

Sir,
Correlation of transient vision loss with outer retinal disruption following intravitreal ocriplasmin

Ocriplasmin is a recombinant protease recently approved for the treatment of symptomatic vitreomacular adhesion (VMA). According to its FDA label, in the clinical trials of ocriplasmin, 2% of subjects experienced dyschromotopsia following its administration. In approximately half of these cases, there were electroretinographic (ERG) changes reported (a- and b-wave amplitude decrease).¹ We describe a 67-year-old woman with a macular hole and VMA who received ocriplasmin and subsequently developed transient vision loss. Using eye-tracked spectral-domain optical coherence tomography (SD-OCT), we demonstrate that this vision loss appears to correlate with the disruption of the photoreceptor outer segments.

Case report

A 67-year-old female presented with a recent change in vision in her right eye. On presentation, visual acuity was 20/100 in her right eye. Clinical examination and SD-OCT showed a VMA, an epiretinal membrane, and a macular hole involving all but the inner retinal layers (Figure 1a). One week following intravitreal ocriplasmin (0.125 mg/0.1 ml), visual acuity had decreased to 20/400. Eye-tracked SD-OCT showed resolution of the VMA, a full-thickness macular hole, and damaged photoreceptor outer segments indicated by marked disruption of the ellipsoid zone (arrows). (c) Four weeks following treatment, there is persistence of the macular hole with a marked improvement in the integrity of the ellipsoid zone.

outer segments indicated by marked disruption of the ellipsoid zone (Figure 1b). Three weeks later, visual acuity had improved to 20/50. Eye-tracked SD-OCT showed persistence of the macular hole with a marked improvement in the integrity of the ellipsoid zone, indicative of partial recovery of photoreceptor outer segments (Figure 1c).

Comment

In the clinical trials of ocriplasmin, blurred vision, photopsia, dyschromotopsia, and ERG changes occurred in a significantly greater number of patients receiving ocriplasmin *vs* those receiving a placebo (drug vehicle diluted with saline).^{1,2} These ocular adverse events appear to suggest a drug effect on the neurosensory retina, most likely involving the photoreceptors. The SD-OCT findings in our case appear to support this mechanism. We propose that in some eyes, ocriplasmin, a proteolytic enzyme, may produce a disruption of the photoreceptor outer segments that is at least partially reversible. Determining whether ocriplasmin, a protein with a molecular weight of 27.2 kDa, reaches the photoreceptors through the macular hole or via a trans-retinal route might help predict which eyes are at higher risk for this complication.

Conflict of interest

KBF is the consultant (H) at the Heidelberg Engineering and ThromboGenics. SAS and VPS declare no conflict of interest.

