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Cataract Surgery in Patients with Advanced Mooren's Ulcer

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Background: We describe 2 patients with severe Mooren's ulcer who underwent phacoemulsification and intraocular lens implantation surgery. The clinical features of this disease are highlighted.

Case: A detailed study of the ocular and laboratory findings in these patients, together with a review of the literature, is presented.

Observations: There was a visually rewarding outcome after phacoemulsification and intraocular lens implantation were performed, and Mooren's ulcer did not recur.

Conclusion: We conclude that phacoemulsification-aspiration and intraocular lens implantation surgery with a small incision can be successfully performed in patients with Mooren's ulcer after complete control of inflammation with topical and oral steroid therapy, or with ocular reconstruction surgery when required. **Jpn J Ophthalmol 2001;45:543–546** © 2001 Japanese Ophthalmological Society

Key Words: Cataract surgery, Mooren's ulcer.

Introduction

Mooren's ulcer results from chronic peripheral corneal infiltration, with epithelial breakdown and stromal melting, eventually progressing circumferentially and centrally. Although the etiology is unknown, a rare inflammatory disorder of presumed autoimmune etiology has been suggested, which comprises higher levels of immune complexes, circulating antibodies to conjunctiva and corneal epithelium, deficiency of suppressor T-cells in the serum, and blastogenic response to corneal stroma in the lymphocytes.

Mooren's ulcer sometimes induces secondary cataract, reducing visual acuity even after resolution of the inflammation. Surgical trauma, such as from cataract surgery, frequently induces the activation of inflammation associated with the disease process. To our knowledge, only a few cases of advanced Mooren's ulcer who underwent successful cataract surgery have been reported.[1–5] We describe two cases of advanced severe Mooren's ulcer who underwent successful phacoemulsification and intraocular lens implantation surgery with a small incision after complete control of the inflammation.

Case Reports

Case 1

A 36-year-old Japanese man was referred to us in December 1996. He complained of a decrease in visual acuity in both eyes of several months' duration. Visual acuity on initial examination of the right eye was hand movement and in the left eye, finger counting. Slit-lamp examination of the right eye showed a 360° peripheral marginal ulcer with marked inflammation and a blurred anterior segment (Figure 1A). In the left eye, a posterior subcapsular cataract with posterior synechiae and peripheral limbal ulcer over three quadrants was observed (Figure 1B). Due to the unusually severe nature of the marginal ulcer, a complete blood count, and examination for collagen disease, including rheumatoid factor, antinuclear antibody, and anti-DNA antibody titers were done. All results were either negative or within normal limits.

Received: November 8, 2000

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Published by Elsevier Science Inc.

