CASE REPORT

Sympathetic ophthalmia following a conjunctival flap procedure for corneal perforation

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SUMMARY

A 25-year-old man developed diminution of vision and redness in both eyes 5 weeks after a conjunctival flap procedure in the right eye. On examination, there was panuveitis and exudative retinal detachment in both eyes. The right eye had an inferotemporal conjunctival flap with iris incarceration. Fundus fluorescein angiography revealed typical pinpoint leaks and optical coherence tomography demonstrated multiple neurosensory detachments in the left eye. The patient received frequent topical steroids and cycloplegics. Intravenous dexamethasone pulse was given followed by high-dose oral prednisone, after which the patient recovered vision. The conjunctival flap in corneal perforation may predispose to sympathetic ophthalmia.

BACKGROUND

Sympathetic ophthalmia (SO) is a rare, non-necrotising granulomatous panuveitis that occurs following penetrating insult to one eye. The inflammation involves both the injured eye (exciting eye) and the fellow eye (sympathising eye). We report a rare case of SO after the closure of corneal perforation using a conjunctival flap technique.

Thus, in our opinion, a conjunctival flap alone should be avoided when closing a perforated cornea, even if the facility for cornea transplantation is unavailable.

CASE PRESENTATION

A 25-year-old man diagnosed elsewhere as having corneal perforation in the right eye, with visual acuity of 20/600, underwent a conjunctival flap procedure. Postoperative records showed visual acuity of 20/40 in the right eye and 20/20 in the left eye. He presented to us with redness, pain and decreased vision in both eyes noticed 5 weeks after surgery. There was no history of trauma to the eyes, nor of joint pain, alopecia, vitiligo or headache. At presentation, the patient had visual acuity of perception of light with inaccurate projection of rays in the right eye and hand movements close to the face in the left eye. Circumciliary congestion and hypotony were noted in both eyes. Intraocular pressure was 4 mm Hg in both eyes. The right eye showed a conjunctival flap with iris adherent to the flap posteriorly in the inferotemporal quadrant, endothelial dusting, 4+ cells in the anterior chamber, 360° posterior synechia and neovascularisation of the iris, with a small pupil (figure 1A). Seidel's test was negative. The left eye also showed endothelial dusting, 4+ AC cells, posterior synechia, mild posterior subcapsular cataract and

retrolental cells. There was no red reflex in the right eye and left eye showed vitritis, optic disc oedema, inferior retinal detachment with macular involvement and annular choroidal detachment (figure 1B, C).

INVESTIGATIONS

The optical coherence tomography of the left eye showed multiple neurosensory detachments (NSDs, figure 2A). Ultrasonography of both eyes showed chorioretinal thickening with retinal detachment in both eyes. Fluorescein angiography revealed disc leak, pooling of dye within the NSDs, and pinpoint leaks in the left eye. Laboratory investigations, including rheumatoid factor, antinuclear antibody and cytoplasmic antineutrophil cytoplasmic antibody (c-ANCA) and perinuclear ANCA (p-ANCA), were negative.

TREATMENT

Frequent topical steroids and cycloplegics were started. Intravenous dexamethasone 100 mg was given for three consecutive days, after which oral prednisone 1.5 mg/kg/day was started. The patient was also given posterior subtenon triamcinolone acetate (20 mg) in the left eye 3 days after the presentation in view of persistent hypotony.

OUTCOME AND FOLLOW-UP

At 1 week after presentation, the vision improved to 20/200 in the left eye and 10/200 in the right eye. At 6 weeks, the patient achieved 40/60 in both eyes (figure 2B). The patient was maintaining this visual acuity on the last follow-up at 14 months and was in remission on azathioprine and low-dose oral steroid.

DISCUSSION

SO is thought to be an autoimmune response to uveal injury. The incarceration of uveal tissue in the wound is a major risk factor. SO has been reported 5 days to 66 years after penetrating insult to the eye.^{1 2} In this case, incarceration of uvea in the conjunctival flap resulted in SO 5 weeks after surgery. Knapp,³ as early as 1893, reported a patient who developed SO following contact between the uveal tissue and conjunctiva. Conjunctival flaps may be total flaps (Gundersen's flap),⁴ hood flaps or pedicle flaps.⁵ The indications for conjunctival flaps include chronic and recalcitrant herpetic corneal ulcers, bullous keratopathy, bacterial ulcer, graft rejection, alkali burns, descemetocoele, corneal trauma and rheumatoid arthritis-related corneal melt.^{5 6} However, their

