DSEK Rejection: A Case Series

Laurel Roberts, OD • Jennifer S. Harthan, OD, FAAO, FSLS

Renée E. Reeder, OD, FAAO, FBCLA, FIACLE • Lindsay A. Sicks, OD, FAAO, FIACLE, FSLS

Illinois Eye Institute, Chicago, Illinois

3241 South Michigan Avenue, Chicago, Illinois 60616

INTRODUCTION

Descemet's stripping endothelial keratoplasty (DSEK) is a partial thickness corneal transplant procedure for endothelial dysfunction. Graft rejection is less common with DSEK compared to full thickness penetrating keratoplasty (PKP) because there is less transplanted tissue, no sutures, less disruption to the blood-aqueous barrier and no immune system exposure to donor cell antigens.

CASE 1

A 59-year-old African American female with Fuch's dystrophy underwent combined cataract extraction and DSEK OS in 2017. She reported blurred vision 11 months later and was diagnosed with suspected graft rejection and central vein occlusion OS. She presented to our clinic for a second opinion on 9/10/2018. She had 20/20 VA OD. Slit lamp examination revealed Fuch's dystrophy OU. PH acuity was 20/800. Examination showed irregular endothelial folds and 3+ diffuse punctate epithelial erosions with surrounding microcystic edema (see Figure 1). Treatment OS was initiated with prednisolone acetate 1% Q2h, Systane Ultra PF ATs Q30 min, and timolol BID due to IOP of 28mm Hg.

FIGURE 1: Punctate epithelial erosions with surrounding microcystic edema OS

The patient missed a follow-up and returned 1 month later with increased edema. Figure 2 shows global pachymetry OS at the initial visit (2a) and first follow-up visit (2b). An anterior chamber reaction was noted and a cycloplegic was added. The patient was followed closely for the next few days, during which the edema decreased (Figure 2c/d) and the anterior chamber reaction resolved.

The patient was lost to follow-up for two months, returning with complaints of blurry vision and light sensitivity. She claimed to be compliant with her medications. Vision was CF @ 3 feet and the anterior segment findings are shown in Figure 3. Figure 2e shows the global pachymetry at that visit. Dorzolamide TID OS was started. Steroid dosing was decreased and importance of follow-up emphasized.

FIGURE 2: Serial pachymetry OS (Pentacam)

FIGURE 2a: 9/10/2018 **FIGURE 2b: 10/1/2018**

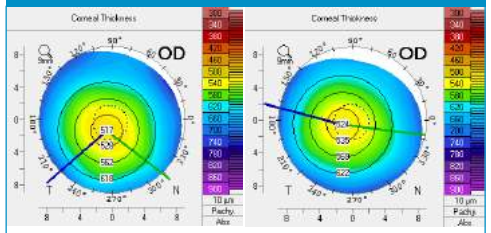


FIGURE 2c: 10/3/2018 **FIGURE 2d: 10/6/2018**

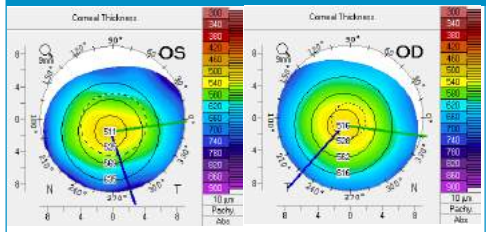
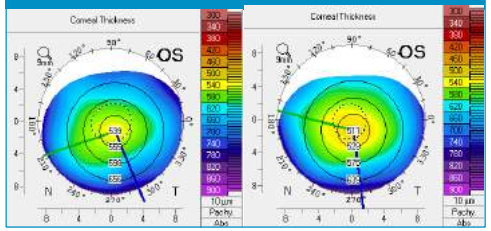


FIGURE 2e: 12/15/2018 **FIGURE 2f: 12/27/2018**



The patient returned 2 weeks later with improvement in symptoms but had not tapered the steroid. There was noted improvement in corneal appearance and decreased edema. Pachymetry can be seen in Figure 2f. With continued improvement in corneal appearance we hope to taper her off of the steroid completely, though visual prognosis is limited due to the CRVO.

