# Ophthalmic Pitfalls
## for the Primary Care Physician

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KANSAS HEALTH SCIENCE CENTER

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**Kansas Association of Osteopathic Medicine | Friday, November 12, 2021**


Garden City
Mostly cloudy
8am 26° Noon 34° 5pm 40°
6:24 34°
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# “We are all but one case away from humility”

Edward W.D. Norton, MD
Bascom Palmer Eye Institute

# CASE PRESENTATION #1

65 year-old female presents to her optometrist with four-day history of headache and two-day history of a droopy left eyelid

PMH: Hypothyroid

POH: Amblyopic left eye, count fingers vision

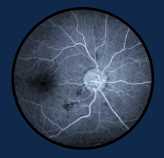
MEDS: Synthroid

**Vision:** 20/20 right, count fingers left

**Left Lid:** with significant ptosis

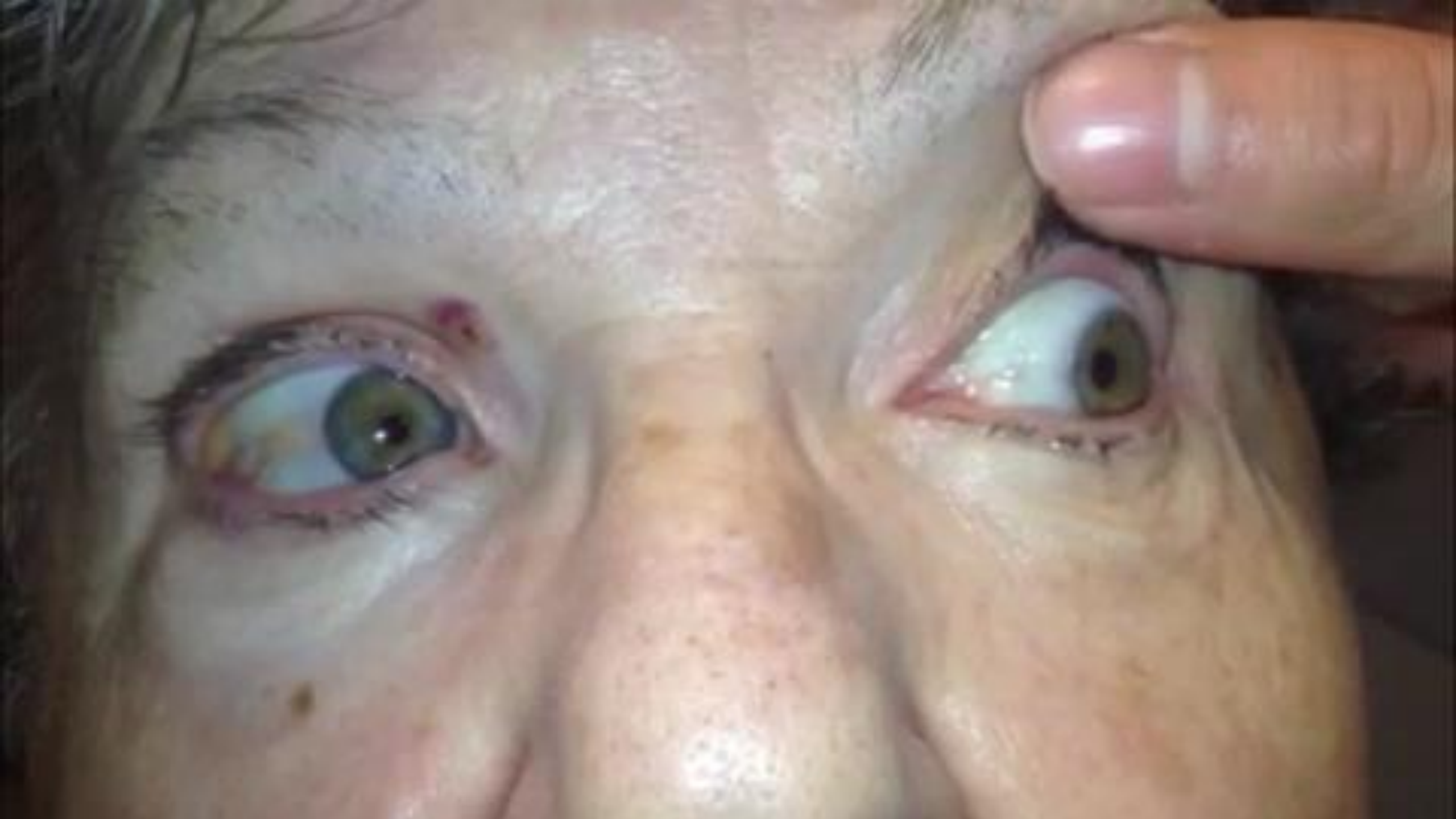
**Pupils:** Left pupil is widely dilated and nonreactive, no APD

**Motility:** Left eye is down and out. No movement up, down, or in



**Fundus:** Discs sharp, normal retina OU

Headache, Droopy Eyelid, Dilated Pupil, Motility Disturbance



# DIAGNOSIS/TESTING

## Diagnosis?

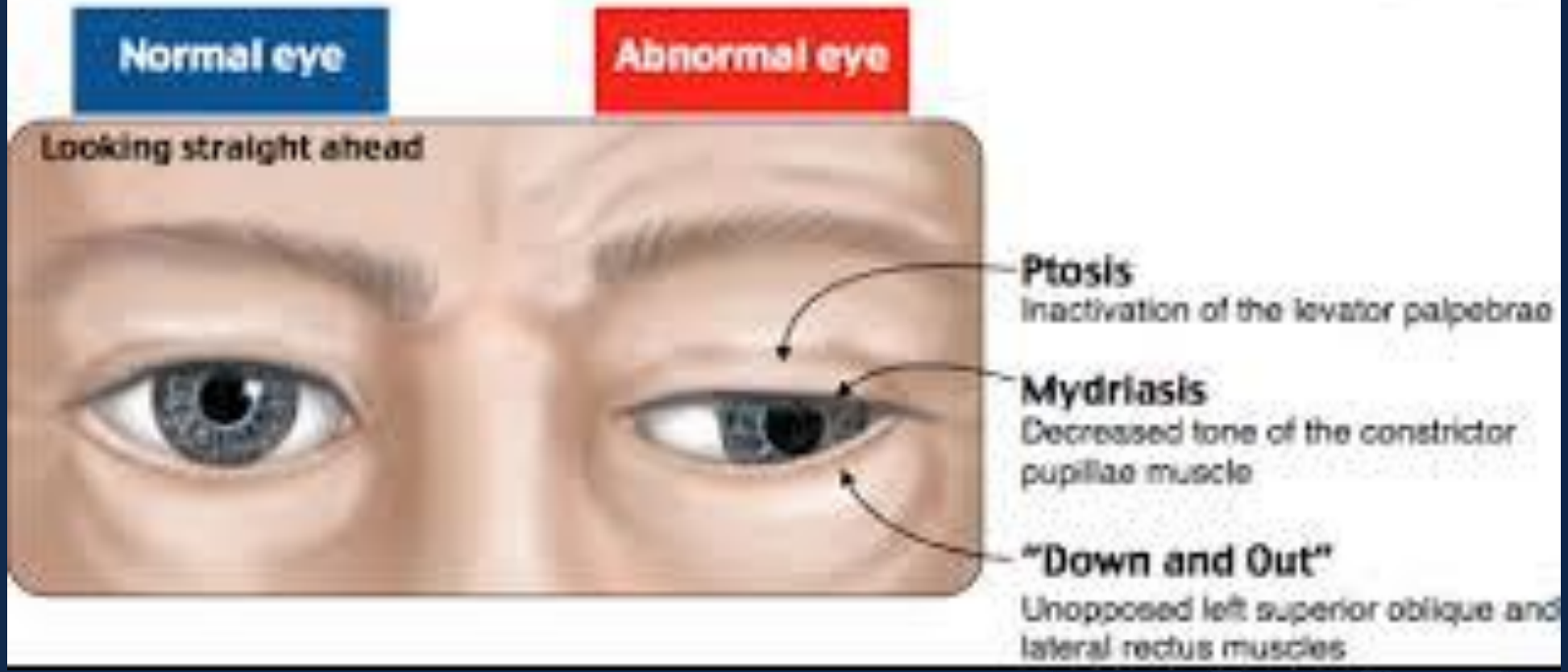
**Possible Left 3rd Nerve Palsy**

## What testing do you order?

**Testing: MRI / MRA**

**Blood glucose/chemistries/ESR/CRP**

# Oculomotor Nerve (CNIII) Palsy



# Results of Workup

**Results:** Blood sugar normal.  Chemistries/ESR/CRP normal

**MRI/MRA:** All normal

**Family Physician & Optometrist:** send patient home

# [a]Few Days Later

## No further diagnostic W/U or treatment undertaken

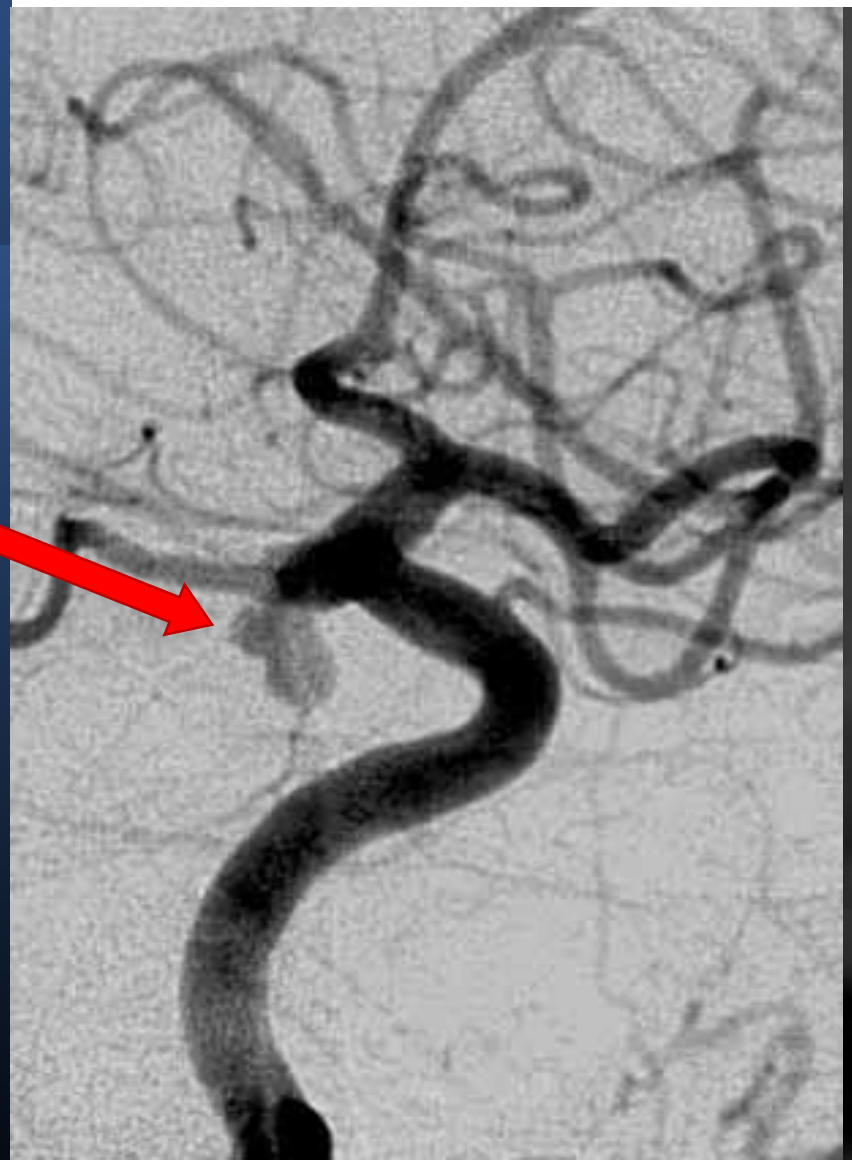
## Stat Evaluation

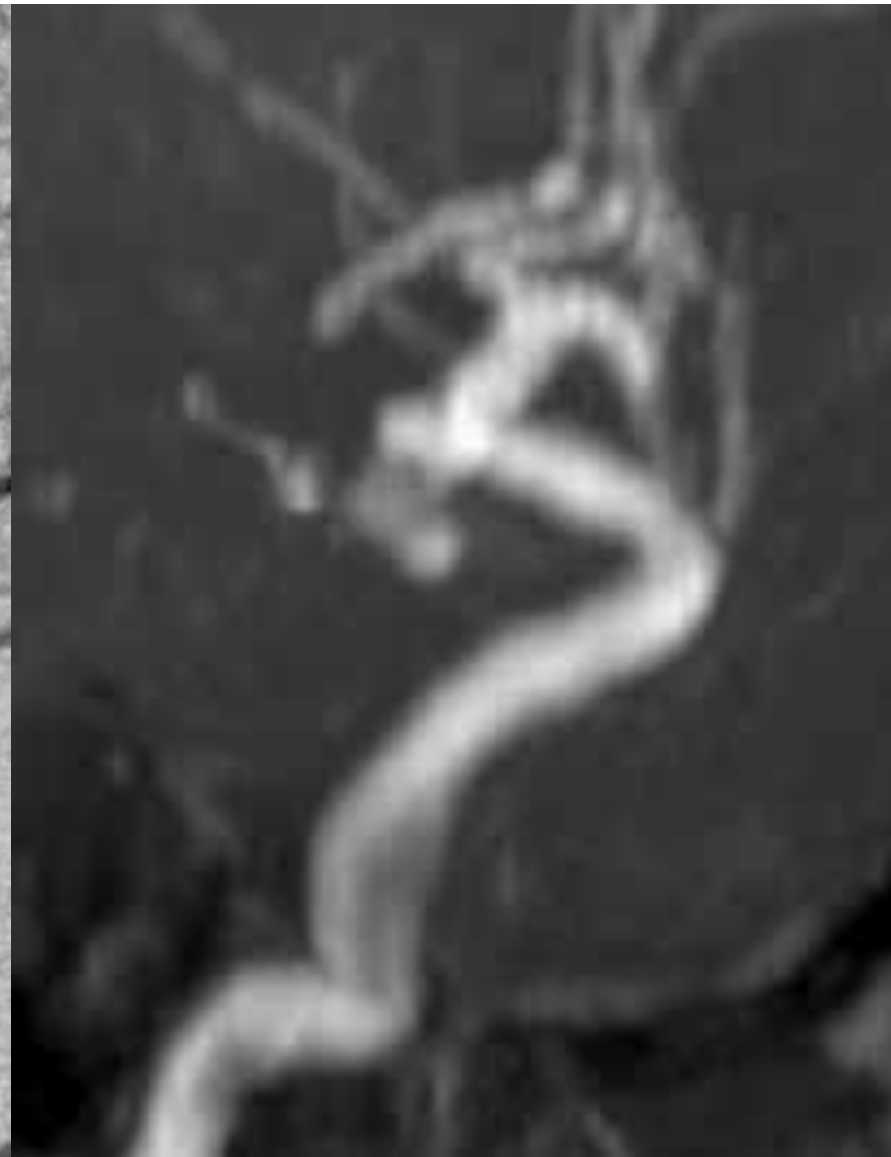
# A Definitive Diagnostic Procedure Was Performed

