Chiefs' Rounds

WillsEye Hospital

January 14, 2021

Collin Rozanski, MD | PGY-2

Financial disclosures

- No financial disclosures
- No discussion of off label uses of medications or treatments

History

- 44-year old Caucasian male presents with intermittent sharp pains along his right cheek bone extending towards nose for 4 days
- Notices small bumps in the same area
- Presents to Urgent Care

Past Ocular History

- Red-Green color blindness

Past Medical History

- None

Past Surgical History

- None

Medications

- None

Social and Family History

- No alcohol, smoking, or drug use
- Owns a dog, no other pets
- Recreationally plays basketball
- Recent hiking trip
- Family history:
  - HTN

Review of Systems

- None

Physical Exam

- Head and Neck:
  - Normocephalic, Atraumatic
  - Mild edema and erythema along the lower eyelid and infraorbital rim, nontender
  - No palpable preauricular, submandibular, or other lymph nodes
  - No other facial erythema, tenderness, edema
    - Cranial nerves II-XII intact
      - No hypoesthesia in the V1, V2, or V3 distribution bilaterally

Urgent Care setting: Next step?

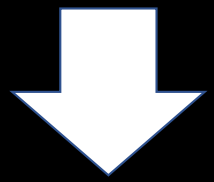
Management

- Presumptive diagnosis: Varicella Zoster Dermatitis in Right-sided V2 distribution

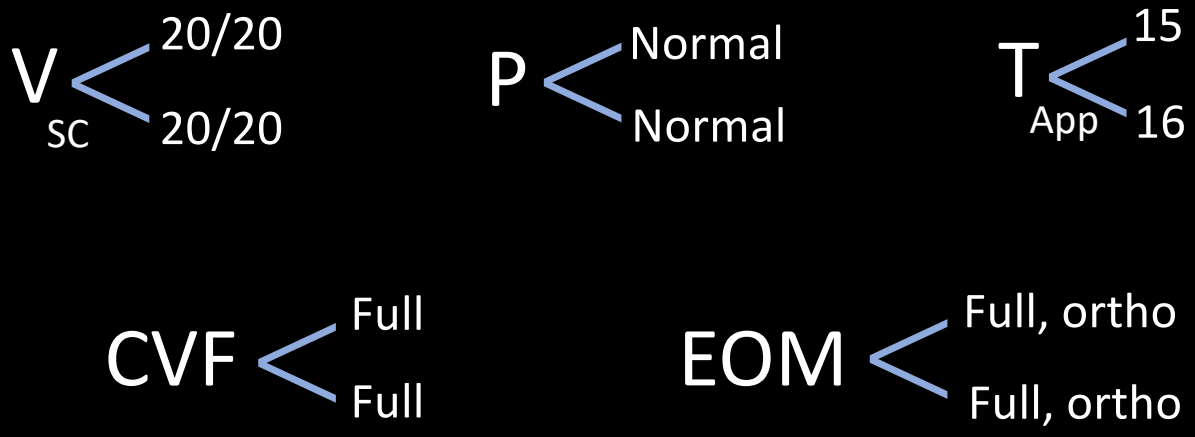
- Started on Valacyclovir 1g three times daily

Interval

- Continued occasional sharp, 9/10 pains in same area
  - Prescribed Gabapentin by Primary Care Provider
- Increased swelling and redness of infraorbital region
- Notices 1-2 small bumps



- Referred to outside ophthalmologist 2 weeks after Urgent Care visit



No pain with extraocular movements
No proptosis

Exam

Adnexal exam:

1x1cm firm area of erythema and swelling over the right lacrimal sac. Tender, mildly fluctuant. Small area of scabbing over the right lacrimal sac.

No vesicular lesions. No preauricular or submandibular lymph nodes palpable

No trigeminal hypoesthesia in the V1, V2, or V3 distribution bilaterally

OD		OS
1+ Edema RUL, LLL **1+ Erythema RUL, LLL**	**Lids**	Quiet
Trace diffuse chemosis **Trace nasal injection**	**Conjunctiva**	White and Quiet
Clear	**Cornea**	Clear
Deep and Quiet	**Anterior Chamber**	Deep and Quiet
Flat	**Iris**	Flat
Clear	**Lens**	Clear

Differential diagnosis?

Differential: Lower eyelid / Lacrimal sac swelling

Infectious:

- Dacryocystitis
- Preseptal cellulitis
- Orbital cellulitis
- Acute ethmoidal sinusitis
- Canaliculitis
- Herpetic dermatitis
- Infected sebaceous cyst
- Parasitic

Miscellaneous:

- Dacryocystocele
- Frontal sinus mucocele/mucopyocele

Neoplastic:

- Lacrimal sac tumors:
  - Epithelial (benign)
    - Papilloma, Oncocytoma, Adenoma
  - Epithelial (malignant)
    - Squamous cell carcinoma, Adenocarcinoma, Mucoepidermoid carcinoma, Cystic adenoid carcinoma, Inverted papilloma
  - Nonepithelial
    - Lymphoproliferative
    - Melanocytic
    - Mesenchymal

