VANISHING RETINAL DETACHMENT

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Purpose: The purpose of this report is to describe a case of rhegmatogenous retinal detachment in the setting of chronic kidney disease that exhibited complete retinal reattachment after serial hemodialysis.

Methods: Retrospective case report.

Results: A 58-year-old woman with acute vision loss was found to have a macula-involving rhegmatogenous retinal detachment. Due to chronic kidney disease, she continued with routinely scheduled hemodialysis for 1 week until surgical clearance was obtained. Preoperative examination revealed complete reattachment of the retina with a persistent retinal tear. Barrier laser was applied to the tear and the retina remained attached until the most recent follow-up 8 months later. The workup of alternate etiologies was unrevealing.

Conclusion: This case describes a temporal association between hemodialysis and resolution of subretinal fluid due to rhegmatogenous retinal detachment. A potential causal linkage is suggested based on shifting fluid dynamics associated with hemodialysis. A shift in treatment paradigm is not advised.

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From the Southern California Desert Retina Consultants, Palm Desert, California.

Case Report

A 58-year-old woman with insulin-dependent diabetes mellitus, hypertension, and chronic kidney disease undergoing long-term dialysis presented with acute painless decreased vision and visual field loss in the right eye. She described floaters and increasing inferonasal visual field loss. Her past ocular history was unremarkable.

Visual acuity was counting fingers in the affected eye and 20/25 in the left eye. Intraocular pressures were normal and no afferent pupillary defect was noted. Anterior segment examination was notable for mixed nuclear and cortical cataract in both eyes. Dilated examination of the right eye revealed vitreous pigment, posterior vitreous separation, and retinal detachment involving the macula extending from the 9 to 1 o'clock position with a single horseshoe tear at the 11 o'clock position. Dilated examination of the left eye revealed mild diabetic retinopathy without macular edema, neovascularization, or vitreous hemorrhage. Blood pressure was within the normal range.

Macular spectral domain optical coherence tomography was inadvertently obtained and demonstrated detachment of the macula with subretinal fluid (Figure 1).

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After consideration of the treatment options, the patient was unable to undergo the in-office pneumatic retinopexy procedure and surgical intervention was arranged. While awaiting preoperative anesthesia clearance, regularly scheduled hemodialysis sessions were performed (three sessions). The patient returned reporting of improved vision and was found to have complete reattachment of the retina with near-complete resolution of subretinal fluid and visual acuity improved to 20/50. The horseshoe retinal tear persisted with vitreous traction lifting the flap. No other tears were discovered. Laser retinopexy was applied to surround the tear. At the 1 week follow-up, small isolated pockets of subretinal fluid remained with subfoveal fluid, which was noted on spectral domain optical coherence tomography (Figure 2) and the visual acuity was 20/50. After a 2-week course of topical dorzolamide 3 times daily, subretinal fluid resolved and vision acuity improved to 20/25 (Figure 3).

Fig. 1. Macular spectral domain optical coherence tomography demonstrating subretinal fluid at the time of presentation.

Fig. 2. Macular spectral domain optical coherence tomography demonstrating residual subretinal fluid after reattachment of the bullous retinal detachment.

Follow-up fluorescein angiography demonstrated pinpoint hyperfluorescence corresponding to diabetic microaneurysms in both eyes with nonspecific late staining of the posterior pole in the right eye. The workup for nonrhegmatogenous etiologies of retinal detachment was unrevealing, including normal blood pressure, inflammatory markers, negative rapid plasma reagin (RPR), chest x-ray, and absent T-sign on B-scan.

Fig. 3. Macular spectral domain optical coherence tomography after a course of dorzolamide shows resolution of subretinal fluid.

Discussion

In reviewing the current literature, no reports describe an association between rhegmatogenous retinal detachment and hemodialysis. However, bilateral exudative detachments with associated pigment epithelial detachments and exudates during hemodialysis are described.^{1,2} In this report, the patient presented with a unilateral retinal tear and associated detachment of the retina that reattached without ocular intervention as she continued to undergo routine hemodialysis. Although a curative link is difficult to prove, a theoretical basis for resolution of subretinal fluid can be proposed.

The possible explanations for this occurrence include 1) exudative detachment with the coexisting retinal tear and 2) rhegmatogenous retinal detachment that resolved because of fluid shifts associated with hemodialysis. The former is unlikely because no supportive evidence was discovered.

Hemodialysis is used to achieve extracorporeal removal of waste products such as creatinine and free water from the blood when the kidneys are in a state of failure. Rapid or excessive change in fluid balance can result in low blood pressure, fatigue, chest pains, leg cramps, nausea, and headaches. Ocular manifestations of hemodialysis include reduction of intraocular pressure and choroidal thickness.^{3,4} Because the fluid in the subretinal space is actively transported by the retinal pigment epithelium toward the choroid, this continuity supports the possibility of hemodialysis-associated shifts in choroidal fluid dynamics affecting subretinal fluid clearance.

Although a curative relationship is alluded here, hemodialysis is not suggested as a practical treatment option for rhegmatogenous retinal detachment. Primarily, intravenous access required for hemodialysis is not available to majority of patients who develop rhegmatogenous retinal detachment. Furthermore, the associated systemic risks, including blood-borne infection, do not justify the risk of an unproven method. However, it is important to raise awareness of such occurrences from here onward.

The patient will continue to be followed up as an alternate etiology may declare itself in the future.

Key words: retinal detachment, hemodialysis, kidney disease.

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