Anterior Chamber vs Posterior Chamber IOL in DMEK for Pseudophakic Bullous Keratopathy

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Background

In our previous studies we have already presented the outcomes of Descemet membrane endothelial keratoplasty (DMEK) in the presence of an anterior chamber intraocular lens (AC-IOL).\(^1\) Specific modifications of the DMEK technique may be used to facilitate such surgeries.\(^2-4\)

Purpose

To present endothelial survival after DMEK for pseudophakic bullous keratopathy (PBK) and compare the outcomes in eyes with an AC-IOL with those with a posterior chamber intraocular lens (PC-IOL).

DMEK was performed in **34** consecutive eyes diagnosed with **PBK**

In 7 eyes, DMEK was performed **in the presence of an iris-claw AC-IOL**

In 27 eyes, DMEK was performed **in the presence of a PC-IOL**

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Methods

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DMEK for PBK in the presence of a stable iris-claw AC-IOL

A-C: Preoperative slit-lamp (A,B) and specular microscopy (C) images of an 83-year-old patient with PBK and an iris-claw AC-IOL.

D-F: Postoperative slit-lamp (D,E) and specular microscopy (F) images of the same patient 6 months after DMEK. Vision is restored, the DM graft remains well attached and endothelial cell loss was measured to be 39%.
Results

Outcomes after DMEK for PBK in eyes with an AC-IOL vs PC-IOL

<table>
<thead>
<tr>
<th>Type of IOL</th>
<th>Preop ECD (donor)</th>
<th>Postop ECD at 6 months</th>
<th>ECD decrease at 6 months</th>
<th>Preop BCVA</th>
<th>BCVA at 6m</th>
<th>Preop central ACD</th>
<th>Postop central ACD</th>
<th>Preop peripheral ACD</th>
<th>Postop peripheral ACD</th>
<th>Significant detachment</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-IOL (iris claw) (n=7)</td>
<td>2514 ±242</td>
<td>1421 ±426</td>
<td>44% ±15%</td>
<td>0.22</td>
<td>0.54</td>
<td>2.24±0.31</td>
<td>2.44±0.19</td>
<td>1.78±0.20</td>
<td>2.10±0.08</td>
<td>1 (14%)</td>
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<tr>
<td>PC-IOL (n=27)</td>
<td>2463 ±225</td>
<td>1397 ±457</td>
<td>43% ±18%</td>
<td>0.14</td>
<td>0.76</td>
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<td>5 (19%)</td>
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</table>

| P=0.91                    | P=0.4             | P=0.03                 |

IOL = Intraocular lens
AC = Anterior chamber
PC = Posterior chamber
ECD = Endothelial cell density, expressed in cells/mm² (mean±SD)
BCVA = Best corrected visual acuity, expressed in decimal Snellen (mean)
ACD = Anterior chamber depth, expressed in mm (mean±SD)
Results

DMEK was successfully completed without any significant intraoperative complications in all eyes, regardless of the type of the IOL. No AC-IOL was removed or exchanged. No significant difference in ECD decrease was observed between the two groups at 6 months ($P=0.91$).

The most common postoperative complication was significant partial graft detachment, observed in 1 case with an AC-IOL and 5 cases with a PC-IOL (14% and 19%, respectively).

Conclusion

The presence of a stable iris-claw AC-IOL did not affect ECD decrease or complications rate and was not considered a contra-indication in cases with PBK operated on with DMEK.