



27<sup>TH</sup> ANNUAL  
CONFERENCE OF THE  
UNION – NORTH  
AMERICA REGION

CHALLENGING CASE  
SESSION 2/2023

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## SEE POSSIBILITIES, NOT PROBLEMS

30-year-old female presented with right eye discomfort,  
seeing flashes of light, and headache for a month  
duration

- Progressive vision impairment in the right eye
- No trauma
- No contact lenses
- No systemic symptoms
- Seen by ophthalmology, referred to me with a note saying: “I suspect TB”

# HISTORY

PMH: None

PSH: None

Medications: None

Allergies: None



# SOCIAL & EPIDEMIOLOGICAL HISTORY

Single, no children

Tobacco smoking <5pck years, no MJ use

No ETOH & no illicit substance use

No pets

Born in India, New Delhi immigrated to USA about 2 decades ago

International travel limited to travel Mexico yrs ago + travels to India, last 5 years ago

No family or personal hx of TB or known TB exposures

Work as an office manager

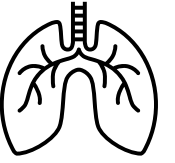
No work/volunteering in the medical/school/correctional system

No personal hx of incarceration

No periods of being un-domiciled

No recollection of own immigration TB status

# EXAMINATION



VS: Afebrile, no tachycardia, no tachypnea, no hypoxia, and BP at target

In no distress

No external peri-ocular, conjunctival, corneal, or ocular mm pathology seen

Moist oral cavity, no lesions or thrush

No neck LAD

Clear lungs b/l

Soft abdomen w/o tenderness or hepatosplenomegaly

No skin rash or lesions

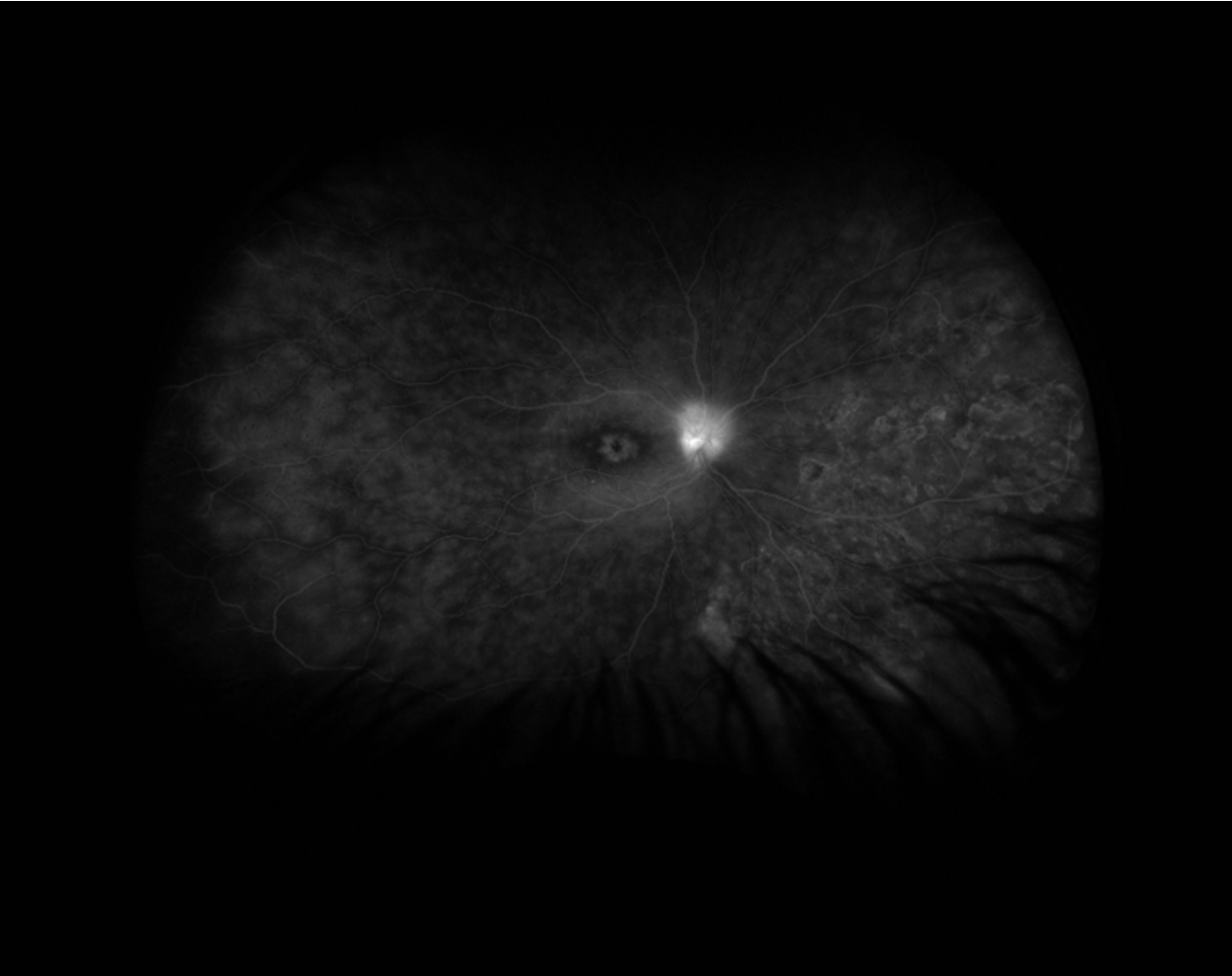
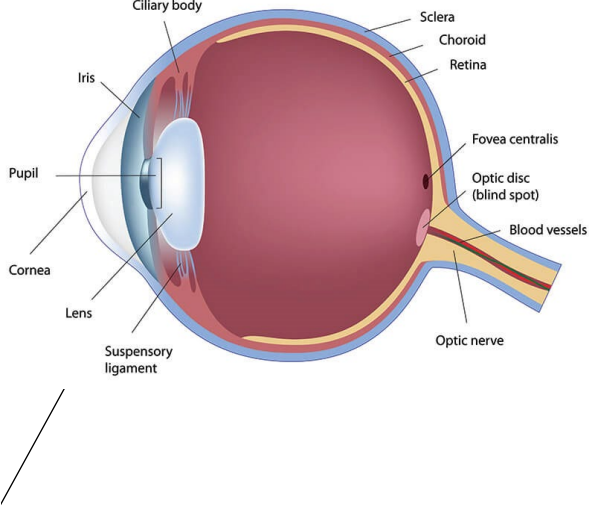
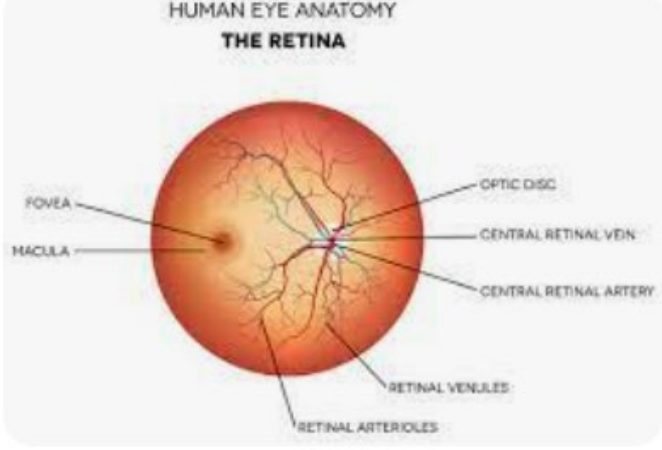
All joints and spine w/o decr. ROM, tenderness, or swelling