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Figure 1 (A) Slit lamp photograph of the right eye showing a conjunctival flap with iris in wound inferotemporally, 360° posterior synechia, with a small pupil. (B) Fundus photograph taken through the small pupil of the left eye showing vitritis, optic disc oedema and exudative retinal detachment. (C) Fundus photograph of the inferior retina of the left eye showing an inferior retinal detachment.

role in a perforated cornea is controversial. The flap may not seal the full thickness corneal defect and may form a bleb.⁵ It may lead to improper wound closure with iris incarceration. Exposure of uveal antigens from incarcerated iris to conjunctival lymphatics may have induced SO in this case.⁷ In a case of a perforated cornea, the possibility of iris incarceration in the wound is high and hence SO can develop. Other options for treating corneal perforations, such as tissue adhesives (glue),

amniotic membrane transplant, patch graft or penetrating keratoplasty, should be considered and discussed with the patient. Amniotic membrane transplant or glue may be a convenient option in this regard when keratoplasty or patch graft is not possible. However, there is a case report of SO developing after amniotic membrane transplantation and tarsorrhaphy for persistent corneal ulcer following a chemical burn in a 39-year-old man.⁸ The exciting eye was found to have corneal perforation with iris prolapse, which had initiated the event. SO is a severe ocular inflammation that is potentially blinding. With prompt and aggressive treatment, vision can be salvaged, as occurred in our patient. However, these patients require a very long term, perhaps even a life-time of immunosuppression thereafter.

Learning points

- ▶ Uveal tissue incarceration in corneal wounds is an important risk factor for the development of potentially blinding complications such as sympathetic ophthalmia.
- ▶ A conjunctival flap procedure for a perforated cornea was followed by sympathetic ophthalmia in our patient.
- ▶ Prompt and aggressive treatment of sympathetic ophthalmia, using high-dose systemic steroids along with topical cycloplegics and topical steroids may help to achieve good visual outcomes. Many patients subsequently require long-term immunomodulatory therapy to prevent a relapse and maintain remission.

Figure 2 (A) Optical coherence tomography, at presentation, of the left eye showing multiple neurosensory detachments. (B) Fundus photograph of the left eye captured 6 weeks after presentation showing resolution of neurosensory detachments and clear media.

Contributors KT and RC had full access to all of the details of the patient and took responsibility for the integrity of the details and the accuracy of the manuscript. KT and KM were responsible for acquisition of the data. All the authors were responsible for the concept and design of the paper, and analysis and interpretation of the data. All the authors drafted the manuscript and were involved in critical revision of the manuscript for important intellectual content.

Competing interests None declared.

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REFERENCES

- 1 Vasconcelos-Santos DV, Rao NA. Chapter 74 - Sympathetic Ophthalmia. In: Ryan SJ, 5th ed. Retina. London: Saunders/Elsevier 2013:1318–25.
- 2 Zaharia MA, Lamarche J, Laurin M. Sympathetic uveitis 66 years after injury. *Can J Ophthalmol* 1984;19:240–3.
- 3 Knapp H. A case of traumatic dislocation of the iris under the unbroken conjunctiva —eye damaged but preserved, typical sympathetic ophthalmia in the other eye. *Trans Am Ophthalmol Soc* 1893;6:513–23.
- 4 Gundersen T, Pearlson HR. Conjunctival flaps for corneal disease: their usefulness and complications. *Trans Am Ophthalmol Soc* 1969;67:78–95.
- 5 Mian S, Sugar A. Chapter 33: conjunctival flaps for corneal disease. In: *Duane's ophthalmology*. Philadelphia: Lippincott Williams & Wilkins, 2006. https://catalyst.library.jhu.edu/catalog/bib_2585260
- 6 Khodadoust A, Quinter AP. Microsurgical approach to the conjunctival flap. *Arch Ophthalmol* 2003;121:1189–93.
- 7 Rao NA, Robin J, Hartmann D, et al. The role of the penetrating wound in the development of sympathetic ophthalmia experimental observations. *Arch Ophthalmol* 1983;101:102–4.
- 8 Shen J, Fang W, Jin XH, et al. Sympathetic ophthalmia caused by a severe ocular chemical burn: a case report and literature review. *Int J Clin Exp Med* 2015;8:2974–8.

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