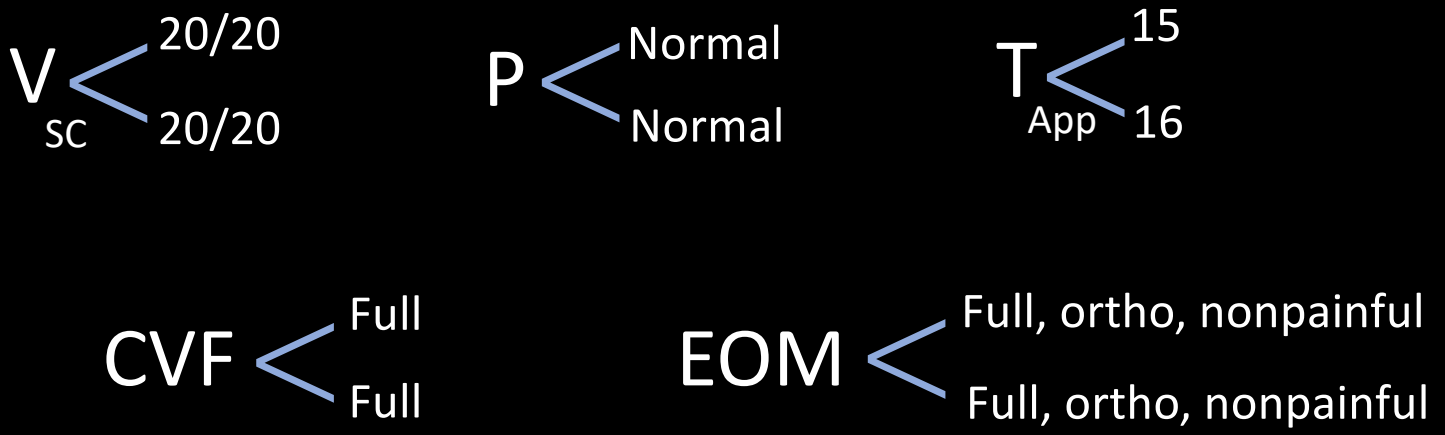
Next step?

Management

- Discharged on Cephalexin
- Given strict return precautions if symptoms worsen

Interval

- Current Rx: Gabapentin PRN
  - s/p Valacyclovir, Cephalexin
- Patient seen in Urgent Care → started Clindamycin
- Following day: continued pain in same distribution
- Instructed to proceed to the Wills Eye Emergency Room by PCP



Adnexal exam:

2x1cm firm, tender, mildly fluctuant area of erythema and swelling over the right lacrimal sac.

Central 0.2mm central opening with scant serosanguinous drainage.

No further discharge upon digital palpation

No vesicular lesions. No preauricular or submandibular lymph nodes palpable

No trigeminal hypoesthesia in the V1, V2, or V3 distribution bilaterally

Exam

Adnexal exam:

2x1cm soft, tender, mildly fluctuant area of erythema and swelling over the right lacrimal sac.

Central 0.2mm central opening with scant serosanguinous drainage

OD		OS
1+ Edema RUL, LLL 1+ Erythema RUL, LLL	**Lids**	Quiet
Trace diffuse chemosis Trace nasal injection	**Conjunctiva**	White and Quiet
Clear	**Cornea**	Clear
Deep and Quiet	**Anterior Chamber**	Deep and Quiet
Flat	**Iris**	Flat
Clear	**Lens**	Clear

Dilated Fundus Exam

OD		OS
Clear, no vitreous cell	**Vitreous**	Clear, no vitreous cell
Normal, C/D 0.2	**Disc**	Normal, C/D 0.2
Flat	**Macula**	Flat
Normal	**Vessels**	Normal
Normal	**Periphery**	Normal

Differential: Lower eyelid / Lacrimal sac swelling

Infectious:

- Dacryocystitis
- Abscess
- Preseptal cellulitis
- Orbital cellulitis
- Acute ethmoidal sinusitis
- Canaliculitis
- Herpetic dermatitis
- Infected sebaceous cyst
- Parasitic

Miscellaneous:

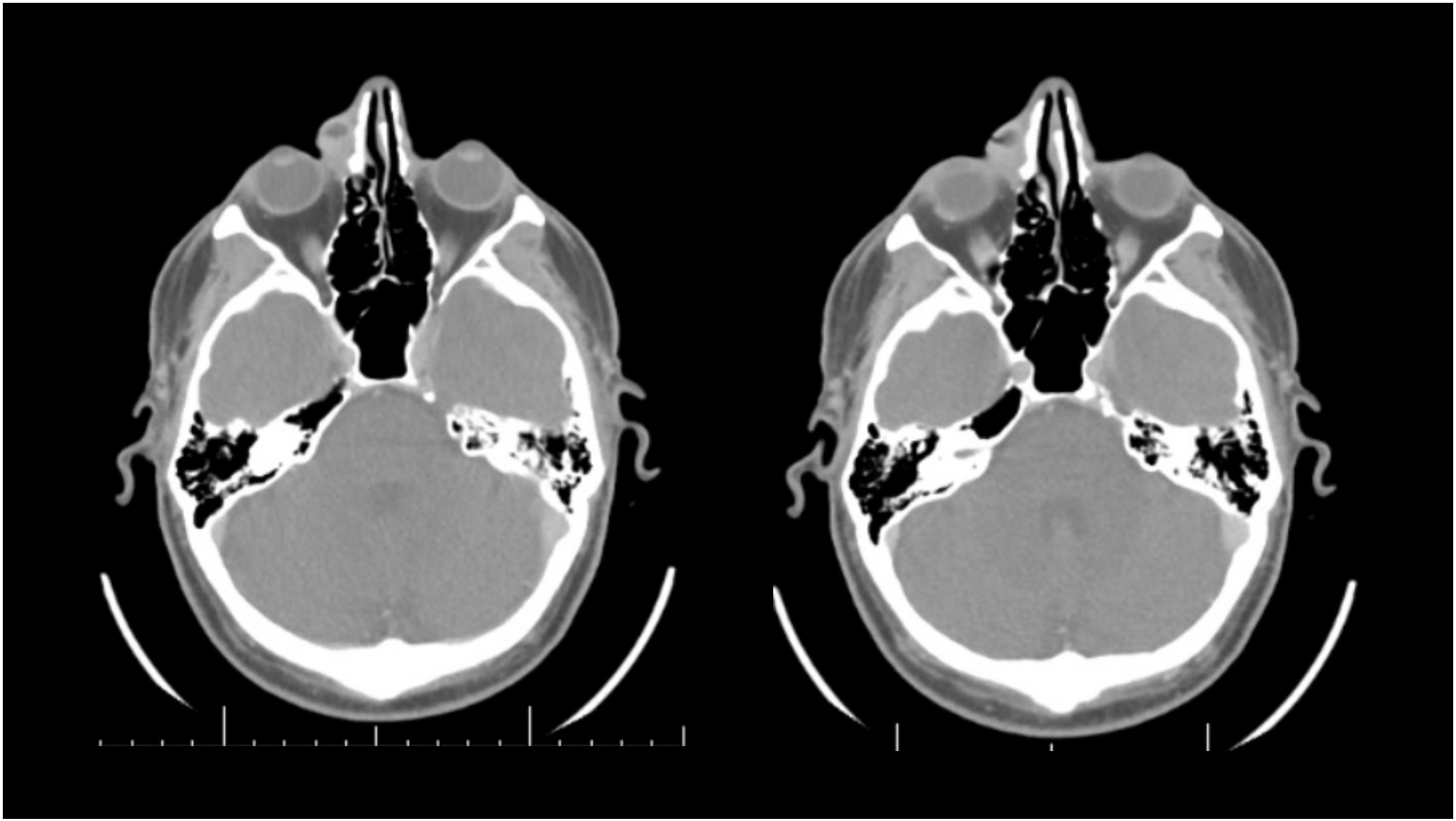
- Dacryocystocele
- Frontal sinus mucocele/mucopyocele