# Stat Cerebral Angiography

# Cerebral Angiogram

PCOM Aneurysm





# Cerebral Angiogram

Fusiform Aneurysm at junction of left posterior communicating artery and the internal carotid artery

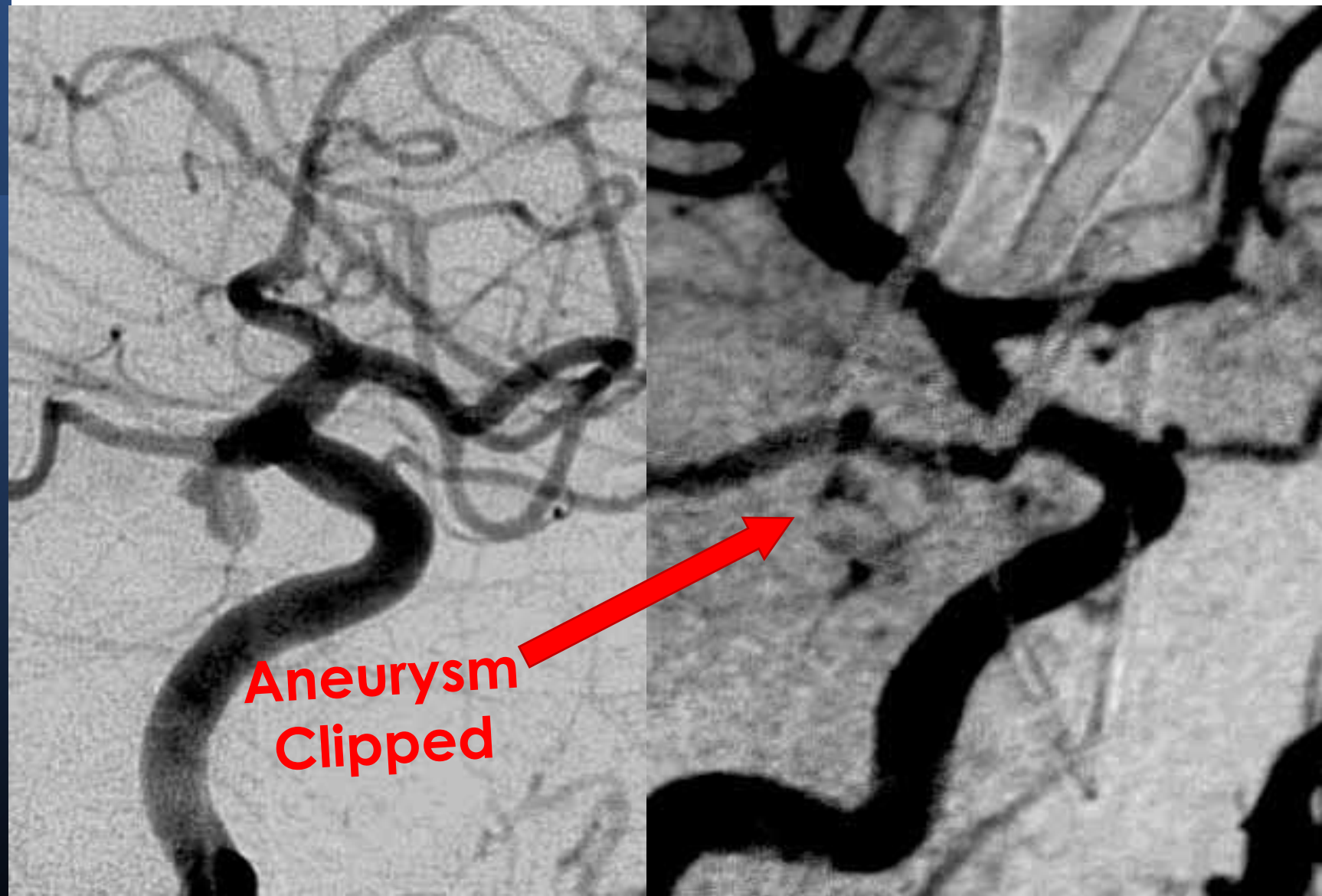
Stat Neurosurgical intervention

Aneurysm is leaking, ready to burst

Successful clipping of aneurysm

# Pre and Post Surgery

# Cerebral Angiogram



# Take Home Messages

- **3rd nerve palsy-Pupil involving**: PCOM/ PICA Aneurysm (until proven otherwise)
  - Diabetic infarct (pupil sparing)
  - Small vessel disease with infarct of the nerve (non-arteritic vs arteritic)
- **What is the responsibility and liability** for a specialist who provides phone consultation
- **Must pursue one's clinical suspicion** in spite of "negative" test results.
- **COMMUNICATE WITH RADIOLOGIST**
- **When in doubt – REFER**

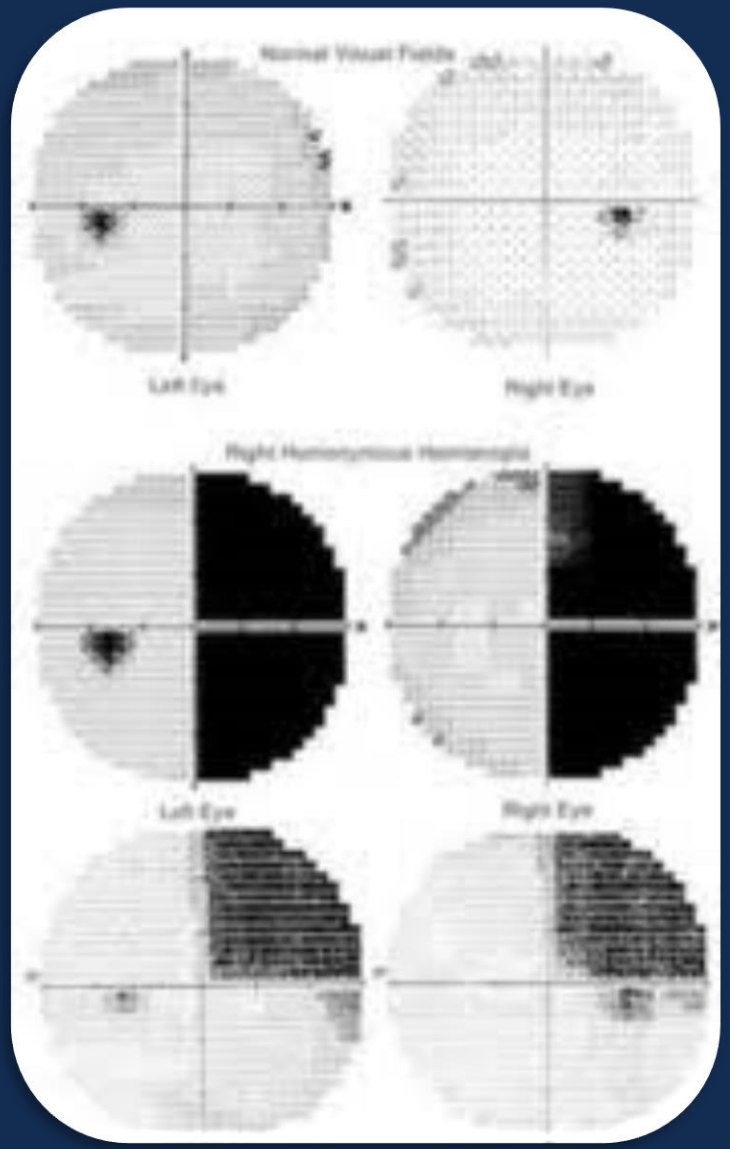
# CASE PRESENTATION #2

73-year-old female presents to her primary care physician with 24-hour history of visual loss in right eye. Left eye is unaffected

Admitted to the hospital for possible CVA

Neurologist consulted

MRI and carotid doppler ordered by consultant




# STOP!
# What's Wrong Here?

CVA's always cause bilateral visual loss

Homonymous hemianopic defects

NEVER unilateral visual loss

# MEDICAL HISTORY

**PMH:** Hypertension, single seizure several years ago

**Meds:** Dilantin, hypertensive meds

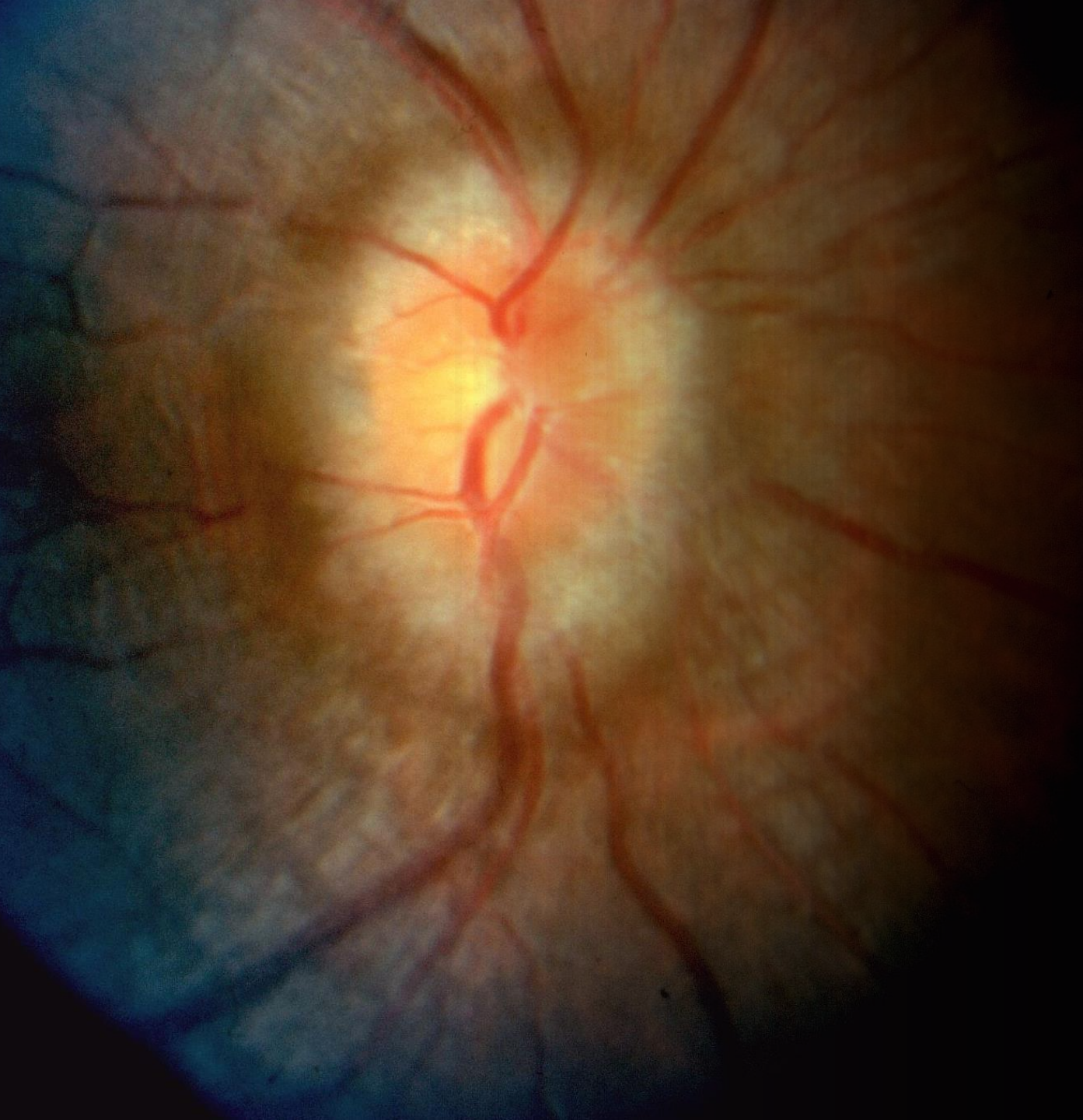
**ROS:** Headache for four weeks

# Ophthalmic Exam

**Vision:** NLP OD, 20/40 OS

**Right afferent pupillary defect:** Marcus-Gunn pupil

**Fundus:**



# Swollen Optic Nerve Head

# Review of Symptoms

**Headache** over temples

**Tenderness** over parotid gland, **pain** with chewing

25 lb **weight loss**, loss of appetite

Extreme **fatigue**

# Differential Diagnosis

**Ischemic optic neuropathy**

- **Arteritic**
- **Non-arteritic**

**Compressive optic nerve lesion**

**Collagen vascular disorder with vasculitis**

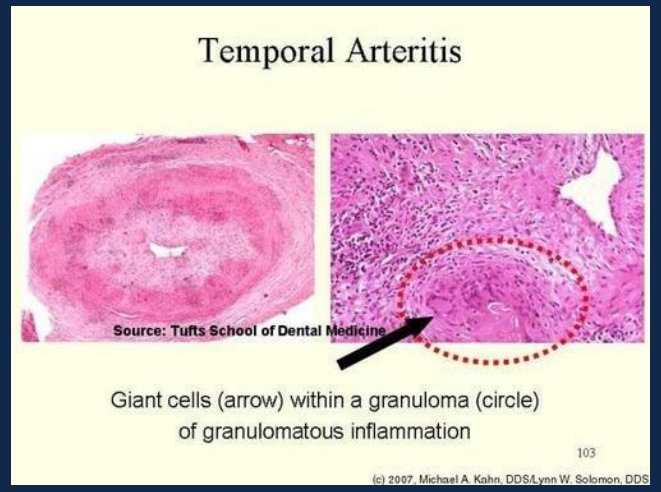
# Work-Up/ Treatment

**Sedimentation Rate, CRP**

**Immediate IV Solumedrol 250 q 6**

**Temporal artery biopsy**

- **Within 5 days of steroid treatment**
- **Bilateral biopsies if suspicion is high**




