

A case of full thickness macular hole development following vitrectomy for macular splitting rhegmatogenous retinal detachment

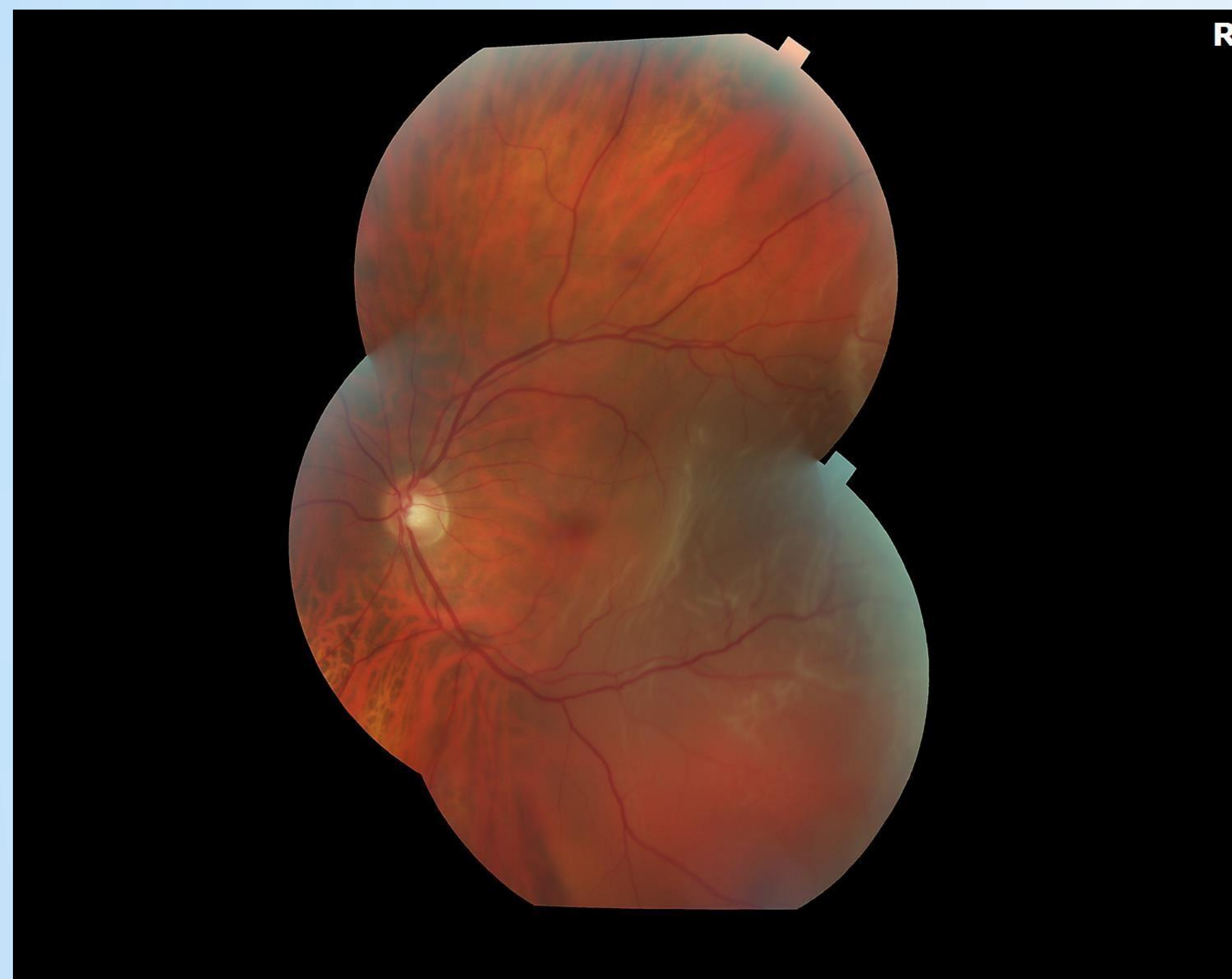


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INTRODUCTION



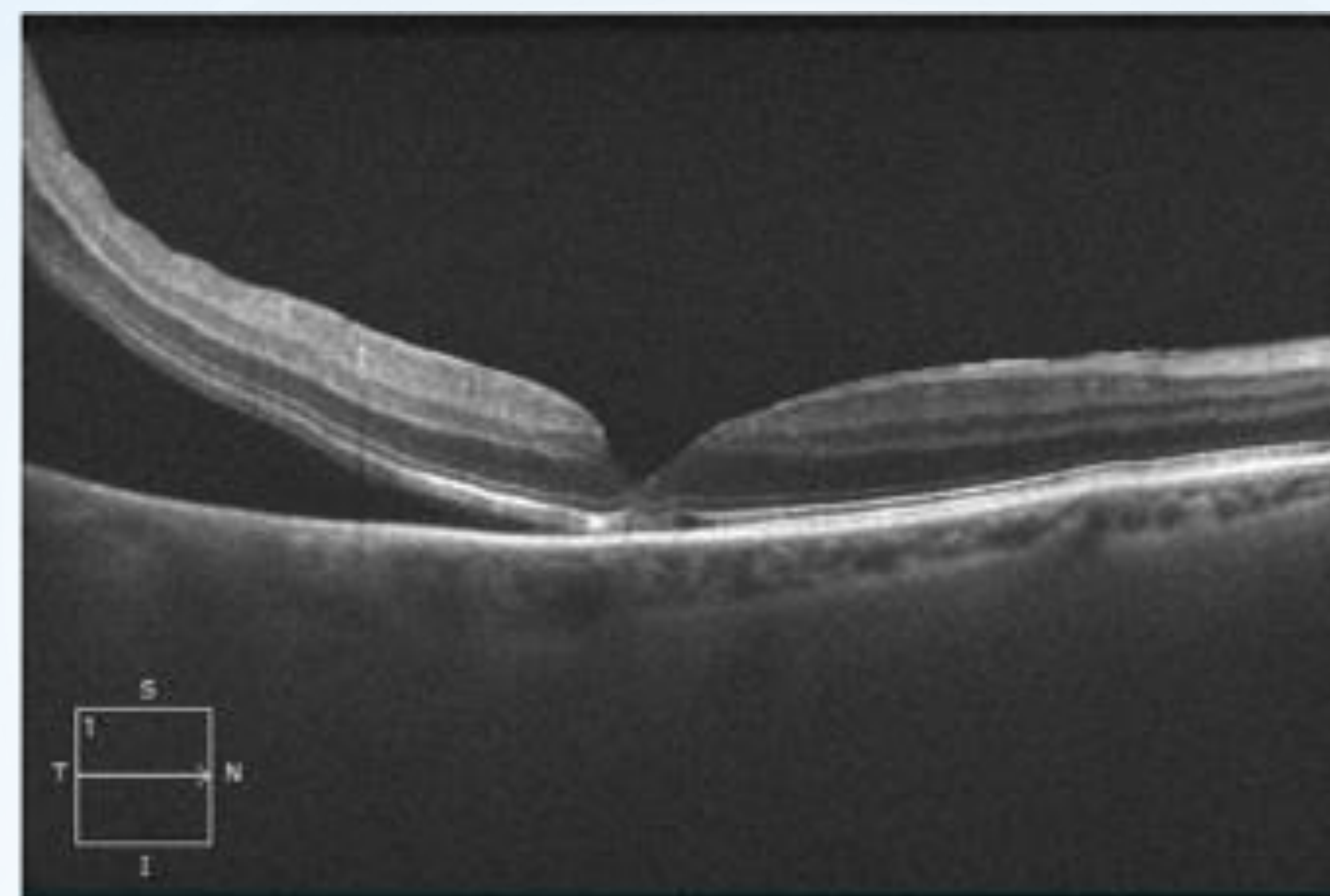
The incidence of rhegmatogenous retinal detachment (RRD) is 1 in 10,000 persons per year. 0.24% to 1.9% of these cases develop full-thickness macular holes (MHs) after surgical repair, most commonly after vitrectomy. Although the pathogenesis of MH formation is thought to involve vitreofoveal tractional forces, several studies found MH development following complete posterior vitreous detachment or pars plana vitrectomy (PPV). Together, this suggests that MH formation is a more complicated process that needs to be better understood. Here, we present a case of MH formation following macular splitting RRD repair by vitrectomy, suggesting a novel hypothesis for MH formation.