Neoplastic:

- Lacrimal sac tumors:
  - Epithelial (benign)
    - Papilloma, Oncocytoma, Adenoma
  - Epithelial (malignant)
    - Squamous cell carcinoma, Adenocarcinoma, Mucoepidermoid carcinoma, Cystic adenoid carcinoma, Inverted papilloma
  - Nonepithelial
    - Lymphoproliferative
    - Melanocytic
    - Mesenchymal

Next steps?

Further Work-Up?




S

Management

- CT Stryker:

1.6 x 1.3 cm enhancing soft tissue swelling at the right medial canthus region most consistent with infected dacryocystocele/dacryocystitis. Within this phlegmon there is a thick walled rim enhancing collection measuring 7 x 8 mm most consistent with infected dacryocystocele. Mild Preseptal swelling.

Next steps?

Management

- CT Stryker:

1.6 x 1.3 cm enhancing soft tissue swelling at the right medial canthus region most consistent with infected dacryocystocele/dacryocystitis. Within this phlegmon there is a thick walled rim enhancing collection measuring 7 x 8 mm most consistent with infected dacryocystocele. Mild Preseptal swelling.

- Attempted drainage through central opening → Minimal serous drainage

Management

- CT Stryker:

1.6 x 1.3 cm enhancing soft tissue swelling at the right medial canthus region most consistent with infected dacryocystocele/dacryocystitis. Within this phlegmon there is a thick walled rim enhancing collection measuring 7 x 8 mm most consistent with infected dacryocystocele. Mild Preseptal swelling.

- Attempted drainage through central opening → Minimal serous drainage

- Next steps?

Management

- Rx: 1 dose IV cephalexin, Continue clindamycin, Start trimethoprim / sulfamethoxazole

- Referred to Oculoplastics clinic in 3 days

Interval:

- While at home showering patient notices firm debris in opening
- Gentle pressure → Expels single piece of debris
- Presents to outside Emergency Room


cm
1
2
3
4
12
11

Differential: Lower eyelid / Lacrimal sac swelling

Infectious:

- Dacryocystitis
- Preseptal cellulitis
- Orbital cellulitis
- Acute ethmoidal sinusitis
- Canaliculitis
- Herpetic dermatitis
- Infected sebaceous cyst
- Parasitic

Miscellaneous:

- Dacryocystocele
- Frontal sinus mucocele/mucopyocele

Neoplastic:

- Lacrimal sac tumors:
  - Epithelial (benign)
    - Papilloma, Oncocytoma, Adenoma
  - Epithelial (malignant)
    - Squamous cell carcinoma, Adenocarcinoma, Mucoepidermoid carcinoma, Cystic adenoid carcinoma, Inverted papilloma
  - Nonepithelial
    - Lymphoproliferative
    - Melanocytic
    - Mesenchymal

Differential: Lower eyelid / Lacrimal sac swelling

Infectious:

- ~~Dacryocystitis~~
- ~~Preseptal cellulitis~~
- ~~Orbital cellulitis~~
- ~~Acute ethmoidal sinusitis~~
- ~~Canaliculitis~~
- ~~Herpetic dermatitis~~
- ~~Infected sebaceous cyst~~
- **Parasitic**

