

Assessment of the Posterior Segment of Ocular Behçet's Uveitis with Opaque Ocular Media by Using Swept Source OCT

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Abstract

Introduction: Behçet's disease is a multisystem disorder named after the Turkish dermatologist, Hulusi Behçet (1889–1948), who in 1937 recognized and reported a triad of symptoms: recurrent intraocular inflammatory episodes with oral and mucosal ulcerations. The disease can affect both the anterior and posterior portions of the globe. Cataract formation is one of the anterior segment complication after recurrent inflammation, and it is considered as one of the main obstacles for viewing the posterior segment during ophthalmic examination.

Aim and Objectives: We retrospectively review a 49 y old female patient, with history of bilateral chronic ocular Behcet Uveitis and dense cataract in both eyes that preventing a good view of the posterior segment by using Swept Source OCT Technology.

Result: Swept Source OCT images with 3D cuts showed severe hidden vitritis with increase in subfoveal choroidal thickness to (448 $\mu\text{m} \pm 80 \mu\text{m}$ in right eye) and (649 $\mu\text{m} \pm 60 \mu\text{m}$ in left eye) that reflects a high hidden activity of the disease in the posterior segment.

Conclusion: SS-OCT is a noninvasive reproducible imaging technique that allows enhanced visualization of the posterior segment of the eye with opaque media (especially in Uveitis cases) and in measurement of choroidal thickness that could be superior to B-scan ultrasound. The SS-OCT images were informative in detection of acute posterior segment complications of Behcet (Vitritis) and in evaluation of the choroidal thickness that increases in active and quiescent phases of posterior uveitis.

Keywords: Behcet Disease; Opaque Ocular Media; Swept Source OCT; Subfoveal Choroidal Thickness

Abbreviation

BD: Behcet Disease; EDI: Enhanced Depth Imaging; SS-OCT: Swept Source Optical Coherence Tomography

Introduction

Behçet's disease is a multisystem disorder named after the Turkish dermatologist, Hulusi Behçet (1889–1948), who in 1937 recognized and reported a triad of symptoms: recurrent intraocular inflammatory episodes with oral and mucosal ulcerations. This disorder may have devastating consequences for the eyes, and has therefore attracted a great deal of attention. The disease can affect both the anterior and posterior portions of the globe, the classic finding in ocular BD is recurrent, sterile hypopyon described by Behcet, and it is a Dramatic finding that is easily detected by non-ophthalmic physicians [1,2].

Cataract formation is one of the anterior segment complication after recurrent inflammation, occurring in up to 36 % of cases. And it is considered as one of the main obstacles for viewing the posterior segment (Retina, Optic Nerve) during ophthalmic examination. Posterior Segment findings include Vitritis which is always present during the acute phase in addition to retinal vascular complications like (Retinal arterial & venous occlusion) [8-11].

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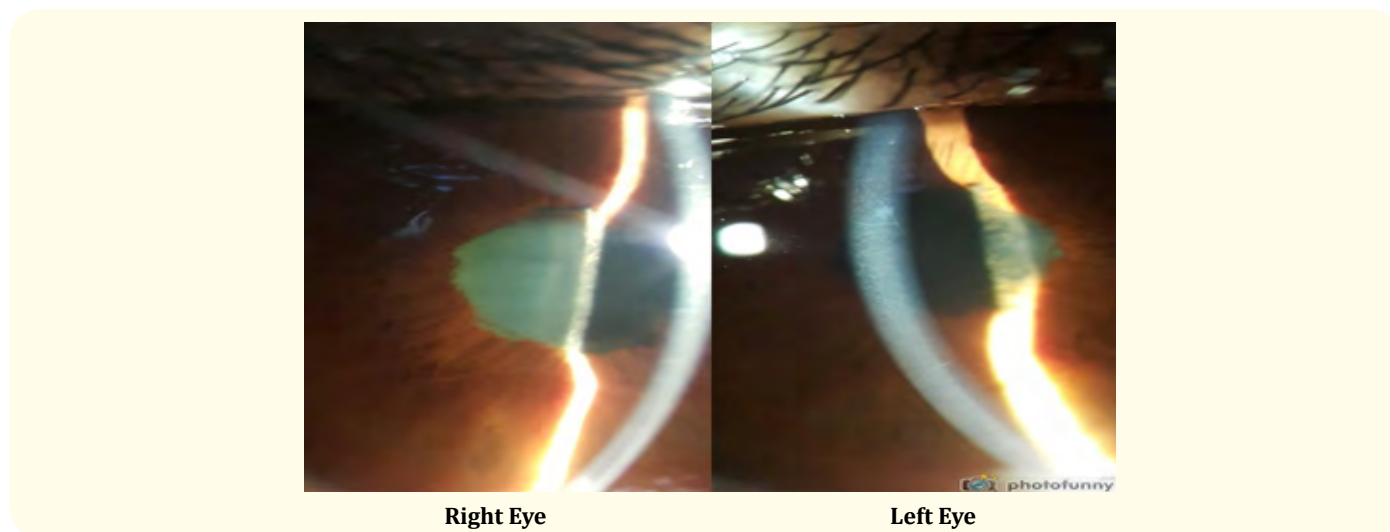
The choroid is the vascular layer that supplies the outer retina and is involved in the pathogenesis of several ocular conditions including uveitis [1]. The studies with using EDI- OCT showed increase in the subfoveal choroidal thickness in acute phase ($398.77 \pm 155.59 \mu\text{m}$) and quiescent phase of the disease ($356.72 \pm 141.09 \mu\text{m}$) which was significantly greater than in healthy controls ($259.96 \pm 65.16 \mu\text{m}$) [3-5].

