Eye (2012) 26, 1384–1395

www.nature.com/eye

CORRESPONDENCE

Sir,

Management of skin retraction associated with Boston type II keratoprosthesis

Skin retraction around optic stem of type-II Boston keratoprosthesis is a common complication. Left unchecked, the condition can progress and lead to infection, extrusion, and perforation. Correction often requires multiple skin revisions, including advancement or even 'bucket-handle' skin flaps and rarely even replacement of the keratoprosthesis. We describe the outcomes of repair in two cases using a forehead pericranial flap.

Case reports

Two patients underwent type-II keratoprosthesis insertion. Within few months, multiple skin advancement procedures were required because of skin retractions. Subsequently, they underwent a forehead pericranial flap procedure (below). Following this, they developed recurrent skin migration over the optic (Figure 1) requiring skin trephinations with skin biopsy punch, but this did not halt its recurrence. Further, 3-mm excision of skin around the stem, with suturing of skin edges to deeper tissue, arrested recurrences.

The length of the forehead pericranial flap was measured as the distance between glabellar skin-crease and keratoprosthesis stem. A vertical incision involving skin, subcutaneous tissue, and galeal layer was created (Figure 2a). The keratoprosthesis was covered by wet gauze to avoid light-induced maculopathy (Figures 2b-d). Length of the required flap was estimated by using length of gauze fixed at the base of the flap pedicle and rotated between the vertical position and that required to bridge the defect.[1] The outline flap was incised and peeled off the bone (Figure 2d). The flap was flipped so that periosteal surface faced the undersurface of the skin flap and passed through a sub-orbicularis tunnel using artery forceps through to the keratoprosthesis stem (Figure 2e). Eyelid skin was dissected from the keratoprosthesis stem to expose the area to be covered with flap (Figure 2f). The flap was trimmed to fit the exposed area (Figure 2g). The flap was sutured to the subcutaneous tissue using interrupted 6/0 vicryl mattress sutures. A small slit opening was fashioned in the flap for the stem of keratoprosthesis (Figures 2g and h). The forehead wound was closed in layers.

Comment

Patel *et al*[2] described use of pericranial flaps in patients with lower eyelid cicatricial malposition. The vascularity and robustness of this flap lends itself to support bone or cartilage grafts in the skull and face;[3,4] closure of skull base and orbital defects;[5,6] sinus obliteration and fistula closure;[7] support of free skin grafts;[2] and soft-tissue augmentation.[2,8]

The success of this technique in the above cases relates to high vascularity, thickness and strength of the pericranial tissue. Because the tissue surrounding optic stem is thickened and elevated in the early postoperative period, there is a tendency for the optic to lie flush with the periosteum and allow skin to overgrowth. Patients must therefore be counselled about the need for repeated

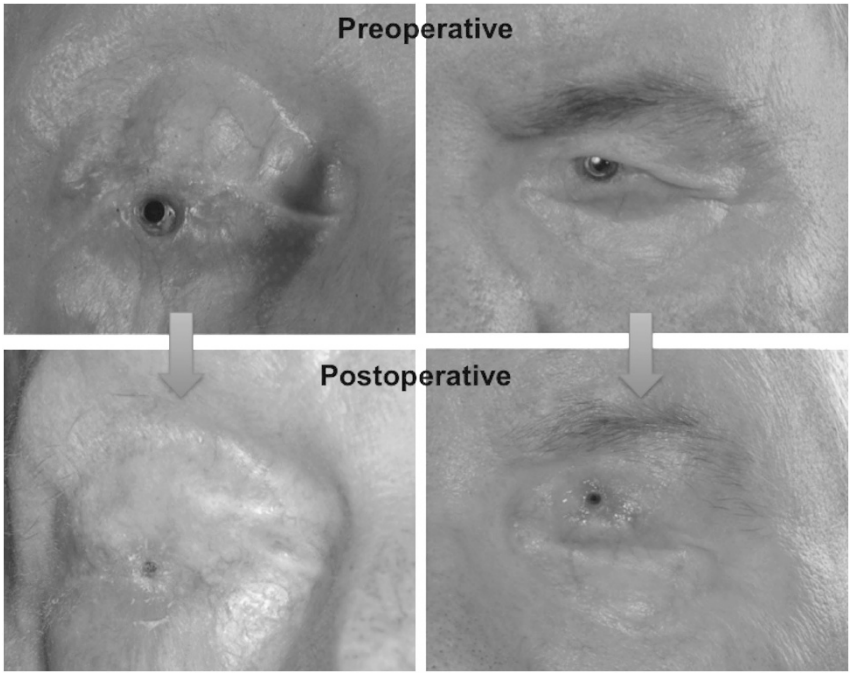

Figure 1 Preoperative and postoperative pictures of both patients with skin retraction.

