Retinal Complications Associated With Pars Plana Vitrectomy for Macular Holes or Epiretinal Membranes in Eyes With Previous Retinal Detachment Repair

Pars plana vitrectomy (PPV) is associated with risk of intraoperative retinal tears (RTs) and postoperative rhegmatogenous retinal detachment (RD). Eyes undergoing RD repair are at higher risk for developing subsequent epiretinal membranes (ERMs) that may compromise vision.1,2 For cannulated surgery as compared with standard 20-gauge PPV, we previously reported markedly lower of risk of intraoperative RT (3.3% vs 23.0%, respectively) and a trend toward reduced risk of postoperative RD (2.8% vs 5.9%, respectively).3 However, in eyes with previous RRD repair, risks of these events are not well documented. Therefore, we evaluated eyes with previous RRD repair undergoing PPV for ERMs or macular holes (MHs) and compared them with eyes without prior RRD.

Methods | A retrospective review was performed on a consecutive series of eyes undergoing PPV for MH or ERM from January 1, 2003, through December 31, 2009.3 From these, cases that had undergone prior RRD repair were selected for this study. The variables studied included patient demographic characteristics, interventions at prior RRD repair, and microsurgical approach. The study was approved by the institutional review board of the Medical College of Wisconsin. The requirement for written informed consent was waived by the institutional review board.

Results | A total of 466 eyes underwent PPV for MH or ERM, of which 40 eyes (10 with MH and 30 with ERM) had a history of RRD repair and were selected for analysis. Mean follow-up was 77 weeks (range, 10-254 weeks). Thirty-nine of the 40 eyes had their prior RD repaired with PPV, 29 of these with a scleral buckle (SB); only 1 had previous SB alone. The overall rate of intraoperative RT was 2.5% (1 of 40 eyes). It occurred in 1 of 23 eyes (4.3%) during noncannulated PPV and none of 17 eyes during cannulated surgery. This eye had a prior SB in place and did not develop recurrent RD postoperatively. The overall rate of postoperative recurrent RD was 7.5% (3 of 40 eyes) and was not influenced by the choice of standard 20-gauge PPV (1 of 23 eyes [4.3%]) or cannulated surgery (2 of 17 eyes [11.7%]) (P = .56, Fisher exact test). Recurrent RD developed in 1 of 29 eyes (3.4%) that had a prior SB with PPV compared with 2 of 10 eyes (20.0%) that had their prior RD repaired with PPV without an SB (P = .16, Fisher exact test). In 2 eyes without a previous SB, recurrent RDs developed 4 and 5 weeks in the postoperative period, caused by new RTs within 1 clock hour of a previous sclerotomy. The third case had RD 51 weeks later. The indication for PPV (MH or ERM) or lens status (aphakic, aphakic, or pseudophakic) did not influence the rate of intraoperative RT or recurrent RD (Table). The rates of intraoperative RT and recurrent RD in eyes with previous RD repair in this study were not significantly different from those for eyes without prior RD (12.7% [54 of 426 eyes; P = .07] and 4.9% [21 of 426 eyes; P = .48], respectively).

Discussion | Eyes with prior RD repair that undergo PPV for ERM or MH do not appear to be at significantly different risk for postvitrectomy RD compared with eyes without a history of RD that undergo such surgery. We observed a somewhat reduced rate of intraoperative RT in eyes with previous RD repair (P = .07) and a lower risk of recurrent RD if previous SB had been performed (P = .16), although the differences did not reach statistical significance. Our study is limited by its retrospective design and small number of patients in subgroups. Council et al4 reported a recurrent RD rate of 6.7%, which is comparable to our observed rate of 7.5%. In distinction, our study cohort was derived from a larger pool5 that provided a reference group without previous RD.

