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Case report

Posterior pole retinal detachment due to a macular hole in a patient with a Boston Keratoprosthesis



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ABSTRACT

Purpose: To describe the clinical course of a patient with a Boston Keratoprosthesis type I who developed a localized posterior pole retinal detachment secondary to a macular hole.

Observations: A 73-year-old patient with a Boston Keratoprosthesis developed a localized posterior pole retinal detachment secondary to a macular hole. The retinal detachment was repaired with a 23-gauge pars plana vitrectomy, membrane peel, fluid-air exchange and 18% C₃F₈. Retinal reattachment was achieved but the macular hole remained open.

Conclusions and importance: A posterior pole retinal detachment secondary to a macular hole can be repaired using standard techniques despite the limited view through a Boston Keratoprosthesis.

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1. Introduction

The Boston Keratoprosthesis type I (KPro) is the most common keratoprosthesis implemented in the United States. Potential postoperative complications include retro-KPro membranes, endophthalmitis, choroidal detachment, cystoid macular edema, epiretinal membrane, vitreous hemorrhage, and retinal detachment.^{1–3} Retinal detachment has been reported in as many as 18.6% of KPro patients, including rhegmatogenous, tractional, and serous detachments.⁴ There are currently no reports of retinal detachments confined to the posterior pole due to a macular hole. Surgical treatment options for posterior pole retinal detachments in patients with KPro include standard vitrectomy approaches with either gas or silicone oil tamponade of the macular hole.⁵ In this report, we describe the clinical course for a posterior pole retinal detachment due to a macular hole in a patient with a KPro.

2. Case report

A 73-year-old female with a complex ocular history significant for glaucoma and Fuch's Dystrophy who had four penetrating

keratoplasties in the right eye and one in the left. Because all penetrating keratoplasties in the right eye resulted in rejection, a Boston Keratoprosthesis type I was placed in a combined procedure with a concurrent Baerveldt Glaucoma Implant and pars plana vitrectomy. This procedure was complicated by persistent cystoid macular edema of the right eye that was treated with a dexamethasone intravitreal implant. Subsequently the patient maintained stable vision (20/100 OD and 20/60 OS) for the next two years.

The patient presented with pain, injection, and vision reduced to 20/400 in her right eye (Fig. 1). Ocular examination included conjunctival congestion, anterior uveitis, anterior vitreous cell, and no view of fundus details. Echography with a specialized shell was not available at the time of presentation. The patient was diagnosed with presumed endophthalmitis and underwent a vitreous tap and injection of vancomycin 1 mg/0.1 ml, ceftazidime 2.25 mg/0.1 ml, and dexamethasone 0.4 mg/0.1 ml. The vitreous tap specimen was culture negative. Two weeks following this treatment the patient had persistent visual loss with clearing of the media and was diagnosed with a retinal detachment confined to the posterior pole secondary to a macular hole (Fig. 2). The patient underwent a 23-gauge pars plana vitrectomy, internal limiting membrane (ILM)

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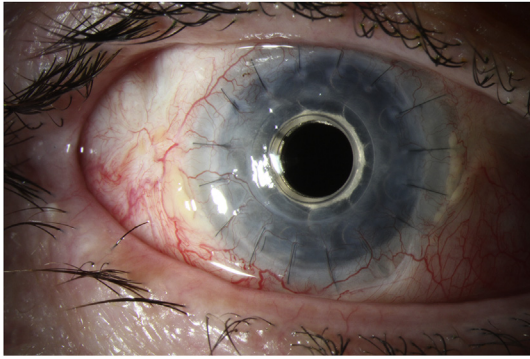


Fig. 1. The patient presented to the emergency room with pain, conjunctival congestion, and reduced vision in her right eye, consistent with the diagnosis of endophthalmitis.

