OCULAR MANIFESTATIONS

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SYSTEMIC DISEASE

Thom S. Thomassen, M.D.
THE HISTORY

- One or both eyes affected?
- Has vision been affected?
- Are ocular symptoms present?
- Duration of the symptoms?
COMPLETE EYE EXAMINATION

- Vision
- External
- Pupils
- Motility
- Anterior segment (globe)
- Ophthalmoscopy (dilated)
- Intraocular pressure
- Visual fields
HYPERTENSION: FACTORS AFFECTING RETINAL ARTERIOLES

• Severity
• Duration
COMMON HYPERTENSIVE RETINAL CHANGES

- Flamed shaped hemorrhages
- Cotton-wool spots
LONG-STANDING HYPERTENSION

- Arteriolar vascular changes (copper wiring)
- Hard (lipid) exudates
- Optic disc swelling (malignant hypertension)
INTRACRANIAL HYPERTENSION

- Optic disc swelling - papilledema
- Mild or absent visual symptoms
INTRACRANIAL HYPERTENSION
CAUSES

• Brain tumor
• Meningitis
• Venous sinus thrombosis
• Hydrocephalus
• Idiopathic intracranial hypertension
AMAUROSI S FUGAX

- Temporary arterial obstruction
- Sudden, transient visual loss
- Monocular dimming of vision
EMBOLIC DISEASE

- Narrowed arterioles
- Cherry-red spot
CENTRAL RETINAL ARTERY OCCLUSION: MANAGEMENT

- IOP lowering drops
- IV Diamox
- Globe massage
- Rebreathing CO2
- Anterior chamber paracentesis
AMAUROSIS FUGAX: EVALUATION

• Cardiovascular
• Cerebrovascular
• Ophthalmologic
• Laboratory
EMBOLIC DISEASE

• Cholesterol embolus - Hollenhorst plaque
• Located at bifurcation
EMBOLIC DISEASE

- Cardiac origin
  - abnormal heart valve
- Cardiac tumor
EMBOLIC DISEASE

- IV drug abusers - talc
- Long bone fractures - fat
MIGRAINE: VISUAL SYMPTOMS

- Scintillations
- Scotomas
- Amaurosis fugax
- Transient cortical blindness
- Homonymous hemifield loss
MIGRAINE TYPES

• With headache – classic
• Without headache - acephalgic
MIGRAINE TREATMENT

- Prevent frequent attacks ?triggers?
- Examine for visual loss
- Contributing medications ?oral contraceptives?
BLOOD DYSCRASIAS WITH OCULAR MANIFESTATIONS

- Hyperviscosity syndromes
- Sickle cell anemia
HYPERVISCOSITY SYNDROMES
OCULAR SYMPTOMS

• Amaurosis fugax
• Permanent visual loss
BLOOD DYSCRASIAS
Hyperviscosity Syndromes

- Retinal hemorrhages
- Retinal vein dilation
- Disc edema
BLOOD DYSCRASIAS

Hyperviscosity Syndromes

- Hemorrhagic retinopathy secondary to leukemia
BLOOD DYSCRASIAS
Hyperviscosity Syndromes

- Swelling and congestion secondary to direct leukemic infiltration
SICKLE CELL RETINOPATHY

- HbSC disease (most common form)
- HbSS disease
- Sickle thalassemia
Sickle Cell Anemia

- Sickling can produce retinal arterial occlusions
BLOOD DYSCRASIAS

Sickle Cell Anemia

Ischemia secondary to capillary occlusions can lead to peripheral neovascularization ("sea fan")
METASTATIC CARCINOMA

• Most common intraocular malignancy in adults
• May be asymptomatic
• May produce decreased or distorted vision
METASTATIC CARCINOMA

- Iris mass secondary to lung CA
- Irregular pupil, iritis, A/C blood
• Choroid is the most common site for metastatic carcinoma.
OCULAR METASTASIS: TREATMENT

- Local radiation
- Chemotherapy
- Enucleation if blind, painful eye
CONNECTIVE TISSUE DISORDERS