Aim and Objectives

Using Swept Source OCT to assess posterior segment in ocular Behçet's uveitis with opaque ocular media.

Method

We retrospectively review a 49 y old female patient, with history of bilateral chronic ocular Behçet Uveitis. The patient was treated with topical steroid drops for recurrent bilateral chronic anterior uveitis and she recently reported a significant drop in her vision, Examination showed bilateral anterior uveitis of +2 cells with bilateral +3 posterior subscapular cataract, in addition to iris posterior synechia and fine keratic precipitates on the corneal endothelium in both eyes (Figure 1).



The examination of the posterior segment was not informative due to the hazy view that caused by opaque ocular media (posterior subscapular cataract) that found in both eyes.

Results

We decided to examine the posterior segment by using 1050 nm TRITON Swept Source OCT which has a wave length able to penetrate a dense cataract better than spectral domain OCT.

Multiple Swept Source OCT images were taken in addition to 3D cuts that showed severe hidden vitritis with an increase in subfoveal choroidal thickness to ($448\mu\text{m} \pm 80 \mu\text{m}$ in right eye) (Figure 2) and ($649 \mu\text{m} \pm 60 \mu\text{m}$ in left eye) (Figure 3) that reflects a high hidden activity of the disease in the posterior segment.

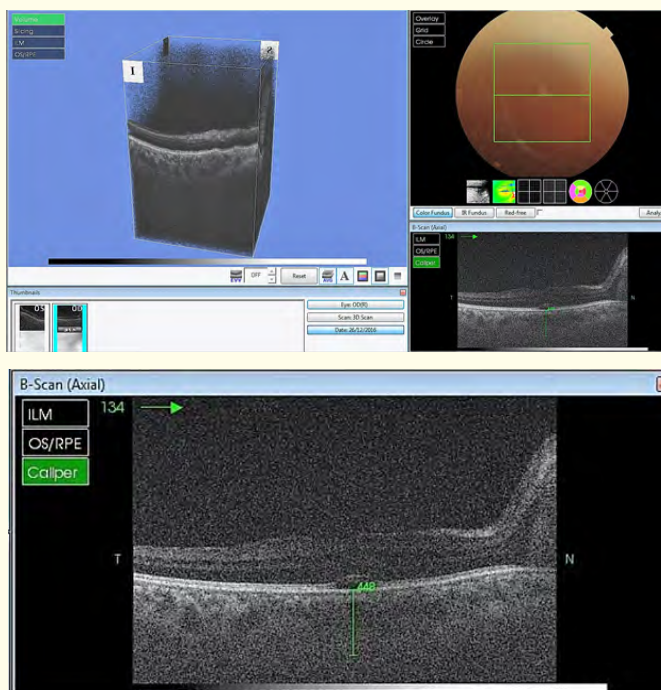


Figure 2

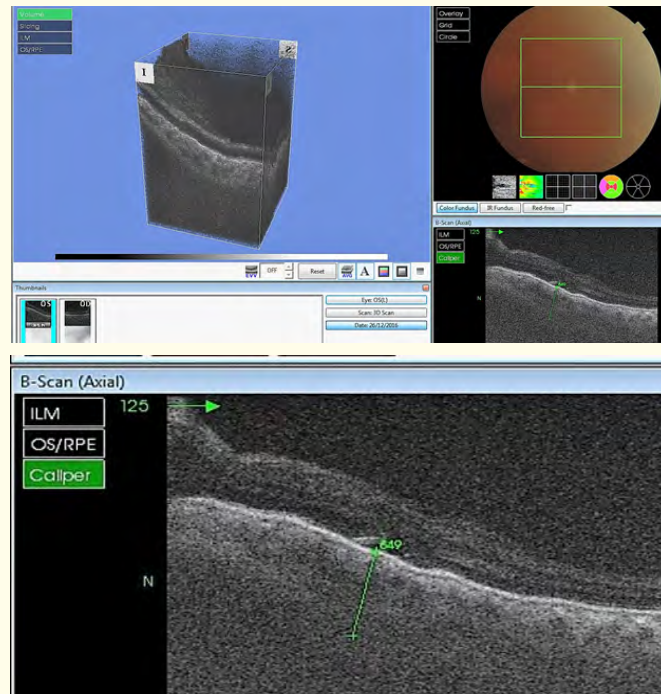


Figure 3

The patient was treated with high dose intravenous methylprednisolone (1 g IV), was administered over 1 hour for 3 days followed by initiation of oral prednisolone, 1 mg/kg/day, which was gradually tapered [6,7].

