Optical Coherence Tomography

SD-OCT Units
- Zeiss - Cirrus
- Heidelberg SD-OCT

Time-Domain OCT

SD-OCT

SD-OCT - OCT – Imaging the Retinal Structures
- Diagnosis / Treatment
What is the IS-OS line?

Reflective Band
- Change in Scattering Pattern from Photoreceptor Mitochondria – (Ellipsoid Region)

Spaide et al: Retina 2011

High Quality Imaging – Helps Explain Visual Findings

55 yr old physician – 20/20 vision – sent in for ?surgery

Marked distortion of inner retina

Intact IS-E

SD-OCT IMPROVING IMAGE QUALITY
Eye Tracking - ART™ (Automatic Real-Time) software

- Allows for increasing signal to noise
- Reduce noise proportional to the square root of the number of frames averages.

The reference scan tracks eye movement, and the cross section scan is moved to match.

Eye-Tracker Controls Correct Image Acquisition

Bringing the image closer to the camera
- "raising the image"

WHAT OTHER INFORMATION IS PRESENT ON THE SD-OCT

Understanding Details of Retinal Anatomy

Cysts
Lipid
PCV
IS-E
What missing in this patient?

CHOROIDAL IMAGING

EDI Improves Visualization of Choroidal Structures
WHAT ABOUT FUTURE QUANTITATIVE MEASURES USING THE SD-OCT

WHAT IS THE POTENTIAL OF SD-OCT?

How to Quantify the IS-E Junction?
- Defect Size
- Thinning
- Intensity / Consistency?

Which feature of the SD-OCT might be useful to predict vision outcome?
- Correlative Studies on Various Features and Visual Acuity
- Changes in SD-OCT – Retinal Thickness
  – Poor to Fair Predictor

Quantify Drusen Area

Drusen

Which feature of the SD-OCT might be useful to predict vision outcome?
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Capture Algorithm 1
Capture Algorithm 2
Summary:
- A large amount of clinically useful information on the SD-OCT
- Includes anatomic detail about disease pathology and vision function
- May include quantitative measures in the future
- Need to generate high-quality SD-OCT images is important