LOSING SIGHT

Pediatric Hospital Medicine Conference

Conundrums Session #1

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Disclosures

- There are no financial relationships to disclose.

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HPI

- A 16 month old previously healthy female admitted to the pediatric hospitalist service with concerns for gross motor regression, poor visual tracking, and peripheral eosinophilia (20% with absolute eosinophil count 3.1 (ref 0.0-0.7 K/uL). She originally presented to hematology after referral for eosinophilia and the inability to walk for one month duration.

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Additional Questions

- Her family runs a daycare on their farm.
- They own outdoor barn cats but no other pets
- She is up to date on her immunizations.
- Born at 35 weeks via cesarean section, twin delivery, 11 day NICU stay for respiratory complications.
- Everyone else is healthy at home and at the daycare.
- She had normal development prior to presentation.
- One month ago her and her family had a likely viral illness with vomiting and diarrhea which resolved spontaneously.
  - Noted to have eosinophilia at this time, prompting outpatient hematology clinic referral.

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Physical Exam (pertinent positives)

- Vitals: temp 98.2F, Pulse 126, BP 120/94, RR 24, Sat O2 98% on RA
- Eyes: Her extraocular movements were intact, she had a conjugate gaze, but she had no visual tracking. Her pupils were slightly dilated, equal, round, and reactive to light.
- Extremities: moves all extremities spontaneously; hypertonia: knees extended and ankles plantar flexed at rest; no obvious tenderness or deformities
- Neurological: Pupils dilated, equal and responsive to light, no visual tracking, patellar reflexes 3+, strength 5/5 bilaterally upper and lower extremities, alert, talkative, able to walk with Mom holding her hands but gait is unsteady and needs mother's full support, can sit, eat, and crawl independently, she does reach for things but does not look at them, good grasp, she turns to sound, babbles, smiles and laughs and was otherwise acting her normal self per her mother's report.

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Initial Differential Diagnosis

- Pertinent positives:
  - -screening CBC with high eosinophil counts
  - -abnormal neurological exam with ataxia and regression of developmental milestones
  - -abnormal visual tracking
- Pertinent negatives:
  - -afebrile, no current upper respiratory symptoms or gastrointestinal symptoms
  - -normal growth and development prior to symptoms

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Initial Differential Diagnosis

- Central nervous system malignancy
- Post-Infectious Autoimmune Disease
  - -Atypical Guillain Barré Syndrome
  - -Miller-Fischer Syndrome
  - -Acute Cerebellar Ataxia
- Infectious Diseases Causing Meningitis/Encephalitis (Parasitic, Fungal, Viral, Bacterial)
- Heavy Metal Poisoning

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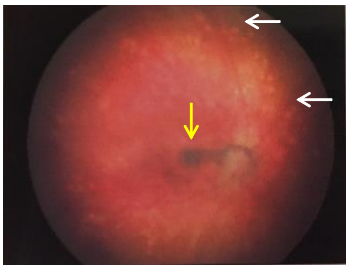
Additional Exam Technique

- Ophthalmologic Exam with Fundoscopic exam



- Exam pertinent for centrally located right optic nerve granuloma and retinal epithelial hyperpigmentation and hypopigmentation; left eye had a normal exam.

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Orders

What would you order next?

A) Head CT followed by a lumbar puncture

B) Brain MRI

C) Serum lab work

D) Lead levels

E) All of the above

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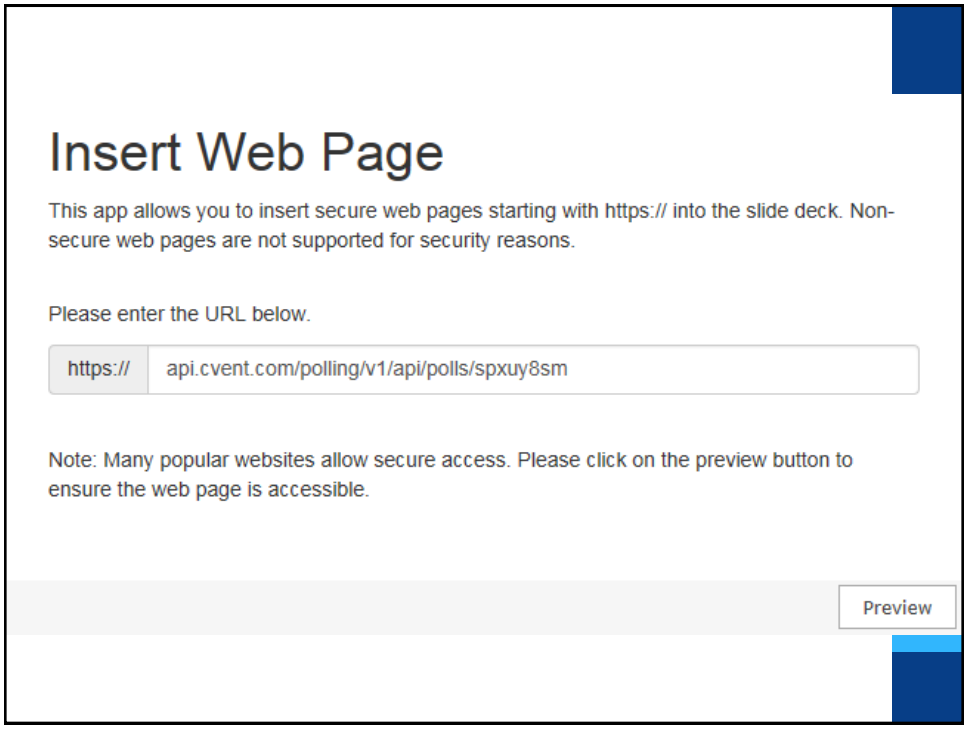

