Interpretation OCT A-Z (From the Advance technique to the eaZy basics)

Abstract
Spectral domain and OCTA technology have aided in the diagnosis and management of retinal disease. Using a fast pace case presentation, this lecture will provide interpretation of SDOCT and OCTA analysis.

Objectives
1. Have an understanding on OCT interpretation
2. Have an understanding on OCTA interpretation
3. Emphasize the value of OCT/OCTA technology in cases presented

Outline

I. Introduction
A. Principles
    1. Quantitative measurements:
        a.looking at the bscan
        b.line interpretation
        c.changes from the norm
    2. Qualitative measurements
        a.Hypo-reflectivity
        b.Hyper-reflectivity
        c.Factors affecting reflectivity
        d.Attenuation vs shadowing
    3.Variation in line scan
        a. Radial: use in Macular hole
        b. HD 21: typical use
        c. HD 1: highest resolution
        d. Cross sections
    4. PIL (photoreceptor integrity line): IS/OS and EZ line(ellipsoid zone): anatomic landmark on a macular OCT provides the most useful information about visual function
    5. EDI
        a. Enhance depth imaging
        b. Valuable in disease of the choroid like small melanomas

II.Cases
A. *Epi-retinal membrane (ERM):* Fibrotic membrane on the retinal surface
1. OCT findings
        (a) highly reflective tugging membrane on retinal surface
        (b) increase retinal thickness and associated retinal distortion
        (c) loss of normal foveal contour
2. The value of OCT
        (a) may help to evaluate presence of associated complications

(b) helps evaluate thickness, location, density and type of ERM
(c) quantitative measurements are used for monitoring
(d) aids in differential diagnosis (DDx)

B.Central Serous Detachment (CSC): Serous detachment of the neurosensory retina
1. OCT findings
        (a) elevated retina with shallow margins
        (b) optically clear center
2. What is pachychoroid?
3. The value of OCT
        (a) may help in DDx
        (b) monitoring the course of the disease

C. DME
1.OCT findings
        (a) increase retinal thickness
        (b) hyporeflective "spongy-like" retinal appearance; resulting in irregular hollow spaces
        (c) retinal cystic changes
        (d) loss of foveal depression
        (e) what is true edema vs mild thickness changes
2. The value of OCT
        (a) precise location of edema may be observed using the retinal map
        (b) monitor post-surgical progress or complications
        (c) may help to validate particular treatment options
        (d) center vs non-centered involve

D. RD vs Retinoschisis
        1. what does a RD look like?
        2. Value of OCT in RD evaluation
        3. Retinoschisis
                a.split between inner and outer later
                b.OCT findings: Strecthing of muller cells

   E. Choroidal neovascular membrane
                1.Diseases
                2.OCT characteristic
                    a.Hyperreflective area location
                    b.Presence of Fluid
                    c.Increase retinal thickness
                    d.Abnormalities in the RPE
                    e. NS or RPE detachment

F. Idiopathic Macular Telangiectasia (IMT)
    1.Characteristics of Type 1vs 2: type 2 has a draping of ILM
    2.OCT findings associated with type 2

G. Lamellar hole
    1.Fundus characteristics
    2.OCT findings
H.Myopic fovealschisis
    1.Characteristics
    2. OCT findings

II. OCTA
A. Principles: newest OCT able to look at microvascular changes
B. Uses: DR, IMT, AMD, occlusive disease, others
C. Case samples
D. Slabs
    1.vitreoretinal interface (VRI): superficial neo
    2. superficial
    3. deep: MAs
    4. avascular zone: CNV
    5. choroicapilaries: CNV
    6. choroid