College of Optometry

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Course Summary

Angle Closure Glaucoma

COPE # 35724-GL

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Course Description

The goal of this course is to educate primary care optometrists on the diagnosis and management of angle closure glaucoma. This course will present multiple cases in a grand rounds type format with interactive discussion.

Course Learning Objectives

- To analyze the cases presented, formulate a differential diagnosis, evaluate the stage of advancement of glaucoma and to develop a management plan that is appropriate for each case.
- To review the emergency stabilization of Acute Angle Closure.

Course Outline

1. Case 1: RC The Grateful Red
    a. Primary Exam
        i. Demographics
            1. 50 year old white redhead female
            2. Who is at risk for angle closure?
        ii. Case History and Chief Complaint
            1. Blurry vision at near
            2. Controlled HTN
            3. History of migraines (Maxalt) Twice a week ,with prodrome, severity 9/10
        iii. Exam findings and analysis
            1. Best corrected VA 20/20 OD and 20/20 OS
            2. Low Hyperope with presbyopia
            3. BP 131/90 RAS @10:45 am

4. Anterior segment
    a. Van Herrick narrow angles - less than 1 OU
    b. Gonioscopy
        i. Dynamic gonioscopy
        ii. Indentation:gonioscopy
        iii. Schwalbe's line inferior, rest no structures seen
    c. Nuclear sclerosis 2+ OD and OS
5. Posterior segment
    a. Not dilated at this visit
    b. Value of proactive testing
    c. Proactive testing in California
    d. CD 0.35 H/V OD, OS
    e. OCT
    f. VF

iv. Assessment of Risks for Glaucoma - risks for angle closure

v. Decision making/diagnosis
1. Types of angle closure
    a. Primary
    b. Secondary
        i. w/wo Pupillary block
        ii. w/wo Iris Bombe
    c. Mixed Mechanism
    d. Acute/intermittent/chronic

vi. Treatment and management
1. Referral for LPI
2. Patency of LPI
3. Residual angle configuration after LPI

vii. Follow-up and outcomes
1. First Follow Up Visit
2. Post LPI
    a. DFE uneventfully performed
    b. Post dilation IOP
    c. Pre and post surgical OCT
    d. Patient education
    e. Patient response and miraculous disappearance of the migraines!

2. Case 2: Not so Lucky Garcia - Images of eye one year pre- and post untreated acute angle closure glaucoma
3. Case 3: Jerry Slow Down
    a. Demographics - 59 year old white female
    b. Case History and Chief complaint
        i. Mildly blurred vision
        ii. Mild discomfort in both eyes
        iii. Unremarkable ocular health history
        iv. Medical health history

1. Food allergies
2. Anxiety disorder (Xanax®)
3. Best VA 20/20 OD and 20/20 OS
4. +APD
5. Anterior segment images
    a. Extremely narrow angles OU
    b. Barely TM inferiorly OU
6. IOP 38 mmHg OD and 42mmHg OS
7. Defer dilation - CD ratio with DO 0.9/0.9
8. Visual fields

c. Exam findings and analysis
    i. Differential diagnosis
        1. Primary angle closure without pupillary block
        2. Primary angle closure with pupillary block (iris bombe)
        3. Secondary angle glaucoma without pupillary block
        4. Secondary angle closure with pupillary block
    ii. Assessment of risks for glaucoma - High
    iii. Decision making/diagnosis
        1. Role of Xanax
        2. Chronic process?
    iv. vi. Treatment and Management
        1. Referral
        2. Low vision options

4. Case 4: Emergency Stabilization of Acute angle closure-The Case of KC Jones
    a. Primary Exam
        i. Demographics - 55 year old black female
        ii. Case History and Chief complaint
            1. Pain in OD since last night
            2. Red eye OD
            3. Nausea/ emesis
            4. Photophobic
            5. Blurred vision with haloes
        iii. Exam findings and analysis
            1. Ant seg images
                a. Mid dilated pupil
                b. cells in anterior chamber
                c. Cloudy cornea
            2. IOP
            3. Decision making /diagnosis
                a. Usually involves entire angle
                b. Vision loss can occur in days
                c. IOP significantly elevated
                d. PAS form rapidly
                e. May result in chronic IOP elevation even after breaking attack

4. Treatment and management
    a. Goal of treatment:
        i. Lower IOP
        ii. Clear cornea
        iii. Alleviate pain
    b. Topical glycerin relieves corneal edema
    c. Attempt impression gonioscopy
        i. Force aqueous into the angle, draining it and forcing angle to open
        ii. Watch your shoes
    d. Topical drug cocktail in office
        i. Betablocker
            1. Check for contraindications first
            2. Check pulse and BP
            3. One dose of 0.5% Timolol
        ii. Iopidine vs. Alphagan - One dose topical Apraclonidine 1%
        iii. Pilocarpine 1-2%
            1. Only if IOP is below 40 mmHg!
            2. Stop and think and make sure diagnosis is correct before instilling Pilocarpine
            3. 2 doses pilocarpine 1-2% q15 minutes
            4. I dose pilocarpine 1-2% in the contralateral eye
            5. DO NOT USE pilo in aphacic or pseudophacic block! Dilate the eye with 4 doses 2% cyclopentolate and 2.5% pehylephrine q 15 minutes
        iv. Topical steroid Pred acetate 1% 4 doses q 15-30 mins, then q hr
        v. Consider acetazolamide 500 mg po in severe cases - Diamox
        vi. Consider osmotic agent in severe cases - Isosorbide
        vii. Surgery may not immediately be possible due to corneal edema or inflammation and could take 1-3 days to clear
    e. Patients are discharged with the following medications and followed daily:
        i. Betatblocker 0.5% Timolol bid
        ii. Pilocarpine 1-2% qid
        iii. Contralateral eye 0.5% Pilocarpine qid
        iv. Prednisolone acetate 1% q1-6 hours as needed
        v. Acetozolamide 500 mg sequel po bid (in severe cases only-check for contraindications, check electrolyte balance first!)
        vi. Osmotic agent 50-100mg po (severe cases only!) - Continue until surgery/definitive treatment!
    f. Definitive treatment

i. Pupillary block treatment progression:
    1. LPI YAG/Argon
    2. Surgical iridectomy
    3. Trabeculotomy
    4. Filtering surgery
ii. Mechanical Angle closure
    1. Argon laser gonioplasty
    2. Treat the underlying problem
    3. B-scan is useful in diagnosis
iii. Secondary angle closure with pupillary block
    1. Posterior synechiae due to inflammatory conditions best managed with prompt mydryasis
    2. LPI
iv. Primary angle closure without pupillary block (plateau iris)
    1. Glaucoma persists despite patent PI (diagnostic)
    2. Miotic to reduce peripheral iris folds and pull iris away from wall
    3. Laser iridoplasty: laser burns around the peripheral iris - Created immediate iris contraction, deepening of the angle and widening of the approach
    4. 4. Secondary angle closure without pupillary block - Underlying condition must be resolved