

Diagnostic Imaging Of The Vitreous By Optical Coherence Tomography

Editorial

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Recently, a new treatment to the vitreoretinal interface diseases, vitreous injection of enzymatic vitreous melting drug is beginning to take place [1]. This is a treatment to release the adhesion between the incompletely detached vitreous and the retina. Because the vitreous is transparent, to observe the relationship between the vitreous and the retina using only slit lamp microscope is difficult, optical coherence tomography (OCT) is necessary for adaptation decision of the vitreous injection [2]. How useful is the diagnostic imaging of the vitreous by current OCT?

In the vitreous of the human eye, there is a physiological liquefied cavity anterior to the macula. Kishi et al observed this in the autopsy eye and defined as "posterior precortical vitreous pocket (PPVP)" [3]. The vitreous cortex as the posterior wall of the PPVP is involved in vitreomacular interface diseases such as macular hole and vitreomacular traction syndrome. Recently triamcinolone-assisted vitrectomy visualized the PPVP in the living eye [4], the advent of spectral domain OCT (SD-OCT) and swept source OCT (SS-OCT) showed the precise image of the PPVP in the healthy eye [5,6]. Especially SS-OCT (DRI OCT-1 Atlantis, Topcon, Tokyo, Japan) dramatically improve to visualize the vitreous structure. SS-OCT image showed the PPVP as a boat-shaped lacuna in the macular area and there is the channel between the PPVP and Cloquet's canal. The connecting channel suggested the route of aqueous humor into the PPVP. It was the noteworthy.

Diagnostic imaging of the vitreous is also useful in the diagnosis of posterior vitreous detachment (PVD) [7]. The posterior wall of PPVP initially detaches at the paramacular area and extends to the perifoveal area, which results in a perifoveal PVD. A vitreofoveal detachment may develop with or without a defect in the PPVP. Partially remained posterior wall of the PPVP may be related with epiretinal membrane formation. When the vitreous detaches from the optic disc, a complete PVD develops. The incidence of complete PVD increased to 44% in the seventh decade of life and 80% in the eighth decade of life from 14% in the sixth decade of life.

Spaide et al suggested that OCT findings of the perifoveal posterior vitreous detachment is useful to assess the risk of macular hole and the stress may increase with smaller areas of attachment leading to mechanical failure of the macula, although the actual force loading on the central macula cannot be determined [8]. It may be possible to prevent vitreomacular diseases by enzymatic vitreolysis on the basis of diagnostic vitreous imaging by OCT in the future. For pathogenesis of vitreoretinal interface diseases, further research should be investigated by SS-OCT.

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