Residual vitreous cortex at the fovea during vitrectomy for primary rhegmatogenous retinal detachment repair

Eun Hyung Cho, Hee Chan Ku, Eun Koo Lee
Kong Eye Hospital, Seoul, Republic of Korea

Purpose
We investigated the effectiveness of the removal of the residual vitreous cortex in the fovea during vitrectomy for primary rhegmatogenous retinal detachment repair.

Methods
We retrospectively reviewed the chart and the operation video of the 50 patients (50 eyes) who underwent vitrectomy for retinal detachment repair and observed more than 6 months. After triamcinolone acetonide injection, we observed vitreous remnant on the surface of the retina. Residual vitreous cortex was removed with scraper. After surgery, we observed whether epiretinal membrane occurred for at least 6 months. We graded epiretinal membrane according to the visual acuity (thin membranes that did not decrease vision and thick membranes that induced lower vision).

Results
Of total 50 eyes, 34 eyes (68%) showed macular residual vitreous cortex and we removed them with a diamond dusted scraper. After vitrectomy, macular pucker occurred in 11 eyes (22%) (9 eyes with thin membrane (18%), 2 eyes with thick membrane (4%). In eyes (n=16) without residual vitreous cortex during vitrectomy, thin membrane occurred in one eye (6.25%) and thick membrane did not found. In eyes that had residual vitreous cortex and were removed during vitrectomy (n=34), thin membrane occurred in 8 eyes (23.5%) and thick membrane occurred in 2 eyes (5.8%) (1 eye had foveal membrane and the other eye had extrafoveal membrane). In the one eye that had thick extrafoveal pucker, triamcinolone dust was partly scattered in the macula so pucker occurred in area without removing vitreous cortex.

Discussion
1. We found high residual vitreous cortex rate (34/50 (68%)) (44%, Kishi 1986).
2. There were relatively lower ERM rates (6.25%) in eyes without vitreous cortex during vitrectomy. (thin ERM:6.25%, thick ERM:0%)
3. There were relatively higher ERM rates (29.4%) in eyes with vitreous cortex during vitrectomy. (thin ERM:23.5%, thick ERM:8%) (cf. 7/33 patients (21.2%), Chen 2006).
4. Postoperative ERM can occur although vitreous cortex removal was attempted because of incomplete vitreous cortex removal. Residual VC may be scaffold for cellular proliferation. However, destructive ERM may not occur because thick remnants were removed.
5. Floating cellular components may be the main cause of macular pucker after PPV.

Conclusion
During RD vitrectomy, postoperative macular pucker rate was low in eyes without residual vitreous cortex. Removal of vitreous cortex in eyes with them reduced rate of clinically significant macular pucker after vitrectomy for primary rhegmatogenous retinal detachment repair and reoperation.

Table 1. Residual vitreous cortex rate vs ERM occurrence rate

<table>
<thead>
<tr>
<th>Vitreous cortex</th>
<th>Thin ERM</th>
<th>Thick ERM</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>(+) (n=16)</td>
<td>1 (6.25%)</td>
<td>0 (0%)</td>
<td>1 (6.25%)</td>
</tr>
<tr>
<td>(+) (n=34)</td>
<td>8 (23.5%)</td>
<td>2 (5.8%)</td>
<td>10 (29.4%)</td>
</tr>
<tr>
<td>Total (n=50)</td>
<td>9</td>
<td>2</td>
<td>11</td>
</tr>
</tbody>
</table>

References

Acknowledgement
None of the authors have any financial/conflicting interests to disclose.