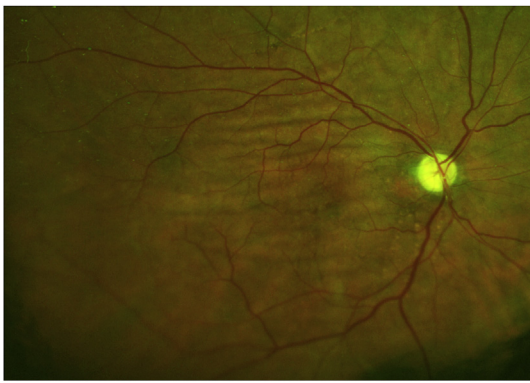


Fig. 2. Optos WideField imaging demonstrating a posterior pole detachment on presentation.

peel, and air-fluid exchange with 18% C_3F_8 . Postoperatively, the retina was reattached but the macular hole persisted (Fig. 3). As of three months of follow-up, the patient's vision in her right eye remained stable at 20/400.

3. Discussion

The literature is limited when it comes to describing and managing posterior pole complications of KPro devices. Retinal detachment in patients with KPro devices has been reported to occur from 5 to 18.6%, depending on the follow-up period being observed.^{1,2,4} As described in the literature, these retinal detachments are mostly rhegmatogenous in nature, with a minority being tractional or serous. There are no known descriptions of posterior pole detachments due to a macular hole. Retinal

detachment secondary to macular holes occur most frequently in myopic eyes, with a much higher prevalence in eyes with posterior staphyloma and myopic macular retinoschisis (96%) than in emmetropic eyes (8.2%).^{6–9} In the Endophthalmitis Vitrectomy Study involving post-cataract surgery endophthalmitis, the overall rate of retinal detachment after a tap and inject was approximately 8% after 9 months.¹⁰ The effect of prior tap and injection procedures on the rate of retinal detachment from a macular hole remains unknown.

The patient described in this case report underwent a 23-gauge pars plana vitrectomy with 6 mm trocars and an ILM peel followed by air-fluid exchange with 18% C_3F_8 and prone positioning for 5 days, successfully repairing the retinal detachment. The decision to use gas stemmed from the concern that oil may adhere to the posterior surface of the KPro and may be difficult to remove subsequently. Gas, while providing a short-term tamponade, would not require a second operation for removal. Even though retinal reattachment was achieved, the macular hole persisted and no further surgery was recommended.

4. Conclusion

A 73-year-old female with a Boston Keratoprosthesis type I presented with a localized posterior pole retinal detachment secondary to a macular hole. Following surgery, retinal reattachment was achieved but the macular hole was not closed. Posterior pole retinal detachment secondary to a macular hole can be repaired using standard techniques despite the limited view through a Boston Keratoprosthesis.

5. Patient consent

The Institutional Review Board did not require consent to be obtained for this case report. This report does not contain any personal information that could lead to the identification of the patient.

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Authorship

All authors attest that they meet the current ICMJE criteria for Authorship.

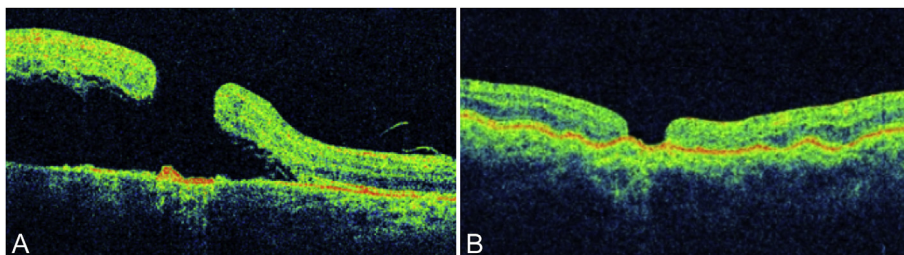


Fig. 3. A) Preoperative Optical Coherence Tomography (OCT) shows a macular hole with subretinal fluid. B) One month post-operative OCT of the macula demonstrating a retinal reattachment but persistent macular hole.

Conflict of interest

The authors have no financial disclosures.

Acknowledgments

None.

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