~~Miscellaneous:~~

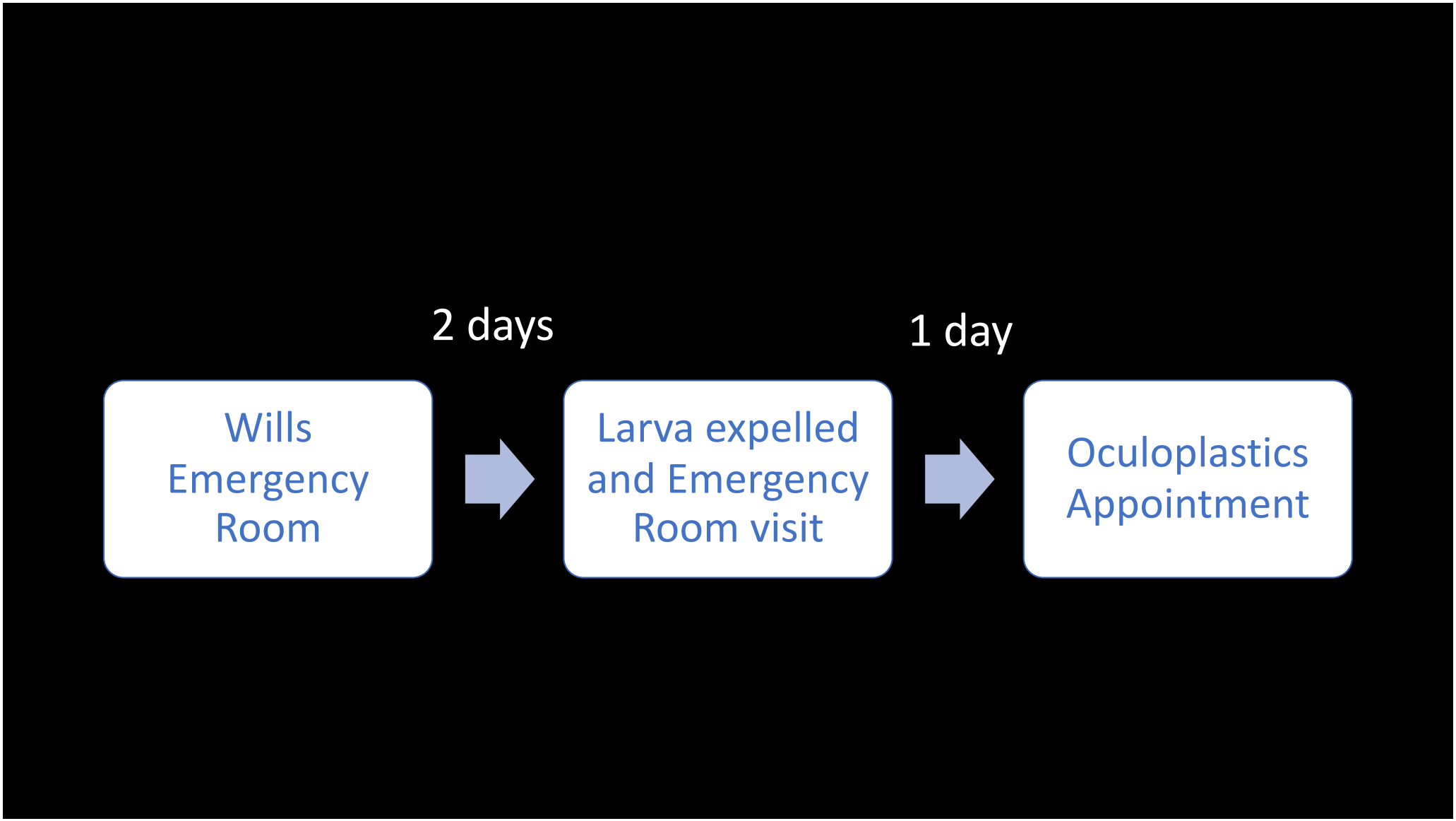
- ~~Dacryocystocele~~
- ~~Frontal sinus mucocele/mucopyocele~~

~~Neoplastic~~:

- ~~Lacrimal sac tumors:~~
  - ~~Epithelial (benign)~~
    - ~~Papilloma, Oncocytoma, Adenoma~~
  - ~~Epithelial (malignant)~~
    - ~~Squamous cell carcinoma, Adenocarcinoma, Mucoepidermoid carcinoma, Cystic adenoid carcinoma, Inverted papilloma~~
  - ~~Nonepithelial~~
    - ~~Lymphoproliferative~~
    - ~~Melanocytic~~
    - ~~Mesenchymal~~

Outside Emergency Room visit:

- Debris identified as botfly larva
- No further larvae identified
- Instructed to follow up in oculoplastics clinic


2 days
1 day
Wills Emergency Room
Larva expelled and Emergency Room visit
Oculoplastics Appointment

