Vision Loss in Young Adults

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Etiology of Visual Loss

Causes are legion

We will focus on a couple of disease processes that affect young adults

Who qualifies as a young adult?

Naturally, just look in the mirror
Clinical Case #1

A 32 y/o female is fidgeting in the chair. She is worried because she thinks her right eye is going blind. About 10 days ago she noticed the vision in her right eye getting blurry. It got progressively worse for the next 6 or 8 days, and has stayed about the same for the past 3 days. High-beam headlights don’t even bother the right eye. She has mild pain around the eye that worsens when she looks way out to the side. She said the eye nearly went blind when she was in the hot tub yesterday.

PMH: Possible flu about 3-4 weeks ago.
Meds: No legal drugs, “except some eyedrops I found under the seat of my VW bus, that I think my ex-husband used last summer for something.”

Family Hx: Non-contributory

Social Hx: Non-pursued

Allergies: None
Exam:
BCVA  OD=20/80;  OS=20/20
EOM’s intact OU
Pupils round and reactive OU; OD dilates when flashlight swung from OS to OD
SLE is unremarkable OU
IOP is 15 mm Hg OU

What we know so far:

Gender

Age

Symptoms

Findings
Differential Diagnoses

Ischemic Optic Neuropathy

Acute Papilledema

Severe Systemic Hypertension

Orbital Tumor Compressing the Optic Nerve

Intracranial Mass Compressing the Afferent Visual Pathway

Leber Optic Neuropathy

Metabolic Optic Neuropathy
Distinguishing Among Differential Diagnoses

Ischemic Optic Neuropathy

Vision loss is sudden

No pain with ocular motility (in 90% of cases)

Patients tend to be older

Non-Arteritic

Swelling initially hyperemic, later becomes pale

Arteritic

Swelling is diffuse and chalk white
Acute Papilledema

Bilateral disc edema
  No decreased color vision
  No decreased visual acuity
  No pain with ocular motility
  No vitreous cells

Severe Systemic Hypertension

Bilateral disc edema
  Increased blood pressure
  Flame-shaped retinal hemorrhages
  Cotton-wool spots
Orbital Tumor Compressing Optic Nerve

Unilateral

Often has proptosis or motility restriction

Imaging shows mass

Intracranial Mass Compressing Afferent Visual Pathway

Normal or pale disc

Afferent pupillary defect

Decreased color vision

Mass on CT/MRI
Leber Optic Neuropathy

Usually men in 2\textsuperscript{nd} or 3\textsuperscript{rd} decade

May have family history

Rapid visual loss in one followed by other eye in days to months

May have peripapillary telangiectasias

Disc swelling is followed by optic atrophy

Toxic or Metabolic Optic Neuropathy

Progressive, painless, bilateral vision loss

May be 2/2 EtOH, malnutrition, toxins, anemia
Optic Neuritis

Inflammation of the optic nerve

Usually involves inflammation and destruction of myelin sheath

Affects those in 18-45 y/o age range, especially 30-35 age range

Females affected much more often than males

Symptoms:

  Blurry vision that evolves over days, peaks at around 1 week

  Loss of brightness sensitivity and color saturation

  Pain with eye movement
Focal neuro symptoms: numbness, weakness, tingling

Worsening of symptoms with exercise or increased body temp (Uhthoff’s sign)

Exam Findings:

Decreased visual acuity, mild to profound

RAPD

Decreased color vision

Visual field defect

Swollen disc in 1/3 of patients (anterior optic neuritis)

Normal disc in 2/3 of patients (retrobulbar optic neuritis)
MRI Findings
Etiologies

Idiopathic

Multiple Sclerosis

Granulomatous Inflammations

Viral Infections

Contiguous Inflammation of Meninges, Orbit, or Sinuses
Workup

First Episode or Atypical Case

MRI of brain and orbits with gadolinium and fat suppression

Complete Ocular and Neurologic Evaluation
  Including pupillary, color vision, vitreous cell, retinal, and optic nerve evaluations

Check Blood Pressure

Automated Visual Field Test

For Atypical cases: CBC, RPR, FTA-ABS, ESR, CRP
Treatment

For Pts seen acutely, no prior hx MS/optic neuritis:

If at least 1 demyelinating area on MRI, offer pulsed IV followed by oral steroids. Don’t forget anti-ulcer medication.

