Headache in a Collegiate Golfer after Dental Procedures

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HISTORY

An 18-year-old male college golfer presented to the athletic training facility (ATF) **DAY 6** after a root canal to his right lower molar (tooth #30) with complaint of headache for several days. His headache pain was located behind both eyes, and was controlled with acetaminophen. He denied fever or vision changes. He was taking amoxicillin/clavulanate 875/125 BID (day 6/10) prescribed by his dentist for possible infection post procedure (**DAY 6 physical exam located below**).

PHYSICAL

Vital Signs: T-98.9^0 F, HR 68, BP 111/78
Head- NCAT
Eyes- PERRL, EOMI, vision normal, no proptosis
ENT: Hearing normal, external auditory canals & tympanic membranes normal; Oropharynx clear without exudate or PND; No nasal congestion, No frontal and maxillary sinuses tenderness.
Teeth and gums were normal and suture sight on right lower jaw with no sign of infection. No tenderness to palpation of lower molars. No lymphadenopathy.
Neck: supple and non-tender with normal flexion extension, and rotation
Heart: RRR**,** no murmurs, gallops, or friction rub
Lungs: CTA bilaterally, no wheezing or crackles
Skin: No rash or wounds
Neurological Exam: AOx3; speech, concentration, attention normal, anterograde and retrograde memory intact; CN2-12, DTR's, balance, and cerebellar testing normal

Due to his leaving on a multi-city trip later that day, he was advised to continue amoxicillin/clavulanate and acetaminophen, keep-in-touch by phone, seek medical attention out-of-town if headache worsened, and follow-up when he returned to town.

DAY 8- Patient called athletic trainer with complaint of continued headache and advised to go to an ED. The out-of-town ED diagnosed him with a migraine. After symptom relief with narcotics, he was discharged home to f/u with PCP. No imaging obtained.

DAY 9-13- Headaches continued and he began to have difficulty remembering where he was and finding rooms in the apartment he was staying.

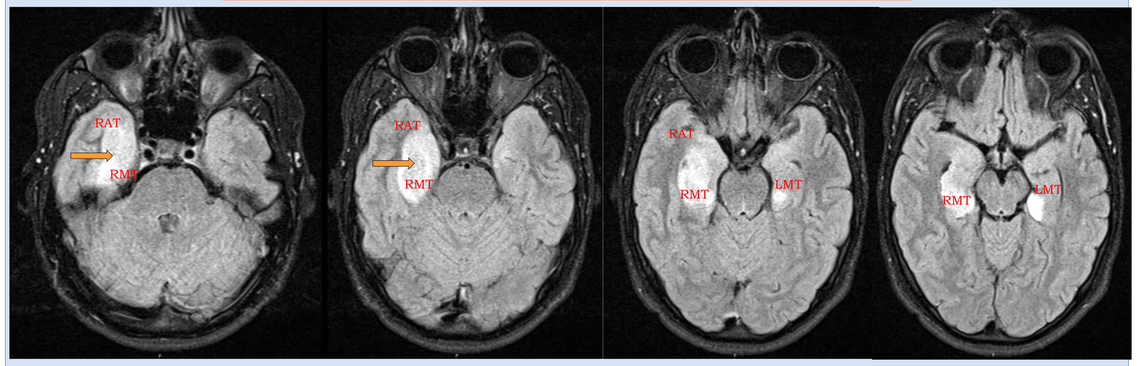
DAY 14- Returned home and saw dentist who extracted tooth #30 due to abscess and began another 10-day course of amoxicillin/clavulanic acid.

