

## Macular edema (ME) visualisation, detection and estimation in diabetic retinopathy (DR)

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### **Purpose:**

To demonstrate the possibilities and complementarity of HRA SLO Heidelberg and OCT in detection and follow-up of ME in DR.

### **Methods:**

HRA is routinely used in our clinic to document and evaluate fundus status in patients referred to us for a drop in visual acuity associated with DR. Examination SLO protocol includes Infrared (IR), Red-free (RF) and Autofluorescence (AF) images acquisition and Fluorescein Angiography. We have analyzed data from 50 consecutive eyes diagnosed with ME between May 2002 and March 2004. ETDRS visual acuity, funduscopy evaluation, SLO HRA and Optical Coherence Tomography (OCT 3) examinations were performed. OCT protocol includes fast and normal retinal thickness acquisitions, leading to line, macular mapping and thickness analyses.

### **Results:**

Specific features on RF and AF pictures indicate precise corresponding anatomical appearances. The presence of ME is particularly well seen on AF. When submacular big cysts are evident on RF and IR, ME are thick and almost always associated with central macular mapping more than 400 microns. When big macular folds and contractions areas are evident on RF and IR, ME is almost always associated with tractional ERMs exerted on the fovea, as documented by OCT images. These tractional ME cases were led to surgery. Follow-up was possible with non-injection SLO images and OCT examinations. The different SLO filters also allow for evaluation of possibly associated macular problems, such as laser scars RPE anomalies or atrophic areas that can influence functional outcome.

### **Conclusion:**

SLO imaging allows for ME in DR early diagnosis, especially in patients with negative fundus evaluation. Specific features seen on SLO HRA images may indicate the need for early surgery as opposed to the possibility of observation. Coupling of HRA findings to OCT gives an extremely precise diagnostic tool, providing useful information for treatment decision making and functional prognosis.

