Epiretinal Membrane and Cystoid Macular Edema following Uncomplicated Primary Retinal Detachment Repair with Small Gauge Pars Plana Vitrectomy

PURPOSE:
To evaluate the incidence of epiretinal membrane (ERM) formation and cystoid macular edema (CME) following small gauge pars plana vitrectomy (PPV) repair of primary rhegmatogenous retinal detachments (RD).

METHODS:
Consecutive interventional case series from 2002 to 2012 by one group of retina surgeons performing primary RD repair using either 23 or 25 gauge PPV instrumentation with or without scleral buckle (SB). Exclusion criteria included preoperative proliferative vitreoretinopathy, postoperative retinal re-detachment, pre-existing macular disease, previous PPV or SB, and documented follow-up of less than 3 months. Main outcome measures included rates of ERM/CME confirmed with either optical coherence tomography (OCT) or fluorescein angiography (FA). Secondary outcome measures included visual outcomes and risk factors for ERM and CME.

RESULTS:
495 eyes of 486 patients with a mean age 56 ± 15.6 years were followed for a mean 404.8 +/- 12.8 days. Postoperative ERM developed in 150 eyes (30.3%) and CME developed in 73 eyes (14.75%). 101 eyes (20.4%) had a PPV/SB compared to 394 eyes (79.6%) with a PPV. The mean preoperative visual acuity was 20/200 (logMAR 1.0 +/-1.1) improving to 20/40 (logMAR .33 +/- .43) postoperatively (p<0.001). There was no statistically significant difference in postoperative visual acuity in PPV versus PPV/SB. ERM developed in 47/101 (47%) with a PPV/SB versus 103/394 (26%) with a PPV (P=0.002). CME developed in 17/101 eyes (17%) with a PPV/SB compared to 56/394 eyes (14%) with a PPV (P=0.10). There were 245 eyes (49.5%) that were phakic compared to 250 eyes (50.5%) that were pseudophakic. The mean final visual acuity was 20/40 (logMAR 0.27+/-0.42) in pseudophakic eyes compared to 20/50 (logMAR 0.39+/- 0.43) phakic eyes (p=0.002). There was no statistically significant difference in rates of ERM and CME with regards to lens status. ERM developed in 75/245 (30.6%) of phakic eyes compared to 73/250 (29.2%) of pseudophakic eyes. CME developed in 35/245 (14.3%) of phakic eyes compared to 37/250 (14.8%) pseudophakic eyes.

CONCLUSIONS:
ERM and CME following uncomplicated small gauge RD repair are common postoperative findings. A significantly higher incidence of ERM was observed in cases with a PPV/SB compared with PPV alone. Small gauge primary RD repair requires long term monitoring with OCT and FA to rule out postoperative ERM or CME.