

Orbit Conference: Orbital Inflammation



CHRISTOPHER D. CONRADY
PGY-2





- 64 yo gentleman presented to the Moran for recurrent conjunctivitis/chemosis
- PMH: **multiple myeloma, erythema nodosum**, OSA, chronic anemia, HTN, HLD
- POH: Myopia
- Social: Denies smoking, drinking and illicit drug use
- FMH: stroke, cancer, and heart disease

Moran Course



- Started on FML, warm compresses, and ointment due to CPAP/nocturnal lagophthalmos
- Returned after hours the next day due to worsening eyelid edema, chemosis, and motility restriction in all gazes
- Sent to the ED for CT scan of the orbits for concern of orbital cellulitis





- Patient discharged 2 days later after showing improvement on vanc/zosyn. Discharged on augmentin and bactrim.
- Re-admitted 2 days later for worsening of right upper eyelid swelling and worsening pain.

Neuroradiology



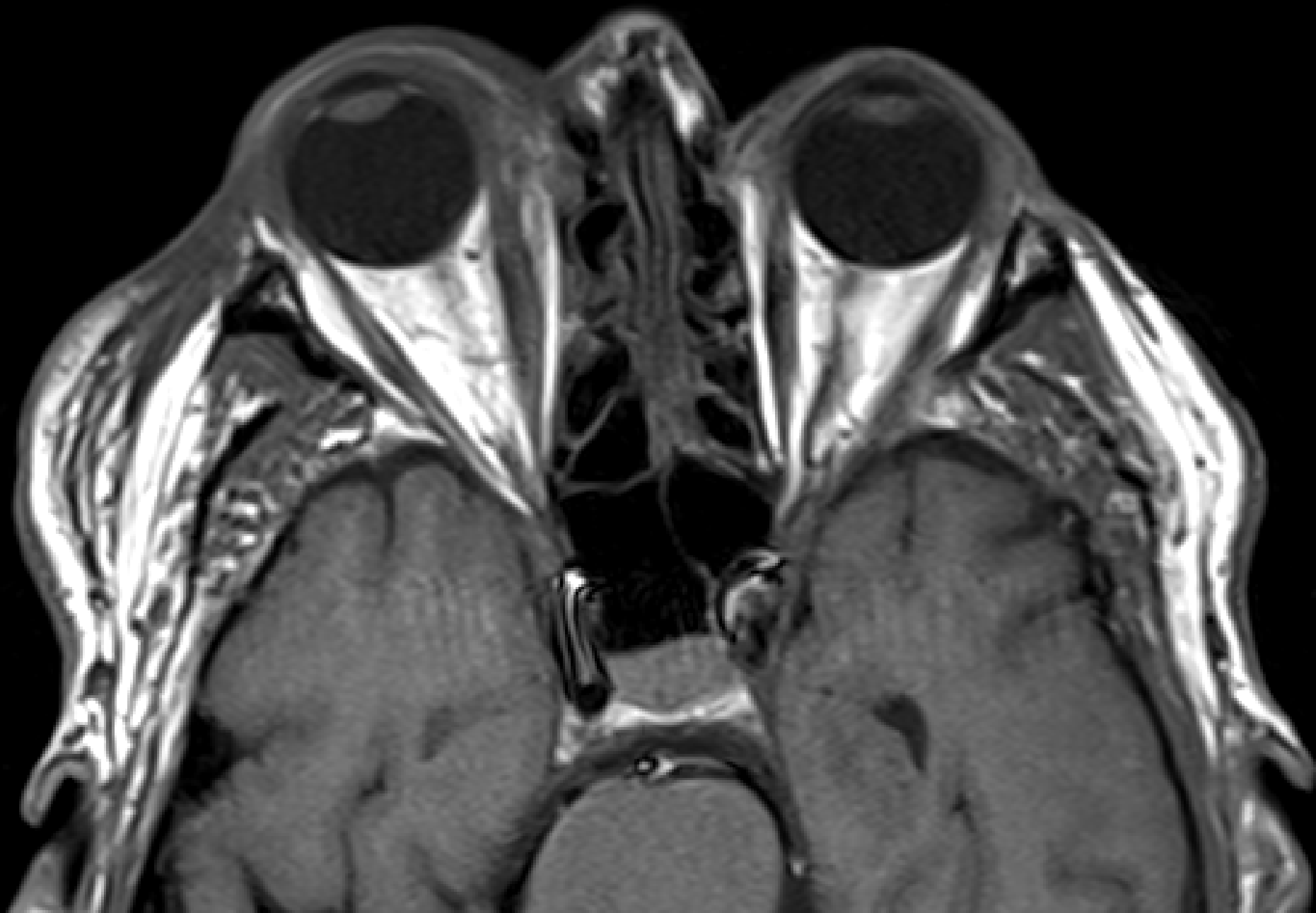
- **With Dr. Christiansen**

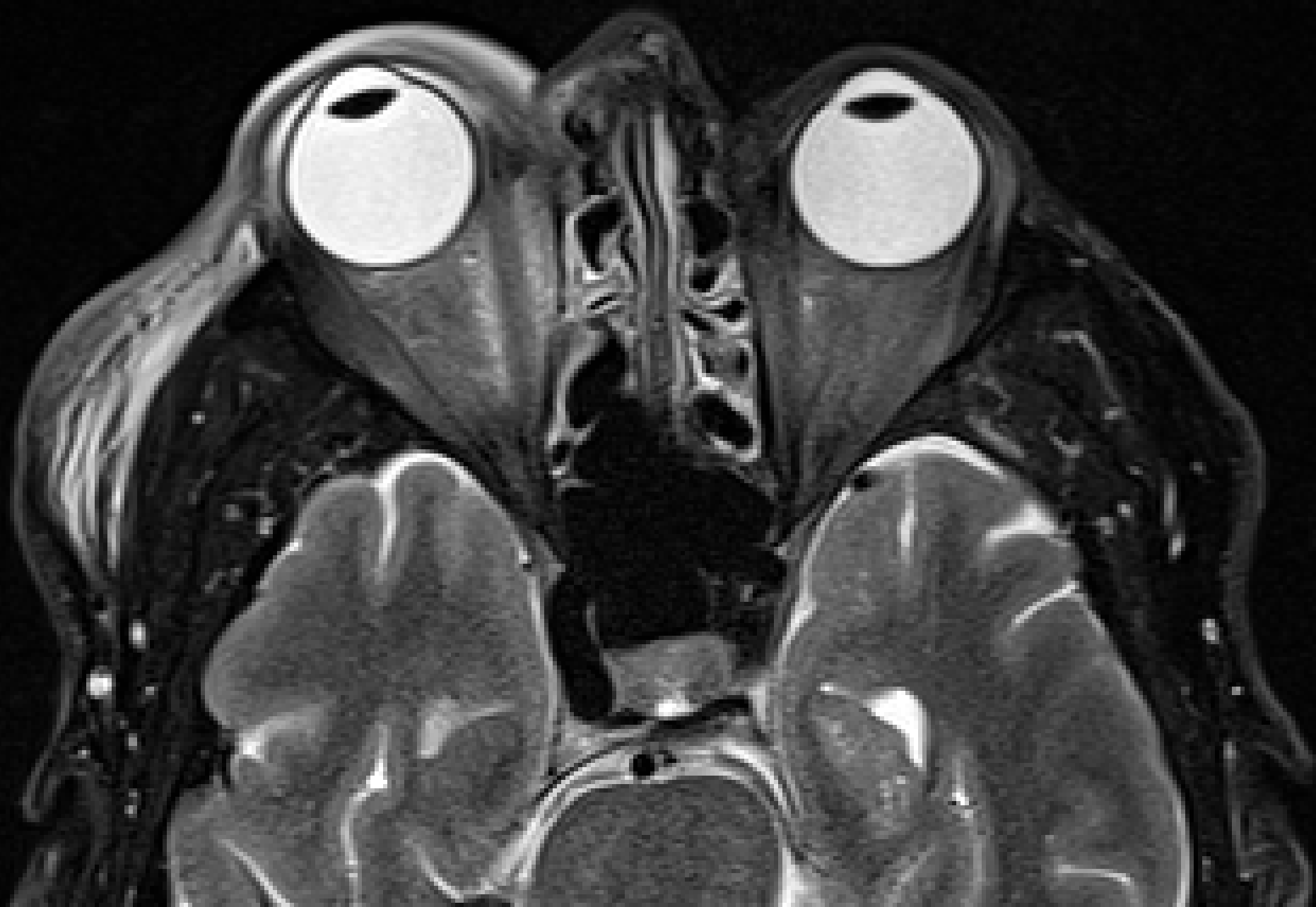
April 30, 2016

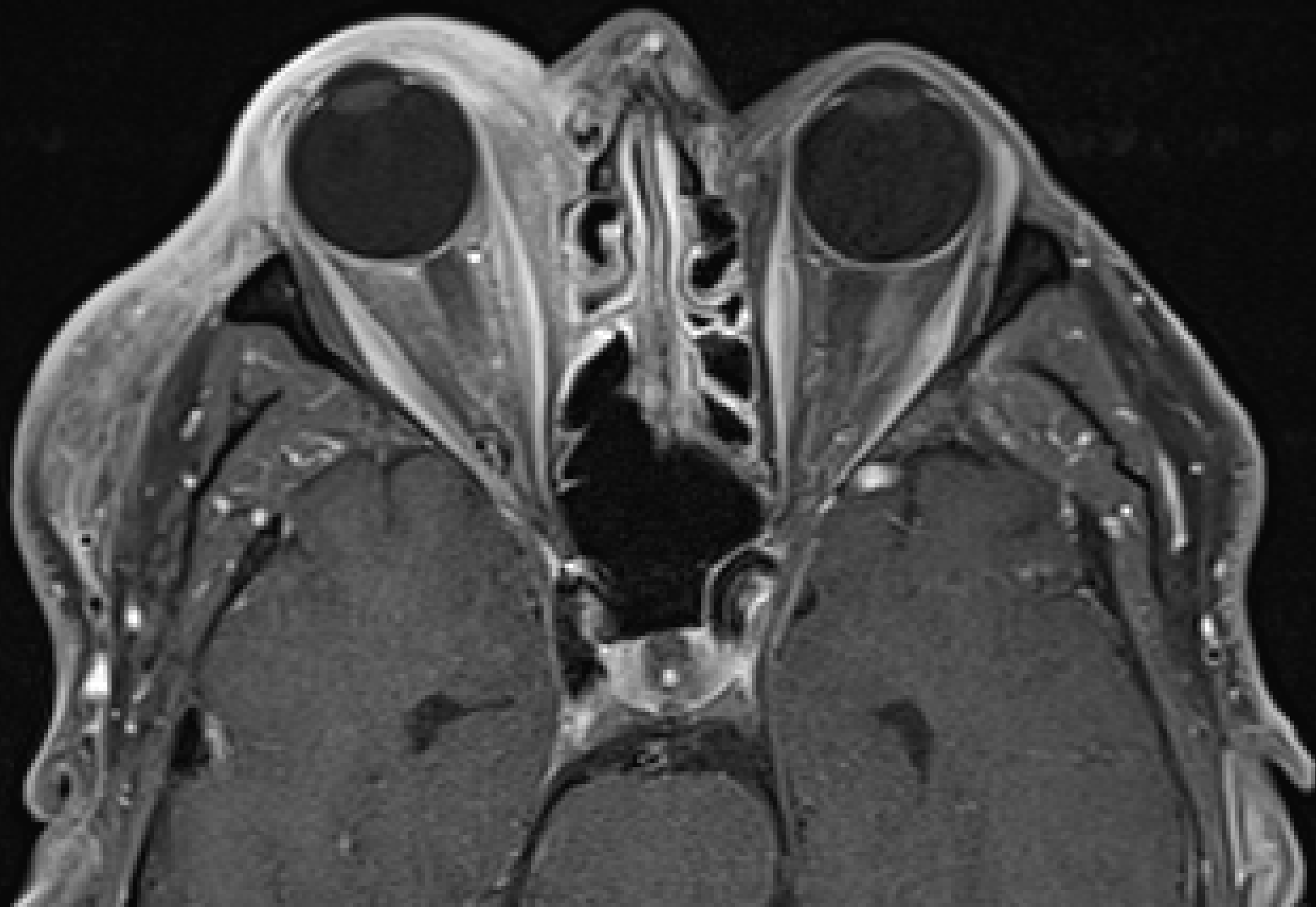


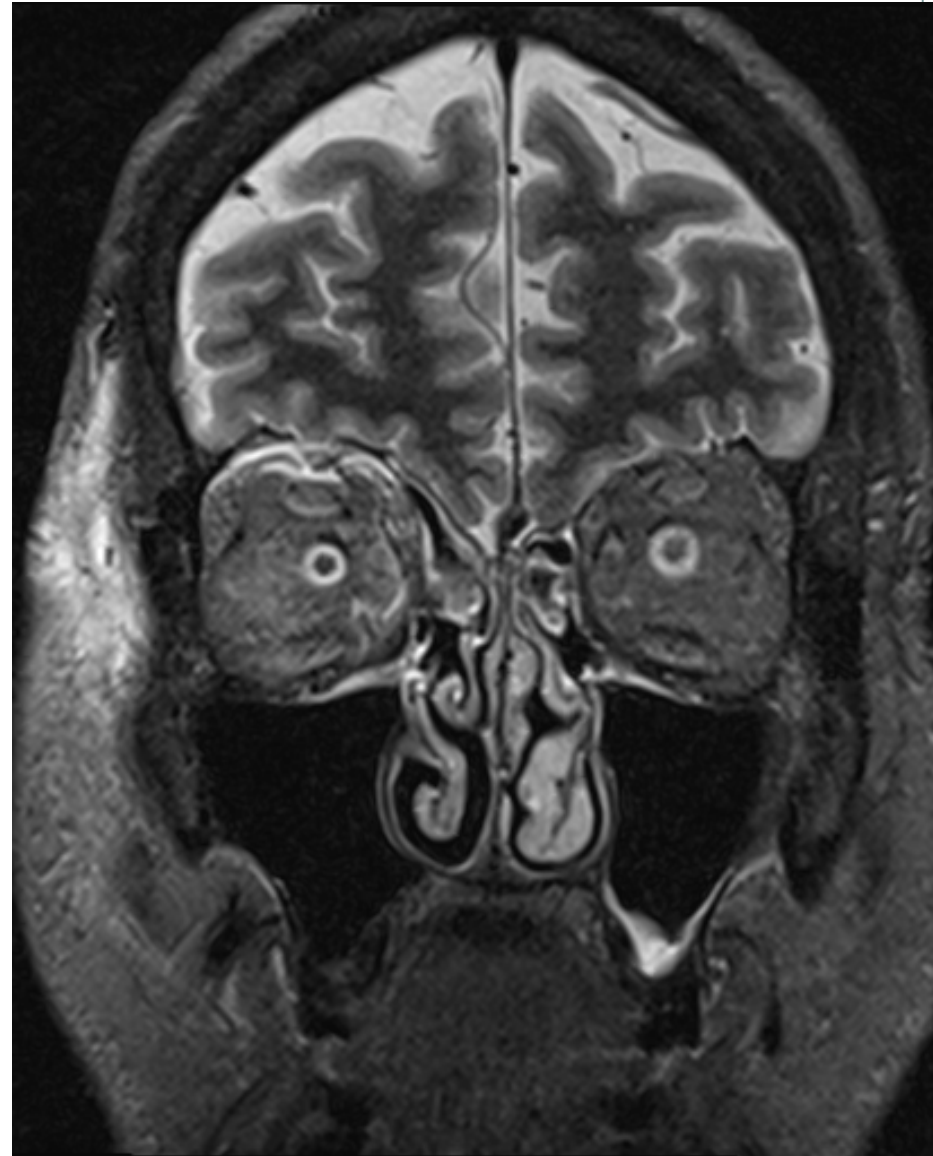
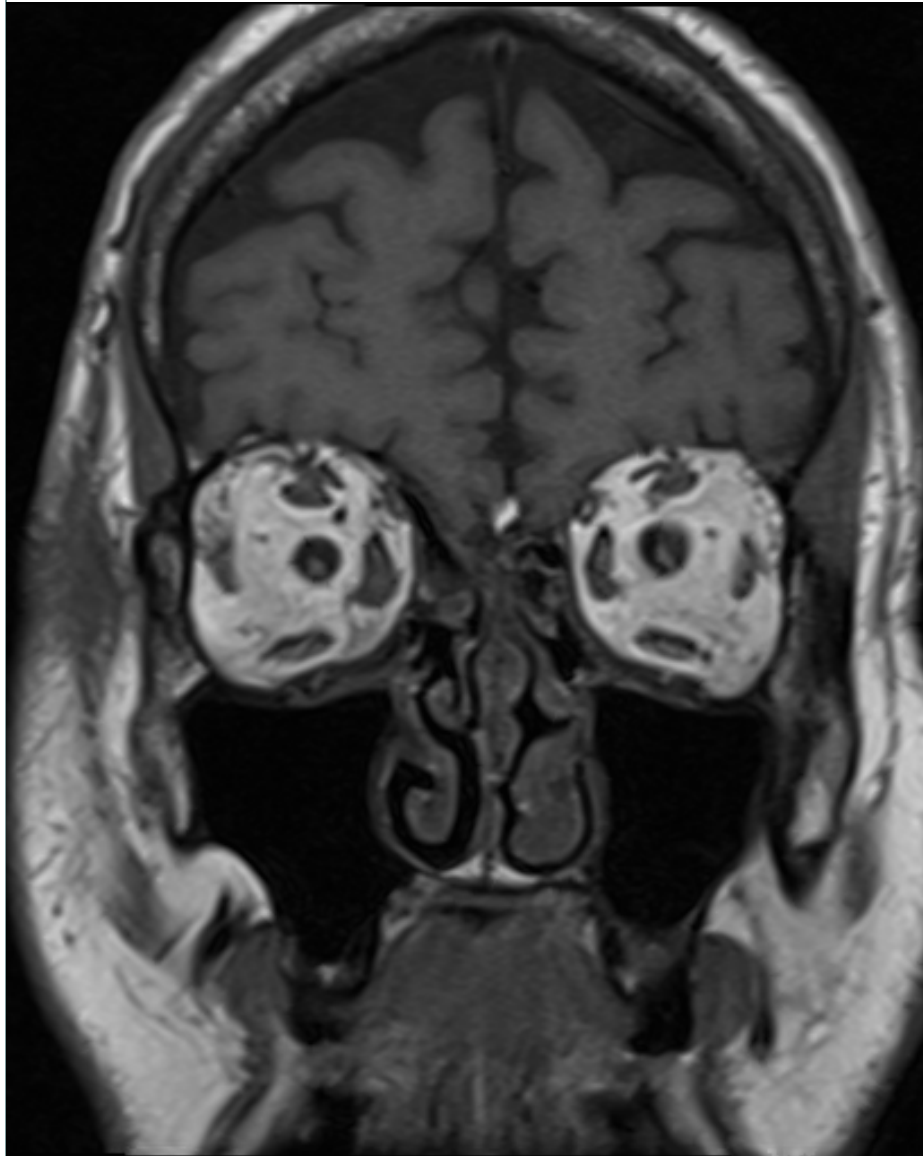


