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

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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 tarsoconjunctiva. 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.[1] 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[2,3], and high rates of implant exposure and removal with the use of Medpor[4]. There is strong evidence that graft contracture rate over time is higher with Alloderm compared to hard palate mucosa[5].

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.

REFERENCES:

1. Olver JM, Rose GE, Khaw PT, Collin JR. Correction of lower eyelid retraction in thyroid eye disease: a randomised controlled trial of retractor tenotomy with adjuvant antimetabolite versus scleral graft. *Br J Ophthalmol.* 1998;82(2):174-180.

2. Patel MP, Shapiro MD, Spinelli HM. Combined hard palate spacer graft, midface suspension, and lateral canthoplasty for lower eyelid retraction: a tripartite approach. *Plast Reconstr Surg.* 2005;115(7):2105-2114; discussion 2115-2107.

3. Wearne MJ, Sandy C, Rose GE, Pitts J, Collin JR. Autogenous hard palate mucosa: the ideal lower eyelid spacer? *Br J Ophthalmol.* 2001;85(10):1183-1187.

4. Tan J, Olver J, Wright M, Maini R, Neoh C, Dickinson AJ. The use of porous polyethylene (Medpor) lower eyelid spacers in lid heightening and stabilisation. *Br J Ophthalmol.* 2004;88(9):1197-1200.

5. Sullivan SA, Dailey RA. Graft contraction: a comparison of acellular dermis versus hard palate mucosa in lower eyelid surgery. *Ophthal Plast Reconstr Surg.* 2003;19(1):14-24.