Referred to Oculoplastics Clinic

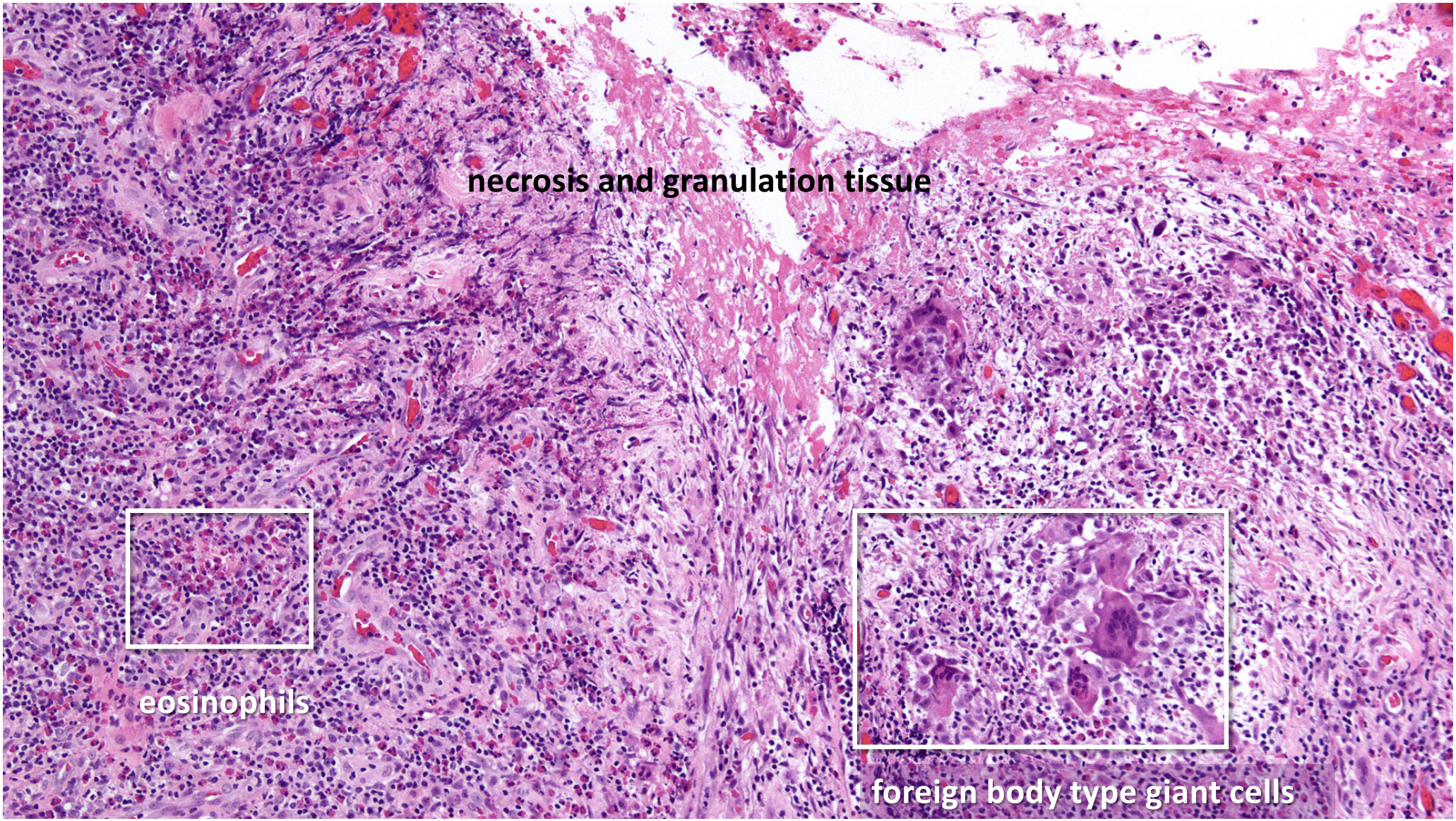
- Area of erythema, edema, induration over lacrimal sac for 3.5 weeks
- Interval history: Single large piece of debris expelled from central opening, confirmed as botfly larvae at outside hospital
- SLE remains unremarkable other than conjunctival injection, chemosis

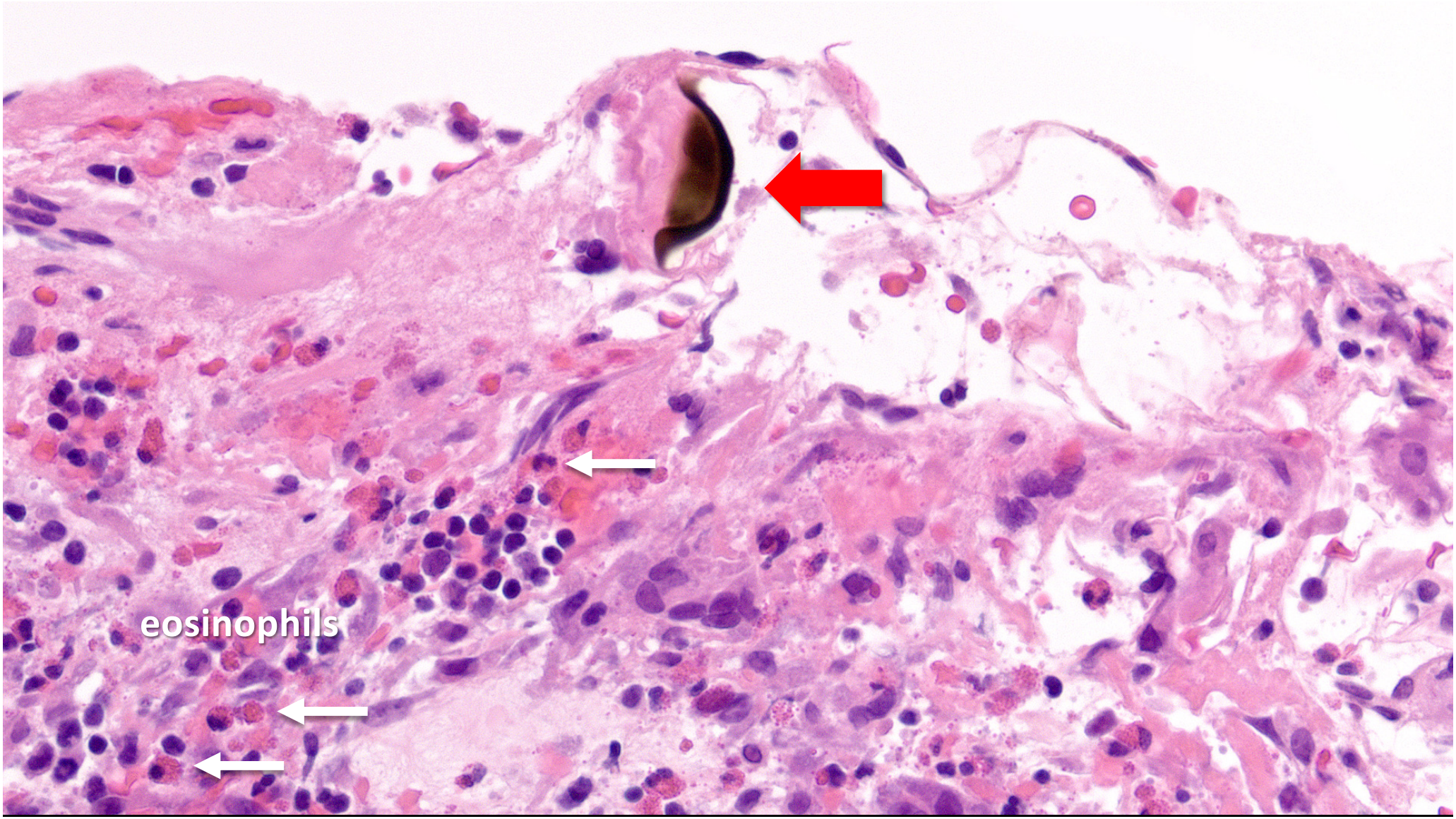
Adnexal exam:
2x1cm soft, tender, mildly fluctuant area of erythema and swelling over the right lacrimal sac.
Central 0.2mm central opening with scant serosanguinous drainage