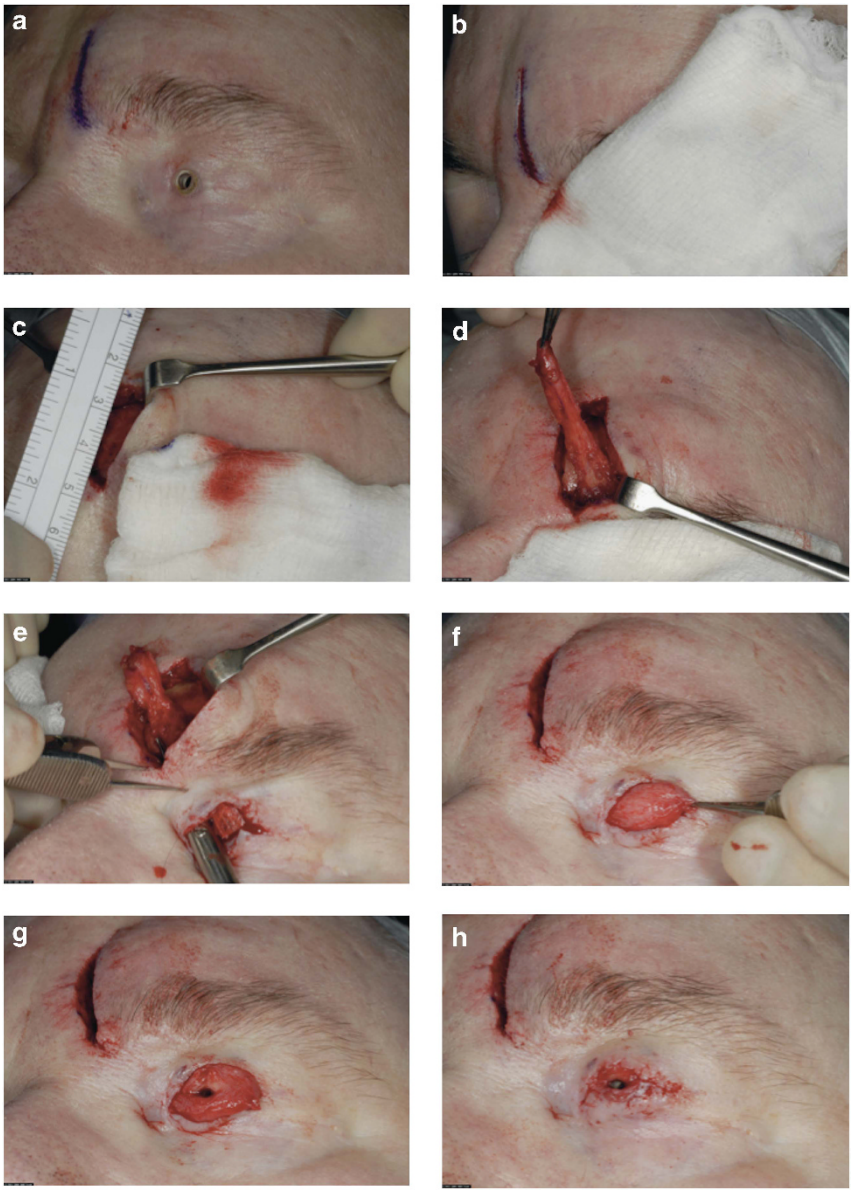

Figure 2 Surgical technique. (a) Incision site marked in vertical, paramedian, glabellar skin-crease. (b) Incision deep to pericranium. Forehead incision with no. 15 Bard Parker blade (Swann-Morton, Sheffield, UK). (c) Desired flap size measured before dissection of the pericranial flap. (d) Flap fashioned with no. 15 Bard Parker blade and lifted from bone using a periosteal elevator, avoiding damage to the base. (e) Flap passed via subcutaneous dissection between flap base and medial canthus, preserving medial canthal tendon. (f) Flap pulled through over the keratoprosthesis optic. (g) Keratoprosthesis optic dissected proud through the flap. (h) Flap fixed to subcutaneous cut edges of the eyelid using 6.0 vicryl sutures.

skin removal, and a wider excision of tissue may be required. Based on these findings, we suggest a pericranial flap could be considered to cover the keratoprosthesis at an early stage in cases where vascularity around the skin is of concern. This is an excellent option where repeated skin revisions have failed to achieve a solution to recurrent skin retractions.

Conflict of interest

The authors declare no conflict of interest.

References

1 Leatherbarrow B, Watson A, Wilcsek G. Use of the pericranial flap in medial canthal reconstruction: Another application for this versatile flap. *Ophthal Plast Reconstr Surg* 2006; **22**(6): 414–419.
2 Patel V, Osborne S, Morley AM, Malhotra R. The use of pericranial flaps for reconstruction and elevation of the lower eyelid. *Orbit* 2010; **29**(1): 1–6.
3 Horowitz JH, Persing JA, Nichter LS, Morgan RF, Edgerton MT. Galeal- pericranial flaps in head and neck reconstruction. Anatomy and application. *Am J Surg* 1984; **148**: 489–497.