Neuro exam - cranial nn intact. Normal gait

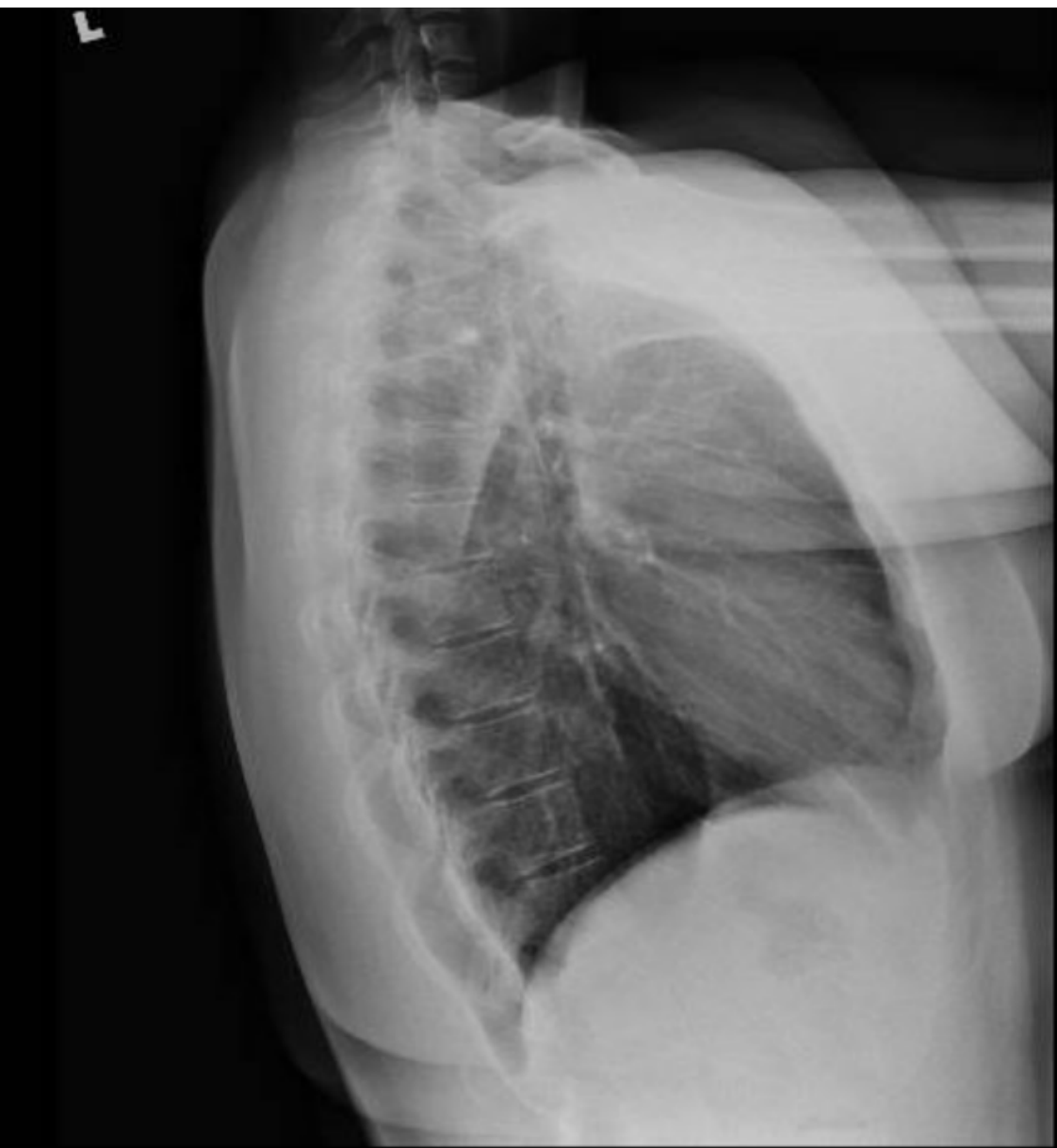
# OPHTHALMOLOGY EXAM

Normal left eye

Rt eye macular edema, posterior uveitis with multifocal serpiginous-like choroiditis



