

1-1-2017

Prevalence of Vitreomacular Traction in Patients 40 Years of Age and Older

Julie Rodman
Nova Southeastern University

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Julie Rodman. 2017. *Prevalence of Vitreomacular Traction in Patients 40 Years of Age and Older*. Master's thesis. Nova Southeastern University. Retrieved from NSUWorks, College of Optometry. (8)
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The Prevalence of Vitreomacular Traction in Patients 40 Years of Age
and Older

A Thesis Presented

by

Julie Rodman, OD, FAAO

Submitted to the Clinical Vision Research Program, College of
Optometry of Nova Southeastern University in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE

2014

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Abstract: Vitreomacular traction (VMT) is a condition characterized by an incomplete posterior vitreous detachment resulting in traction on the macula and decreased visual acuity. The process of vitreomacular traction can lead to a number of maculopathies including cystoid macular edema, epiretinal membranes, and macular holes. VMT is more common in patients over 40 years of age; however no population-based studies documenting the prevalence of VMT in this age group has been published. **Purpose:** The current study was undertaken to evaluate the prevalence of vitreomacular traction syndrome in the population aged above 40. Clinical examination does not adequately illustrate the extent of vitreomacular adhesion; therefore, Optical Coherence Tomography (OCT) was used to determine the presence of VMT. High-definition OCT has provided new insight into vitreomacular traction syndrome by allowing for better visualization of the tractional forces at the vitreoretinal interface. This investigation will analyze the vitreomacular interface with regard to VMT in correlation to age through use of the Spectral Domain OCT.

Methods: One hundred and thirty-one eyes of 67 patients (36 females/31 males) were examined by optical coherence tomography

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(OCT). OCT was performed to obtain high-resolution cross-sectional images of the vitreoretinal interface in the posterior fundus.

Results: The status of the posterior vitreoretinal interface was evaluated as follows; (1) Intact Vitreous- No posterior vitreous abnormality is depicted on OCT. (2) Vitreomacular adhesion/incomplete PVD- the posterior vitreous is partially attached and can be seen in contact with the macula on OCT. (3) Vitreomacular traction- the posterior vitreous is partially adhered to the inner retina resulting in distortion of the retinal architecture. (4) Complete posterior vitreous detachment, indicating no contact between the vitreous and retina.

Conclusion: OCT results found no vitreous abnormality in 39.7% of all eyes; PVD in 6.87% of eyes, VMA in 51.1% of eyes, and VMT in 2.29% of eyes. Age was a significant risk factor to the development of VMT, while gender was not. As age increases, the probability of having VMT increases by 1.2%.

Due to the association between vitreomacular traction and a variety of maculopathies, recognition and diagnosis of this entity is crucial. High definition OCT has allowed for outstanding visualization of the

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vitreomacular interface, which has allowed for a better understanding of this entity.

INTRODUCTION

Anatomy of the Vitreous

In order to fully understand a disease of the retina, vitreous and vitreo-retinal interface, an appreciation for the posterior anatomy of the eye is essential. The posterior portion of the eye is comprised of the vitreous, uvea (ciliary body), retina, sclera and choroid. Vitreomacular traction syndrome affects the retina and vitreous, thus a brief review of the anatomy of these two structures will be discussed.

The vitreous humor is situated between the lens and the retina, and is a clear, highly hydrated gel.¹ The vitreous occupies a volume of approximately 4 ml, weighs approximately 4 grams, and is responsible for four-fifths of the globe volume.¹ Water makes up 98% of the vitreous humor, with its gel-like structure compromised of glycosaminoglycans (hyaluronan and chondroitin sulfate) and a network of collagen fibrils.²⁻