Ravi S. J. Singh, MD
Douglas J. Covert, MD, MPH
Christopher R. Henry, MD
Sandep K. Bhatia, MD
Jason Croskrey, BS
Cecilia R. Sanchez, MD
Dennis P. Han, MD

Author Affiliations: Department of Ophthalmology, Medical College of Wisconsin, Milwaukee (Singh, Covert, Bhatia, Croskrey, Sanchez, Han); Bascom Palmer Eye Institute, Miami, Florida (Henry).

Table. Risk of Intraoperative Retinal Tears and Postoperative Recurrent Retinal Detachment in Eyes With and Without Prior Retinal Detachment Repair

<table>
<thead>
<tr>
<th>Variable</th>
<th>No./Total No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intraoperative RTs</td>
</tr>
<tr>
<td>Eyes without prior RD</td>
<td>54/426 (12.7)</td>
</tr>
<tr>
<td>Eyes with prior RD repair</td>
<td>1/40 (2.5)</td>
</tr>
<tr>
<td>MHs vs ERMs</td>
<td>0/10 vs 1/30 (3.3)</td>
</tr>
<tr>
<td>Prior SB + PPV vs PPV</td>
<td>1/29 (3.4) vs 0/10</td>
</tr>
<tr>
<td>Aphakic vs pseudophakic vs phakic</td>
<td>1/5 (20.0) vs 0/26 vs 0/9</td>
</tr>
<tr>
<td>Standard 20-gauge vs cannulated surgery</td>
<td>1/23 (4.3) vs 0/17</td>
</tr>
</tbody>
</table>

Abbreviations: ERMs, epiretinal membranes; MHs, macular holes; PPV, pars plana vitrectomy; RD, retinal detachment; RT, retinal tears; SB, scleral buckle.

* P = .07.

** P = .48.

*** P = .16.
Retinal Implants: Analysis of the News Media Perspective

Retinal implants offer an innovative solution to restoring sight to those with severe vision loss. Although research is still in its infancy, developing a retinal prosthesis is possible given advances in microelectronic technology. The complexity of the bioengineering task and the proprietary nature of the research make assessment of progress challenging even for medical professionals. The public acquires information about emerging retinal prostheses through mass media, but journalists may not be fully qualified to understand and convey information from this technically sophisticated research. We investigated the quality of news reports of retinal implants from 3 major news sources in the United States (television, newspaper, and Internet) and describe our findings as the first generation of devices become commercially available.

Methods | Peer-reviewed literature was identified through a computerized search of PubMed using key terms “retinal implant” and “retinal prosthesis.” Additional studies were found through spin-off references. Media analysis focused on main news outlets as determined by television viewership, newspaper circulation, and Internet traffic for news media websites. Television news was subdivided for analysis into broadcast and cable programming. Three readers (A.T.C., A.J.C., and J.J.C.) independently graded media reports published between June 24, 1999, and July 26, 2012, and compared those news reports with the peer-reviewed literature from which they were derived. The readers used a Likert scale (grades 1-5, with a grade of 5 representing strongest agreement with peer-reviewed literature) to assess the following: (1) scientific accuracy; (2) journalistic neutrality; and (3) realistic outlook. Grades from each report and category were summed to calculate mean total grades. Interobserver reliability was determined using intraclass coefficient for agreement, based on analysis of variance. A 2-way random-effects model was used to render reliability estimates applicable to a random broad population of readers (appendices are available on request).

Results | Table 1 shows research groups, implant names, and technical features of retinal prostheses under development that have been reported through news outlets. A total of 93 media reports on retinal prostheses were identified and analyzed. Mean grades for media reports were 10.3 for Internet, 10.3 for broadcast news, 11.1 for cable news, and 12.4 for newspaper. Overall, newspaper coverage was graded statistically higher than broadcast and Internet news (Table 2). Newspaper reports generally contained more detail and presented both positive and negative aspects of retinal implants. Internet, cable, and broadcast news received the lowest categorical grades for realistic outlook.

Media reports tended to cluster in time, but grades of reports were independent of publication date (correlation coef-