

Starry Night, Starry Bright, A Lil' Doxy Will Help You See the Light

INTRODUCTION

- *Bartonella henselae* neuroretinitis (BHNR) is a rare complication of cat scratch disease (CSD) occurring in 1-2% of cases.
- BHNR requires prompt diagnosis and treatment to prevent potential vision loss.
- Doxycycline, in combination with rifampin, is considered the treatment of choice with limited evidence to support the efficacy of tetracycline-class sparing regimens
- We present a case of BHNR requiring doxycycline graded challenge due to history of severe allergic reaction to tetracycline.

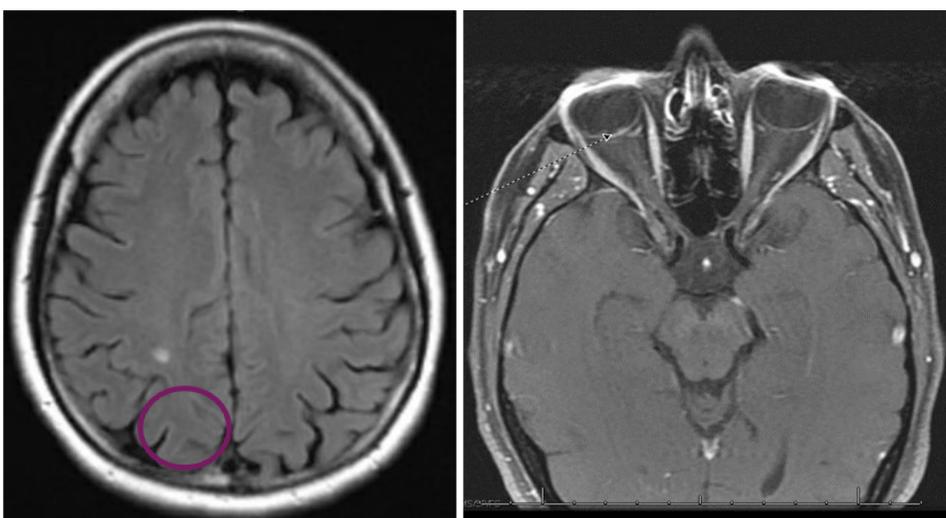
PRESENTATION

- 45-year-old female with a past history of **multiple sclerosis** (treated with natalizumab) and **tetracycline anaphylaxis** (age 17) presenting with **acute right-sided vision loss**.
- She suffered a **cat scratch 6 weeks** prior and had noteworthy tick exposure.
- She was initially diagnosed with optic papillitis by ophthalmology
- She required hospital admission for progressive vision loss.

RADIOLOGY

Brain MRI:

1. Few scattered bilateral supratentorial non-enhancing demyelinating plaques consistent with the given history of multiple sclerosis.
2. No evidence of optic neuritis.



Brain MRI (revised report):

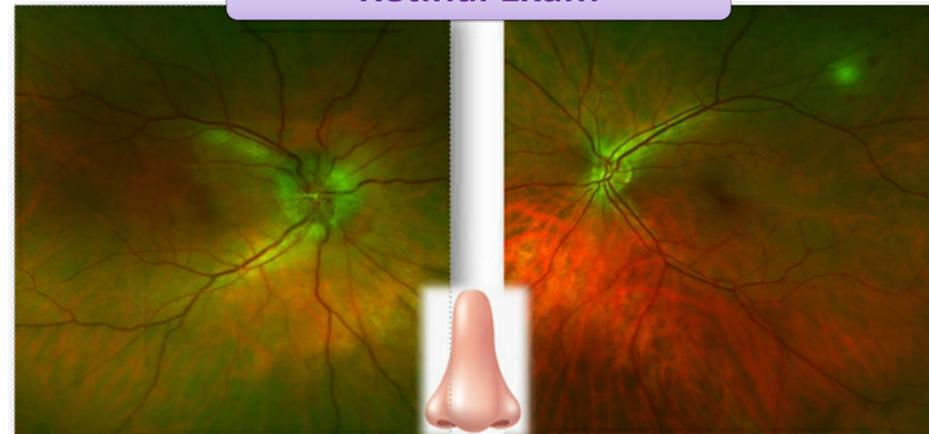
There appears to be **very subtle right-sided posterior retina slightly asymmetric enhancement**, which **could represent retinitis**