- Dry eyes are the most common manifestation
- Burning
- Foreign body sensation
- Photophobia
SJOGREN’S SYNDROME

• Dry eyes
• Dry mouth
• Connective tissue disorders
DRY EYES: TREATMENT

- Artificial tears
- Lubricating ointment
- Medications to increase tear production
- Punctal occlusion
- Serum derived
- Nasal stimulation
CONNECTIVE TISSUE DISORDERS

COLLAGEN VASCULAR DISEASES
ANKYLOSING SPONDYLITIS: OCULAR SYMPTOMS

- Photophobia
- Redness
- Decreased vision
- Rheumatology referral
RHEUMATOID ARTHRITIS: OCULAR MANIFESTATIONS

- Dry eyes
- Episcleritis
- Scleritis
- Corneal ulcers
EPISCLERITIS

• Inflammation of tissue overlying sclera

• Redness, +/- pain
COLLAGEN VASCULAR DISEASES

RHEUMATOID ARTHRITIS

SCLERITIS

- Inflammation of the sclera
- Severe, deep pain
COLLAGEN VASCULAR DISEASES
RHEUMATOID ARTHRITIS
SCLERITIS

- Active inflammation with pain and redness
- Necrosis with perforation may occur (necrotizing scleritis)
COLLAGEN VASCULAR DISEASES
RHEUMATOID ARTHRITIS
SCLEROMALACIA PERFORANS

- Scleral melting
- Quiet eye
- Possible perforation
• Corneal melt
• May signify potentially lethal systemic vasculitis
COLLAGEN VASCULAR DISEASES

JUVENILE RHEUMATOID ARTHRITIS

- Common in pauciarticular form
- Quiet eye with low grade uveitis
- Cataract
- Band keratopathy
UVEITIS IN JUVENILE RHEUMATOID ARTHRITIS

- Few symptoms or signs
- Usually chronic
- Secondary cataract and glaucoma
- Requires frequent ophthalmology follow-up
SYSTEMIC LUPUS ERYTHEMATOSIS: OCULAR MANIFESTATIONS

- Dry eyes
- Scleritis
- Peripheral corneal ulcers
- Retinopathy
- Optic neuropathy
COLLAGEN VASCULAR DISEASES

SYSTEMIC LUPUS ERYTHEMATOSUS

• Retinal vasculitis
• Cotton wool spots
• Hypertensive retinopathy
COLLAGEN VASCULAR DISEASES

SYSTEMIC LUPUS ERYTHEMATOSUS

- Ischemic optic neuropathy
POLYARTERITIS NODOSA: OCULAR MANIFESTATIONS

- Dry eyes
- Corneal ulcers
- Scleritis
- Hypertensive retinopathy
- Retinal vasculitis
GIANT CELL (TEMPORAL) ARTERITIS: SYMPTOMS

- Headache
- Scalp tenderness
- Jaw claudication
- May have prior hx of polymyalgia rheumatica
COLLAGEN VASCULAR DISEASES

GIANT CELL ARTERITIS

- Ischemic optic neuropathy
- Pale disc edema
- Relative afferent pupillary defect
COLLAGEN VASCULAR DISEASES

GIANT CELL ARTERITIS

• Non-embolic central retinal artery occlusion

• Ocular presentation in 10% of cases
GIANT CELL ARTERITIS

- Cranial motor nerve paralysis
- Presentation in 10% of cases
- Oculomotor (3rd cranial) nerve is most common (pupil sparing)
GIANT CELL (TEMPORAL) ARTERITIS : DIAGNOSIS

- ESR
- CRP
- CBC with diff
- Temporal artery biopsy
IF GIANT CELL (TEMPORAL) ARTERITIS IS SUSPECTED, BEGIN TREATMENT WITH SYSTEMIC CORTICOSTEROIDS
THYROID OPHTHALMOPATHY

- Not always correlated with serum thyroid levels
- Can progress after thyroid function is normal
Thyroid Ophthalmopathy: Classification

- 0: No signs or symptoms
- 1: Only signs
- 2: Soft tissue involvement
- 3: Proptosis
- 4: Extraocular muscle involvement
- 5: Corneal damage
- 6: Sight loss
THYROID OPHTHALMOPATHY