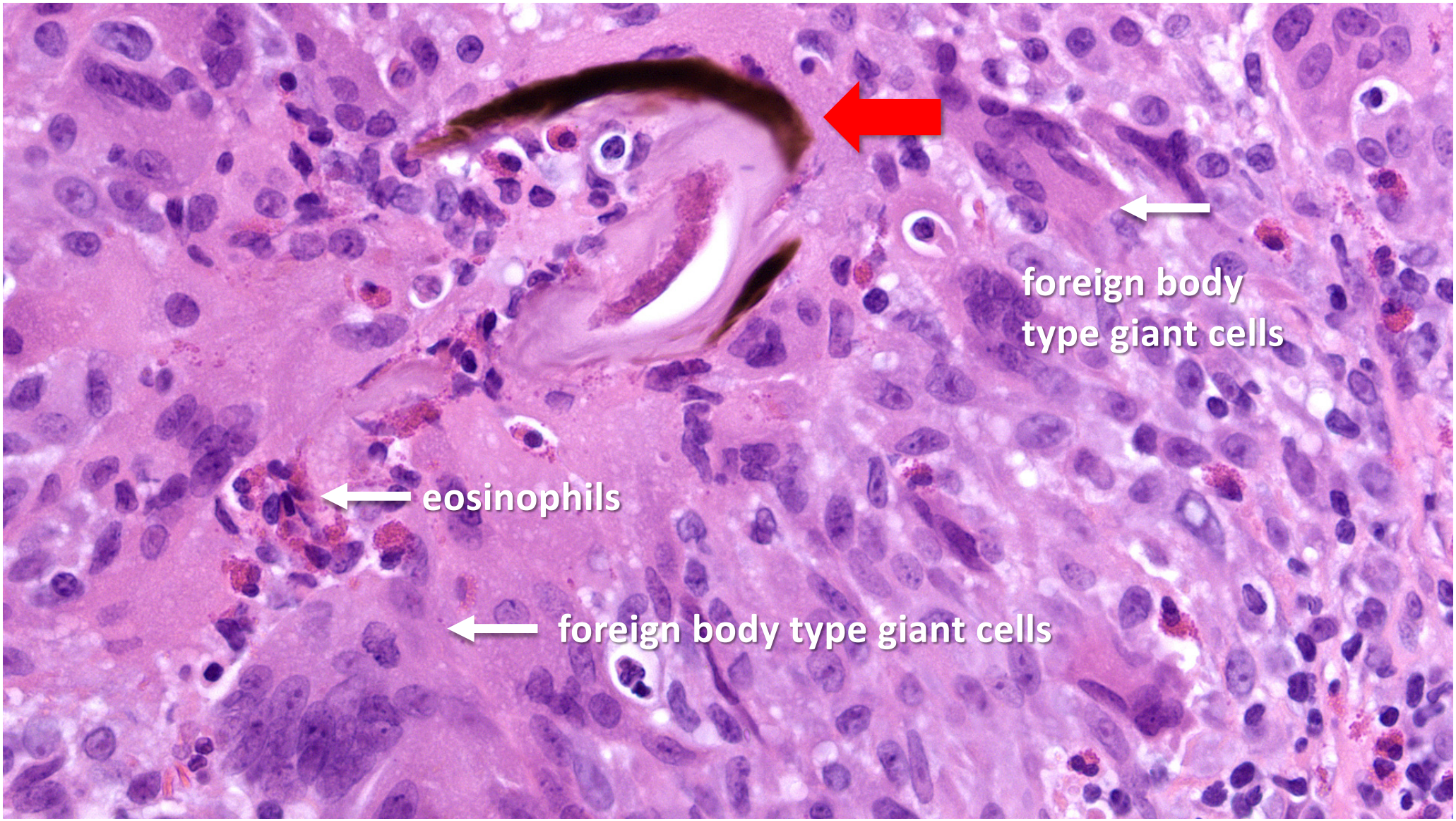
Next steps?

Management

- Scheduled for surgery same week for removal and possible dacryocystorhinostomy
- No involvement of lacrimal system
- Pathology sent:


necrosis and granulation tissue
eosinophils
foreign body type giant cells


eosinophils


foreign body
type giant cells
eosinophils
foreign body type giant cells

Post-operative course

- Improved but persistent induration in same location
- Repeat excision in office, trimethoprim/sulfamethoxazole started x 7 days
- Patient symptoms resolve

Botfly Myiasis

- Remaining question:
  - Etiology of infestation?

Botfly Myiasis

- Infection with larvae of Diptera (2-winged fly) order
- Greek word for “fly”: *myia*
- Global prevalence:
  - Central and South America: *Dermatobia hominus* (human botfly)
  - Africa: *Cordylobia anthropophaga* (tumbu fly)
- North America:
  - Travelers returning from endemic regions
  - Non-travelers: *Cuterebra* (North American botfly)

Botfly Myiasis

Myiasis in Travelers

Tamar Lachish, MD ✉, Enbal Marhoom, MD, Kosta Y. Mumcuoglu, PhD, Moshik Tandlich, DMD, Eli Schwartz, MD

Journal of Travel Medicine, Volume 22, Issue 4, 1 July 2015, Pages 232–236, https://doi.org/10.1111/jtm.12203

