To evaluate graft failure rate and endothelial cell count after Descemet’s stripping automated endothelial keratoplasty (DSAEK) in eyes with previous glaucoma drainage devices (GDD)

PATIENTS AND METHODS

- Retrospective review of 20 cases performed by a single surgeon (SBH)
- Data were collected on demographics, history of ocular disease, and surgical details
- Outcome measures included graft failure and endothelial cell count
- Graft failure was defined as irreversible, progressive, corneal edema after an initial period of corneal clarity post-transplantation

Figure 1. Anterior segment photograph of a study patient

Table 1. Ocular history

<table>
<thead>
<tr>
<th>Prior ocular surgery</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEOL and GDD surgery</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>CEOL: GDD surgery, and cornea surgery (PK or EK)</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>CEOL: GDD surgery, and vitreo-surgical</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>GDD surgery only</td>
<td>1</td>
<td>5%</td>
</tr>
</tbody>
</table>

Table 2. Surgical indication and concurrent procedures

<table>
<thead>
<tr>
<th>Surgical indications</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corneal edema</td>
<td>9</td>
<td>45%</td>
</tr>
<tr>
<td>Failed penetrating keratoplasty</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Failed endothelial keratoplasty</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Pseudophakic bullous keratopathy</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Endothelial cell loss</td>
<td>1</td>
<td>5%</td>
</tr>
</tbody>
</table>

Concurrent procedures

- Keratolysis (removal of loose epithelium and BM) | 8 | 40% |
- Goniosynchysis | 3 | 15% |
- Punctal occlusions with cautery | 2 | 10% |
- Tube trimming | 1 | 5% |
- Anterior vitrectomy | 1 | 5% |
- Iridoplasty | 1 | 5% |
- Posterior chamber intraocular lens placement | 1 | 5% |

BM: basement membrane

RESULTS

- 20 procedures on 17 eyes of 15 patients were included in the study
- Average age at time of surgery was 72.6 +/- 9.9 years
- Average number of pre-existing glaucoma surgeries was 8.6

Table 1, Ocular history

Table 2, Surgical indication and concurrent procedures

RESULTS

- Mean follow-up was 29.7+17.1 months
- Graft failure occurred in 7 (35%) cases at an average of 21.7 months

Figure 2. Kaplan-Meier survival analysis of DSAEK graft

- Graft failure was defined as irreversible, progressive, corneal edema after an initial period of corneal clarity post-transplantation

Figure 3. Average postoperative endothelial cell count compared with preoperative values

CONCLUSIONS

- Graft failure: Reported failure rates of endothelial keratoplasty (EK) after GDD placement range from 20%-75% (6 months - 5 years follow-up) E
- Our reported graft failure rate of 35% at 29.7 months may reflect long follow-up period and high proportion of patients with complicated ocular surgical history

Endothelial cell loss:

- Majority of cell loss occurs in the first 6-12 months following surgery, confirming prior studies
- Endothelial cell loss at 1 year was 62±250% (range: 29%-87%), compared with 20-50% demonstrated in the literature for EK in eyes without GDD

Conclusions:

- DSAEK in eyes with corneal edema secondary to endothelial dysfunction in the presence of previous GDD is a successful procedure
- However, intermediate term endothelial cell loss is substantial, as the graft failure rate

LITERATURE CITED