Hawes, MD, FACS

E-mail: staff@drhawes.com

Dr. Hawes did not indicate a proprietary interest in the subject matter.