The effect of the reflux bleb of anti-VEGF injections on central macular thickness

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Purpose
To investigate the effect of the reflux bleb (RB) associated with intra vitreal anti-vascular endothelial growth factor (anti-VEGF) injections on central macular thickness (CMT – central sub-field of Cirrus spectral domain ocular coherence tomography - Carl Zeiss, Meditec, Dublin, CA)

Methods
This was a prospective, consecutive case series of patients treated with anti VEGF injections at The Canberra Hospital, Canberra, Australia between 2012/2013. Bleb status was recorded prospectively in all anti VEGF injections and the CMT was obtained retrospectively. The bleb status and CMT change were collected in pairs and serial paired data points were collected for each patient. The bleb status and the change in CMT between two corresponding visits constituted a paired data set. The RB at injection 1 or 2 (early bleb) was used to predict the likelihood of RB at subsequent visits. Cox proportional hazards regression analysis was used to evaluate the effect of early bleb on treatment outcome (change in CMT at end of treatment).

Results
The RB status of 104 eyes of 89 patients was recorded. The mean age of the patients was 70 years. The patients were divided into two groups, those that had an early bleb and those that were RB negative at both the first and second visit. The two groups were similar in terms of age and gender profile. A RB at the first or second visit was observed in 52% of eyes. If a patient had an early bleb they had about a 50% chance of a bleb at subsequent visits compared to about a 20% chance for those who had no RB at the first two visits (p<0.050). An early bleb is significantly related to the treatment response. Patients without an early bleb were 1.9 times more likely (95% CI- P<0.05) to experience a response to treatment with a reduction in central macular thickness than those with an early bleb (figure 1).

Conclusion
The presence of an early bleb predicts the macular thickness change at the end of treatment and also the likelihood of a future bleb during treatment.

Figure 1