

In Vivo Assessment of Cystoid Changes in Rhegmatogenous Retinal Detachment Using Swept-Source Optical Coherence Tomography

Miguel Cruz Pimentel¹, MD, Isabela Martins Melo¹, MD, Sueellen Demian, MD, Aurora Pecaku¹, MD, Rajeev H. Muni¹, MD, MSc, FRCSC

¹University of Toronto Department of Ophthalmology & Vision Sciences, Toronto,

Introduction: Objective: What is the sequence of morphological features leading to cystoid changes in rhegmatogenous retinal detachment?

Methods: Methods: Prospective cohort study. Primary RRDs referred to St. Michael's Hospital, Toronto, Canada, from 2020 to 2023 were included. All patients underwent SS-OCT (PLEX Elite 9000; Carl Zeiss Meditec, Inc.). Patients with poor imaging or without consistent follow up were excluded.

Results: Results: A total of 461 patients were included in this study. The initial morphological change in RRD is a hydration of photoreceptors outer segments. With increasing duration of RRD, there is hydration of the Henle Fiber Layer and the outer nuclear layer. The osmotic and hydraulic forces in the subretinal space then lead to the formation of a honeycomb pattern in the Henle Fiber Layer and outer nuclear and lastly the inner nuclear layer (INL) is hydrated with microcystic changes being evident.

Conclusions: "Conclusions: The morphological sequence of events leading to cystoid changes in RRD starts in the outer retina and ends in the inner retina. Müller cell dysfunction may play a role in the accumulation of fluid in the INL in RRD.