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## Jesse Maynard

Howard University College of Medicine  
USA

### Predicting Epiretinal Membrane Recurrence with Intraop Optical Coherence Tomography Biomarkers

#### Abstract:

**Objective:** To correlate epiretinal membrane (ERM) remnants on intraop optical coherence tomography (iOCT) with ERM recurrence and vision following surgical removal.

**Methods:** Retrospective cohort study of 109 patients who underwent surgery for ERM removal from 2015-2024. Two image readers assessed iOCT images for residual ERM fragments to evaluate recurrence and vision changes at postoperative months 6 and 12. Analyses were performed using Python to calculate Cohen's kappa ( $\kappa$ ) for inter-reader agreement, Kolmogorov-Smirnov tests, paired t-tests, two-tailed Fisher's exact tests, and multivariable logistic regression. Risk ratios (RR), odds ratios (OR), and 95% confidence intervals (CI) were reported. P-values  $< 0.05$  were considered statistically significant.

**Results:** Presence of ERM fragments within 1mm of the foveal center on iOCT was associated with a 1.75-fold increased risk of ERM recurrence after postoperative month 12 (RR = 1.75; 95% CI: 1.24-2.46;  $p < 0.005$ ). After adjusting for central subfoveal thickness, recurrence risk rose to over fivefold (adjusted OR = 5.25; 95% CI: 1.69-16.24;  $p < 0.005$ ). ERM recurrence was also associated with reduced visual improvement by postoperative month 12. Patients without recurrence gained  $2.41 \pm 0.69$  lines on the eye chart, while those with recurrence gained only  $0.57 \pm 0.55$  lines ( $p < 0.046$ ).

**Conclusion:** Residual ERM fragments within the 1mm foveal zone on iOCT were associated with significantly higher ERM recurrence rates and reduced visual improvement compared to eyes without fragments.

#### Biography

**Jesse Maynard** earned his undergraduate degree from Rutgers University and then spent many years working in the music industry in the U.S. and abroad. He later completed a post-baccalaureate premedical program at California State University and is now a second-year MD candidate at Howard University College of Medicine.