"What's Hot in Neuro-Op: Case After Case After Case"

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ABSTRACT: Using short case presentations, the speakers will engage the audience in determining the best immediate management of various acute neuro-ophthalmic disorders. Emphasis will be placed on acute neuro-ophthalmic disorders often seen in optometry practice and specific recommendations will be made to ensure appropriate triage and immediate management of common neuro-ophthalmic emergencies.

Course Learning Objectives:

1. To better understand the varied clinical presentations and etiologies of ocular vascular diseases.
2. To become familiar with the appropriate triage and specific immediate management of ocular vascular diseases.
3. To better understand the varied clinical presentations and etiologies of optic neuropathies.
4. To become familiar with the appropriate triage and specific immediate management of optic neuropathies.

OUTLINE:

I. COMMON NEURO-OPHTHALMIC EMERGENCIES OVERVIEW

a. Differentiating an emergent condition from a non-emergent condition
    i. Importance of asking the right questions
    ii. Importance of the proper clinical evaluation
    iii. Importance of considering all the possible differential diagnoses

b. Importance of prompt recognition
    i. Time sensitive
    ii. Risk to vision
    iii. Risk to health / life

c. Importance of appropriate triage and management
    i. Reduce morbidity and mortality
        1. Knowing when to send the patient to the ER
        2. Knowing when to send the patient to a specialist
            a. Neuro-ophthalmology
            b. Neurology
            c. Ophthalmology

II. CATEGORIES OF NEURO-OPHTHALMIC EMERGENCIES

a. <u>OCULAR VASCULAR DISEASES</u>

i. Important Elements of History
    1. Onset of Symptoms
        a. Sudden
        b. Chronic
    2. Laterality
        a. Unilateral
        b. Bilateral
    3. Associated Pain
    4. Symptoms of Giant Cell Arteritis
        a. Headache
        b. Jaw Claudication
        c. Fatigue and Weight Loss

ii. Important Clinical Evaluation
    1. Visual Acuity
    2. Color Vision
    3. Visual Field

4. Pupil Testing (Is there an RAPD?)
5. Retinal and Optic Disc Assessment

iii. Differential Diagnoses

1. Retinal Emboli

a. Cholesterol
b. Platelet-Fibrin
c. Calcium
d. Talc
e. Fat
f. Neoplasm
g. Infectious

2. Central / Branch Retinal Artery Occlusion

3. Ophthalmic Artery Occlusion

4. Ocular Ischemic Syndrome

5. Retinal Vein Occlusions

6. Retinal Vasculitis

7. Carotid Cavernous Fistula

8. Cavernous Sinus Thrombosis

iv. Systemic Associations

1. Giant Cell Arteritis
2. Carotid Disease
    a. Atheroma
    b. Occlusion
        i. Thrombus
        ii. Cardiac Embolus
    c. Dissection
    d. Vasculitis
    e. Tumor (compression)
3. Aortic Arch Atheroma
4. Cardiac Source of Emboli
5. Hypercoagulable Disorder

v. Triage / Immediate Management

1. Time frame
    a. When is it emergent
    b. When is it urgent
    c. When is it other
2. Testing
    a. Labs

i. CBC
ii. Platelet count
iii. ESR
iv. CRP
v. Hypercoagulable states
vi. Lipid Profile

b. Imaging
i. Carotid Doppler
ii. CTA
iii. MRA
iv. Brain Imaging

c. Catheter Angiogram

d. Cardiac Testing
i. Trans-thoracic echocardiogram
ii. Trans-esophageal echocardiogram
iii. EKG

3. Treatment

b. <u>OPTIC NEUROPATHIES</u>

i. Important Elements of History
1. Onset of Symptoms
a. Sudden
b. Chronic
2. Laterality
a. Unilateral
b. Bilateral
3. Associated Pain
a. Headache
b. Pain with Eye Movements
4. Symptoms of Giant Cell Arteritis
a. Headache
b. Jaw Claudication
c. Fatigue, Weight Loss

ii. Important Clinical Evaluation
1. Visual Acuity
2. Color Vision
3. Visual Field
4. Pupil Testing (Is there an RAPD?)

5. Optic Disc Assessment
    a. Edema
    b. Pallor
        i. Not in acute cases
        ii. Seen 4-6 weeks after onset
    c. OCT
6. Retinal Evaluation
    a. Macular star in Neuroretinitis

iii. Differential Diagnoses

1. Inflammatory (Optic Neuritis)
- **a. Idiopathic Demyelinating (associated with MS)**
- **b. Neuro-myelitis Optica (Devic Disease)**
- **c. Systemic Infections**
- **d. Systemic Inflammatory Diseases**

2. Vascular
- **a. Ischemic Optic Neuropathy**
    - i. Anterior / posterior
    - ii. Arteritic / Non-arteritic

3. Compressive / Infiltrative
- a. Neoplastic
- b. Non-neoplastic

4. Hereditary

5. Toxic / Nutritional

6. Traumatic

7. Papilledema

8. Glaucomatous

9. Congenital
- a. Anomalous Disc
- b. Drusen

iv. Triage / Immediate Management

1. Timeframe
    a. When is it emergent
    b. When is it urgent
    c. When is it other
2. Testing
    a. Labs
        i. CBC

ii. Platelet count
iii. ESR
iv. CRP
v. ACE
vi. NMO antibodies
vii. Syphilis testing
viii. Cat scratch testing
ix. Lyme
x. Vitamin B 12
xi. Folate

b. Imaging
i. MRI brain and orbits with and without contrast
ii. MRI spine if NMO suspected
iii. MRA or CTA only indicated if aneurysmal compression suspected
iv. MRV (papilledema)
v. Chest CT (sarcoid)

c. Lumbar Puncture (MS, meningeal process)
1. Opening Pressure
2. Analysis of CSF contents

3. Treatment