# Clinical Course

**Vision loss** begins in left eye with optic nerve edema

**Solumedrol stabilizes vision**: NLP OD, 20/40 OS

Temporal artery **biopsy is POSITIVE**

**ESR is 105**

Placed on **oral Prednisone** 60mg

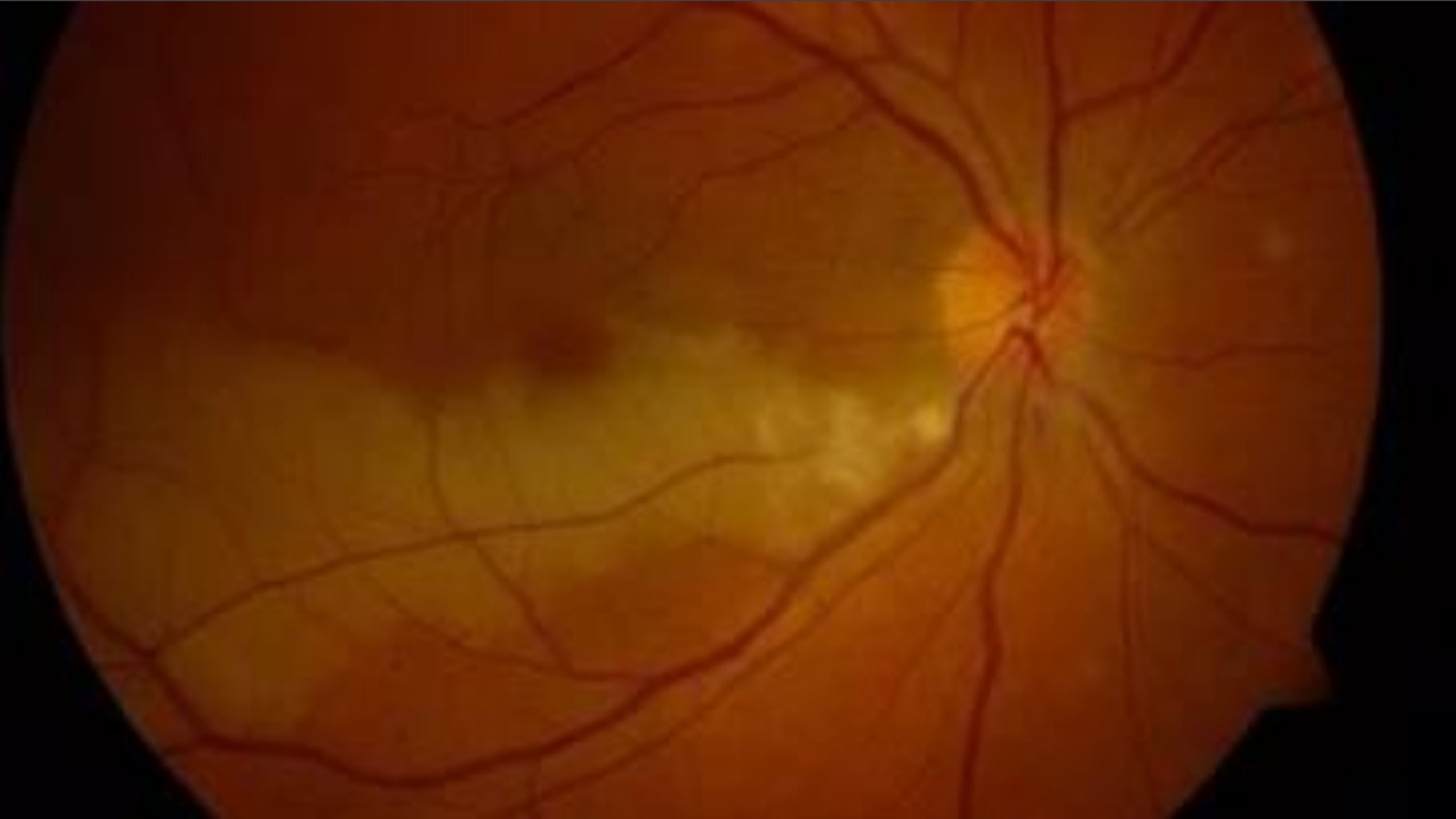
**Discharged**

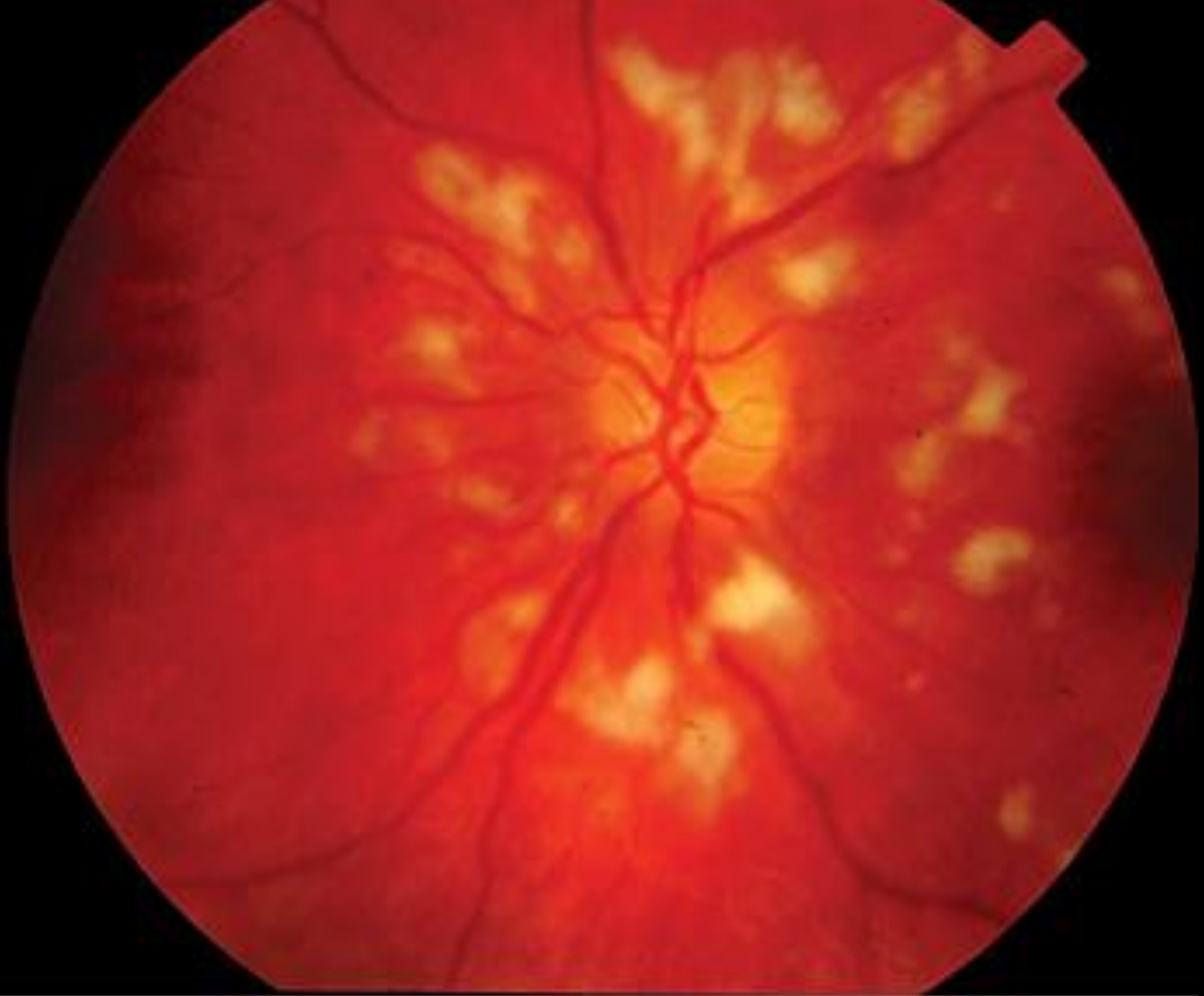
# Temporal (Giant Cell) Arteritis: Presenting Symptoms

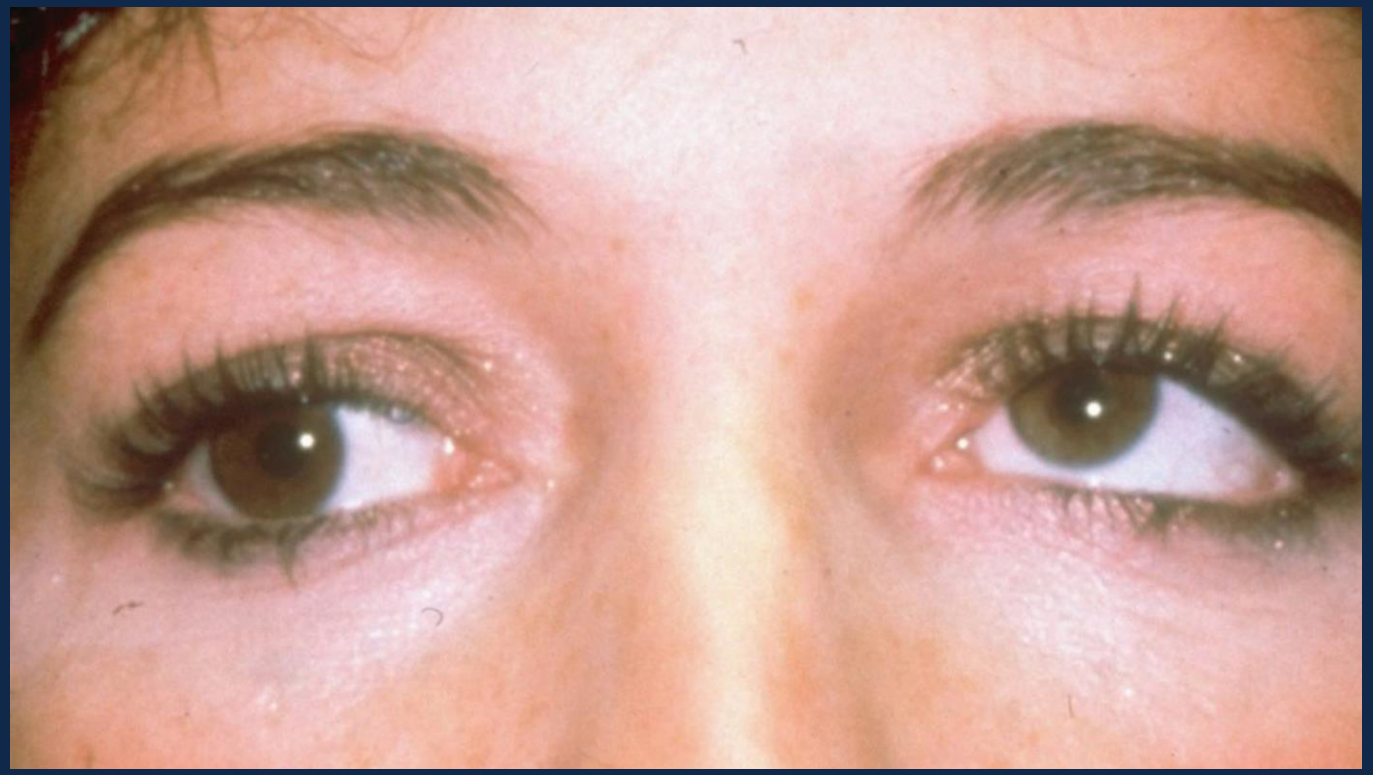
- **Polymyalgia Rheumatica.**
  Shoulder pain / stiffness, depression, weight loss, bilateral tenderness in upper arms, ESR>40mm/h, age>65yrs
- **Headache**, usually over temporal fossa
- **Scalp tenderness**
- **Jaw claudication**
- **Temporal artery** swelling and tenderness
- **Vision loss**

# Temporal Arteritis: Ophthalmic Manifestations

- Ischemic optic neuropathy, frequently bilateral blindness without treatment
- Central or branch retinal artery occlusions
- Cranial neuropathies including oculomotor palsies with double vision
- Cotton-wool spots from retinal ischemia







# Oculomotor Palsy

# Temporal Arteritis!

- **Elevated ESR** (Normal ESR is unusual but not rare)
- **Elevated CRP** (>2.45 mg/dL)
- **Temporal Artery Biopsy** (> 2cm, skip areas)
  - If high index of suspicion → **Bilateral biopsies**
  - Intense inflammation of artery, **giant cells**

# Temporal Arteritis: Treatment

If vision loss, **megadose** (1000 mg/d or more **methylprednisolone IV**)

If no vision loss, **high-dose oral prednisone** (1.5-2.0 mg/kg/d) is started immediately

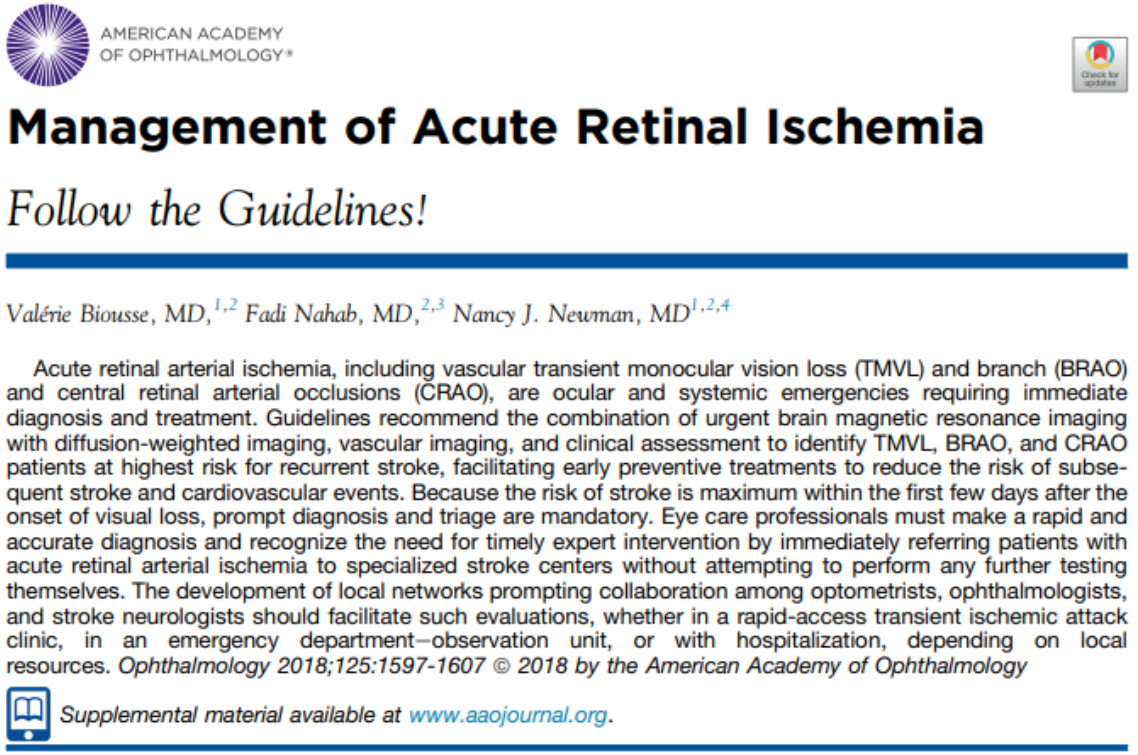
**Slow taper** to 40 mg/d over 6 weeks

**Gradual taper** over 6 to 12 months

Follow **clinical symptoms** and ESR

# Acute Retinal Ischemia: A Medical Emergency

- **Acute Retinal Ischemia**
  - **Transient monocular vision (TMVL)**
  - **BRAO, CRAO**
- **Immediate Diagnosis and Treatment**
  - **MRI, vascular imaging**
- **Referral to stroke centers, ERs**
- **Risk of stroke greatest in first few days after TMVL**



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## Management of Acute Retinal Ischemia

*Follow the Guidelines!*

*Valérie Biousse, MD,*[1,2] *Fadi Nahab, MD,*[2,3] *Nancy J. Newman, MD*[1,2,4]