The Swept Source OCT images were repeated after 2 weeks of treatment, the new images showed a significant improvement in Vitritis with improvement in subfoveal choroidal thickness in the right eye to $(401 \mu\text{m} \pm 65 \mu\text{m})$ (Figure 4) and in the left eye to $(377 \mu\text{m} \pm 50 \mu\text{m})$ (Figure 5).

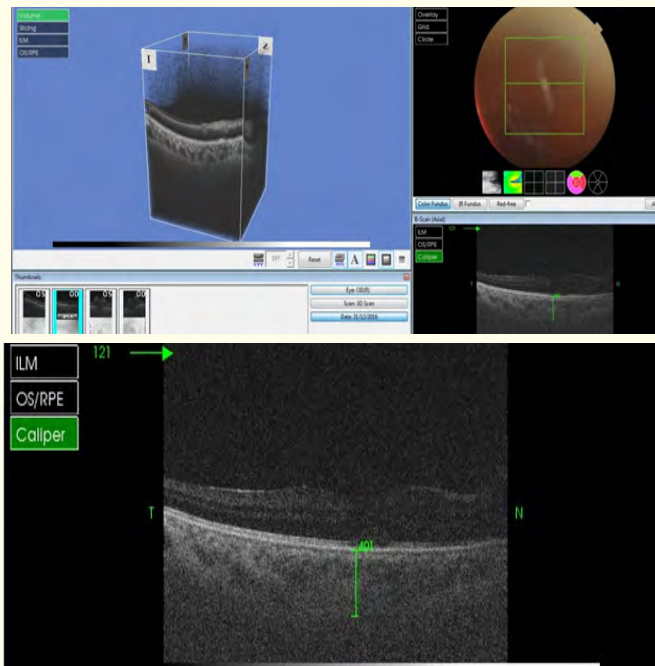


Figure 4

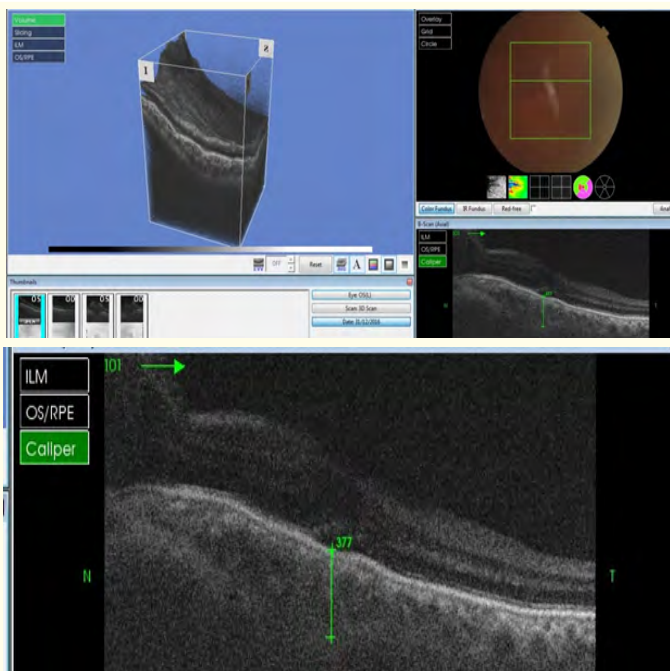


Figure 5

Conclusion

SS-OCT is a noninvasive reproducible imaging technique that allows enhanced visualization of the posterior segment of the eye with opaque media (especially in Uveitis cases) and in measurement of choroidal thickness that could be superior to B-scan ultrasound, which has low resolution and can be less reliable when used by inexperienced examiners. Of further benefit of the SS-OCT was the ability to assess the posterior segment despite the dense opaque cataract which was not possible with Fluorescein Angiography.

In our case, the SS-OCT images were informative in detection of acute posterior segment complications of Behçet (Vitritis) and in evaluation of the choroidal thickness that increases in active and quiescent phases of posterior uveitis. Though it may be difficult to delineate the inner edge of the suprachoroidal space, especially during acute inflammation but choroidal thickness remains a good parameter that can be used to characterize different disease entities and in monitoring of the posterior pole inflammatory disorders before and after the treatment.

As shown in figure 1-5, there was evidence of macular edema which seemed to increase following treatment indicating residual activity of the disease despite the improvement in vitritis and choroidal thickening. The patient continued to receive high dose of oral steroids (slow taper of 1mg/Kg) following the IV Methylprednisolone with close monitoring of her clinical status and visual acuity.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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