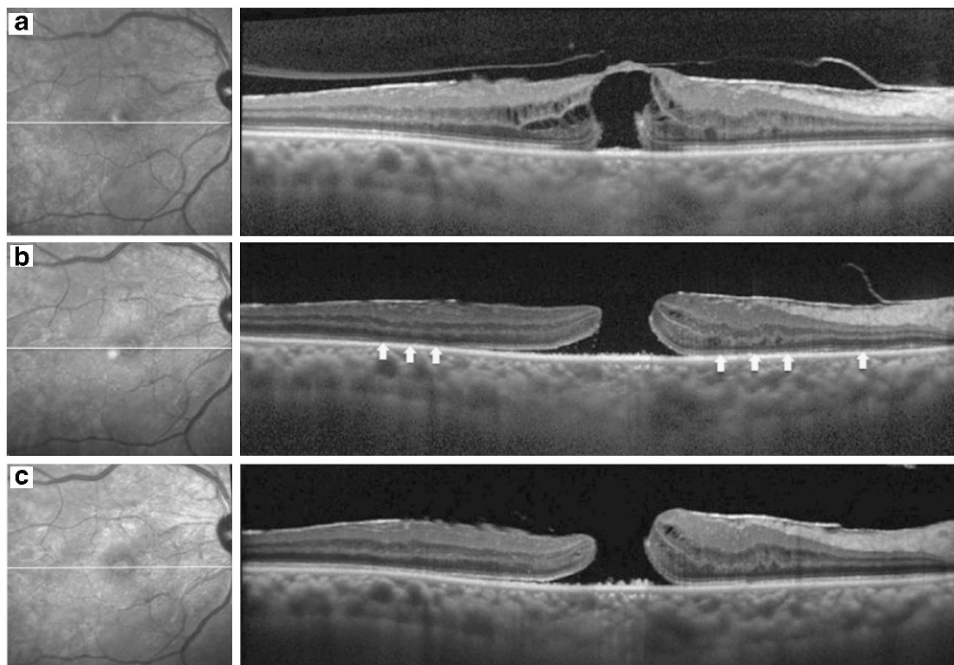


Figure 1 Eye-tracked spectral-domain optical coherence tomography immediately before (a), 1 week following (b), and 4 weeks following a single intravitreal injection of ocriplasmin (c). (a) Before treatment, there is a vitreomacular adhesion (VMA), an epiretinal membrane, and a macular hole involving all but the inner retinal layers. (b) One week following treatment, there is resolution of the VMA, a full-thickness macular hole, and damaged photoreceptor outer segments indicated by marked disruption of the ellipsoid zone (arrows). (c) Four weeks following treatment, there is persistence of the macular hole with a marked improvement in the integrity of the ellipsoid zone.

Acknowledgements

This study was supported in part by the Macula Foundation, Inc. The funding organization had no role in the design or conduct of this research.

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Eye (2013) **27**, 773–774; doi:10.1038/eye.2013.94;
published online 3 May 2013

Sir, Degradation of tarsorrhaphy-related Vicryl sutures in the presence of orbital radiotherapy

Semi-permanent tarsorrhaphies commonly use Vicryl as a suture material due to its ability to degrade *in situ* but maintain tensile strength for many weeks. Ionising radiation theoretically can affect its degradation though this phenomenon has not been previously reported in the ophthalmic literature. We present a case of a patient with premature dehiscence of his semi-permanent tarsorrhaphy whilst undergoing orbital radiotherapy.

Case report

A 52-year-old man with Wegeners granulomatosis and an orbital extension of a left maxillary antral squamous cell carcinoma was seen with a persistent 8-mm left corneal epithelial defect, despite prior treatment with intensive lubricants and upper eyelid botulinum toxin. Contributing factors to the defect included gross left proptosis, lagophthalmos, complete ophthalmoplegia, corneal anaesthesia and daily external radiotherapy for his left orbital tumour. The vision in this eye was NPL.

The patient therefore underwent a semipermanent left tarsorrhaphy using 5/0 Vicryl sutures and continued his daily course of teletherapy. The tarsorrhaphy opened 3 days postoperatively and after the weekend (day 6) had no visible suture remnants. An identical tarsorrhaphy was repeated 3 days later using 5/0 prolene, which remained intact for the residual 2 days of daily teletherapy and which only developed a small, limited

dehiscence at 3 weeks. As no further teletherapy was planned, the tarsorrhaphy was revised using 5/0 Vicryl again and remains intact at 3 months.

Comment

Vicryl (polyglactin 910) is a synthetic absorbable material consisting of a co-polymer of lactide and glycolide with good tensile strength and rapid degradation (half-life around 2 weeks).¹ Ionising gamma radiation is known to cause chain scission in polyglycolic acid polymers and reduce its molecular weight.² Treating Vicryl with high-dose gamma radiation accelerates its degradation, forming the basis of the more rapidly absorbing suture Vicryl Rapide.³

We propose that in this case the 5/0 Vicryl suture placed directly in the teletherapy pathway absorbed significant doses of ionising radiation leading to its premature degradation in the first tarsorrhaphy. This did not occur with the Prolene suture or when Vicryl was used after completion of the radiotherapy. Furthermore, the very superficial placement of the suture in the path of the radiation would lead to much greater degradation as compared with longer-acting absorbable sutures such as poly(L-lactide/glycolide) placed in a deep subcutaneous environment.⁴ This phenomenon has not been previously described in the ophthalmic literature and has implications for choice of suture material placed in patients receiving radiotherapy.

Conflict of interest

The authors declare no conflict of interest.

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Eye (2013) **27**, 774; doi:10.1038/eye.2013.38;
published online 5 April 2013