Acute retinal arterial ischemia, including vascular transient monocular vision loss (TMVL) and branch (BRAO) and central retinal arterial occlusions (CRAO), are ocular and systemic emergencies requiring immediate diagnosis and treatment. Guidelines recommend the combination of urgent brain magnetic resonance imaging with diffusion-weighted imaging, vascular imaging, and clinical assessment to identify TMVL, BRAO, and CRAO patients at highest risk for recurrent stroke, facilitating early preventive treatments to reduce the risk of subsequent stroke and cardiovascular events. Because the risk of stroke is maximum within the first few days after the onset of visual loss, prompt diagnosis and triage are mandatory. Eye care professionals must make a rapid and accurate diagnosis and recognize the need for timely expert intervention by immediately referring patients with acute retinal arterial ischemia to specialized stroke centers without attempting to perform any further testing themselves. The development of local networks prompting collaboration among optometrists, ophthalmologists, and stroke neurologists should facilitate such evaluations, whether in a rapid-access transient ischemic attack clinic, in an emergency department–observation unit, or with hospitalization, depending on local resources. *Ophthalmology 2018;125:1597-1607* 

*Supplemental material available at www.aaojournal.org.*

# CASE PRESENTATION #3

27-year-old female, contact lens wearer

On honeymoon in Hawaii

Develops pain in eye when removing CL's

Seeks attention at Royal Hawaiian Emergency Room

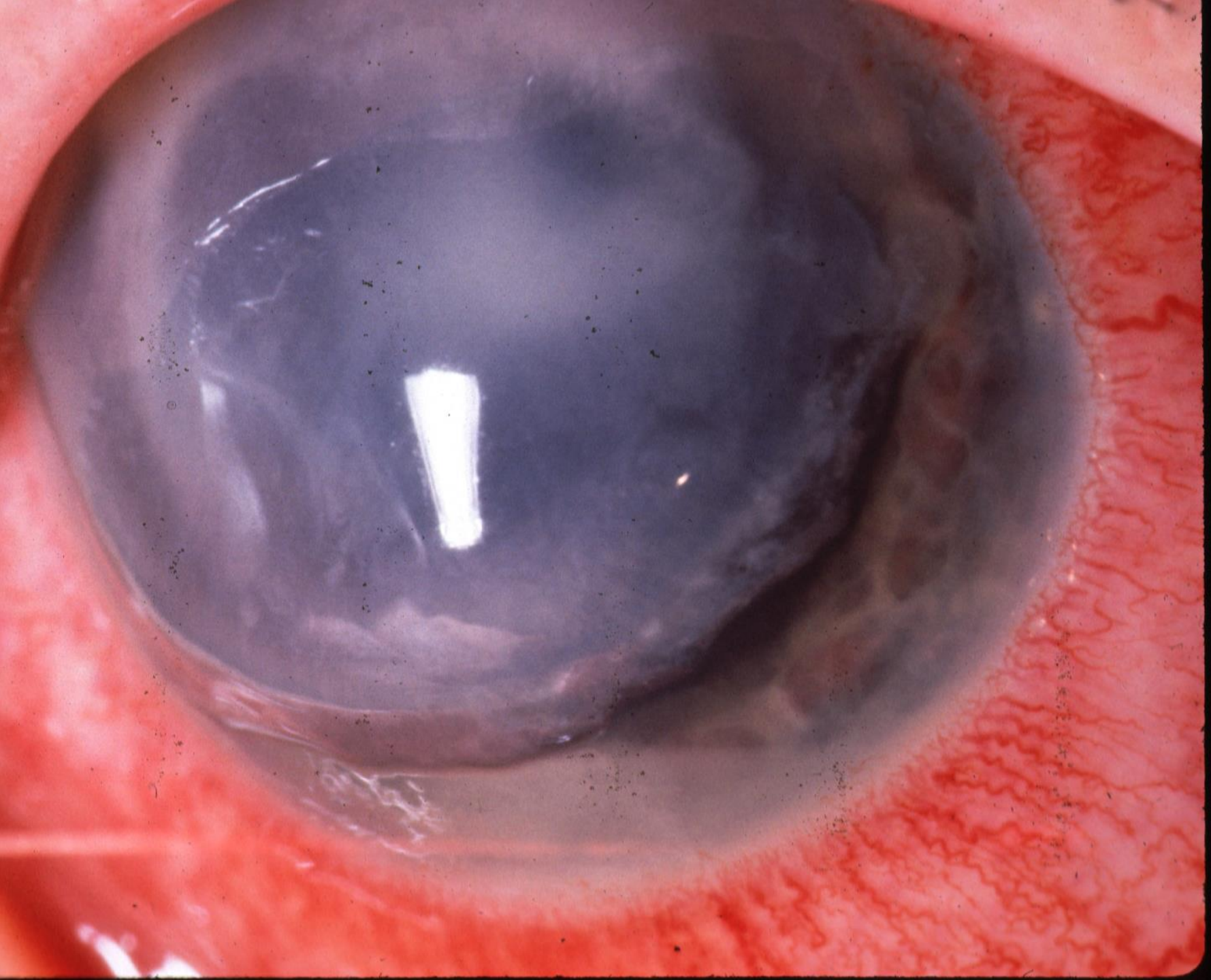
Abrasion diagnosed and pressure patch applied


# STOP!
# What's Wrong Here?

Contact lenses are frequently colonized with Pseudomonas

Patching creates perfect culture medium

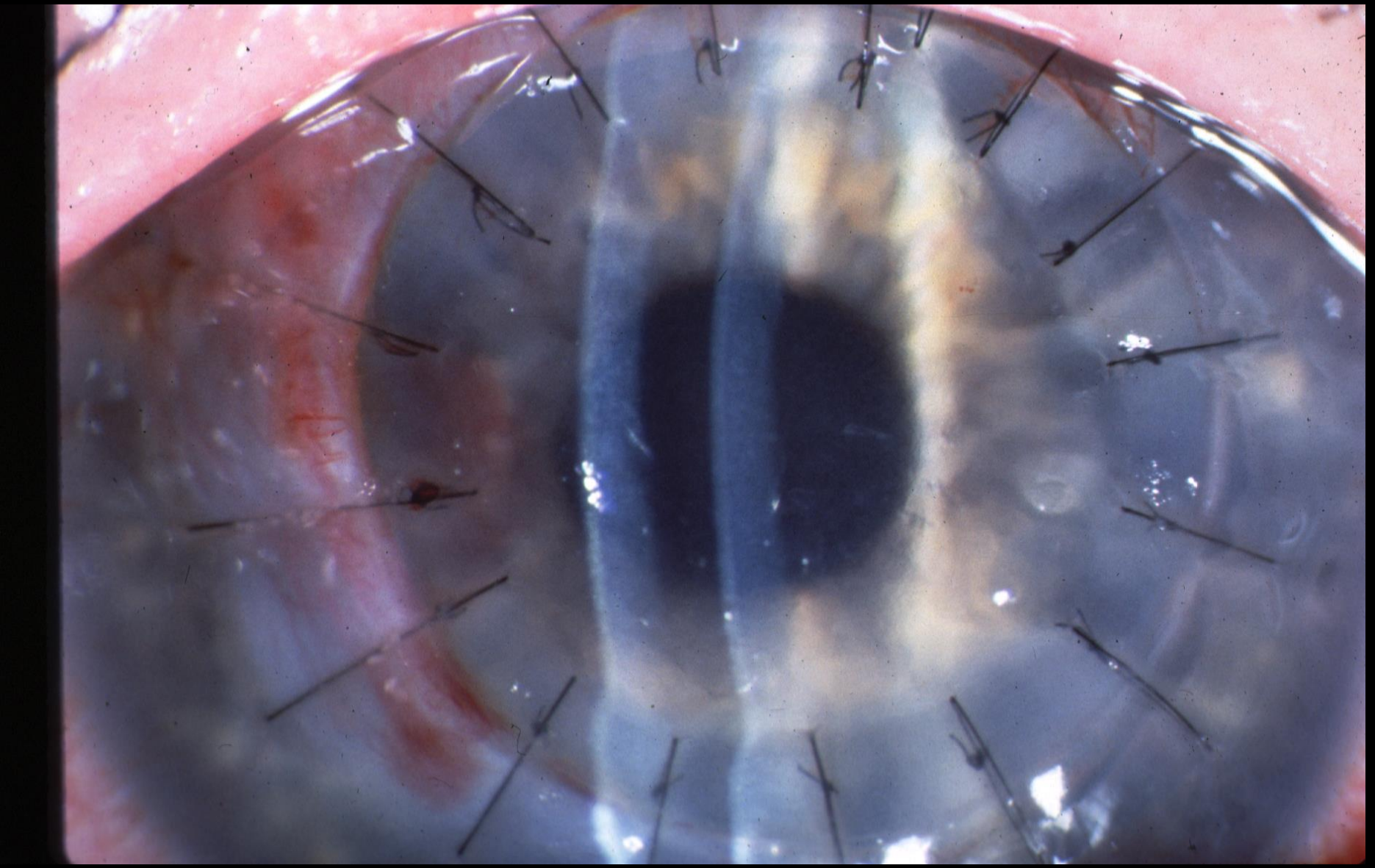
NEVER patch contact lens related abrasions



# Pseudomonas Ulcer

# Treatment

- Hospitalization required
- Intensive topical antibiotic therapy
- Fluoroquinolones (Ciloxan) and fortified antibiotics (Topical Vancomycin) q1 hour
- After weeks of therapy, significant scar results with loss of all useful vision
- Corneal transplant required



# Contact-Lens Disaster

# When to patch an abrasion

**NEVER** patch a CL-related abrasion

- Pseudomonas risk, Medicolegal risk

**Small abrasions** (<3mm) - Don't patch

- Use Antibiotic ointment 4x/day (Erythro, Polysporin, Ciloxan)
- NSAID's (Topical Voltaren or Acular)
- AVOID Topical Anesthetics

**Large abrasions** (>3mm) – Can consider patching

# CASE PRESENTATION #4

55-year-old woman presents with 24-hour history of sinus headache, nausea, vomiting, dehydration, blurred vision in right eye

Recently took antihistamine for sinus congestion

Admitted for IV hydration, IV antibiotic for possible sinus infection

# EXAMINATION FINDINGS

**Exam:** Pt is in obvious discomfort, extremely nauseated, vomiting

**Afebrile**

Otherwise, **normal** systemic exam

After 24 hours in hospital, not **improving-headache worse, vision deteriorating OD**

**Ophthalmology** consulted

# OPHTHALMIC EXAM

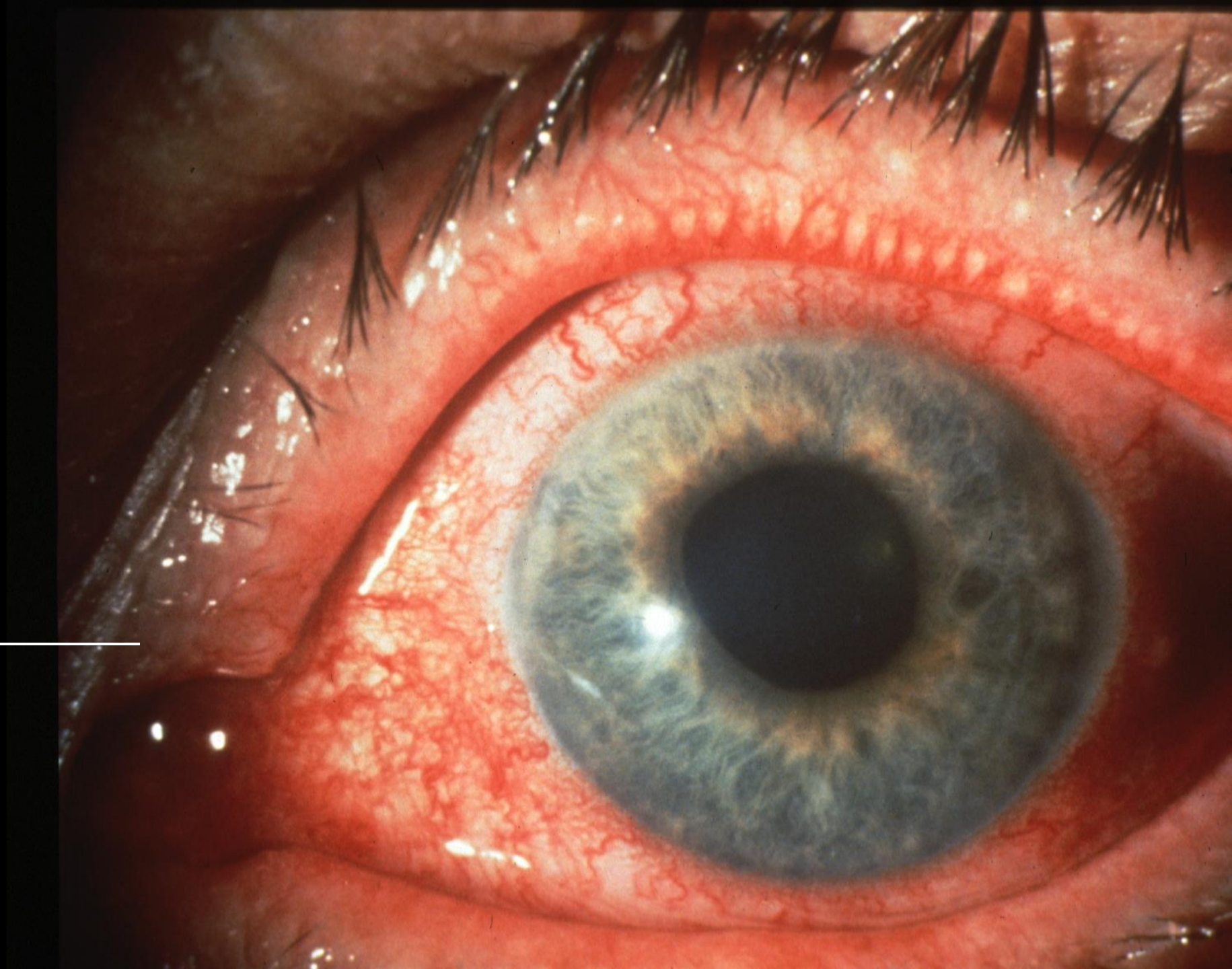
**Vision:** Count fingers only OD, 20/20 OS

