# Presence of subretinal fluid at baseline preserves from photoreceptor alterations in diabetic macular edema and cystoid macular edema due to central retinal vein occlusion

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## Aim

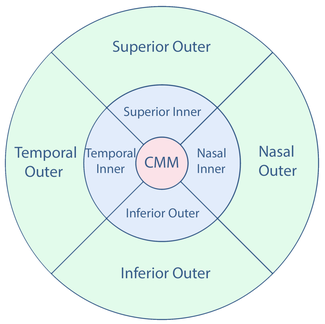
To characterize **photoreceptor integrity** in patients **with or without subretinal fluid (SRF)** in diabetic macular edema (**DME**) and cystoid macular edema due to central retinal vein occlusion (**CRVO**) at baseline (BSL) and after anti-VEGF therapy.

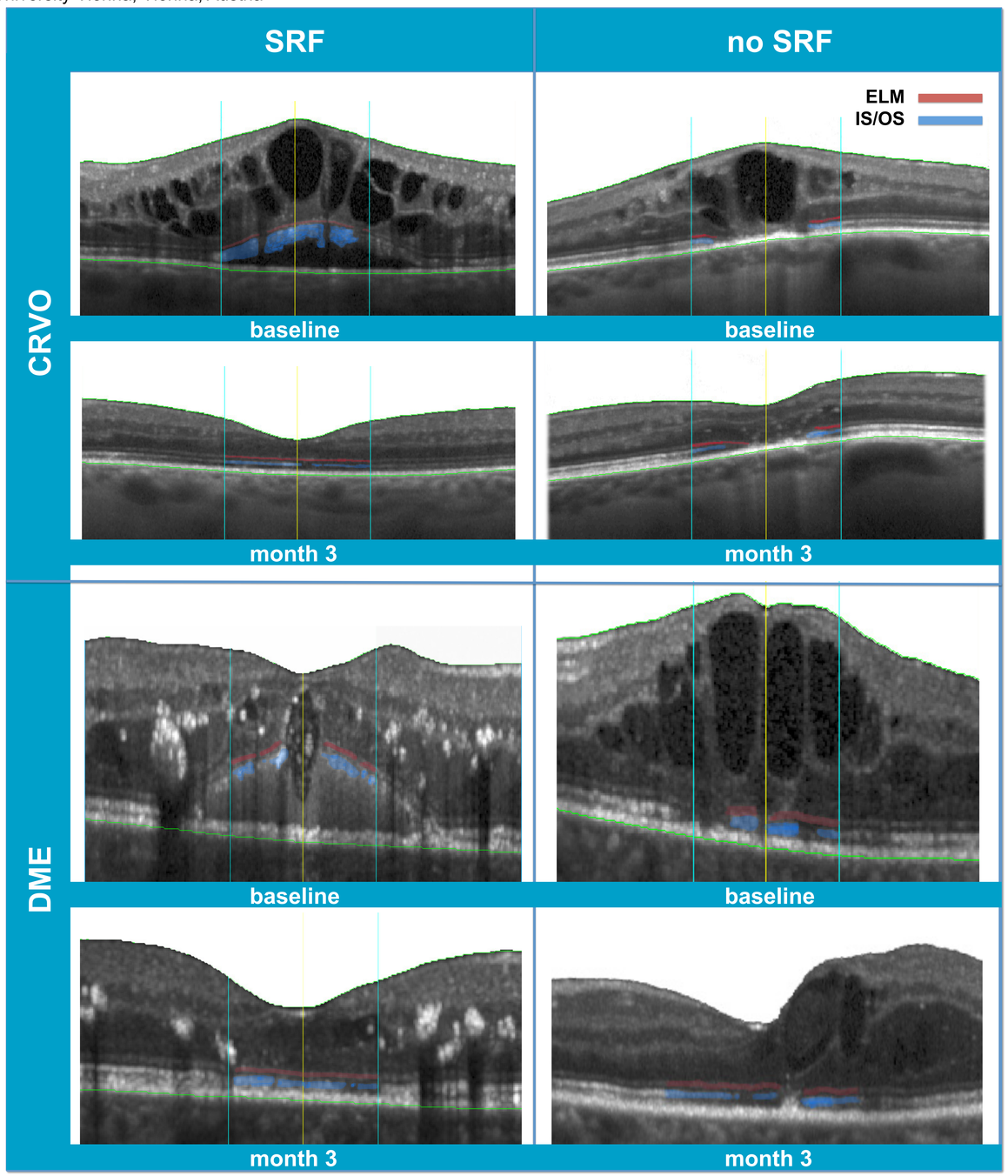
## Data and Methodology

SD-OCT image data of 102 patients (CRVO, n=42; DME, n=60) were analyzed at BSL and after 3 monthly anti-VEGF injections by experienced graders of the Vienna Reading Center (VRC) under the supervision of two retinal experts using custom VRC software.

The foveal B-scan of SD-OCT macular cube scans (Heidelberg Spectralis, 49 B-scans, 6x6mm) was chosen for analysis. At baseline, patients were classified into two groups, **SRF present** or **absent**.

Morphological changes in the central millimeter area such as disruption and thickening of the of Inner Segment/Outer Segment (**IS/OS**) line and disruption of the external limiting membrane (**ELM**) were quantified. Statistical comparisons were performed between the SRF/no SRF groups at BSL and M3 by Chi-Square-Test.




## Results

- **ELM disruption** was significantly less present at BSL (p=0.009) and M3 (p=0.002) in patients with SRF compared to no SRF. 71 (28/43) out of 74 (29/45) patients from both SRF / no SRF groups with an ELM disruption at BSL had a persistent disruption at M3, while 18 (13/5) disruptions newly developed at M3.
- There was no significant difference in **IS/OS disruption** between the SRF/no SRF groups at BSL or M3 (40 total number of IS/OS disruption, 23 SRF, 17 no SRF).
- **IS/OS thickening** was more present in the SRF group compared to no SRF at BSL (p<0.00001). The IS/OS swelling relieved at M3 in 27 out of 29 cases in the SRF group, but persisted for all 4 cases with IS/OS thickening in the no SRF group (p=0.003).

## Conclusion & Future Work

**Presence of SRF** seems to play an important role in the **preservation** and **healing process** of the **photoreceptors layers** in DME and cystoid macular edema due to CRVO when comparing patients with and without SRF at baseline. This protective role of SRF could lead to differences in long-term visual acuity outcomes after anti-VEGF treatment.

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