Published: 25 September 2015

Botfly Myiasis

North American cuterebrid myiasis

Report of seventeen new infections of human beings and review of the disease

J. Kevin Baird, LT, MSC, USN,[a] Craig R. Baird, PhD,[b] and Curtis W. Sabrosky, ScD[c]
Washington, D.C., and Parma, Idaho

TROPICAL, TRAVEL AND EMERGING INFECTIONS (L CHEN, SECTION EDITORS)

Cutaneous Myiasis

Michal Solomon[1] · Tamar Lachish[2] · Eli Schwartz[3,4]

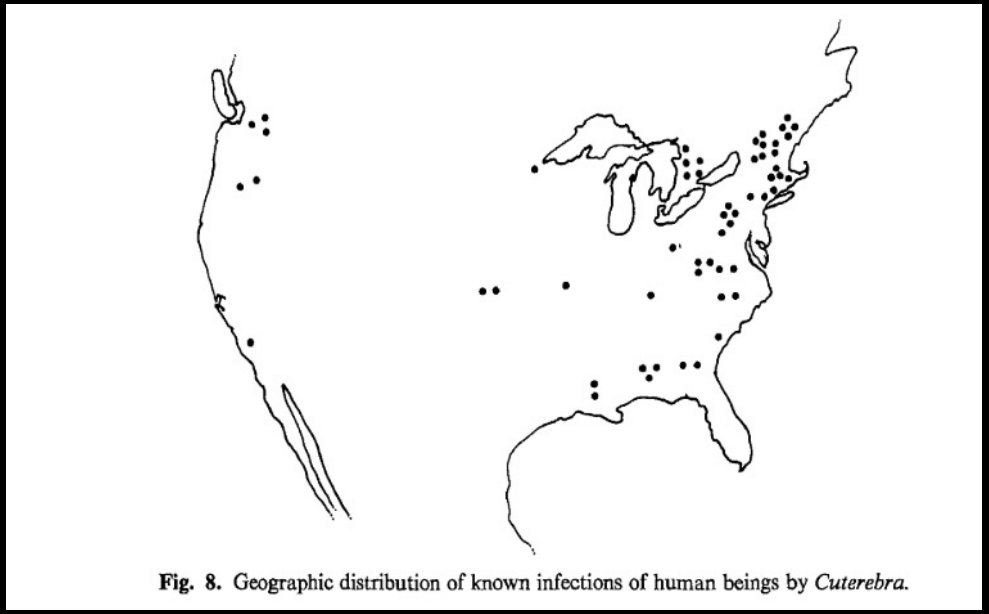


Fig. 8. Geographic distribution of known infections of human beings by *Cuterebra*.