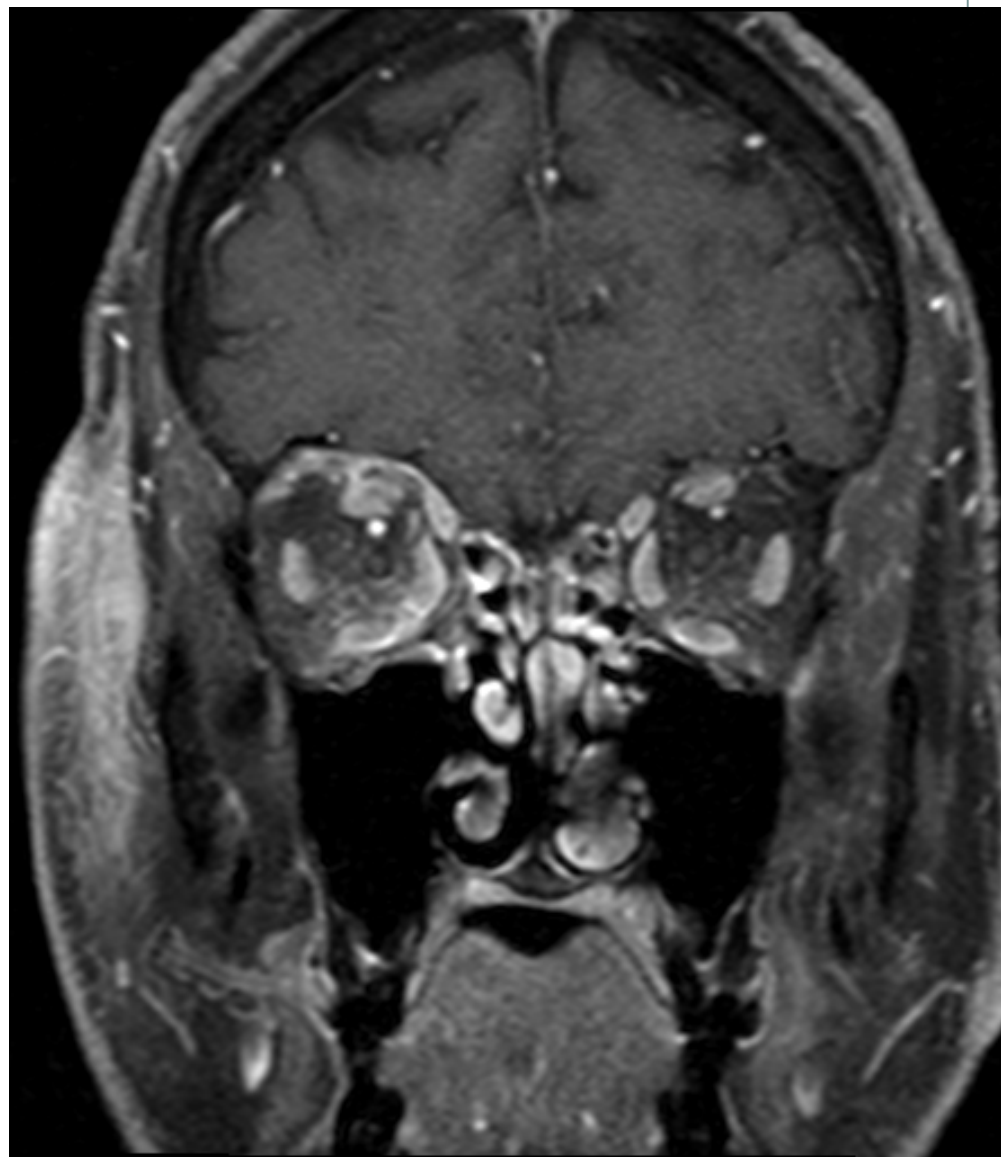
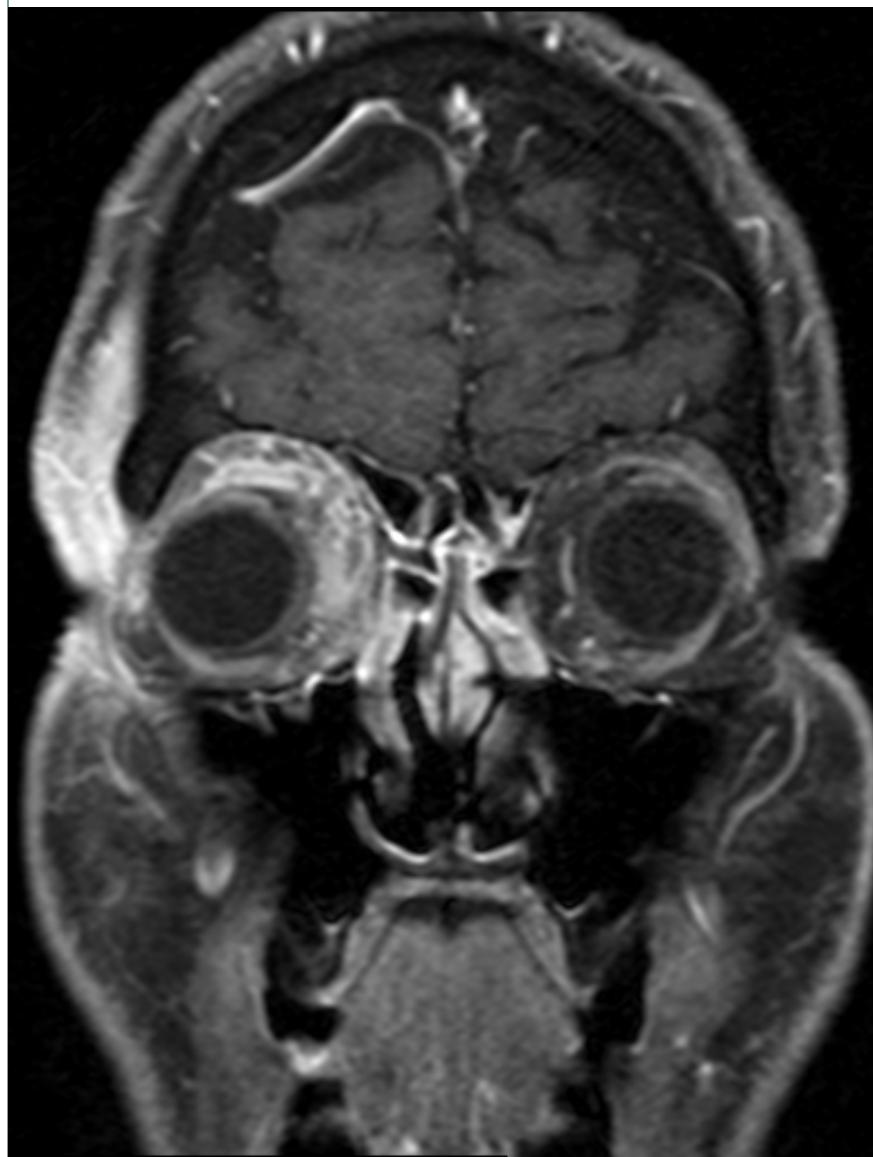
May 4, 2016