CXR



# LABORATORY RESULTS



**WBC 6.2 with normal differential**

**Hb 13 g/dL, HCT 38%**

**Platelets 296 K/UL**

**Chemistries - normal**

**AST 14 U/L, ALT 17 U/L**

**HbA1c 4.7 %**

**ESR 12**

**Treponemal Ab negative**

**Toxoplasma IgG Ab negative**

**Angiotensive converting enzyme normal**

**HIV negative**

**HCV Ab negative**

**HBV immune by vaccination**

**QuantiFERON-TB Gold positive**

**Sputum AFB negative,**

**NAAT negative**



# WHAT TO DO?

**TB or not TB?**

**How do we know?**

## CLINICAL COURSE AND TREATMENT PLAN

- No systemic symptoms of TB
- Negative AFB smear and NAAT
- CXR w/o obvious concern for TB disease
- CT chest ordered, pt did not attend
- No intraocular diagnostics done by ophthalmology
- **Based on epi risk, pos Quant, r/o other causes, and rt eye clinical findings = presumptive ocular TB, specifically tubercular multifocal serpiginous-like choroiditis**
- Started on RIPE + B6 planned for total course of 6 months

# FINAL TREATMENT AND FOLLOW UP

- **Based on the recently published collaborative ocular tuberculosis study [COTS] and a clinically useful calculator she had a score of 5, which indicates expert consensus to treat for TB**
- Tx: Rifampin 600 mg daily, isoniazid 300 mg daily, pyrazinamide 1600 mg daily, and ethambutol 1200 mg daily with 50 mg of vitamin B6
- Planned course for 6 months total
- Oral steroids was discussed given her vision threatening disease and ultimately decided not to administer until the TB therapy was started
- She had frequent and close optho f/u
- She had remarkable improvement, now with normal vision 20/20

# COTS Calculator

statistically-derived, evidence- and experience-based 5-level scoring system derived through a systematic two-step Delphi method for initiation of antitubercular therapy in patients with ocular tuberculosis.

- An online open-access, cost-effective and automatically generated score based on minimal data points
- Supported by two sets of published consensus guidelines from the COTS CON group

Male  Female

Country  
India

In High TB List: Yes

Physician Name

Left Eye  Right Eye  Both Eyes

## Findings

Clinical Phenotype:  Choroiditis  Serpiginoid

Endemicity of patient   
(Patient from TB endemic or TB non-endemic region)  Endemic

Tuberculin Skin Test/Mantoux Test:  Not Done / Unknown  Positive

Interferon Gamma Release Assay (IGRA):  
T-Spot TB or QFT-Gold or QFT-Gold+  Negative  Positive

Chest X-Ray:  
Negative (for any old or active signs of TB); Positive (for any healed or active signs of TB)  Negative  Positive

## Results

Median Score	IQR	Inference: Very high probability amongst experts (>70%) to consider initiating Anti-tubercular therapy (ATT)
5	2	

\* The COTS Consensus guidelines are based on expert inputs based on their experience along with their interpretation of the published literature about initiation of Anti-tubercular therapy (ATT) in patients with ocular tuberculosis. Physician discretion is advised in adopting this tool in their clinical practice and it should be used as a guide by the treating physician in concurrence with clinical signs and laboratory and radiological investigations and after ruling out non-TB causes of intraocular inflammation\*\*

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## Interpretation

### Median Score

<b>Median score 1</b>	Very low probability for most experts to consider initiating Anti-tubercular therapy (<20%)
<b>Median score 2</b>	Low probability for most experts to consider initiating Anti-tubercular therapy (21-40%)
<b>Median score 3</b>	Mixed probability for most experts to consider initiating Anti-tubercular therapy (41-60%)
<b>Median score 4</b>	High probability to for most experts to consider initiating Anti-tubercular therapy (61-80%)
<b>Median score 5</b>	Very high probability for most experts to consider initiating Anti-tubercular therapy (81-100%)