If MRI shows 2 or more demyelinating areas, use steroids as above, and refer to neurologist for possible interferon therapy.

If MRI negative, MS risk is low. Usually no tx unless other eye has previous damage.

For Pts w/ Previous hx of MS/ optic neuritis: Observation
Clinical Course and Follow-Up

Recovery to 20/40 or better occurs in 91%

Many “recovered” patients have residual visual abnormalities

Patients at high risk for MS should be referred to a neurologist for possible interferon therapy

Re-evaluate at 1 month, then q 3-6 months
Clinical Case #2

A 35 y/o Caucasian man is fidgeting in the chair. He c/o blurry and slightly dim vision in the right eye. Left eye seems normal. Blur has worsened over the past several days. Vision feels “out of balance.” Symptoms were not relieved with Visine. He was seen in the Urgent Care Clinic and was prescribed gentamicin. Vision was not helped. He reports increased redness OD since starting the gentamicin.
Medical History:
- Severe allergies; uses steroid nasal spray
- Peptic ulcer disease; on ranitidine

Social History:
Job: Air-traffic controller
Personality: “I was a hyperactive kid, and I still can’t sit still – I always have to be doing something. My wife says I’m driven, but what does she know?”
Tobacco: Smokes 2 packs of cigarettes daily
EtOH: 3 beers weekly
Family History: Noncontributory
Surgical History: Noncontributory
Review of Systems: Unremarkable

Ocular Exam:

VA: OD=20/40; OS=20/20

IOP: OD=16; OS=17

Pupils: ERRL; Questionable RAPD OD

EOM: Intact OU, Ortho D&N

VF: 4 quadrants intact to confrontation OU

SLE: Anterior segment WNL OU

Amsler grid: Normal OS; Squares “look smaller and warped” OD

Fundus exam:
Clinical Case #2

Pertinent Diagnostic Features:

- Age
- Gender
- Medical Hx
- Social Hx
- Symptoms
- Clinical Findings
Age-related macular degeneration (ARMD)

Patients usually older

Drusen

RPE atrophy/hypertrophy

CNVM will likely have blood and lipid deposits

Often bilateral
Optic Pit

Optic disc has a small defect, a pit, in the nerve tissue. May have a serous RD contiguous with disc.

Macular Detachment from RRD

Retinal hole present

RPE Detachment

PED has very distinct margins

RPE is elevated
Central Serous Chorioretinopathy

An idiopathic condition characterized by a well-circumscribed, serous detachment of the sensory retina resulting from deficient RPE barrier and pumping functions, though the primary pathology may involve the choriocapillaris.

Usually affects healthy men in the 25-50 y/o age range.

Usually asymptomatic unless in central macula.

Mostly in Caucasians, Asians, Hispanics; rare in African-Americans.

Sudden onset of dimmed, blurred vision; micropsia; metamorphopsia; paracentral scotoma; decreased color vision.
Vision can drop to 20/200, usually better than 20/30

Associated conditions: Type A personality, steroid med use

Characteristic FA patterns:

- Expansile Dot pattern is most common

- Smokestack pattern starts with central spot that spreads vertically and laterally; occurs in 10% of cases

- Diffuse pattern
Workup

Amsler grid to delineate involved area

SLE of macula with Hruby to r/o CNV or optic pit

Dilated fundus exam with indirect ophthalmoscope to check for Choroidal tumor or RRD

Fluorescein Angiogram if:

  Diagnosis not certain

  Atypical historical and clinical picture

  Suspected CNV or if laser treatment is under consideration
Treatment

Stop all steroids, if possible

Observation
- High spontaneous recovery rate
- Poor outcome in 5%

Laser
- Get same outcome faster
- Risk of complication
- Use in selected cases