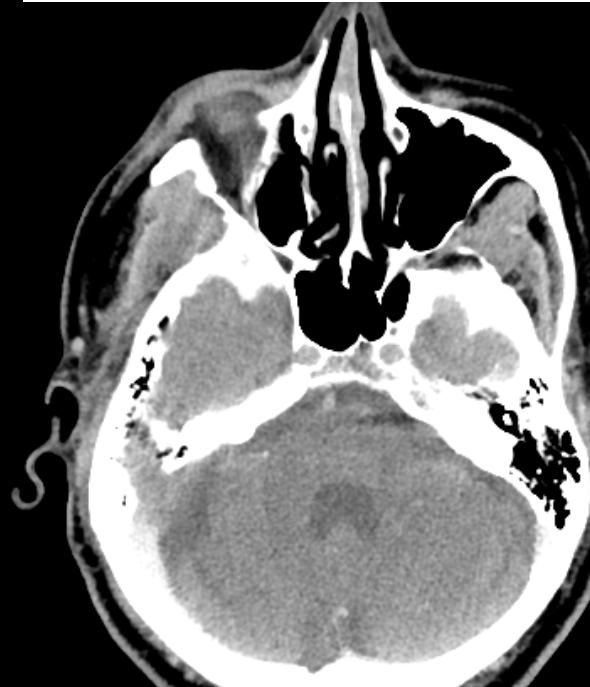




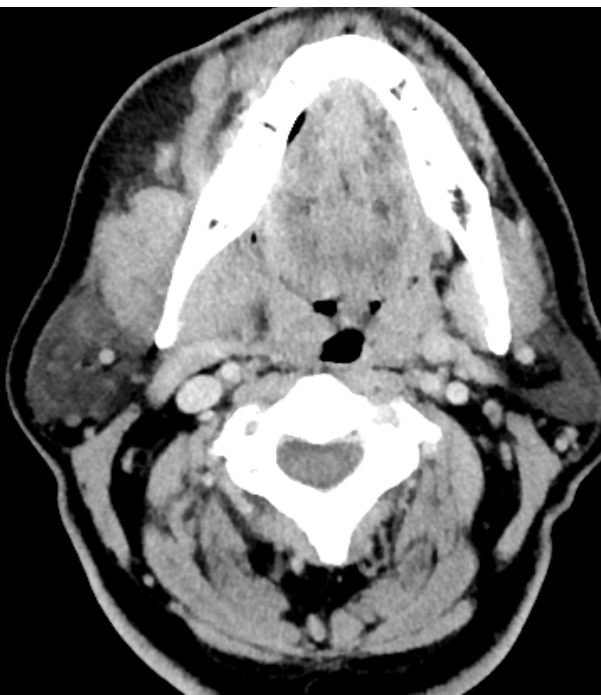








February 18, 2016



Due to concern for inflammatory event...