0021-5155/01/$–see front matter
PII S0021-5155(01)00378-1

Jpn J Ophthalmol
Vol 45: 543–546, 2001

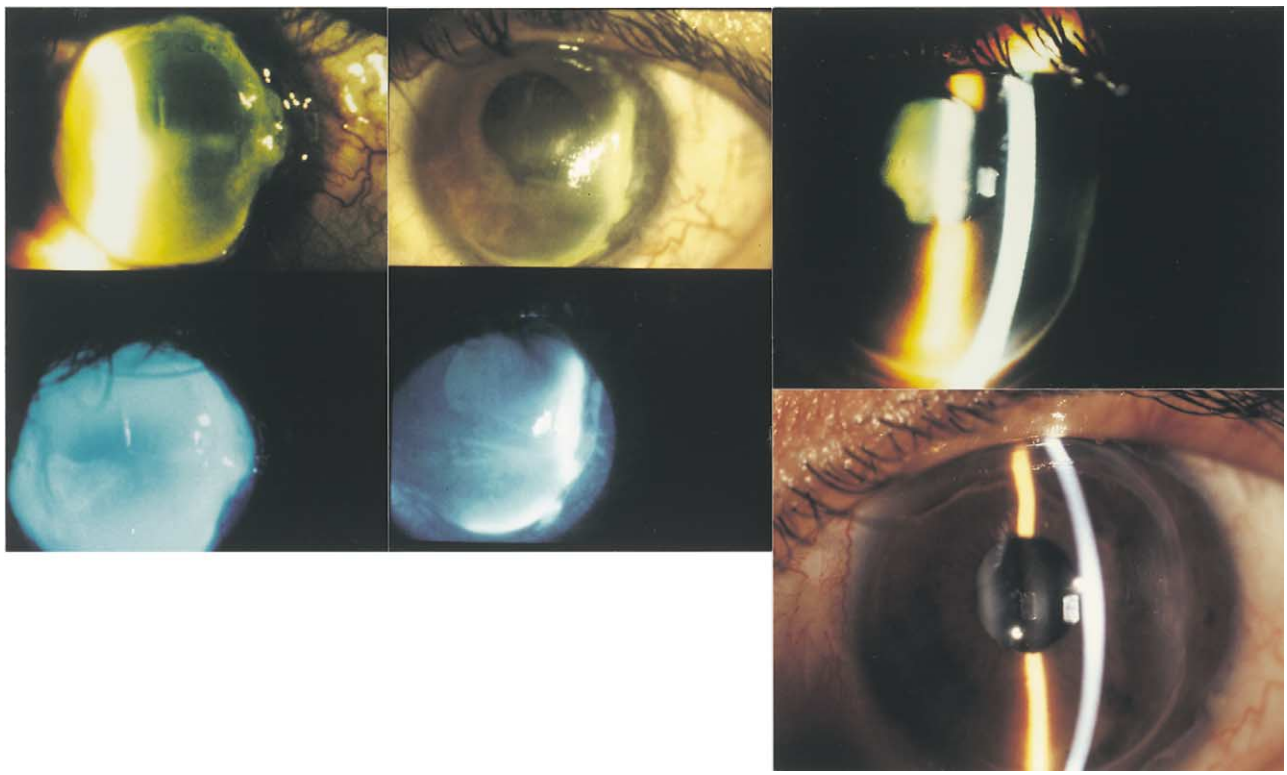

Figure 1. (**Left**) Slit-lamp photograph of right eye of case 1 showing a 360° peripheral marginal ulcer. Note marked inflammation, epithelial defect and blurring of anterior segment. (**Center**) Left eye of case 1 showing peripheral limbal ulcer over three quadrants. Note also slightly cataractous lens. (**Right top**) Preoperative photograph of left eye of case 1 showing posterior subcapsular cataract with posterior synechia formation. Visual acuity was light perception. (**Right bottom**) Left eye of case 1, 3 months after phacoemulsification and intraocular lens implantation surgery. No evidence of recurrence of ulcer or inflammation was observed.

Results of tests for hepatitis C antibodies were also negative. The patient reported a history of poorly controlled diabetes despite insulin therapy.

Treatment of both eyes commenced with topical 0.1% bethamethasone four times daily, oral prednisolone (15–30 mg/day), and mizoribine (200 mg/day). Despite intensive steroid therapy the inflammation and ulceration persisted and visual acuity re-

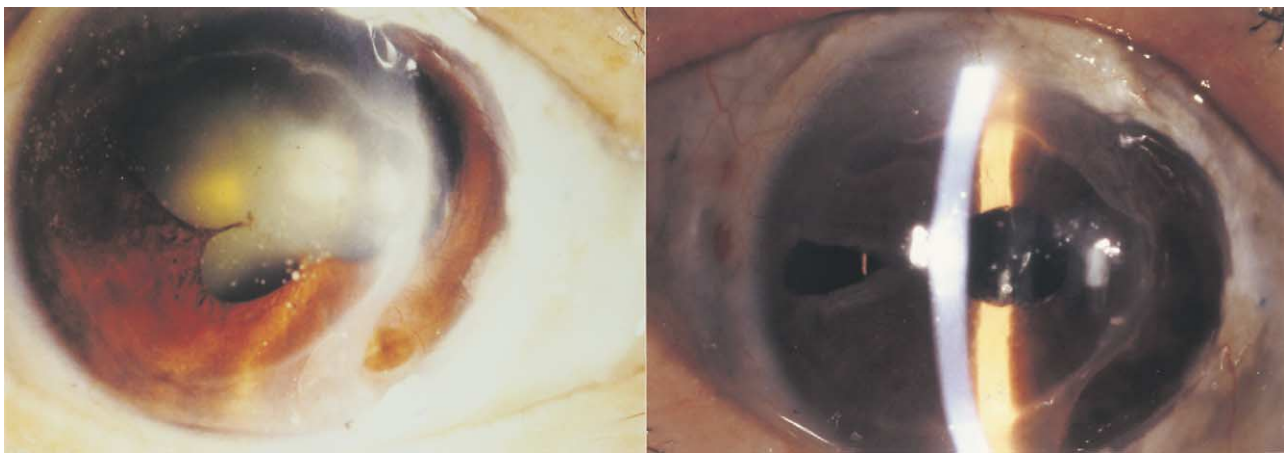

Figure 2. (**Left**) Photograph of right eye of case 2 prior to cataract surgery. Thinning of limbal cornea of more than three quadrants could be observed. Lens was also cataractous. Visual acuity dropped to 20/1000. (**Right**) Photograph of right eye of case 2, 3 months after phacoemulsification and intraocular lens implantation. Intraocular lens was well-fixed and cornea was stable without recurrence of ulcer.