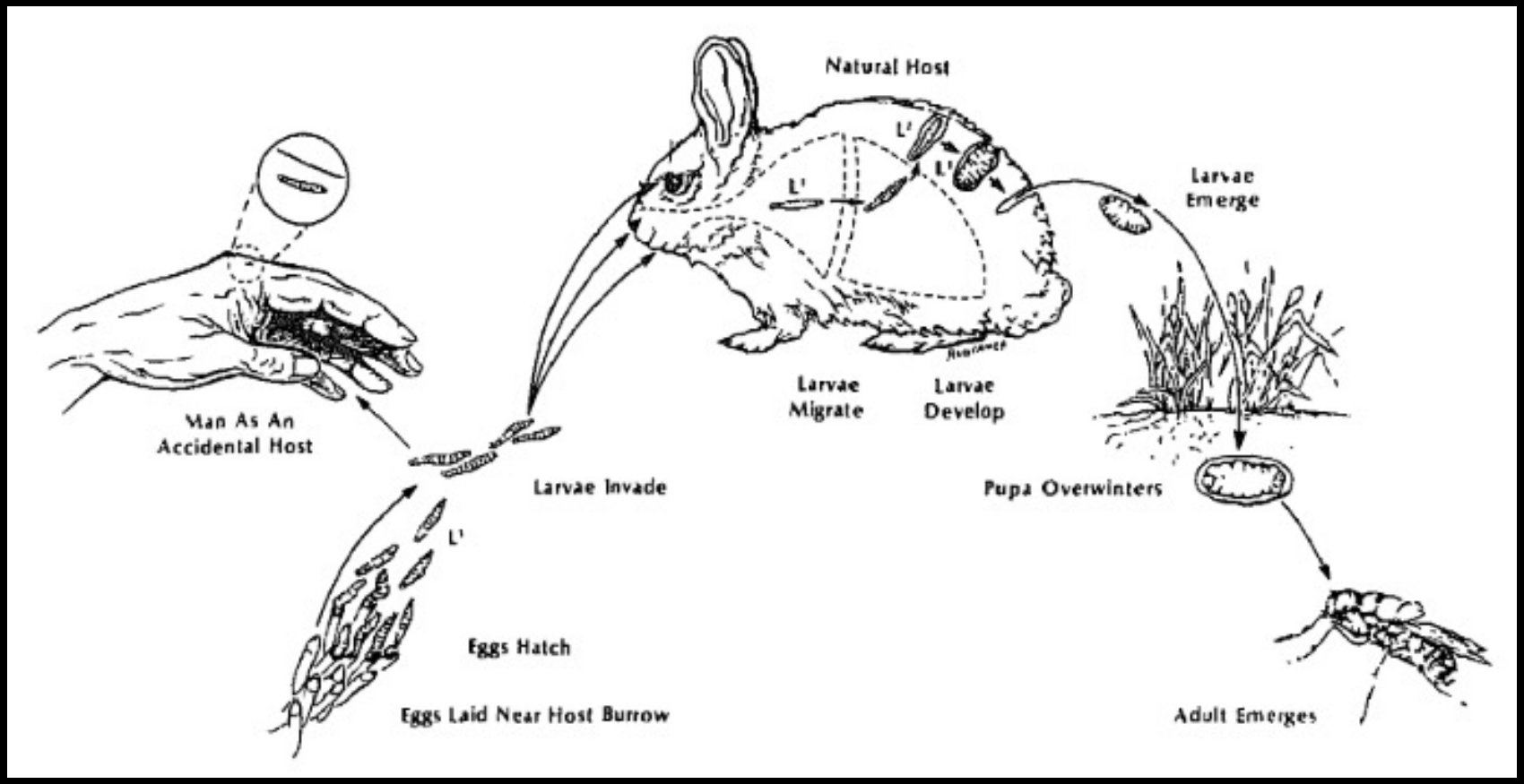
Botfly Myiasis

- Most commonly presents as cutaneous infection: Furuncular myiasis
  - Symptoms
    - Sharp, stinging pains
    - Tenderness
    - Pruritis
  - Signs: 1 – 2cm furuncle with characteristic central punctum

Botfly Myiasis

- Signs: 1 – 2cm furuncle with characteristic central punctum

Botfly Myiasis



Botfly Myiasis

Medications

- None

Social and Family History

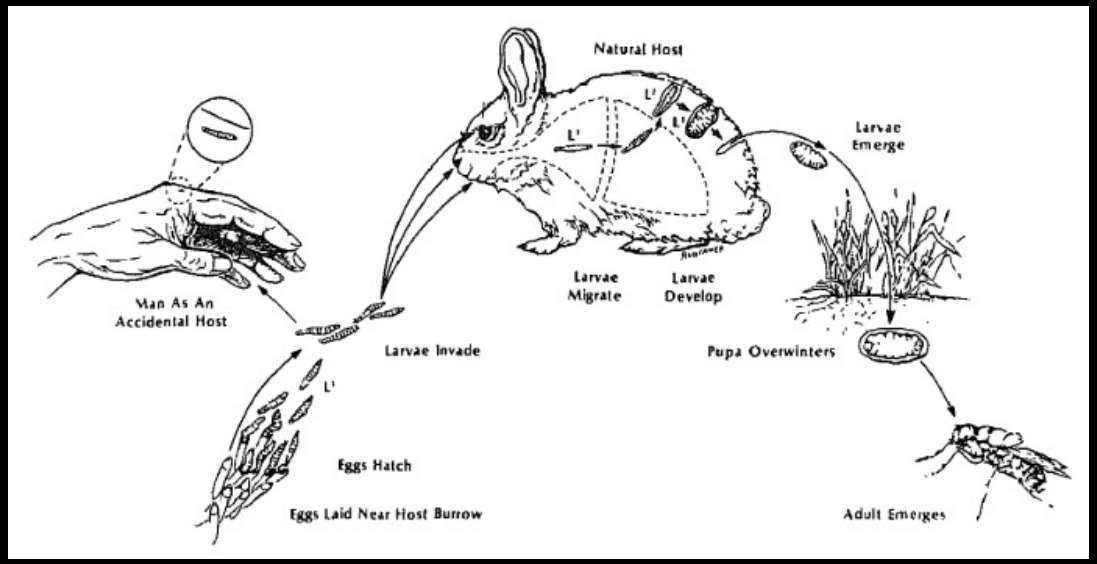
- No alcohol, smoking, or drug use
- Owns a dog, no other pets
- Recreationally plays basketball
- Recent hiking trip
- Family history:
  - HTN

Review of Systems

- None

Botfly Myiasis

- Social and Family History
  - No alcohol, smoking, or drug use
  - Owns a dog, no other pets
  - Recreationally plays basketball
  - Recent hiking trip
  - Family history:
    - HTN



Botfly Myiasis

Botfly Myiasis

- Treatment:
  - Dependent on larva extraction
  - Initial: Oily ointment (e.g. paraffin, petroleum) over breathing hole
    - Suffocation → Manual extraction
  - Persistence: Surgical excision
  - Partial extraction: Surgical excision
  - Secondary bacterial infection: Antibiotic prophylaxis

Botfly Myiasis

Summary

- 44 yo male presents with sharp infraorbital pains and area of induration with central opening over his right lacrimal sac
- After a hiking trip and in the setting of dog ownership
- Examination of debris extracted from opening demonstrated insect larva
- Histopathologic examination of surgical specimens demonstrated botfly spine in granulomatous and inflammation rich infiltrate
- His presentation is presumed to be from botfly infestation and extraction in addition to surgical debridement resulted in resolution of his symptoms

References

1. Solomon M, Lachish T, Schwartz E. Cutaneous Myiasis. *Curr Infect Dis Rep*. 2016;18(28). doi:10.1007/s11908-016-0537-6

2. Mahal JJ, Sperling JD. Furuncular myiasis from dermatobia hominus: A case of human botfly infestation. *J Emerg Med*. 2012;43(4):618-621. doi:10.1016/j.jemermed.2009.11.030

3. Ahmet AH, Krafchik BR. The Unidentified Parasite: A Probable Case of North American Cuterebrid Myiasis in a Pediatric Patient. *Pediatr Dermatol*. 2004;21(4):515-516.

4. Ofordeme KG, Papa L, Brennan DF. Botfly myiasis: a case report. *Can J Emerg Med*. 2007;9(5):380-382. doi:10.1017/S1481803500015360

5. Baird JK, Baird CR, Sabrosky CW. North American cuterebrid myiasis: Report of seventeen new infections of human beings and review of the disease. *J Am Acad Dermatol*. 1989;21(4):763-772. doi:10.1016/S0190-9622(89)70252-8

6. Lachish T, Marhoom E, Mumcuoglu KY, Tandlich M, Schwartz E. Myiasis in Travelers. Published online 2015. doi:10.1111/jtm.12203

Thank You

- Dr. Ramesh
- Dr. Milman
- Dr. Obeid
- Dr. Yang
- Class of 2024