DAY 16- Went to ATF with pain behind right eye worse with movements while playing golf. Patient also complained of mouth pain, intermittent fevers (Tmax 102.6^{0}F) during the previous five days, balance difficulty, and confusion. **Vitals and neuro exam were normal**. **Laboratory studies and MRI ordered.**

DIFFERENTIAL DIAGNOSIS

- **Headache from dental abscess**
- **Migraine headache**
- **Tension headache**
- **Encephalitis (viral)**
- **Meningitis**
- **Subarachnoid hemorrhage**
- **Intracranial abscess**

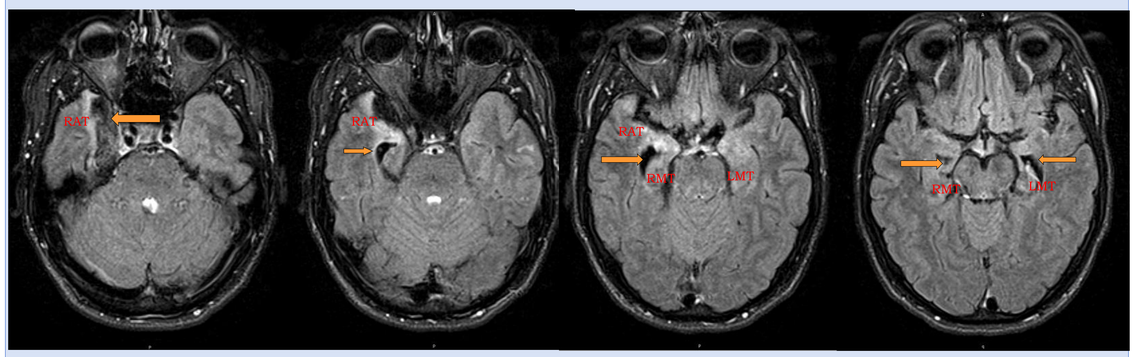
IMAGING



MRI DAY 16: Serial axial FLAIR neuroimages of the temporal lobe demonstrating increased signal involving the right anterior temporal lobe (RAT) and the right mesiotemporal lobe including the right hippocampus extending along the right fimbria (RMT). This also involves the posterior left hippocampus (LMT) to a lesser extent. There is some hypointense signal within the right hippocampus suggesting possible internal necrosis (arrow).
DAY 16- Patient called immediately and told to go to the ED for further testing and treatment

LABS AND RESULTS

Lumbar Puncture: WBC: 670, RBC: 260, Lymphs: 89, Mono: 11, Polys: 0, Appearance clear
CSF cultures and serologies negative for: Lyme's, Syphilis, Toxoplasma, Cryptococcus, CMV, EBV, West Nile, Enterovirus, fungal growth, bacterial growth
Positive for: HSV-1 by PCR
EEG: diffuse background slowing and some paroxysmal slowing from the temporal regions, R>L.



MRI DAY 132: Serial axial FLAIR neuroimages of the temporal lobe demonstrating progressive gliosis and atrophy (arrows) of the right anterior temporal lobe (RAT), and also decreased signal in the mesial right medial temporal lobe with progressive gliosis and atrophy of the right hippocampus (RMT). There is additional progressive gliosis and atrophy of the left posterior hippocampus/parahippocampal (LMT).

OUTCOME

DAY 17- In ED, patient had an LP, and was evaluated by neurosurgery and neurology. He denied SOB, cough, rhinorrhea, nasal congestion, or sick contacts. He noted a one-time remote history of a cold sore but denied history of genital rash or STD. Started on empiric treatment for bacterial and viral meningoencephalitis with IV vancomycin, ceftriaxone and IV acyclovir.
DAY 22 (Hospital day #5)**-** His headaches and confusion quickly improved after one full day of IV acyclovir. Discharged home with PICC line for the remaining 16 days of a 21 day course of IV acyclovir

TREATMENT

IV Acyclovir 10 mg/kg q8hr for 21 days total

FINAL WORKING DIAGNOSIS

HSV-1 meningoencephalitis

RETURN TO ACTIVITY & FOLLOW UP

- **DAY 38-** MRI completed after 21 day acyclovir PICC line treatment, showed improvement of bilateral medial temporal lobe edema left> right. Patient received an additional 2 week course of valacyclovir 1g tid p.o. Allowed to return to golf.
- **DAY 150-** No headache or memory symptoms, the patient reported a successful return to golf both stateside and internationally without symptoms and normal neurological function.
- Patient will have follow up at 12 months post infection +/- MRI depending on how he is doing clinically
- Patient will need yearly follow up to assess for possible sequelae such as memory deficits or seizures induced by the damage of the HSV encephalitis