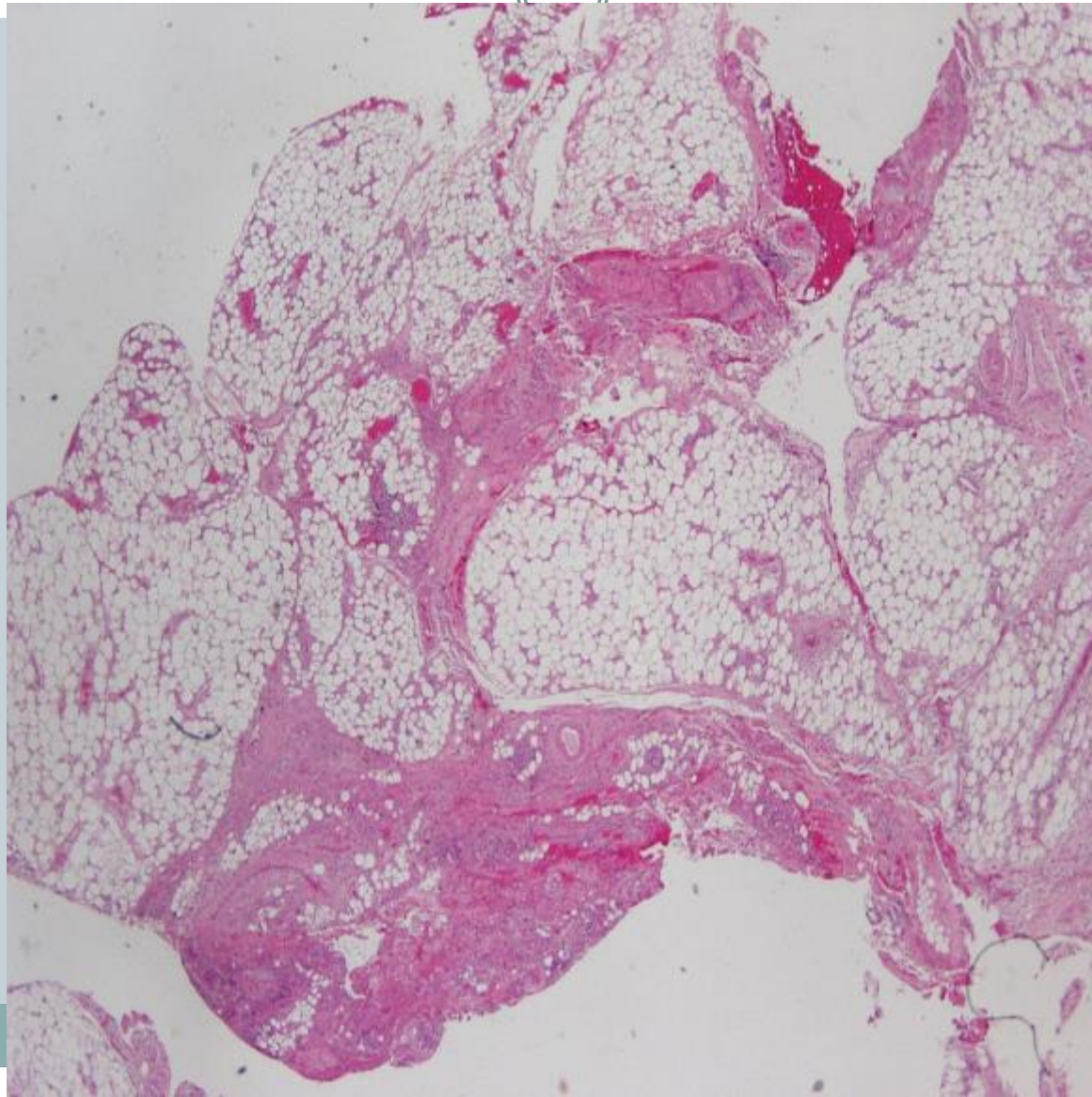
- Patient underwent an anterior orbitotomy and samples send for pathology