**Pupil is larger** OD, nonresponsive

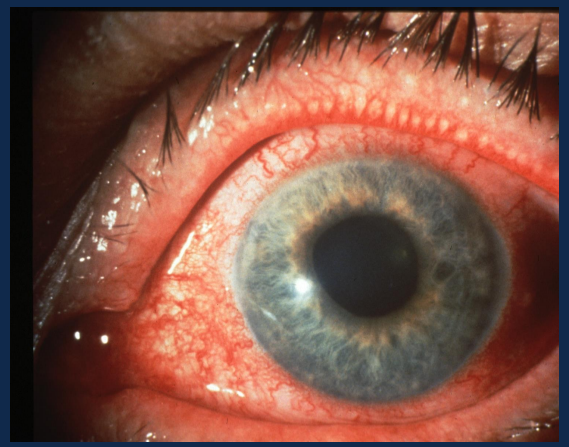
**Hazy** light reflex OD

**“Steamy”** cornea OD

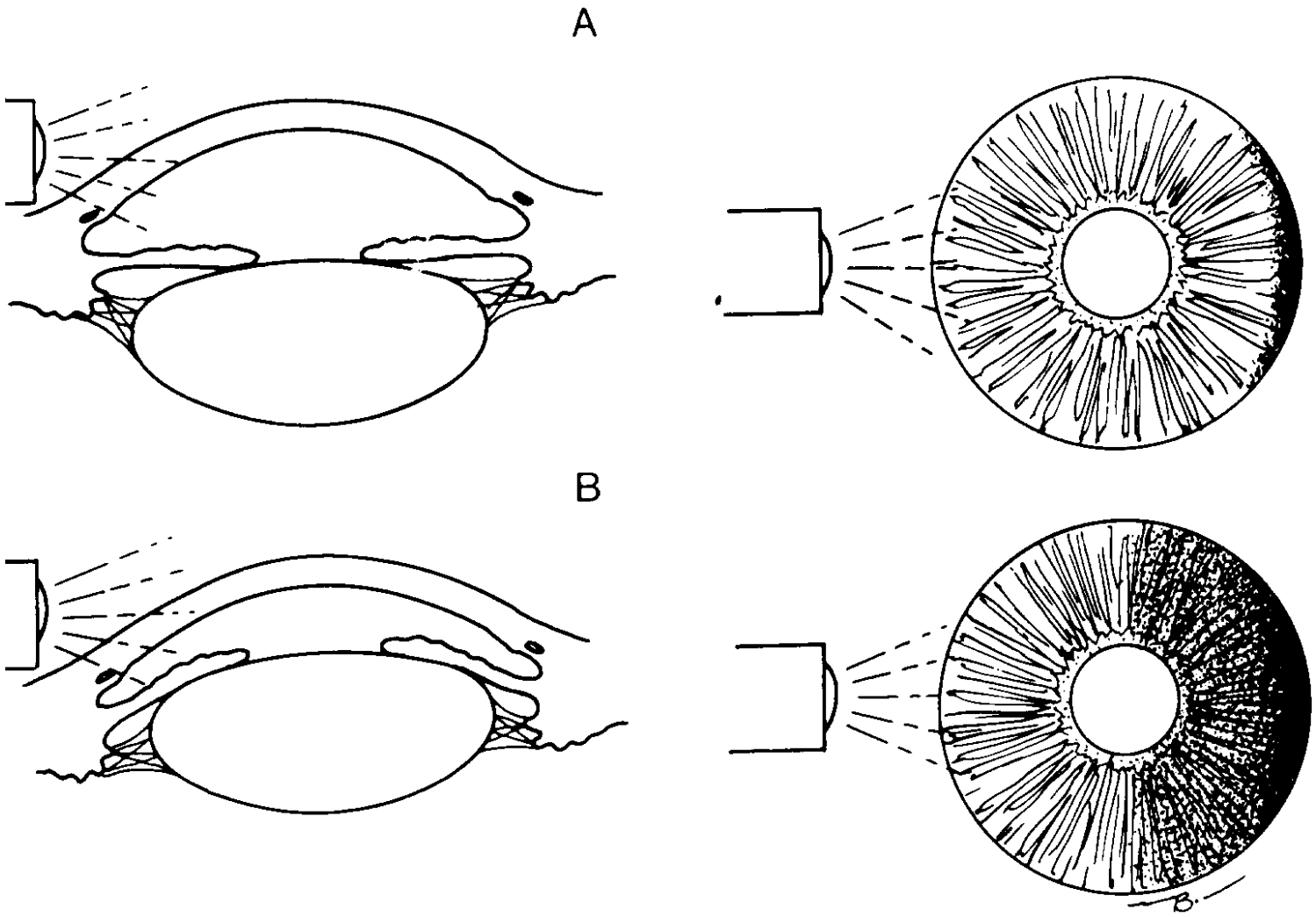
# Diagnosis?



# Diagnosis: Angle Closure Glaucoma



- Markedly elevated intraocular pressure.
- Mid-dilated, fixed pupil.
- Hazy cornea, inflamed eye.
- Headache, eye pain.
- Nausea, vomiting – systemic symptoms may predominate.
- Recent anticholinergic medications, (Antihistamines, antipsychotics).


A
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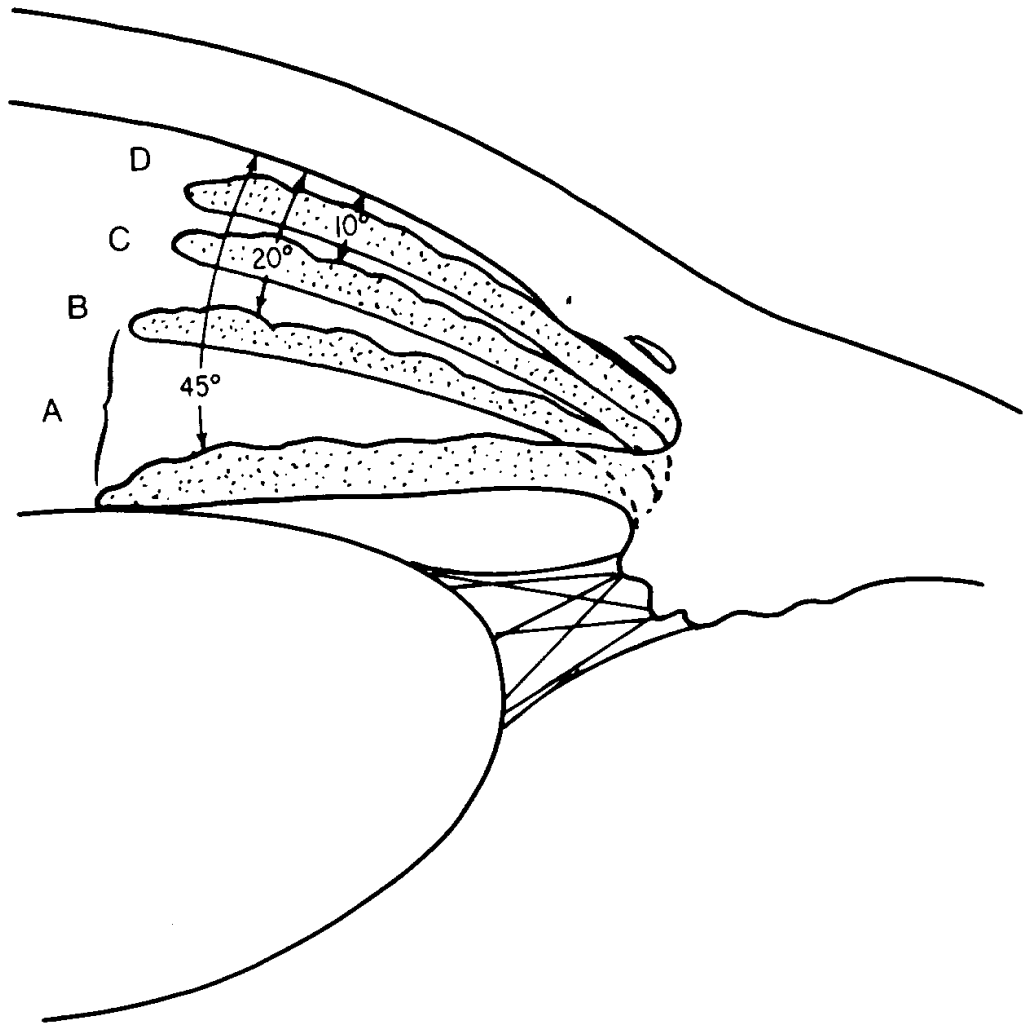
# Angle Closure Glaucoma: Treatment

- **Medical Emergency**
- **Break attack** medically
  - Pilocarpine, B-blockers, CAI's, hyperosmotics
- **Surgical treatment** is definitive
  - Laser Peripheral Iridotomy
  - Treat fellow eye prophylactically
- **Avoid meds** that are "**contraindicated** in glaucoma"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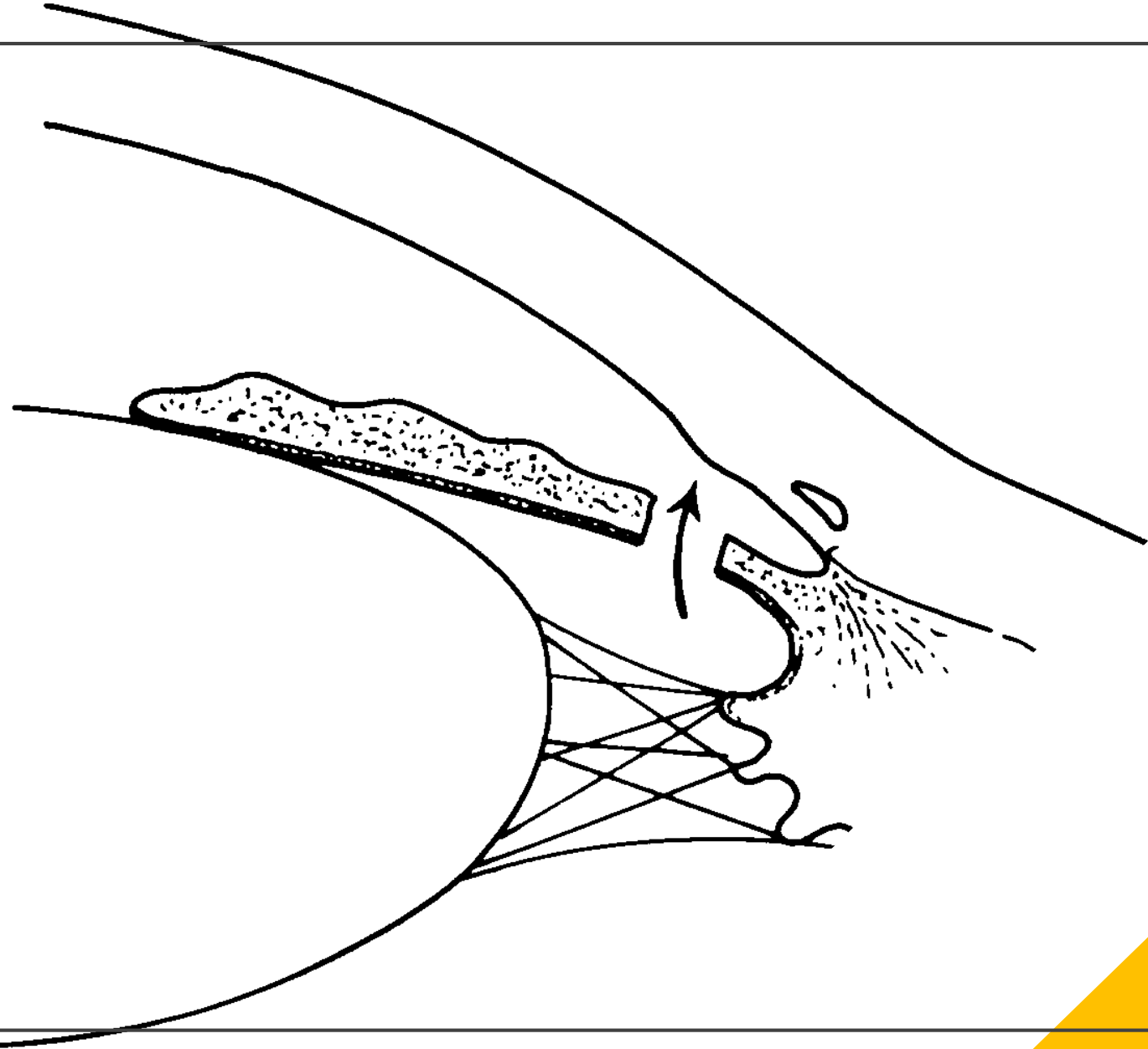


# CASE PRESENTATION #5

34 year old male mechanic felt something hit OD while pounding metal at work

Seen in ER – no fluorescein staining, no FB

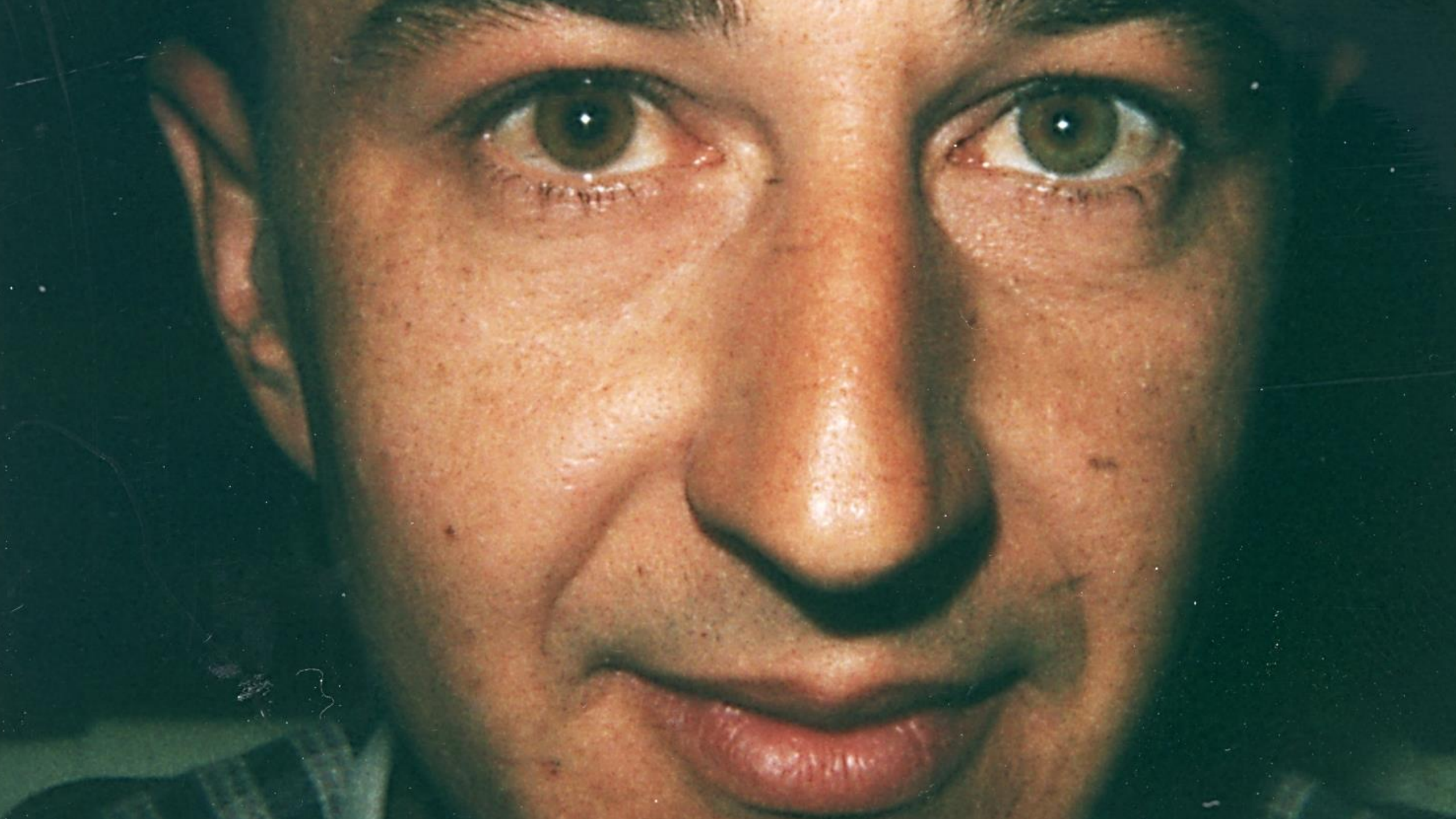
1 month later, went to family physician with spot on eye, one pupil larger than other