mained at hand movement in the right eye. In February 1997, keratoepithelioplasty and lamellar keratoplasty were performed on the right eye. With continuous follow-up, the ulcer in the right eye gradually resolved and became well epithelialized. No recurrence was observed throughout the 2-year follow-up period. Steroid therapy was continued with gradual tapering. The posterior subcapsular cataract of the left eye showed progression and visual acuity decreased to light perception (Figure 1C). Phacoemulsification with intraocular lens implantation (one piece, polymethylmethacrylate, 6.0 mm diameter) was performed in the left eye in August 1997. A scleral tunnel incision was made at the superonasal healthy limbus. For anterior capsulotomy, the continuous curvilinear capsulorrhexis (CCC) procedure was converted to a can-opener method because of reduced visualization due to the milky cataract. However, visualization through the cornea was not reduced during surgery. No filtration of aqueous fluid through the wound was noted postoperatively. Steroids were given subconjunctivally. After surgery, the patient continued using topical bethamethasone, oral prednisolone (10 mg/day), and mizoribine (200 mg/day). Corrected visual acuity in the left eye improved to ($20/20 \times -0.5 = -1.5$ Ax 16°), with no recurrence of Mooren's ulcer after 18 months of follow-up (Figure 1D). The refractive error, calculated with the refracting power of the cornea determined by the auto-refractometer preoperatively, was within our prediction.

Case 2

A 77-year-old Japanese woman who had undergone autologous scleral graft transplantation twice, in both eyes, due to scleral melting resulting from recurrent Mooren's ulcer was referred to us in June 1997 because of a flare-up of the disease process. Initial examination revealed a visual acuity of 20/40 in the right eye and hand movement in the left eye. Slit-lamp examination of the right eye showed a peripheral ulcer with melting and thinning of the graft over three quadrants, whereas a healthy surviving graft and a nuclear cataract were observed in the left eye. She was treated with topical 0.1% betamethasone four times daily. After complete control of the inflammation, the patient remained in remission for 12 months. Progress of the cataract in the right eye reduced her visual acuity to 20/1000 in the right eye (Figure 2A). Cataract surgery consisted of a 3.5-mm temporal single plane corneal incision with phacoemulsification and foldable intraocular lens implantation (MA60BM, 21.0 D; Alcon Laboratories, Ft. Worth, TX, USA). In this case, the corneal incision was preformed because thinning of the temporal sclera had occurred at the site of the autologous graft. The CCC procedure was converted to the can-opener method due to the maturity of the cataract and the presence of posterior synechia. Corneal transparency remained clear throughout the procedure. Steroids were given subconjunctivally. Postoperatively, topical 0.1% dexamethasone treatment was continued on the right eye. No systemic steroid or immunosuppressive therapy was given. After a 5-month follow-up, vision in the right eye improved to 20/600, with no recurrence of the ulcer (Figure 2B). Postoperative refractive error was within our prediction.

Discussion

To our knowledge, only 8 cases of Mooren's ulcer, including 6 persons of Japanese descent, have been reported to have undergone successful cataract surgery.[1–5] Among them, only 2 cases had phacoemulsification with small scleral tunnel incision or corneal incision and intraocular lens implantation. The other cases had either intracapsular or extracapsular cataract extraction. Surgical trauma in patients with Mooren's ulcer, such as from cataract surgery and penetrating keratoplasty, often induce antigen exposure, resulting in re-activation of the ulcer. We performed small incision cataract surgery on 2 patients previously diagnosed with severe Mooren's ulcer resulting in a visually satisfactory outcome, with no recurrence of inflammation throughout the follow-up period (7 and 18 months). Our experience suggests that a small incision and phacoemulsification can be successful in patients with Mooren's ulcer. We propose that in these severe cases the corneal refractive power should be measured with great care and compared with the contralateral eye and with previous data for an accurate prediction of intraocular lens power. Moreover, scleral tunnel incision, as in case 1, might decrease antigen-related damage and may be a preferable method if the sclera is well preserved.

Most cases reported in the literature initially underwent lamellar keratoplasty or keratoepithelioplasty or perilimbal conjunctival resection in order to attain remission of the ulcer prior to cataract surgery. After complete control of inflammation, we successfully performed cataract surgery in a patient with advanced Mooren's ulcer who had not had any previous surgery (case 1). We recommend a long remission period before performing cataract surgery. We believe that peripheral corneal thickness is an important factor, and should be carefully considered.

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Vol 45: 543–546, 2001

Topical and oral steroid and immunosuppressive therapy are recommended for suppression of the autoimmune response.

We demonstrated that a small scleral tunnel or corneal incision with phacoemulsification and intraocular lens implantation could be successfully done in patients with advanced severe Mooren's ulcer after complete control of inflammation.

Presented at the 20th Japanese Ophthalmic Surgery Congress, Tokyo, January 29,1999

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