CASE SUMMARY

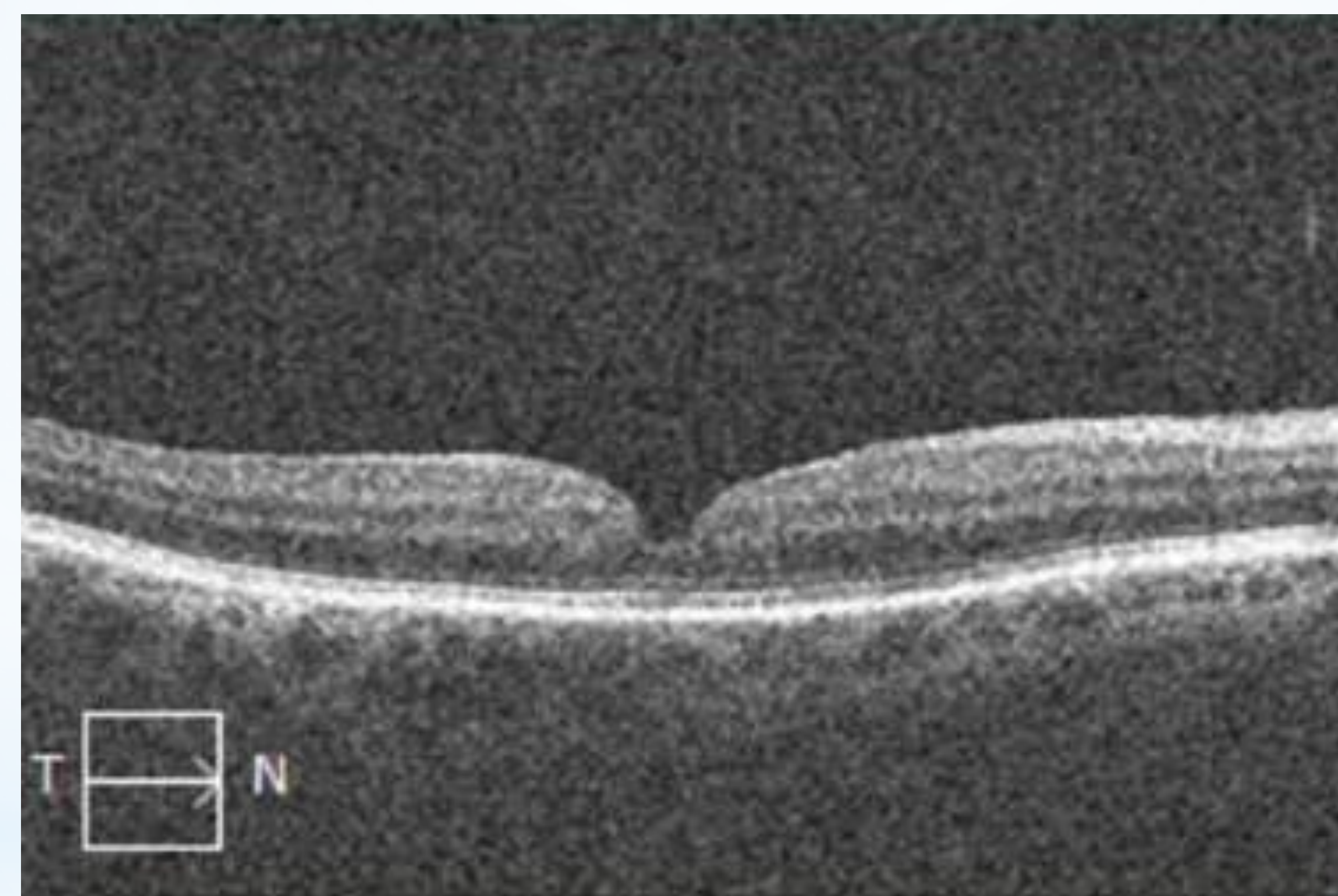
An 82-year-old woman presented with blurry vision in the right eye for 4 days with best-corrected visual acuity (BCVA) of 20/40+2. A macular splitting superotemporal RRD in the right eye was found and repaired by PPV and gas. She presented three weeks later with recurrent RRD, and the retina was reattached by PPV with scleral buckle. Four months after initial RRD repair, the patient presented with BCVA of 20/80+1, reduced from 20/60 a few weeks prior. A full thickness MH was found. She then underwent PPV with ILM peeling and gas tamponade. Her final BCVA was 20/40-2, 14 months after initial RRD repair.