Pathology



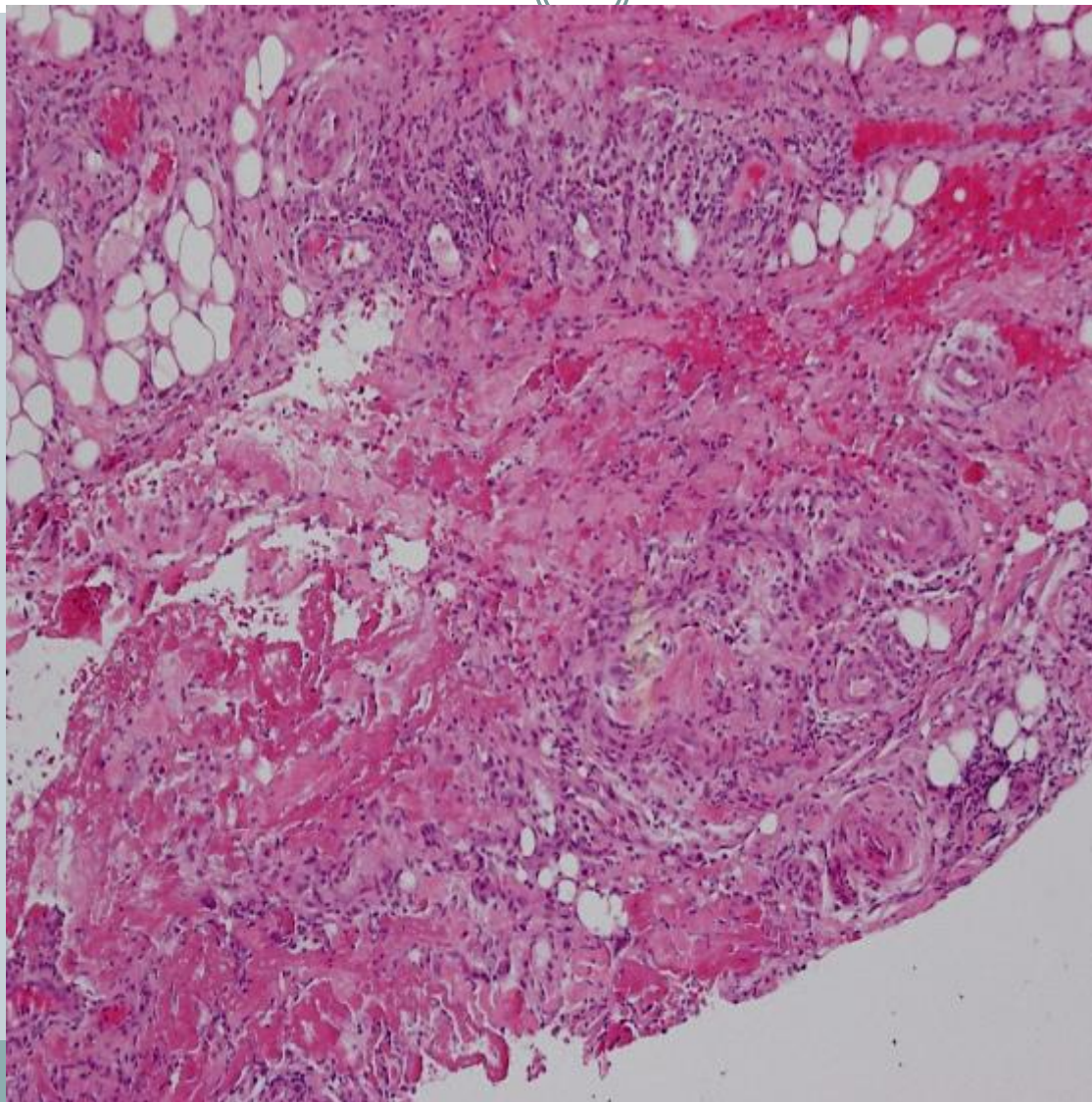
- **With Dr. Nguyen**

Supra medial Orbit OD



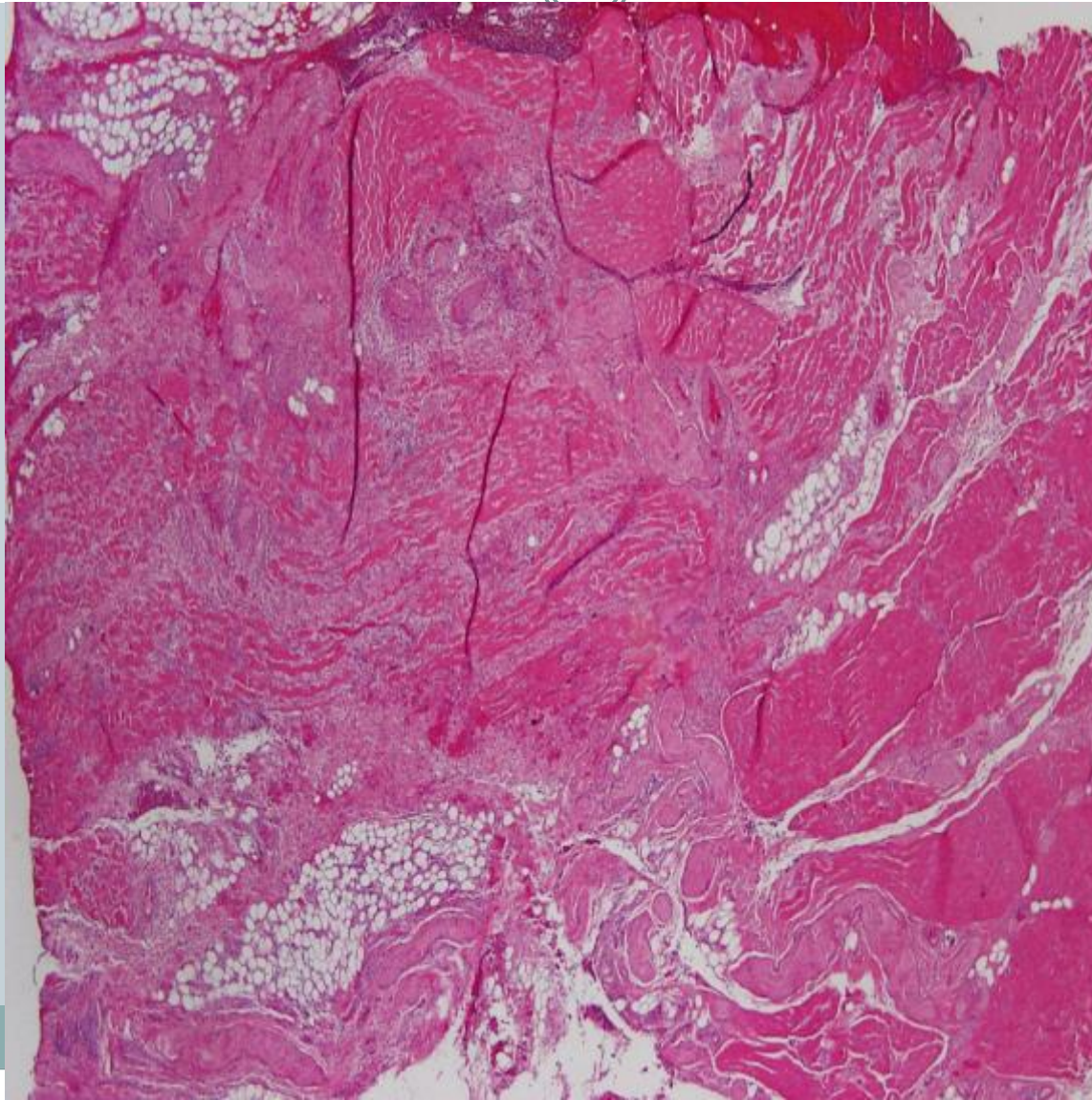
H&E 20x

Supra medial Orbit OD



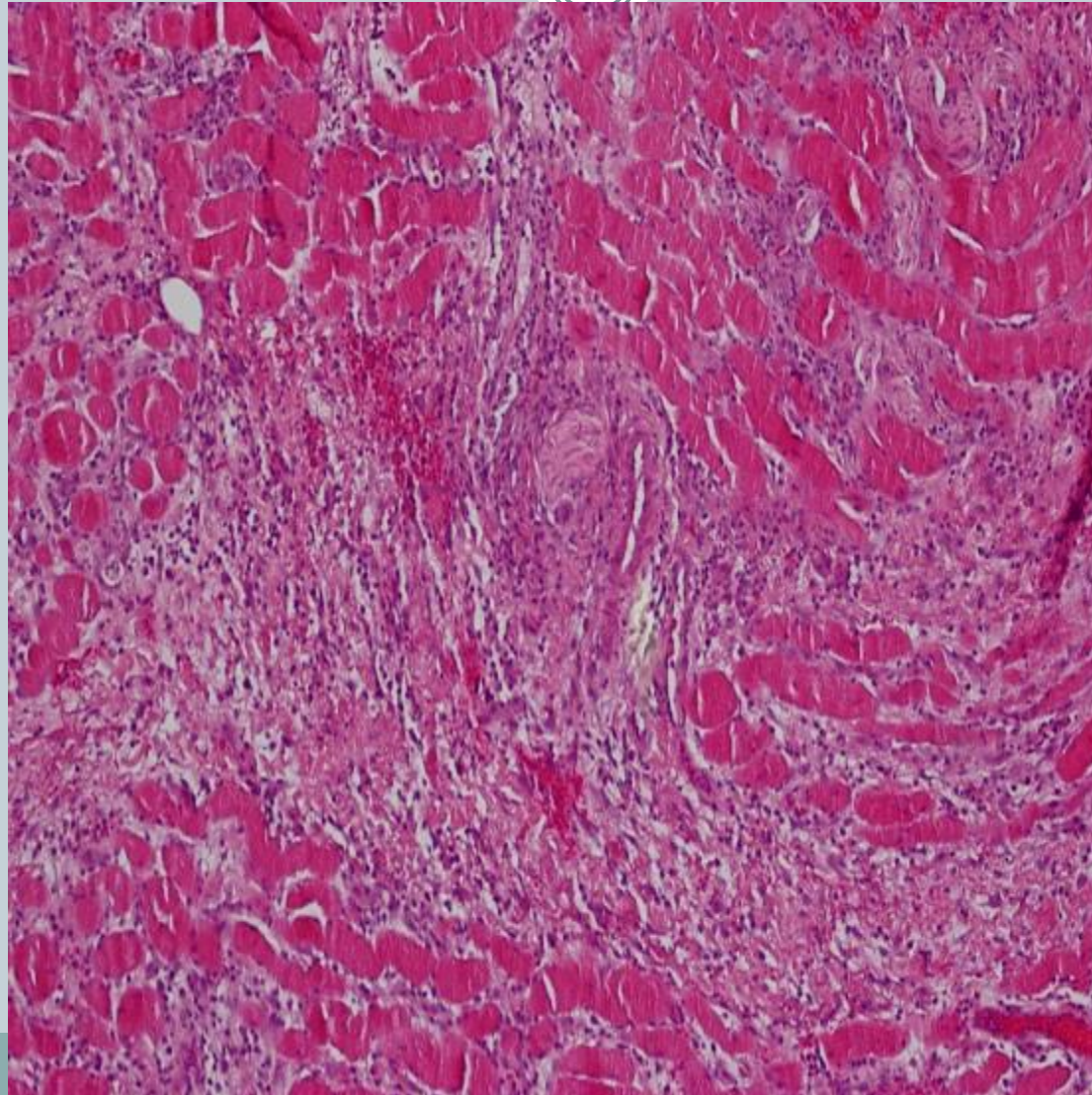
H&E 100x

Inferior Orbital Rim OD



H&E 20x

Inferior Orbital Rim OD



H&E 100x



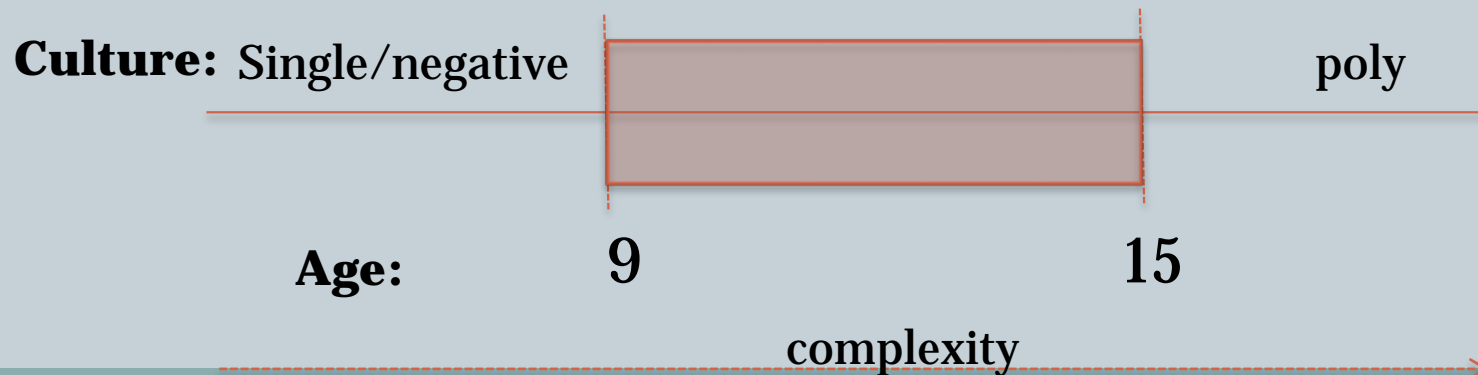
- **Dx: orbital cellulitis**
 - Improvement on antibiotics, few IgG-4 positive plasma cells



Bacteriology



- **Adults: usually polymicrobial**
 - gram-positive cocci such as *H. influenzae*, *M. catarrhalis*, and anaerobes)
- **Under 9: single, gram (+) organism**
 - Staph with ?MRSA frequency increasing (8/11)
 - Strep species



Less Common



- Fungal (*Mucor*, *Aspergillus*)

Route of Entry



- Direct inoculation
- Hematogenous spread
- Extension of an infection of face, sinuses, lacrimal sac, or globe
 - Increased incidence during winter months

Medical and Surgical Management



- **Per Dr. Choi**

Consequences of delayed therapy and/or inadequate therapy



- **Blindness (11%)**
- **Orbital abscess (7-9%)**
- **Meningitis (2%)**
- **Cavernous sinus thrombosis (1%)**
- **Intracranial/epidural/subdural abscess (1%)**
- **Mortality**

Brain Infection History



- Henry II, King of France – orbital trauma from jousting destroyed his eye but did not penetrate the CNS. He died shortly thereafter. Found to have brain abscess as one of first documented cases by autopsy.
- Trepanation – first surgical procedure ever performed