Told spot was "birthmark"

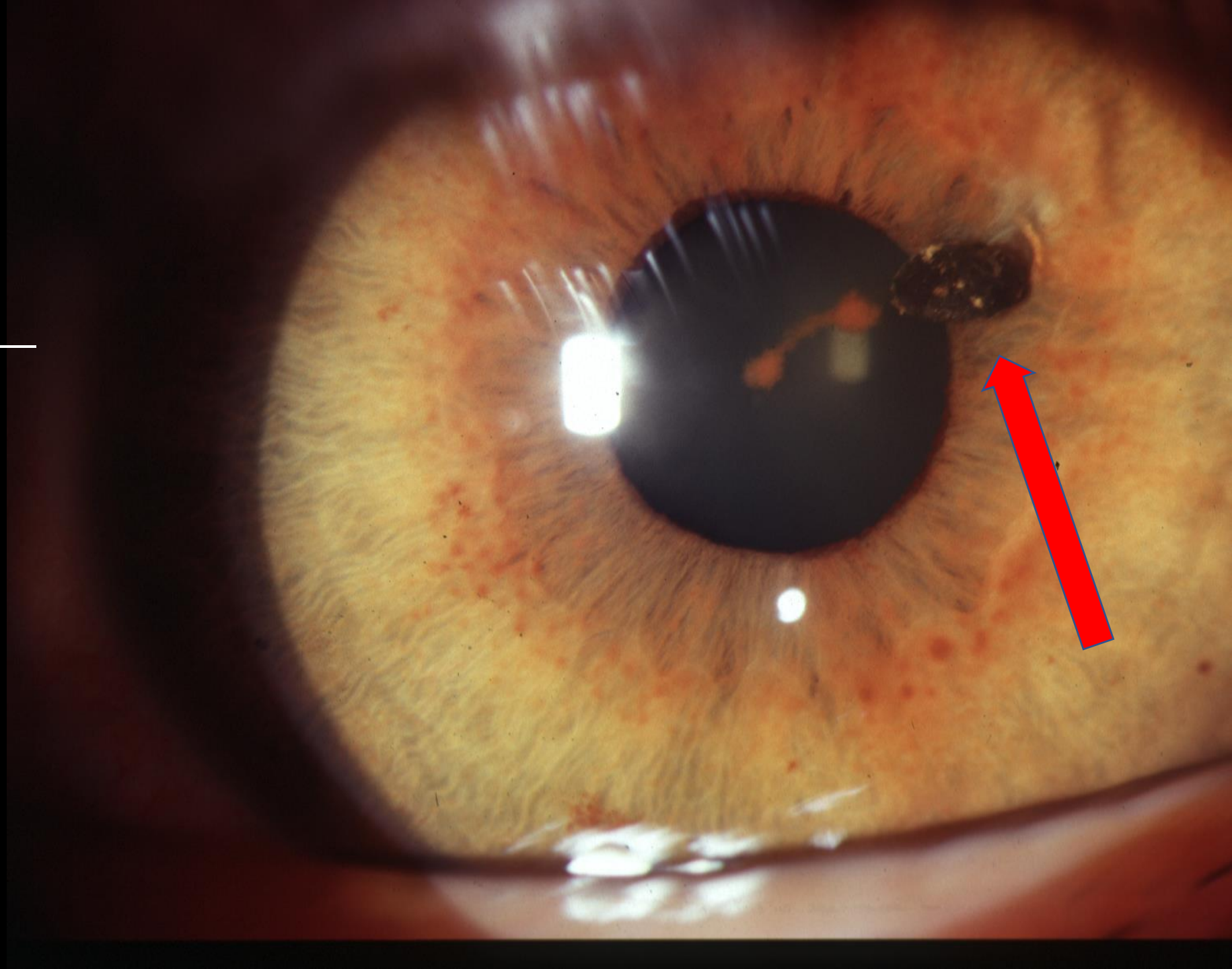
Sent to neurologist for pupil disparity.*CT of head done – Normal

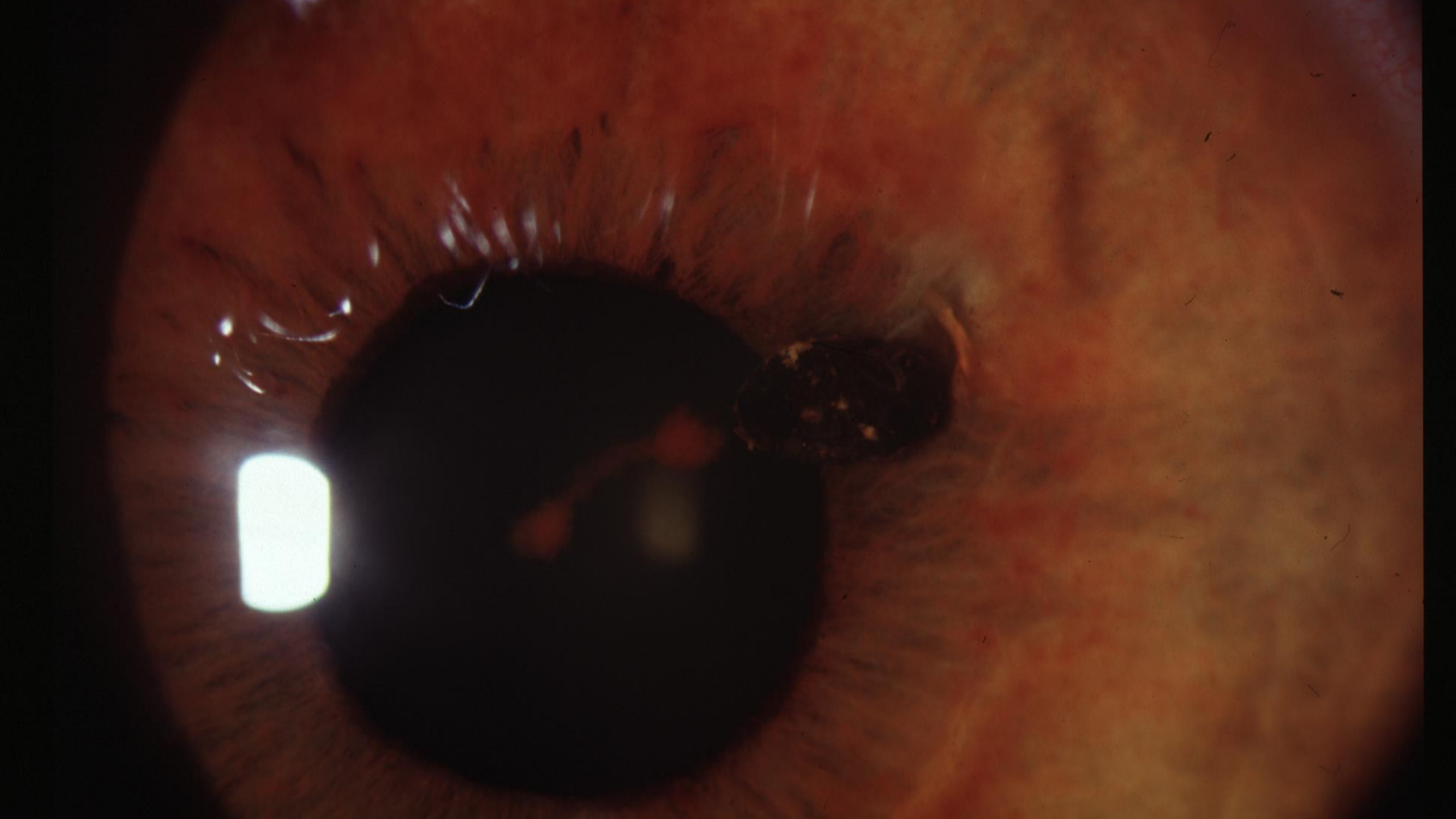
# CASE PRESENTATION

- 1 year later, went to optometrist as color of right eye was changing
- Exam: 20/25 OD, 20/20 OS
- Right eye color is darker than left
- Pupil is 1.5mm larger on right side
- Immediately referred



# Rusting metallic Foreign Body

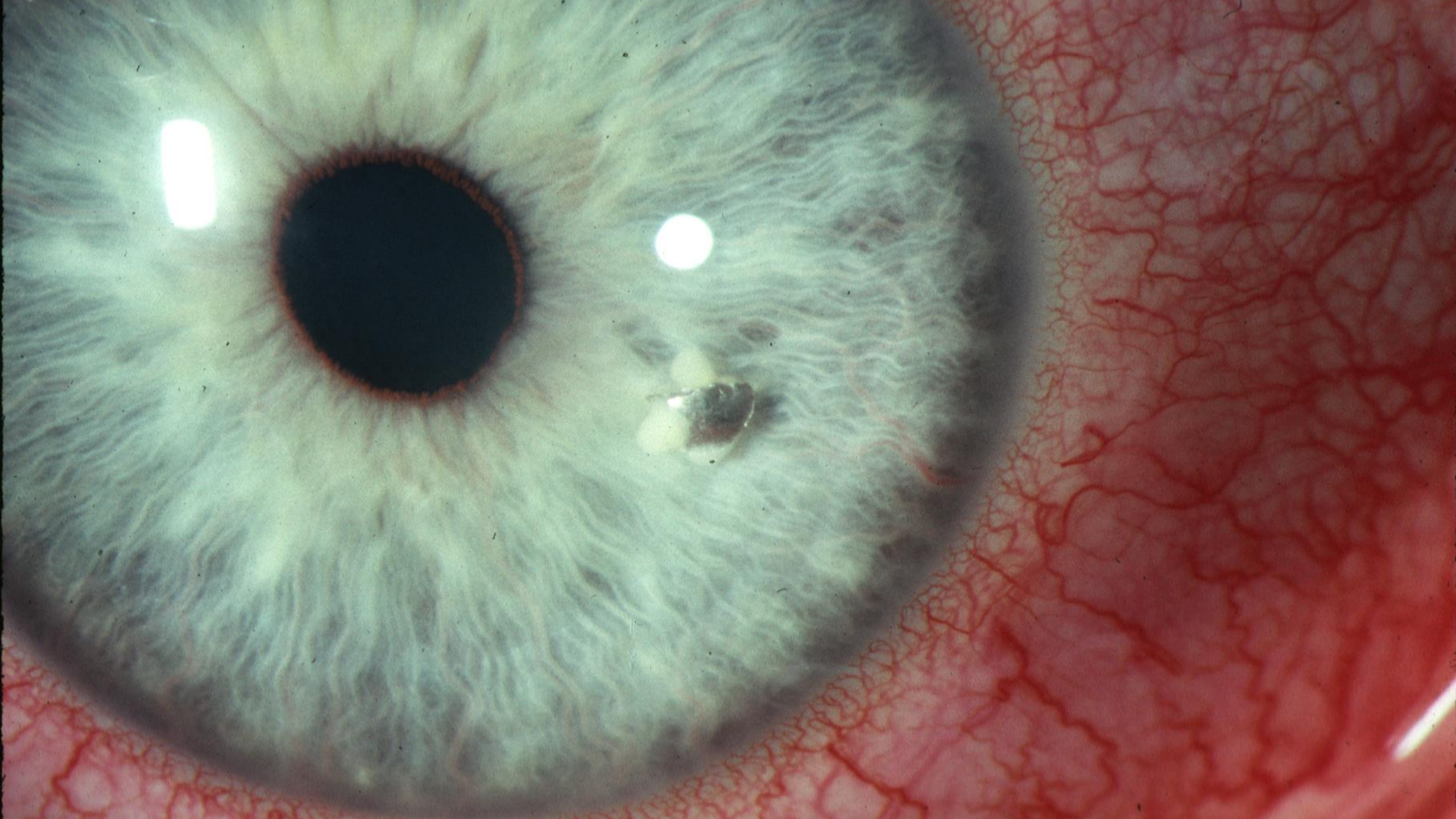




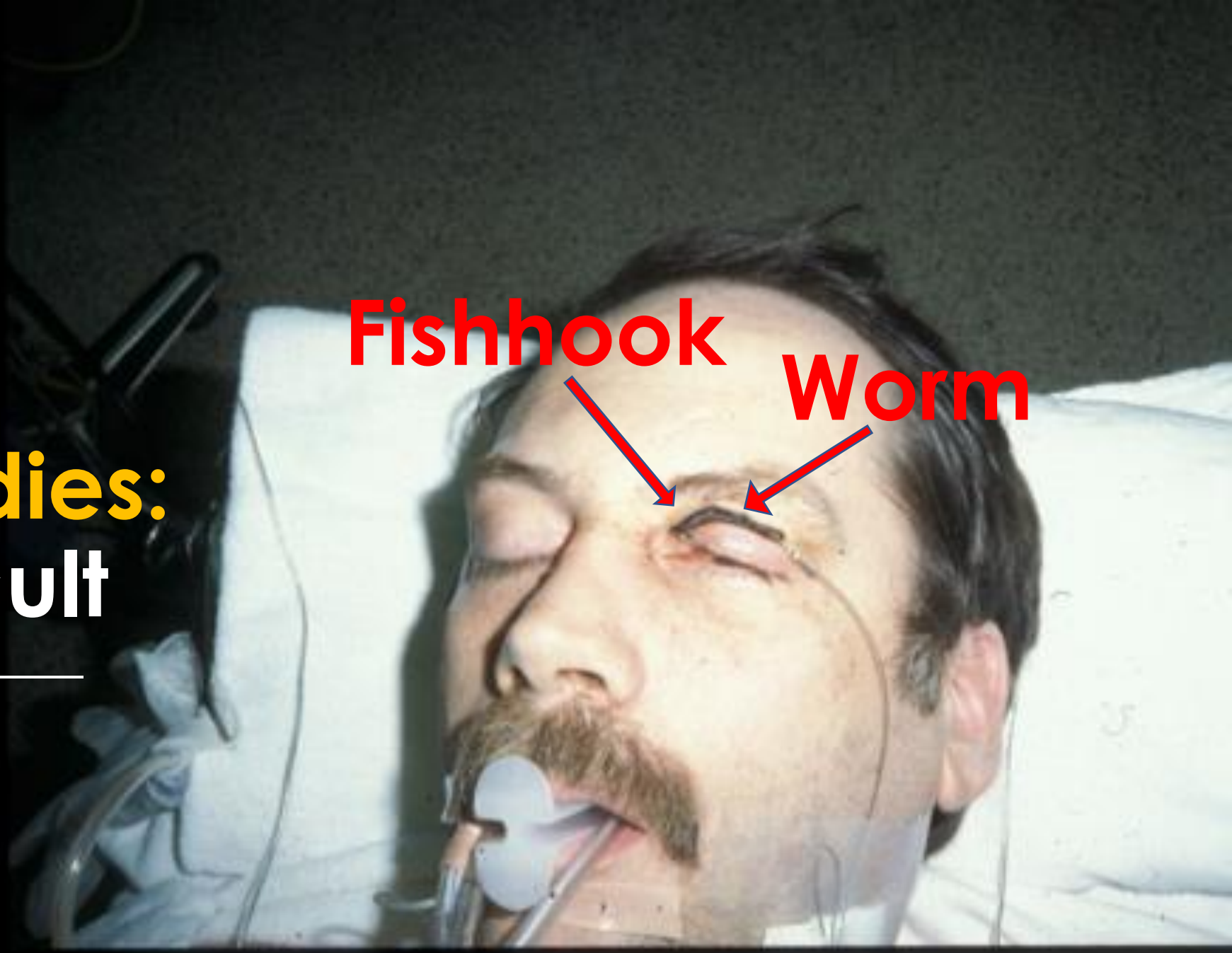
# Occult Intraocular Foreign Body

**Siderosis Bulbi:** Iron contamination of intraocular tissues

- **Iris:** brownish color, mid-dilated and nonreactive to light
- **Lens:** Rust-colored cataract
- **Retina:** Pigmentary degeneration with eventual complete loss of vision (ERG helpful)
- **Glaucoma**