CLASS 1 - (O)NLY SIGNS

- Lid retraction
- Lid lag
- Lid edema
THYROID OPHTHALMOPATHY

CLASS 2 - (S)OFT TISSUE INVOLVEMENT

• Tearing
• Photophobia
• Redness
• Foreign body sensation
THYROID OPHTHALMOPATHY

CLASS 3 - (P)ROPTOSIS

- Most common cause of proptosis
THYROID OPHTHALMOPATHY

CLASS 4 - (E)XTRAOCULAR MUSCLE INVOLVEMENT

- Restricted movements
- Diplopia
- Inferior rectus most commonly involved
THYROID OPHTHALMOPATHY

CLASS 5 - (C)ORNEAL DAMAGE

• Secondary to exposure from proptosis and/or lid retraction
THYROID OPHTHALMOPATHY

CLASS 6 - (S)IGHT LOSS

- Secondary to optic nerve compression
- Edematous (early)
- Atrophic, pale (late)
THYROID OPHTHALMOPATHY

- CT - extraocular muscle enlargement
THYROID OPHTHALMOPATHY: TREATMENT OF CONGESTIVE PHASE

- Tear substitutes
- Corticosteroids
- Orbital irradiation or surgical decompression
THYROID OPHTHALMOPATHY: TREATMENT OF CICATRICIAL PHASE

• Lid surgery
• Muscle surgery
• Orbital surgery
SARCOIDOSIS

• Affects primarily non-whites
• Ocular involvement in significant percentage of patients
SARCOIDOSIS

GRANULOMATOUS UVEITIS

• Most common presentation
SARCOIDOSIS

- Salmon patch nodule
- May be multiple
- Usually in conjunctival fornix
SARCOIDOSIS

- Retinal vasculitis (peri-phlebitis)
- “Candlewax drippings”
- Disc edema, granulomata
MYASTHENIA GRAVIS

- Autoimmune myopathy
- 75% present with ocular manifestations
- Ptosis
- Limited EOM
- Diplopia
- 20% will have eye manifestations only
MYASTHENIA GRAVIS: SYSTEMIC INVOLVEMENT

• Refer for neurologic evaluation
FLOPPY EYELID SYNDROME
RELATION TO SLEEP APNEA

- Individuals with FES are a subset of all OSA patients
- >90% of patients with FES have OSA
- 5-15% of patients with OSA have FES
- OSA tends to be more severe in patients with FES
FLOPPY EYELID SYNDROME

- Obese middle-aged men
- Excessive sleepiness
- Witnessed apneas
- Disruptive snoring
- Regular AM headaches
FLOPPY EYELID SYNDROME
CHARACTERISTICS

- Eyelid hyperlaxity
- Papillary conjunctivitis worse upon awakening rubbing on pillowcase
- SPK/ mucoid discharge
- Suspect in any obese patient with chronic red eye
FLOPPY EYELID SYNDROME
POTENTIAL EYE ASSOCIATIONS

- NAION
- NTG Glaucoma
- Papilledema
- CPAP associated red eye
HIV/AIDS:
OCULAR MANIFESTATIONS

- Dry eye
- Herpes Zoster ophthalmicus
- Retinitis
- Kaposi’s sarcoma of eyelid or conjunctiva
- Optic atrophy
- Disc edema
- Cranial nerve palsy
HIV INFECTION

- Cotton-wool spots - common ocular finding
- No prognostic significance
HIV INFECTION
AIDS

• Herpes Zoster ophthalmicus
HIV INFECTION
AIDS

- Herpes Zoster ophthalmicus
HIV INFECTION

AIDS

- Infectious retinitis
- Usually secondary to cytomegalovirus
- Begins in retinal periphery
DIABETES
DIABETIC RETINOPATHY

- Microangiopathy
- Hemorrhages
- Exudates
- Edema
- Neovascularization - vitreous hemorrhage

Leading cause of new blindness in adults aged 20-40
OCULAR MANIFESTATIONS

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SYSTEMIC DISEASE

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