HOSPITAL COURSE

Ophthalmology

- “Severe **optic nerve head swelling**, associated **flame shaped hemorrhages**, macular edema/elevation **without star formation** and a chorioretinal granulomatous looking creamy white lesion temporal to the optic nerve without vitritis or perivascular retinal infiltration.”
- “Highly **atypical for optic neuritis** and are **more suggestive** of infectious papillitis, **neuro-retinitis** and granulomatous inflammatory conditions”

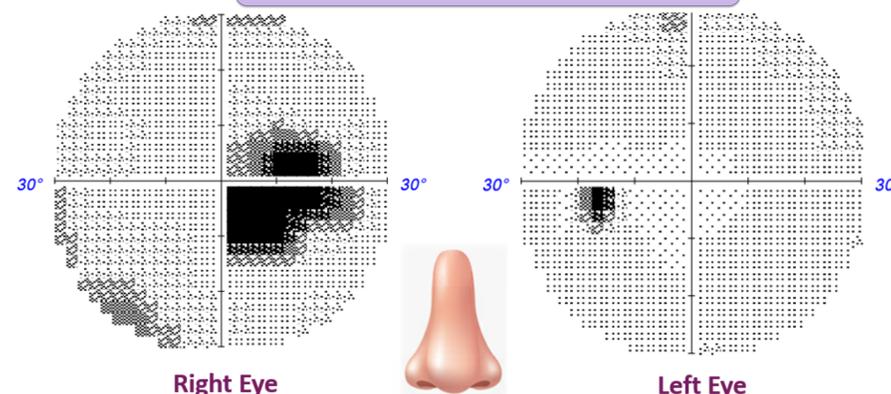
Retinal Exam



Right Eye

Left Eye

Visual Fields Testing



Right Eye

Left Eye

INFECTIOUS WORK UP

Lumbar Puncture: **0 WBC, normal glucose, normal protein**
HIV, Toxoplasma IgG, Syphilis screen, JC virus: **negative**
Lyme screen: **pending**
Bartonella serology: **pending**

Given progressive vision loss and a differential including both **Lyme disease** and **BHNR**, the decision was made to empirically start **doxycycline** while awaiting serologic studies.

GRADED CHALLENGE PROTOCOL

At our institution, graded challenges (GC) can occur on any unit by completing the following protocol:

- Continuous pulse oximetry performed throughout GC
- Vital signs obtained:
 - Before each dose
 - 30 minutes after each dose
 - 60 minutes after full dose
- **10% doxycycline test dose (10 mg)** administered as 15 minute infusion to reduce infusion reactions
- **Full dose (100 mg)** administered **60 minutes after test dose**
- Nurse monitoring for signs/symptoms of reaction with detailed protocols for rescue medications (made available upon dispensing of test dose) and instructions on activation of the rapid response team for moderate – severe reactions

CLINICAL OUTCOME

- Our patient **tolerated the graded challenge** – enabling her to be discharged on the same day on oral doxycycline
- She completed a 6-week course of doxycycline + 2 weeks of rifampin which was switched to azithromycin for 4 weeks due to rifampin intolerance (flu-like symptoms)
- Lyme screen: negative
- ***Bartonella henselae* serology: positive 1:256**
- 6 week follow up: “significant improvement in vision”
- 7 month follow up: “**95% return to baseline**, with a little *distortion*”

DISCUSSION

- Doxycycline serves as a treatment of choice for BHNR – a vision threatening complication of cat scratch disease.
- Our patient reported a severe, likely IgE-mediated reaction (anaphylaxis) to tetracycline 28 years prior.
- She subsequently tolerated the **first doxycycline graded challenge** at our institution.
- Unlike B-lactam allergies, there is a paucity of literature exploring the cross-reaction potentials of various tetracyclines.
- Future research and antimicrobial stewardship investigation into de-labeling of tetracycline allergies is warranted.

ACKNOWLEDGEMENT

We would like to thank our patient who graciously blessed the submission of this abstract and provided consent for the use of all images in hopes that her case could help to educate others in the medical community.