Epiretinal Membrane Surgery Following Prior Primary Rhegmatogenous Retinal Detachment Repair: Optical Coherence Tomography Features and Surgical Outcomes

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Purpose:
To determine outcomes of epiretinal membrane (ERM) surgery in eyes with a prior primary rhegmatogenous retinal detachment (RRD) repair.

Methods:
Retrospective, interventional, consecutive case series of 53 eyes of 52 patients undergoing PPV and membrane peeling for ERM after a prior, primary RRD repair. Eyes were identified from CPT coding data and confirmed with review of operative reports. Preoperative OCT imaging was reviewed and ERMs were classified based upon a published OCT grading scale. Exclusion criteria included proliferative vitreoretinopathy or use of silicone oil at time of initial RRD repair, follow-up less than 6 months, history of ERM prior to RRD repair, and history of macular disease.

Results:
Mean follow-up was 705±460 days after ERM surgery. PPV and membrane peeling was performed at a median 202 days post RRD repair (range 56-1162 days). Previous RRDs were macula off in 84.7% of cases and were repaired with laser barricade (2.1%), scleral buckling procedure (SBP, 2.1%), combined SBP/PPV (45.7%), or PPV alone (50%). ERMs were classified as Grade 1 (4.3%), Grade 2 (6.5%), Grade 3 (28.3%), or Grade 4 (60.9%). Intraretinal cystic spaces in the inner retina were noted in 47.8% of eyes. Mean age of patients at the time of ERM removal surgery was 61.6±7.9 years and 91.3% of eyes were pseudophakic. Overall, logMAR visual acuity worsened from 0.63±0.33 (20/85 Snellen) to 0.84±0.35 (20/138 Snellen) due to development of ERM (p<0.001). PPV and membrane peeling was successfully completed in all cases. Following ERM removal, logMAR visual acuity improved to 0.37±0.27 (20/46 Snellen, p<0.001) at final follow-up. Improvement in visual acuity following ERM removal was noted for Grade 3 (p=0.002) and Grade 4 (p<0.001) ERMs, but not in Grade 1 (p=0.15) or Grade 2 (p=0.49) ERMs. Visual improvement after ERM removal was noted in eyes with history of macula on (p=0.002) and macula off (p<0.001) RRD.

Conclusions:
Anatomic alteration due to ERM formation after RRD repair is commonly severe (Grade 4 OCT characteristics), and leads to deterioration of logMAR visual acuity. ERM removal surgery resulted in significant visual acuity improvement in eyes with history of either macula on or macula off RRD.