RESULTS

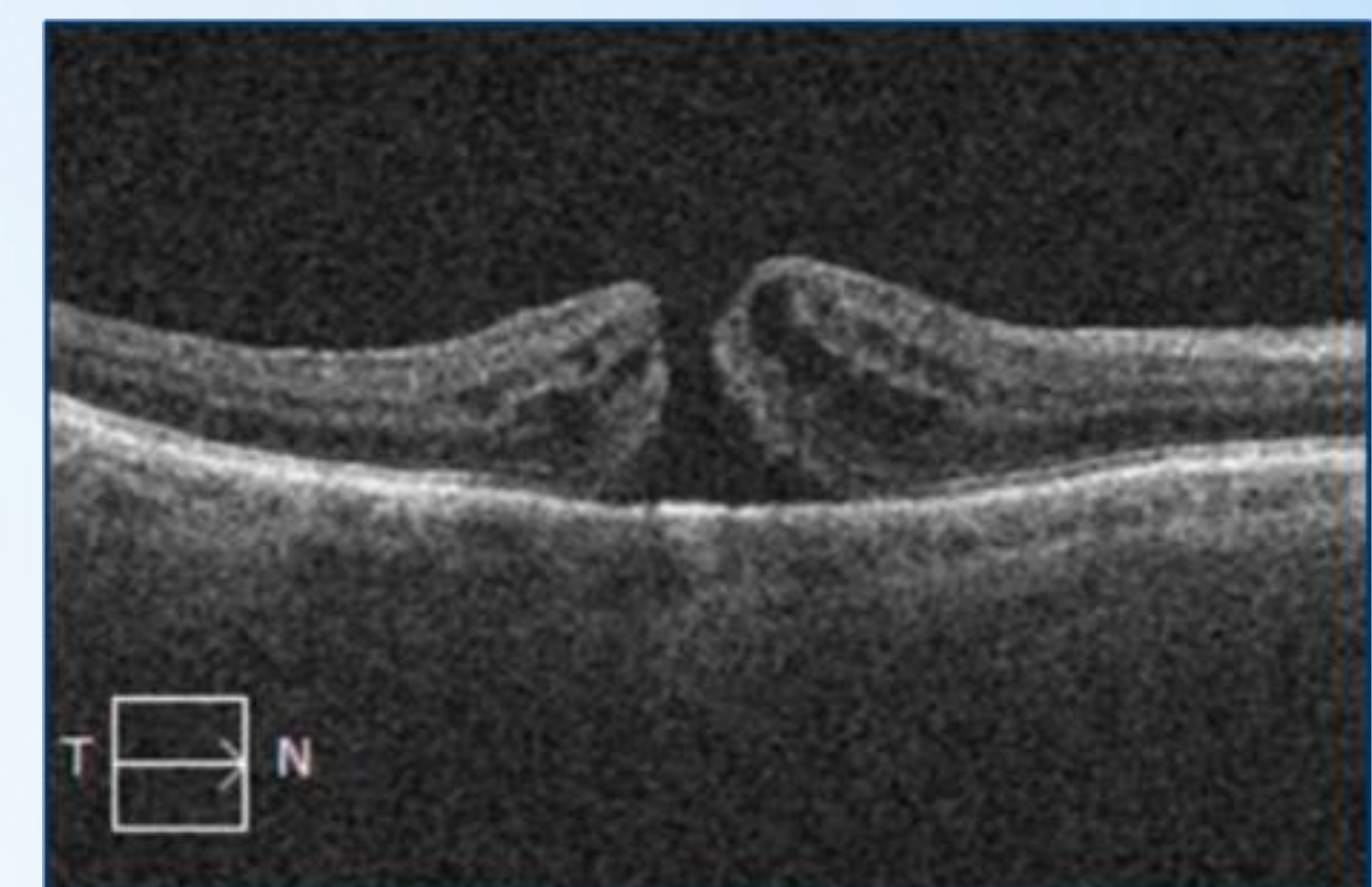
1. RRD involving the macula in the right eye at initial presentation.