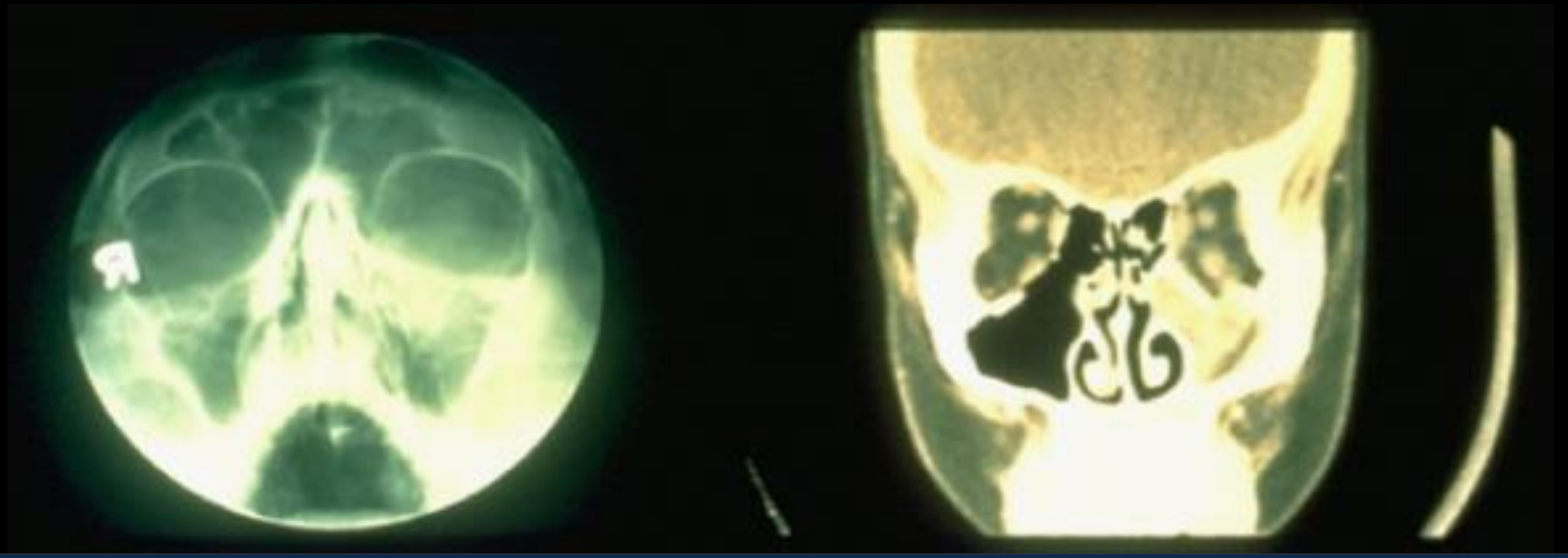


# Foreign Bodies:
# Not So Occult

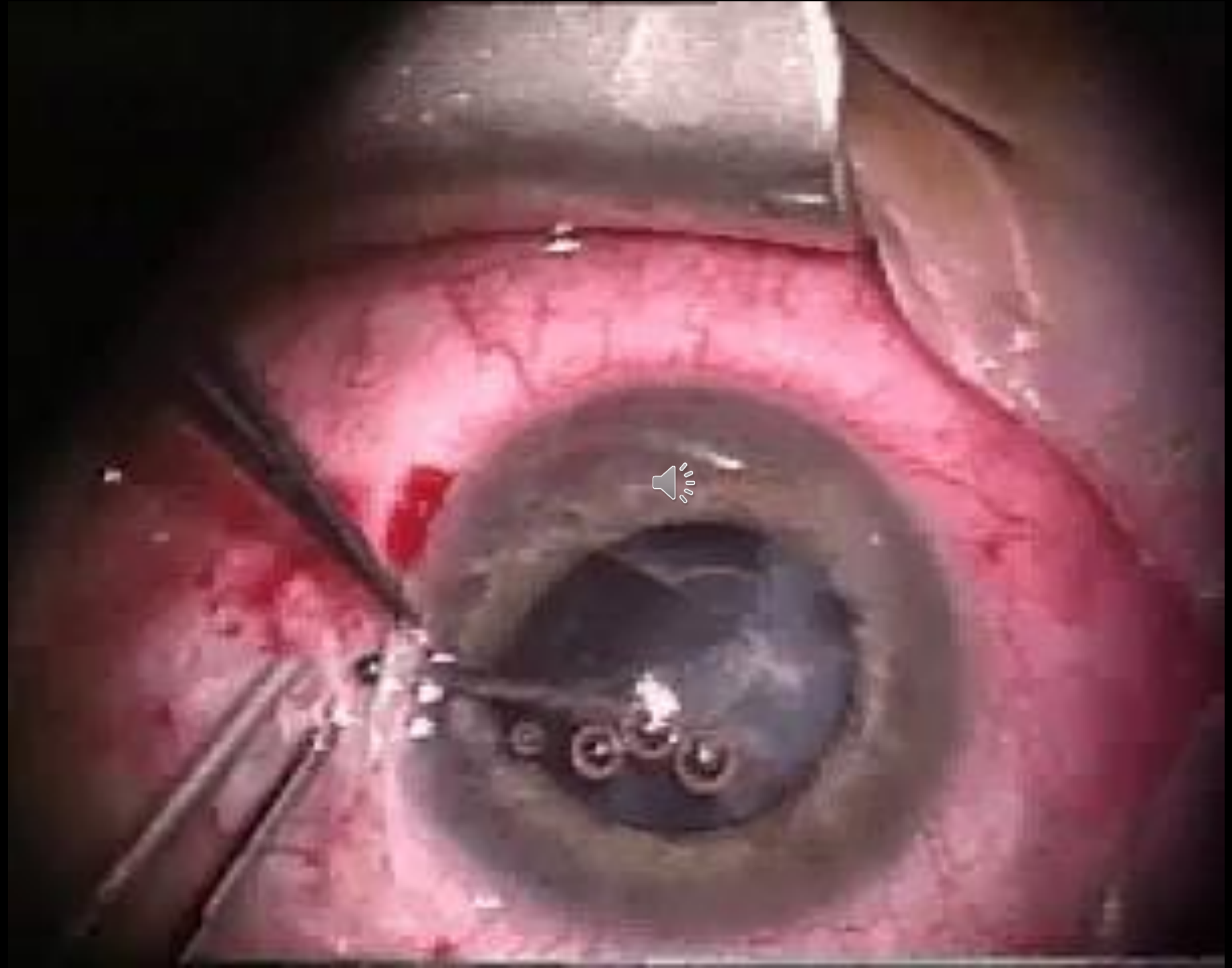


X-ray of skull
(Waters or Caldwell view)

CT Scan
(coronal and sagittal views)



# Occult FB's Detection



# CASE PRESENTATION #6

7-year-old girl developed red right eye of 3 days duration

Called Family Physician. Tx'd with Sulfacetamide 10% drops by ARNP

Not improving in 5 days.
Seen by ARNP and Rx'd with Gentamicin drops

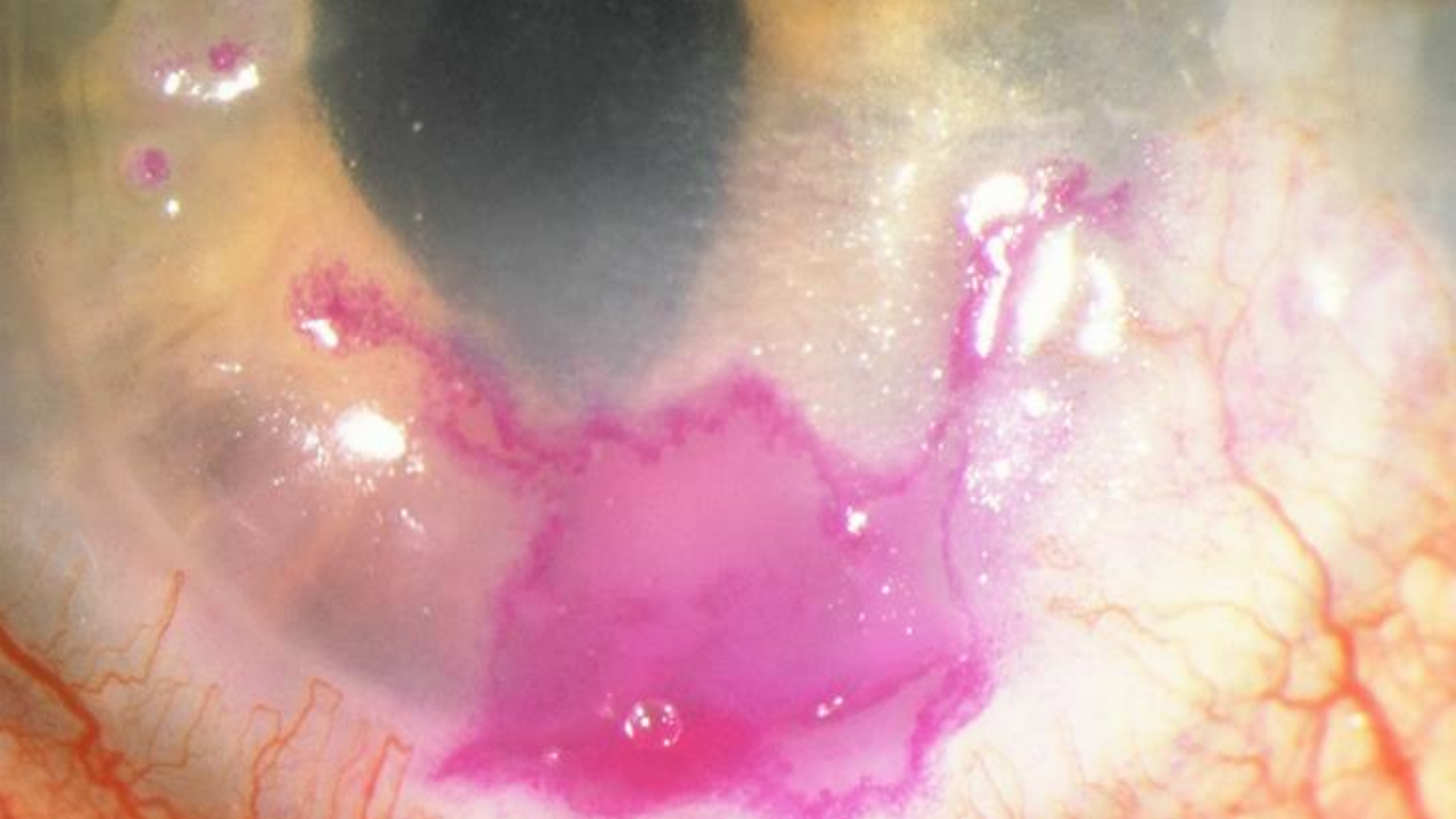
1 week later, seen by ARNP again and treated with Patanol

1 week later, worsening symptoms – seen by optometrist

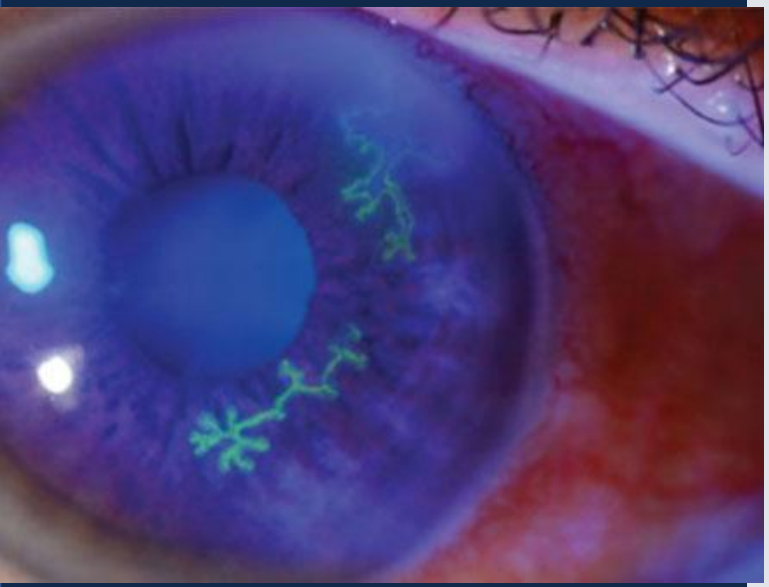
# OPTHALMOLOGIC EXAM

**Vision:** OD Count fingers,
OS 20/30

**SLE:** OD - Edematous cornea with rose bengal staining
Left eye is Normal



# Diagnosis: Herpes Simplex Keratitis



- Patient treated with Viroptic 1% 9x/day
- Extensive scarring resulted in 20/400 vision
- Corneal transplant performed 1 year later
- Vision restored to 20/30

