The Complete Idiot’s Guide to Macular OCT Interpretation

Richard E. Castillo, OD, DO
The Oklahoma College of Optometry
Northeastern State University

OCT Provides:

• Ultrastructural information
• Quantitative information
• Today’s diagnostic modality of choice

Macular OCT: Anatomical Correlates

• Nerve fiber layer (NFL): High Reflectivity (RED)
• Sensory Retina (Green)
• Retinal pigment epithelium/choriocapillaris complex: High Reflectivity (Red)
Keys to Interpretation

• Four Questions
  – How does the vitreoretinal interface appear?
  – What is the foveal contour like?
  – Is retinal architecture altered?
  – Is the uniformity of the RPE-CC complex layer disrupted?

Normal vitreoretinal interface

• Optically clear vitreous
• Highly reflective NFL below

Vitreoretinal interface abnormalities

• Single membrane
• Double membrane
Membrane attachments

- No attachments
- Partial attachments
- Total attachment

Normal foveal contour

- V-shaped depression

Obliteration of normal foveal contour

- Pulling from overlying membrane
- Pushing from underlying retinal fluid
Widening of foveal contour

Macular Holes
- Full thickness
- Inner lamellar
- Outer lamellar

Inner lamellar hole vs. pseudo-hole
- Steep wall configuration in pseudo-hole
- Inverted mushroom configuration in inner lamellar hole
Intra-retinal fluid accumulation can be:

- Hard exudates
  - Spots of increased reflectivity
  - Shadowing
- Schisis cavity is readily apparent

Abnormalities of Retinal Architecture

- Hard exudates
  - Spots of increased reflectivity
  - Shadowing
- Schisis cavity is readily apparent
Retinal RPE/CC complex can be disrupted by:

- Bumps (drusen)
- Fusiform thickening (CNVM)
- Elevation (PED)

Serous PED

- Optically clear space
- Distinct green band (Choroid)

Hemorrhagic PED

- Absent reflectivity of underlying choroids green band due to shadowing effect of the blood beneath the RPE
Fibrovascular PED

- Multiple medium reflectivity echoes (indistinct green band)