Orders

- MRI with and without contrast of brain and cervical spine
- CT with and without contrast of chest, abdomen, and pelvis
- Lumbar puncture with opening pressure, cell counts, cultures (AFB, aerobic, fungal), infectious disease meningitis/encephalitis panel
- Serum lab work for *Ascaris, Toxocara, Taenia solium, Strongyloides*, *Baylisascaris procyonis,* and fungal testing
- Stool ova and parasite testing along with fecal testing for Giardia and crytosporidium
- CMP, lead levels

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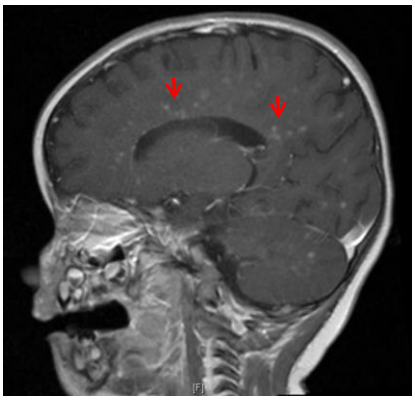
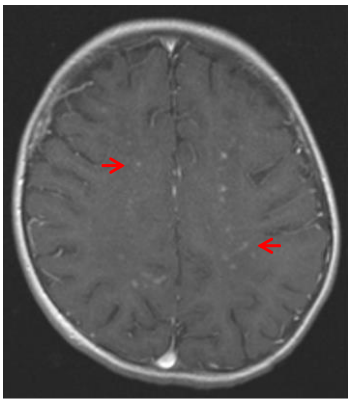
Clinical Course

- MRI imaging was significant for multiple enhancing lesions throughout her brain without any masses or hydrocephalus.





Clinical Course

- CT imaging of the chest, abdomen, and pelvis was normal with no lesions in any major organs.
- Lumbar puncture was significant for a high eosinophil percent with a negative meningitis/encephalitis panel.
- Stool and ova testing returned negative along with Giardia and Cryptosporidium studies.
- Serologies for *Ascaris, Toxocara, Taenia solium, Strongyloides* were negative.

Final Diagnosis

- Serologies returned back positive for *Baylisascaris procyonis.*
- Her final diagnosis was ocular and neural larval migrans due to *Baylisascaris procyonis.*

Baylisascaris procyonis, or raccoon roundworm, can cause a rare infection contracted from contact with raccoon feces, potentially causing permanent neurologic impairment or death (1). Once eggs are ingested, larvae can migrate to eyes, brain, and other organs.

Hospital Course

- Patient remained stable during her hospital course.
- Remainder of clinical course:
  - -twenty day course of 200mg of albendazole
  - -Systemic corticosteroids
  - -Tolerated treatment well without side effects
- Post-hospital stay:
  - -Occupational and physical therapy (still cannot walk independently)
  - -wears glasses to protect healthy left eye (poor vision of right eye)

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Wrap Up

- Lessons learned:
  - -Abnormal neurological examination requires prompt referral.
  - -Children are more likely to be exposed to parasitic infections due to certain behaviors such as pica.
  - -A detailed history including animal contacts is important.
  - -High index of suspicion is required for uncommon parasitic infections.

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References

- 1. Sircar AD, Abanyie F, Blumberg D, et al. Raccoon Roundworm Infection Associated with Central Nervous System Disease and Ocular Disease — Six States, 2013–2015. MMWR Morb Mortal Wkly Rep 2016;65:930–933. DOI: http://dx.doi.org/10.15585/mmwr.mm6535a2.