### IQR

<b>IQR 0</b>	Represents absolute consensus, >90% of experts agreeing on the initiation of Anti-tubercular therapy
<b>IQR 1</b>	Represents moderate consensus, >80% of experts agreeing on the initiation of Anti-tubercular therapy
<b>IQR 2</b>	Represents weak consensus, >70% of experts agreeing on the initiation of Anti-tubercular therapy
<b>IQR 3</b>	Represents poor consensus, < /=60% of experts agreeing on the initiation of Anti-tubercular therapy

# TEACHING POINTS

## #1 Presentation

Ocular TB, can present in various ways, and therefore clinicians need high index of suspicion to make the diagnosis

## #2 Diagnostics

Ocular TB diagnostics are limited, and ocular TB cases may be presumptive based on ocular findings and evidence of systemic infection

## #3 Treatment

Current management of tubercular choroiditis is based on recs from The Collaborative Ocular Tuberculosis Study [COTS] consensus guidelines on the mgmt. of tubercular uveitis

# DISCUSSION AROUND THE CASE'S MAJOR TEACHING POINTS

## #1. Ocular TB presentation

- Variable & can affect any part of the eye
- Challenging to recognize from the more common diagnoses
- Need high index of suspicion
- This patient was born in India where the TB rate is 188 per 100 000 population, and she presented with the eye symptoms and a positive QFT.
- **Urgency** - Her eye findings of **unilateral multifocal serpiginous choroiditis** and macular edema was concerning for vision threatening disease and needed urgent diagnostics and treatment decisions



TB incidence rate in Delhi 193:100 000 population in 2021  
<https://tbfacts.org/tb-statistics-india/>

## # DIAGNOSTICS

- Ocular TB diagnostics are limited
- Ocular TB cases may be presumptive based on ocular findings and evidence of systemic infection
- Similarly, to other extra-pulmonary tuberculosis sites, diagnosis can be challenging also for ocular TB
- Ocular TB **often** presents without systemic symptoms and pulmonary findings which limits the usefulness of the current TB diagnostics
- When no intra-ocular fluid/tissue available for nucleic acid amplification testing or culture, practically the diagnosis will end up as presumptive based on epidemiological risk, positive tests for tuberculosis infection, ruled out other causes of ocular or in this case posterior uveitis. **This case display compelling images for unilateral multifocal tubercular serpiginous-like choroiditis**



## # TREATMENT

- Current mgmt. of tubercular choroiditis is based on recs from The COTS consensus guidelines
- The COTS calculator can assist with treatment decisions and when to use steroids

# REFERENCES

1. Thompson MJ, Albert DM. Ocular Tuberculosis. Arch Ophthalmol. 2005;123(6):844–849
2. TBFACTS.org. <https://tbfacts.org/tb-statistics-india>
3. Santos DV, Rao PK, Davies JB, Sohn EH, Rao NA. Clinical Features of Tuberculous Serpiginouslike Choroiditis in Contrast to Classic Serpiginous Choroiditis. Arch Ophthalmol. 2010;128(7):853–858
4. Agrawal R, Testi I, Mahajan S, et al. Collaborative Ocular Tuberculosis Study Consensus Group. Collaborative Ocular Tuberculosis Study Consensus Guidelines on the Management of Tubercular Uveitis-Report 1: Guidelines for Initiating Antitubercular Therapy in Tubercular Choroiditis. Ophthalmology. 2021 Feb;128(2):266-276. doi: 10.1016/j.ophtha.2020.01.008. Epub 2020 Jan
5. Agrawal, R., Ludi, Z., Betzler, B.K. et al. The Collaborative Ocular Tuberculosis Study (COTS) calculator—a consensus-based decision tool for initiating antitubercular therapy in ocular tuberculosis. Eye (2022)

## CONCLUSION

This case illustrates a clinical presentation of unilateral multifocal tubercular serpiginous-like choroiditis & highlights how the recently published COTS guidelines on the mgmt. of tubercular uveitis and the COTS calculator can assist with treatment decisions



**THANK YOU**

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