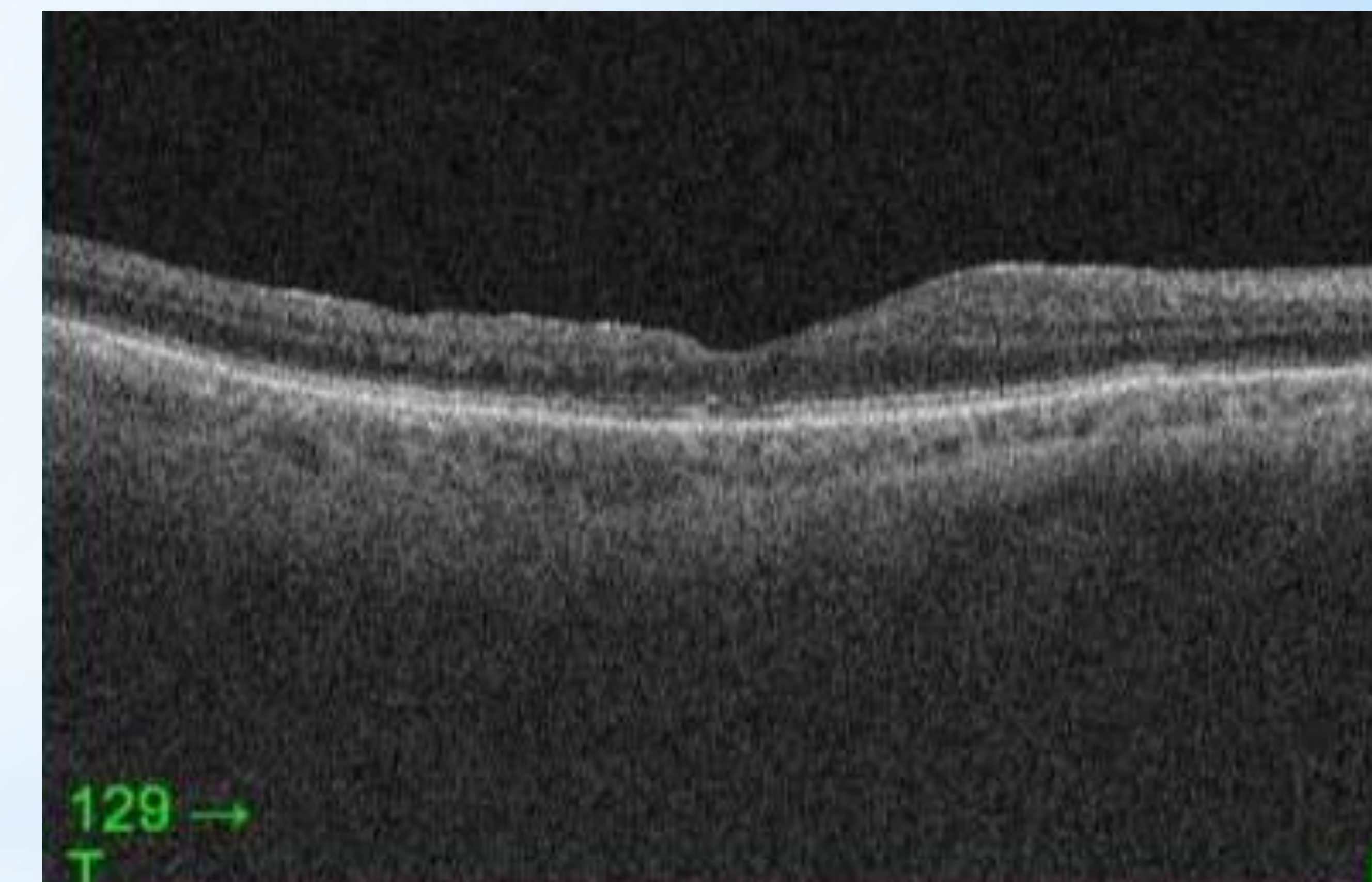
2. Reattachment of retina following PPV and scleral buckle placement.



3. MH identified 4 months after initial PPV for RRD repair.



4. 14 months after initial presentation, BCVA was 20/40-2 with closed MH.



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CONCLUSION

Several reports discussing MH formation following vitreoretinal surgery suggest that contraction of residual vitreous, epithelial retinal membrane formation, proliferative vitreous retinopathy, and cystoid macular edema may be involved in MH formation. Here, we presented a novel hypothesis in which macular splitting RRD may increase risk for MH development. Based on our findings, we speculate that mechanical stress due to retinal detachment involving the macula causes the fovea to bend, contributing to late postoperative MH formation. Future studies are required to better understand the pathophysiology of MH formation following RRD.