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Case Report

A Case Report of Bimatoprost Implant (Durysta)

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Abstract

The purpose of presenting this case is to be cautious about the possibility of continuing endothelium loss at the lower part of cornea after Durysta implantation.

Durysta has been approved by FDA and has passed phase 1 to phase 3 studies to reduce intraocular pressure with indications and contra-indications. However, through the experience of this case, author concerned about lower part of cornea endothelium damage in the future due to the enlarged implant and pro-long staying (up to 20 month) at the lower part of iridocorneal angle. The phase I to phase III trials did not study the lower cornea endothelium cell count. Phase III study did not include any Asian patient.

3 month post-operation, the intraocular pressure (IOP) of the implanted eye reduced from 24 to 13 mm Hg, vision remained 20/25. The central cornea was clear but lower cornea presented slightly edematous and showed 8 um thicker compared to the same location over the other eye by Optical Coherence Tomography.

Keywords: *Bimatoprost Implant (Durysta); Cornea; Optical Coherence Tomography*

Introduction and Case Report

This is a 72 years old Vietnamese man with a history of chronic open angle glaucoma, post cataract surgery and dry eye disease (DED) over his both eyes since ten years ago.

He had bilateral cataract surgery with intraocular implant ten years ago without complication. He is on artificial tear, erythromycin ointment and latanoprost. He has no known allergy. He drinks occasionally but smokes daily. He has no family history of glaucoma and his present illness is non-contributory.

Due to his limitation in understanding glaucoma, his compliance is questionable. He had bilateral Selective laser trabeculoplasty (SLT) in July of 2020.

His vision right eye was 20/25 with refraction of - 1.50 + 1.00x168. The left eye was 20/25 with - 0.75 + 0.50x1. Intraocular pressure (IOP) using auto-no-contact tonometry was 24/18 despite had SLT over both eye. His Intraocular lens (IOL) was center and posterior capsule was intact and the chamber was deep (Shaffer grade > 3) confirmed by gonioscope. His Retina Nerve Fiber Layer (RNFL) was 74/86.Visual field had significant arcuate defect right eye.

Due to his poor compliance, DED and RNFL thinning with higher IOP over right eye and as he did not have contraindication for Durysta implanation[1], he was consulted to have the Bimatoprost implant (Durysta). With understanding of all the risk involved, he consented and the implantation was done uneventfully over right eye on 7/30/20.

Post implantation, his right eye's vision remained 20/25 and IOP has come down to 13mmHG for 3 month. Thickness of cornea measured by Optical Coherence Tomography (OCT) was 8um thicker than the left eye at the lower cornea, as figure 1. The implant was still visible at lower part of chamber 3 month after implantation as figure 2.

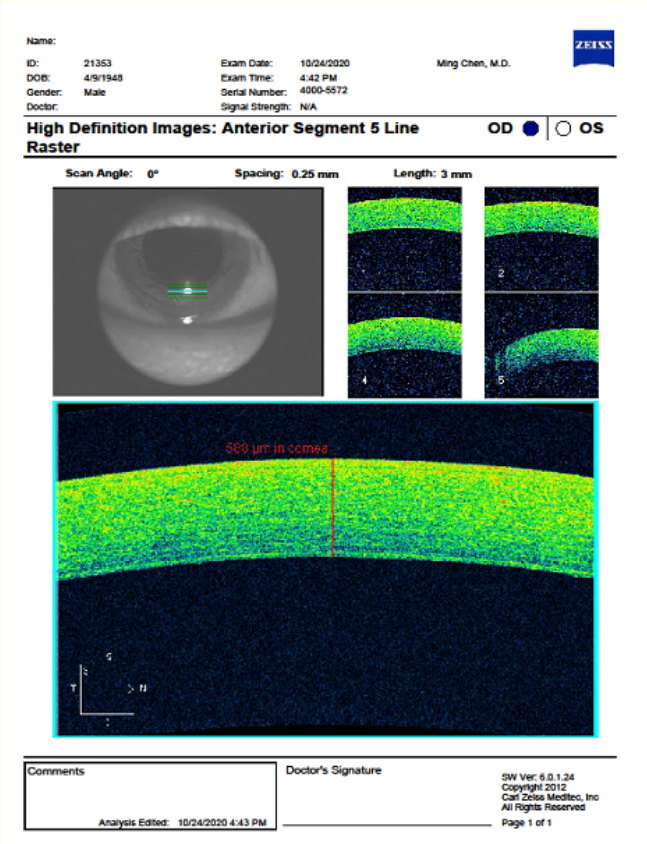

Figure 1: *OCT measure cornea thickness at 6 o'clock is 588um versus 580um left eye.*

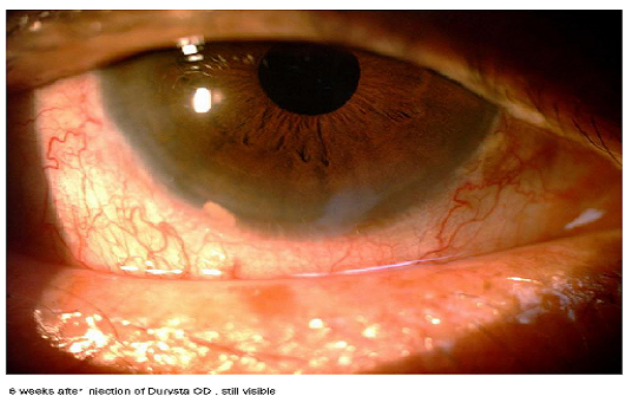

Figure 2: *Implant at 7 o'clock 3 month after implant.*

Discussion

Bimatoprost implant (Durysta) 10 mcg has just been approved by FDA on May 3, 2020. It is a biodegradable implant for the reduction of IOP [2]. The purpose of this report is to arouse the concern of swelling of the implant as it biodegraded by enlarging to 150% or more that stays in the lower part chamber up to 20 month (85.5% of study eyes) [1]. The focal lower part of cornea may develop chronic edema while it may not affect central vision but bullous keratopathy can occur and can causing pain. As the concern of endothelium cell lost was reported in the phase 1 - 3 of the trial in non-Asian patients [1], but specific location of the cell loss such as lower cornea was not studied. Furthermore, the trial was only up to 20 month, some lower cornea pathologic change may be detected in the later months. Learning from this case, perhaps future study should include pre and post implant endothelium count and cornea thickness change in the lower part of cornea to the Asian patients.

Conclusion

The Durysta implantation was effective to reduce IOP and retained good vision three month after the surgery in this case. However, possible lower cornea edema leading to a painful bullous keratopathy should be followed in the future.

Bibliography

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