# Herpes Simplex Keratitis

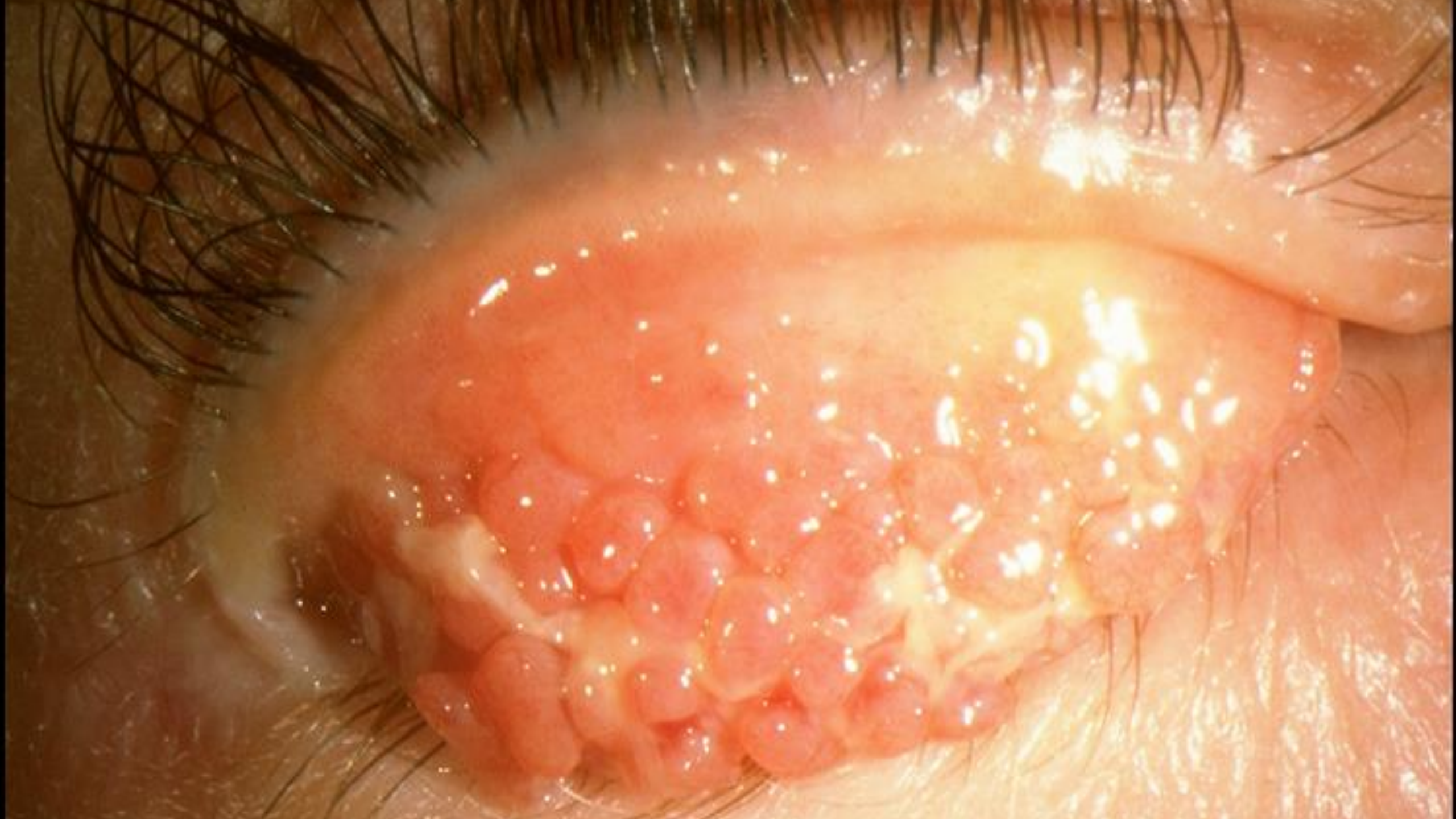
- Any red eye that does not respond within 3 days of treatment should be referred
- Steroids are contraindicated in HSV
- HSV is a vision-threatening disorder
- Frequently recurs
- Most common infectious cause of loss of vision in US

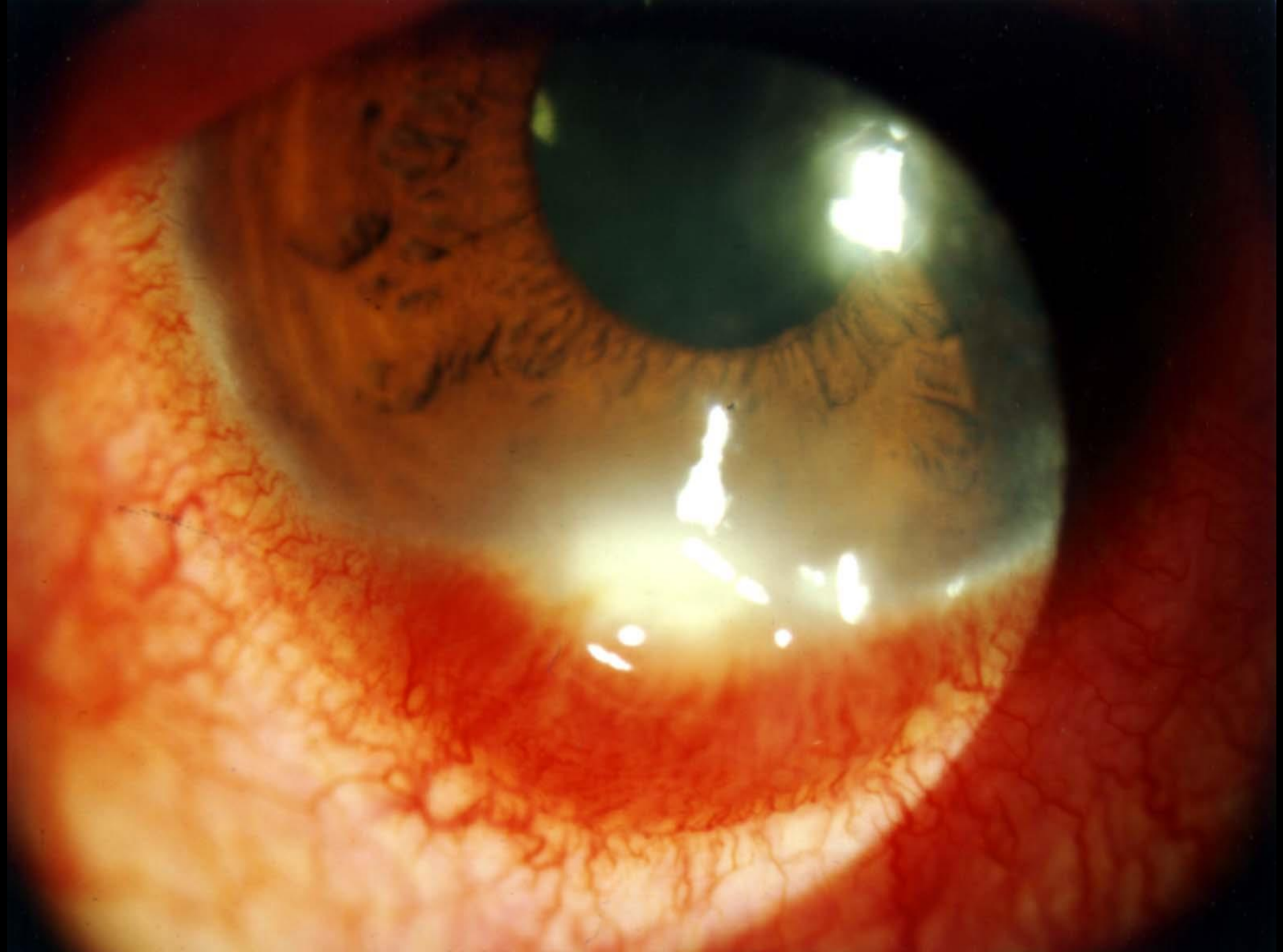
# CASE PRESENTATION #7

22-year-old Asian WSU student presents with bilateral ocular inflammation of 5 years duration. Recent exacerbation

School work is difficult due to severe itch, discomfort and declining vision

Seen by Minor Emergency Center and treated with Cortisporin





# Diagnosis: Vernal Keratoconjunctivitis

Severe allergic disorder of young adults

Can by visually disabling

Treated with antihistamines, mast cell stabilizers, systemic allergy treatment

Topical steroids for exacerbations

BEWARE of Steroid Side Effects:

*Glaucoma

*Cataract

# Vernal Keratoconjunctivitis

Patient lost to follow up

Importing steroids from Maylasia

Returns for Follow-up 9 months later

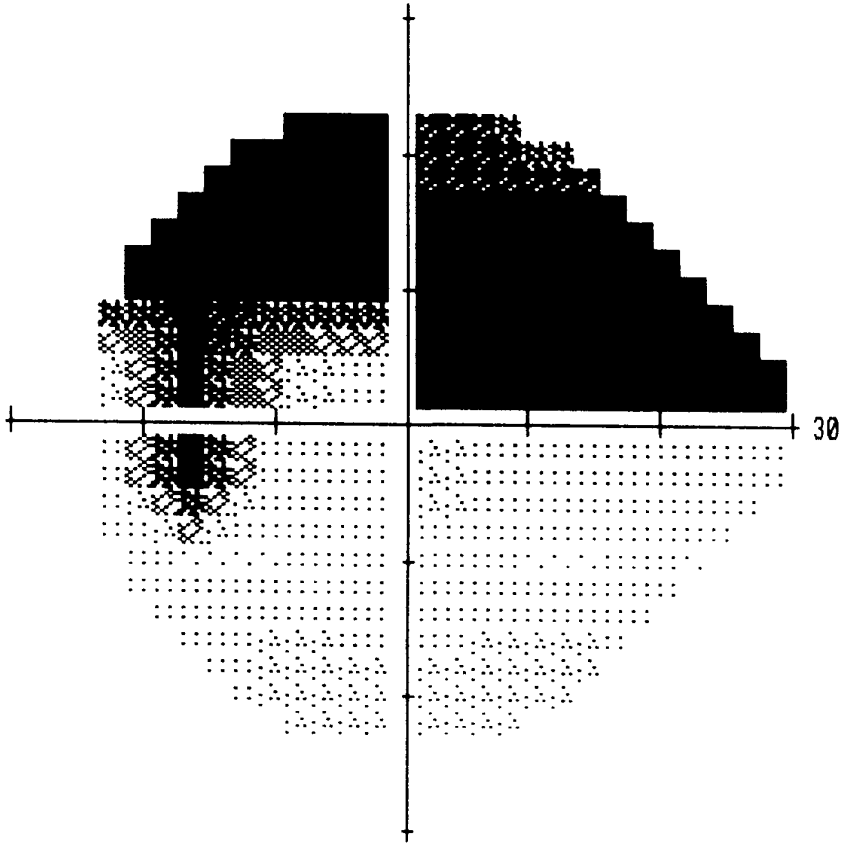
Exam: Vision 20/200 OD, 20/100 OS

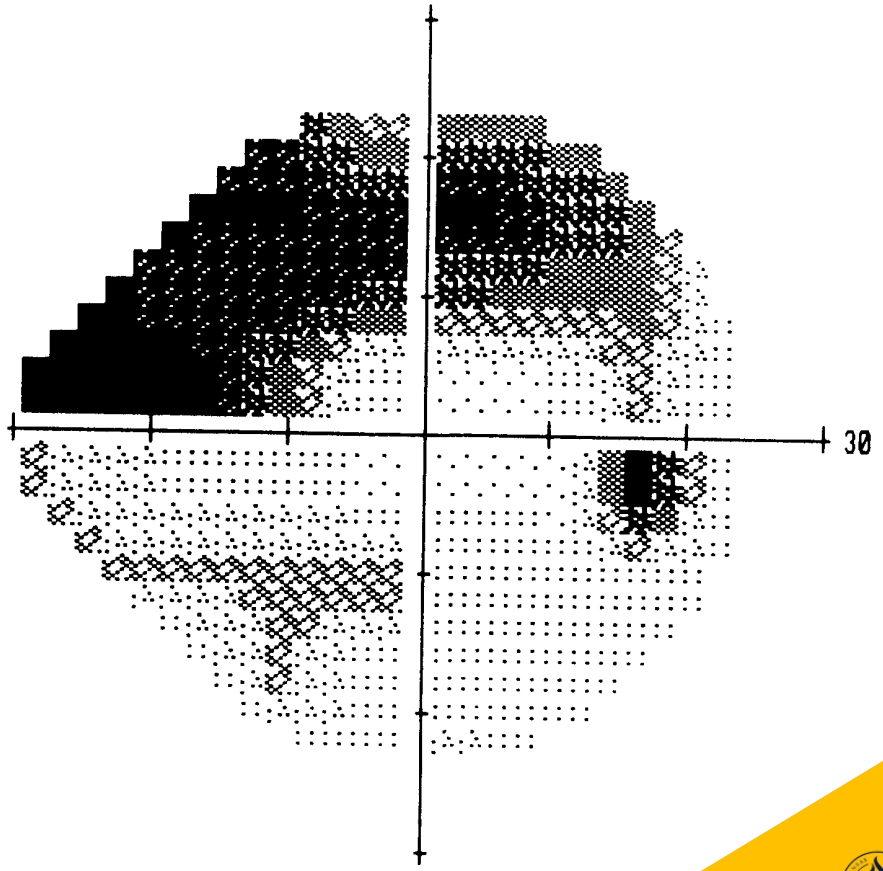
Severe inflammation

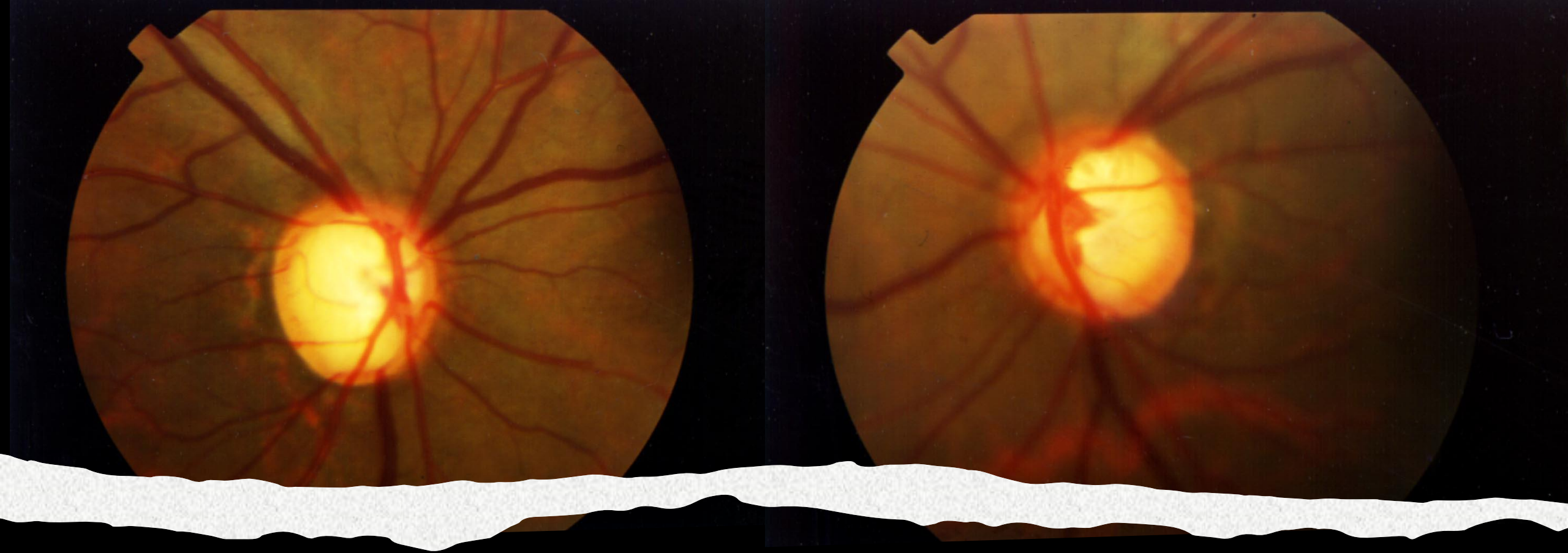
IOP 37mm OD, 42mm OS

Fundus: Severe optic nerve cupping

# Visual Field Deficits





# Steroid Induced Glaucoma

- Cortisporin, Blephamide, TobraDex all have steroids
- Beware of unmonitored steroid use due to:
  Glaucoma | HSV | Cataract

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