- 1768 – first report of successful surgical tx of brain abscess
- 1893 – chicken bones used to drain pus with only 5.3% mortality
- Mortality of 80-100% in the preantibiotic era
 - Since 1940: 20-30%

Intracranial Spread



- **Tx of primary site: antibiotics +/- surgical**
 - 3-4 weeks of antibiotics
- **Medical management of abscess:**
 - <2.5 cm in size
 - Good initial clinical condition (GCS >12)
 - Etiology well-known (microorganism)
 - Those at serious risk of complication from surgery
- **Drainage of intracranial abscess**
 - Not usually performed for cavernous sinus involvement
 - Within 3 days of antibiotic therapy

Sources



- *Ebright et al., “Septic Thrombosis of the Cavernous Sinus.” Arch Intern Med, 2001.*
- *Garcia et al., “Criteria for Nonsurgical Management of Subperiosteal Abscess of the Orbit.” Ophth, 2000.*
- *Harris, “Subperiosteal Abscess of the Orbit: Age as a Factor in the Bacteriology and Response to Treatment”. Ophth, 2014.*
- *McKinley et al., “Microbiology of Pediatric Orbital Cellulitis.” AJO, 2007.*
- *Miranda et al., “Brain abscess: Current management. J. Neuro Rural Prc, 2013.*
- *Segal et al., “Orbital Complications associated with paranasal sinus infections – A 10-year experience in Israel.” Int J Ped Otorhino, 2016.*
- *Seltz et al., Microbiology and Antibiotic Management of Orbital Cellulitis. Peds, 2011.*

Special thanks...



- Dr. Patel
- Dr. Christiansen
- Dr. Nguyen
- Residents that took part in this case