FIGURE 3: Endothelial pigment and edema OS

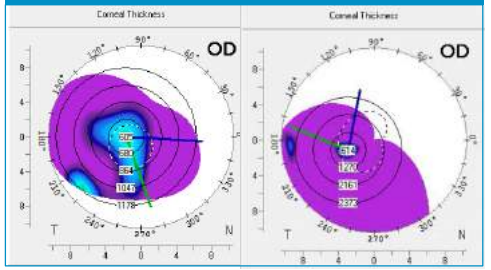
CASE 2

A 61-year-old African American male with bilateral iridocorneal endothelial (ICE) syndrome and glaucoma underwent DSEK OD in June 2015 complicated by post-operative corneal edema. The spectrum of conditions that are included in ICE cause abnormalities of the endothelium, anterior chamber, and iris leading to poor vision and associated glaucoma. The patient was concurrently managed for glaucoma and low vision by other optometrists. He has historically poor compliance with medications and follow up secondary to cognitive dysfunction.

The patient presented on 9/6/18 with reduced VA OD. Slit lamp revealed diffuse punctate epithelial erosions and dense peripheral stromal haze OD. Global pachymetry had dramatically increased and graft rejection was suspected. Figure 4a/b compare global pachymetry values prior to the rejection episode and at this visit. Patient cooperation was poor on both measurements giving poor quality images.

FIGURE 4: Pachymetry OD before and after graft rejection showing increase in edema (Pentacam)

FIGURE 4a: 5/24/2018 **FIGURE 4b: 9/6/2018**



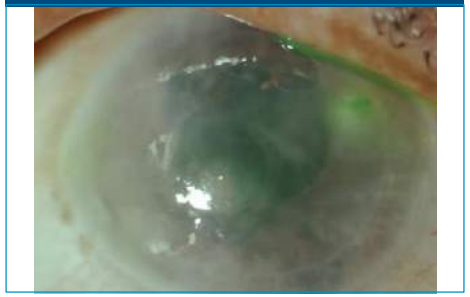
Prednisolone acetate TID OD was added to current meds: oral doxycycline, vitamin C, NaCl 5% ung and IOP-lowering medications. The patient was referred to a corneal specialist.

On 9/20/2018, the corneal specialist discussed the risks and benefits of a new transplant OD but decided to monitor. The patient continued oral doxycycline, vitamin C, NaCl 5% ung QAM, Bion Tears TID while decreasing the prednisolone acetate to BID. The patient was followed for the next two months and there was mild improvement in corneal edema.

On 11/21/2018, the edema was unresolved. The Pentacam could not measure corneal thickness and specular microscopy was unobtainable due to poor image quality from heavy edema seen in Figures 5 and 6. The patient no-showed his follow-up for re-graft consult 1 month later.

FIGURE 5: Parallelepiped showing severe corneal edema OD

FIGURE 6: Dense stromal haze OD



DISCUSSION

Post-transplant patients should be educated regarding potential complications such as rejection and graft failure. Heavy emphasis should be placed on the need for strict compliance with medications and follow-up appointments to prevent or reverse any early graft rejection, avoiding the need for re-graft. In patients with ocular comorbidities, it is critical to co-manage and communicate with other specialists regarding treatment plans.

CONCLUSION

DSEK is widely replacing PKP in the surgical management of corneal endothelial disease without significant corneal scarring. Though less common with DSEK than PKP, graft rejection is still a serious potential complication. Rejection is identified by reduced endothelial cell count, increased pachymetry, corneal edema, and/or reduced visual acuity. Patients are typically treated with topical steroids and hyperosmotic agents. Diagnostic testing should be routinely performed on post-DSEK patients to assist in early diagnosis of graft rejection. A global increase in pachymetry or loss of endothelial cell density can be early indicators of rejection.

References available upon request.

CONTACT INFORMATION

Laurel Roberts, OD
lroberts@ico.edu
www.ico.edu