**OCT and OCT Angiography in Glaucoma**

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2 hour course

CEE

**Course Description:**

Optical Coherence Tomography (OCT) has established itself as a must have imaging technique in any optometric practice setting due to its exceptional anatomical and structural information. Using OCT for the diagnosis, treatment, and management of glaucoma is indispensable. OCT Angiography (OCT-A) was recently introduced to the optometric market, and using OCT-A is becoming equally important in the diagnosis, treatment, and management of glaucoma. This course will show how to interpret and integrate OCT and OCT-A in glaucoma diagnosis, treatment, and management.

**Course Objectives:**

1. Increase interpretation skills of OCT in glaucoma
2. Introduce OCT-A for diagnosis, treatment, and management of glaucoma
3. Review how OCT-A is using in glaucoma
4. Increase interpretation skills of OCT-A in glaucoma
5. Demonstrate how to integrate OCT and OCT-A in glaucoma
6. Provide numerous guidance around pitfalls in OCT and OCT-A in glaucoma

**Outline:**

1. Disclosures- Greg Caldwell, OD, FAAO
2. OCT is an imaging is a tool to assist the doctor in management of the patient
   1. No single tool can provide the diagnosis and management
   2. Especially in glaucoma
3. Overlay of the RNFL and GCC
4. Green, Red, Yellow, and Blue Disease
5. Hints to this Disease
   1. If the disease is a bilateral disease
      1. Glaucoma
         1. It is usually asymmetric
      2. If the scans are symmetric
   2. Then it most likely not disease
   3. Anatomical variation
      1. Normal for that patient
6. 28 yo woman with yellow disease
   1. OD -6.25-0.75 x 005 20/20
   2. OS -6.50 -0.75 x 170 20/20
   3. No medications
   4. Systemic hx: unremarkable
   5. IOPs 17-20 mm Hg OU 2011-2016
7. 46 yo woman with red-yellow disease
   1. OD -0.75 20/20
   2. OS -1.25 20/20
   3. Systemic hx: thyroid dysfunction, high cholesterol
   4. Medications for the above
   5. IOPs 15 mm Hg OU 8:30 am
8. 63 yo woman with red, yellow, blue, and green disease
   1. OD plano/ +2.00 20/20
   2. OS -0.50/ +2.00 20/20
   3. IOPs 15-18 mm Hg OU 2011-2015
9. 58 yo with yellow disease
   1. OD +1.00 20/20
   2. OS +1.25 20/20
   3. IOPs: 13/15 mm Hg at 11:24 am
   4. (pay attention to FLV and GLV)
10. 40 yo man with red, blue, green disease
    1. OD -7.50 – 0.75 x 110 20/20
    2. OS -7.50 – 0.75 x 105 20/20
    3. IOPs: 15/13 mm Hg at 6:30 pm
    4. March 16, 2015
    5. January 9, 2017
    6. 22 months apart
    7. 27 yo woman with blue disease  
       IOPs 13/13
    8. Glaucoma
    9. NFL and GCC
    10. POAG
11. Next Generation Glaucoma Analysis with OCT + OCTA
    1. Learn What Normal Looks Like
    2. What Does Glaucoma Look Like?
    3. Glaucoma
    4. How Does OCTA Change the Way You See Glaucoma?
    5. Shows early changes in the retina and optic disc
    6. Adds new information to the diagnosis
    7. Aids in progression detection
12. OCT Angiography A New Approach to Protecting Vision
    1. Non-invasive visualization of individual layers of retinal vasculature
    2. Pathology not obscured by fluorescein staining or pooling
    3. Image acquisition requires less time than a dye-based procedure
    4. Reduced patient burden allows more frequent imaging to better follow disease progression and treatment response
    5. See the Vessels Like You’ve Never Seen Them Before!
    6. Segment retinal vasculature into individual layers
    7. Eliminate effects of dye-based blurring and pooling
    8. Isolate areas of interest
    9. View 3x3mm, 6x6mm and Widefield scans
13. Normal Retinal Vasculature
    1. Superficial capillary plexus
    2. Deep capillary plexus
    3. Outer retina
    4. Choriocapillaris
14. Review of Normal for OCT Angiography ONH and Retina
    1. 25 year old man
       1. Superficial capillary plexus
       2. Deep capillary plexus
    2. 60 year old man
       1. Superficial capillary plexus
       2. Deep capillary plexus
    3. 60 Year Old Montage OD
15. 68 year old woman with glaucoma
    1. Wants second opinion for glaucoma management
    2. Recently had cataract surgery OS with iStent
    3. September 25, 2017
    4. Dorzolamide 2% BID OS, Lumigan 0.01% QD OS
    5. Our practice recently performed cataract surgery and Kahook dual blade (KDB) MIGS
    6. July 24, 2018
    7. IOPGAT: 12 and 16 at 11:27 am
    8. OCT for Pachymetry in Glaucoma
    9. OCT GCC and NFL
    10. Visual Fields
    11. Angiography and AngioAnalytics of Disc
    12. En Face Radial Peripapillary Capillaries (RPC)
    13. Angiography and AngioAnalytics of Retina
    14. Montage OD
    15. Montage OS
    16. Montage OU
16. 74 year old man
    1. POAG, OS > OD
    2. VF OD and OS 1-26-2018
    3. VF OD and OS GPA 1-26-2018
    4. OCT NFL and GCC 9-25-2018
    5. Change Analysis NFL-GCC
    6. OCT-A 9-25-2018 POAG OS > OD
       1. Superficial capillary plexus
       2. Deep capillary plexus
    7. OCT-A 9-25-2018 POAG OS > OD
       1. Superficial capillary plexus
       2. Deep capillary plexus
    8. Montage OD
    9. Montage OS
    10. Montage OU
17. 49 year old man
    1. Ocular Hypertension since 2014
    2. No treatment
    3. Pigment Dispersion
    4. Baseline IOP or Tmax 26/26
    5. 2014— March 2018
    6. Today 30/32, new Tmax 9-25-18
    7. VF 24-2 Sita-Faster 9-25-2018
    8. OCT NFL and GCC 3-22-18
    9. OCT-A 9-25-2018
       1. Superficial capillary plexus
       2. Deep capillary plexus
    10. OCT-A 9-25-2018
        1. Superficial capillary plexus
        2. Deep capillary plexus
    11. Montage OD
    12. Montage OS
    13. Montage OU
18. How Does OCTA Change the Way You See Glaucoma?
    1. Shows early changes in the retina and optic disc
    2. Adds new information to the diagnosis
    3. Aids in progression detection
19. Glaucoma versus Other Optic Neuropathy
20. Other Uses
    1. Endothelial Disease
       1. Alzheimer
       2. Dementia
21. Questions and Answers
22. Thank you for your attention!
    1. Greg