4 Wolfe SA. The utility of pericranial flaps. *Ann Plast Surg* 1978; **1**: 147–153.
5 Tse DT, Goodwin WJ, Johnson T, Gilberg S, Meldrum M. Use of galeal or pericranial flaps for reconstruction of orbital and eyelid defects. *Arch Ophthalmol* 1997; **115**: 932–937.
6 Smith JE, Ducic Y. The versatile extended pericranial flap for closure of skull base defects. *Otolaryngol Head Neck Surg* 2004; **130**: 704–711.
7 Parhiscar A, Har-El G. Frontal sinus obliteration with the pericranial flap. *Otolaryngol Head Neck Surg* 2001; **124**: 304–307.
8 Hobar PC, Burt JD, Masson JA, Merritt JA, Trawnik R. Pericranial flap correction of superior sulcus depression in the anophthalmic orbit. *J Craniofac Surg* 1999; **10**: 487–490.

MA Nanavaty, I Avisar, DB Lake, SM Daya and R Malhotra

Corneoplastic Unit, Queen Victoria Hospital, East Grinstead, UK
E-mail: raman.malhotra@qvh.nhs.uk

Eye (2012) **26,** 1384–1386; doi:10.1038/eye.2012.144; published online 3 August 2012

Sir,

Rituximab in IgG4-related inflammatory disease of the orbit and ocular adnexae

The discovery of IgG4 implication in a subtype of previously-idiopathic orbital disease is beginning to change the disease management. In 2002, 'the mainstay of therapy for idiopathic orbital inflammation (was) corticosteroids',[1] with often excellent but unsustained treatment response. Specific immunomodulatory therapy is now being investigated and early results show promise. Of particular interest is Rituximab (chimaeric monoclonal antibody against B-cell CD20).

The efficacy and safety of Rituximab has been demonstrated for systemic and intraocular inflammatory conditions.[2,3] Since the submission of a review on adnexal IgG4-related disease,[4] papers have been published on the use of Rituximab for systemic IgG4-related disease and data are now emerging on the use of Rituximab for IgG4-specific orbital disease.

The first is a case report of a 56-year-old lady with over 30 years of intractable orbital disease presumed to be idiopathic.[5] Recent interest in IgG4 has led to further serum samples and tissue biopsy (lacrimal gland, extraocular muscles, intraconal fat, and trigeminal nerve) showing levels of IgG4 above the reference range. Six months after commencing, Rituximab proptosis improved, serum IgG4 normalised and orbital disease was deemed dormant.

The second paper is a review of 10 cases with IgG4-related orbital disease unresponsive to oral steroids and disease-modifying antirheumatic drugs (DMARDs).[6] All patients received two infusions of Rituximab (1000 mg) 15 days apart. Nine of ten patients demonstrated 'striking clinical improvement' after 1 month of starting treatment. The remaining patients' disease progression was halted, but no clinical improvement was evident. All 10 patients were able to discontinue oral steroid and DMARDs. Four patients required re-treatment at 6 months, with repeatable clinical improvement and serum IgG4 reduction.

Evidence is encouraging but of low scientific value, with no direct comparison to current standard care (prednisolone). Higher-level, prospective and randomised evidence investigating Rituximab against glucocorticoids would be beneficial. However, powering a study for a disease with such heterogenous clinical manifestations and poorly definable outcomes doubtless limits evidence supporting Rituximab to case-series data only.

Conflict of interest

The author declares no conflict of interest.

References

1 Jacobs D, Galetta S. Diagnosis and management of orbital pseudotumor. *Curr Opin Ophthalmol* 2002; **13**: 347–351.
2 Khosroshahi A, Stone JH. A clinical overview of IgG4-related systemic disease. *Curr Opin Rheum* 2011; **23**: 57–66.
3 Taylor SR, Salama AD, Joshi L, Pusey CD, Lightman SL. Rituximab is effective in the treatment of refractory ophthalmic Wegener's granulomatosis. *Arthritis Rheum* 2009; **60**: 1540–1547.
4 Lindfield D, Attfield K, McElvanney A. Systemic immunoglobulin G4 (IgG4) disease and idiopathic orbital inflammation; removing 'idiopathic' from the nomenclature? *Eye* 2012; **26**: 623–629.
5 Wallace ZS, Khosroshahi A, Jakobiec FA, Deshpande V, Hatton MP, Ritter J *et al*. IgG4-related systemic disease as a cause of 'idiopathic' orbital inflammation including orbital myositis, and trigeminal nerve involvement. *Surv Ophthalmol* 2012; **57**: 26–33.
6 Khosroshahi A, Carruthers MN, Deshpande V, Unizony S, Bloch DB, Stone JH. Rituximab for the treatment of IgG4-related disease: lessons from 10 consecutive patients. *Medicine (Baltimore)* 2012; **91**: 57–66.

D Lindfield

Department of Ophthalmology, Royal Surrey County Hospital, Guildford, Surrey, UK
E-mail: danlindfield@hotmail.com

Eye (2012) **26,** 1386; doi:10.1038/eye.2012.147; published online 20 July 2012

Sir,

Subtarsal eyelid examination using an oblique slit lamp mirror in cases of eyelid shortening

We report a novel technique enabling examination of the superior fornix and tarsus in patients in whom the eyelid cannot be everted.