

Postoperative Aniseikonia in Patients with Unilateral Rhegmatogenous Retinal Detachment: A Systematic Review

Michele Zaman¹, MScPH, Heather J. Zhao², ScM, Marko M. Popovic³, MD MPH, Isabela Martins Melo³, MD, Peter J. Kertes³, MD CM FRCSC, Rajeev H. Muni³, MD MSc FRCSC,

¹School of Medicine, Queen's University

²Temerty Faculty of Medicine, University of Toronto

³Department of Ophthalmology and Vision Science, University of Toronto

Introduction: Rhegmatogenous retinal detachments (RRD) can be repaired using scleral buckle (SB), pars plana vitrectomy (PPV), or pneumatic retinopexy (PnR). Although retinal reattachment rates are generally high, poor functional outcomes are still a reality. One of the most prevalent post-operative symptoms is aniseikonia, which is a binocular difference in the size or shape of the perceived image. This systematic review aimed to investigate the incidence and characteristics of aniseikonia in patients after RRD repair.

Methods: A systematic review of literature in concordance with the PRISMA guidelines was completed. Ovid MEDLINE, EMBASE, and Cochrane CENTRAL were searched for peer-reviewed publications between January 1st, 2000 and October 22nd, 2022. Our primary outcome was the presence and/or severity of aniseikonia following SB, PnR, or PPV to treat unilateral RRD. Our data were reported through descriptive statistics.

Results: Our search captured 383 relevant articles and ultimately 14 studies were included. From 14 included studies, data from 1463 patients were analyzed. Most patients were male and the mean age was 58.3 ± 4.33 years old. All studies showed an improvement in best-corrected visual acuity post-surgery. However, there was a great variability in visual function. The incidence and severity of aniseikonia varied between studies and procedures. The incidence of aniseikonia ranged from 5% to 60%, with micropsia being the most common. More than half of the included studies had patient populations with greater than 50% having aniseikonia post-surgery. Aniseikonia was measured qualitatively in 2 included studies, while the remainder utilized quantitative methods.

Conclusions: Aniseikonia is commonly found in patients post-RRD repair. Further research with a more robust methodology should be undertaken to understand the relationship between surgical techniques and perioperative factors with aniseikonia.