

A mysterious case of “post-vacation psychosis”: Diagnostic dilemma and clinical reasoning

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Introduction

- Acute psychotic presentations in young patients are often attributed to toxic or infectious etiologies.
- After common causes are ruled out, identifying a firm diagnosis remains a challenge.
- In this report, we present a young woman with new-onset, acute psychosis following a five-day trip to Cancún, Mexico.
- We managed her empirically as a case of anti-N-methyl-D-aspartate receptor (NMDAR) encephalitis.
- Here, we describe our clinical reasoning and diagnostic approach towards this acute and atypical presentation.

Case Description

- A 23-year-old African American female with no significant past medical or psychiatric history was brought into the emergency department (ED) with new-onset acute psychosis.
- She had recently returned from a trip to Cancún, Mexico.
- Two days after returning home, she began to experience behavioral changes, hallucinations, disorientation, persecutory delusions, and memory loss.
- Family history and surgical history are non-contributory.
- She is not on any home medications, is sexually active, and uses marijuana twice a week.
- She denies any other illicit drug use.
- Upon arrival to the ED, she is afebrile and hemodynamically stable.
- On physical exam she is oriented only to self.
- Physical exam is otherwise unremarkable; meningeal signs are negative.
- CBC positive for elevated WBC ($20.6 \times 10^3/\mu\text{L}$) and elevated ANC ($16.6 \times 10^3/\mu\text{L}$).
- Urinalysis positive for ketones, urine toxicology screen positive only for cannabinoids.
- Negative laboratory workup includes:
 - Toxic (ethanol, tricyclic antidepressants, oxycodone, propoxyphene, salicylate)
 - Infectious (HIV, HSV-1, HSV-2, RPR, *N. gonorrhoeae*, *C. trachomatis*, Lyme, West Nile, SARS-CoV-2, CSF analysis)
 - Immune-mediated (ANA, CSF NMDAR IgG, CSF oligoclonal bands)
 - Metabolic (CMP, ammonia, lipid panel, ferritin)
 - Neoplastic (AFP)
- CT head without contrast, MRI of the brain with and without contrast, and EEG are also all negative.
- CT abdomen and pelvis reveal a crenulated right ovarian lesion measuring $2.5 \times 1.6 \text{ cm}$.
- As ovarian teratomas are commonly seen in association with anti-NMDAR encephalitis, we maintained a high level of clinical suspicion for this potentially fatal condition and promptly initiated treatment with IV methylprednisolone.
- Our patient showed marked improvement on this regimen and was discharged home without the need for transfer to an inpatient psychiatric facility.
- She was asked to follow up on an outpatient basis with gynecology regarding further management of the ovarian lesion.

Images

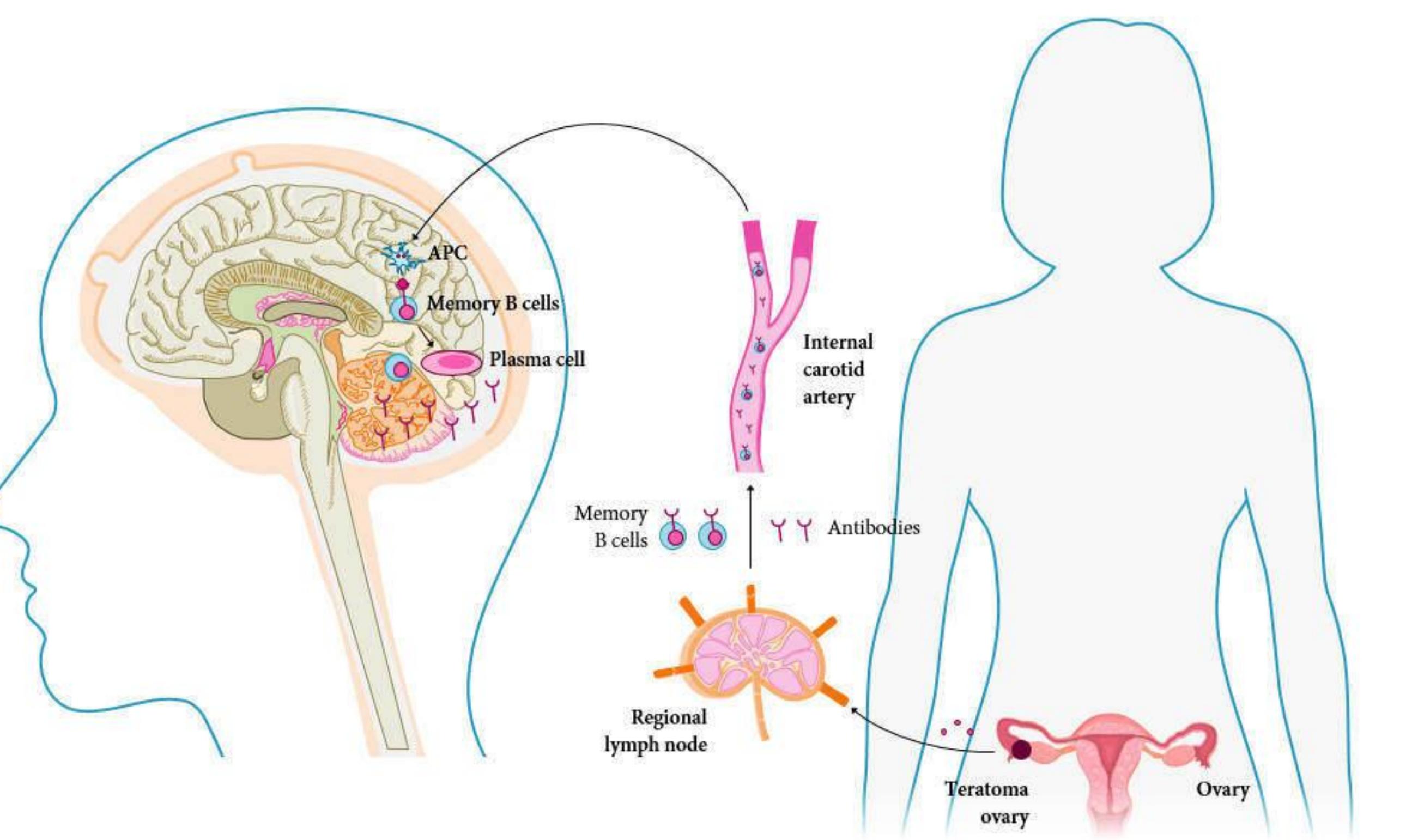


Figure 1. Immunological triggers of anti-NMDAR encephalitis.
Rege S. Anti-N-methyl-D-aspartate (anti-NMDA) receptor encephalitis- A synopsis [Internet]. Psych Scene Hub. 2020 [cited 2021Oct11]. Available from: <https://psychscenehub.com/psychinsights/anti-nmda-receptor-encephalitis-a-synopsis/>

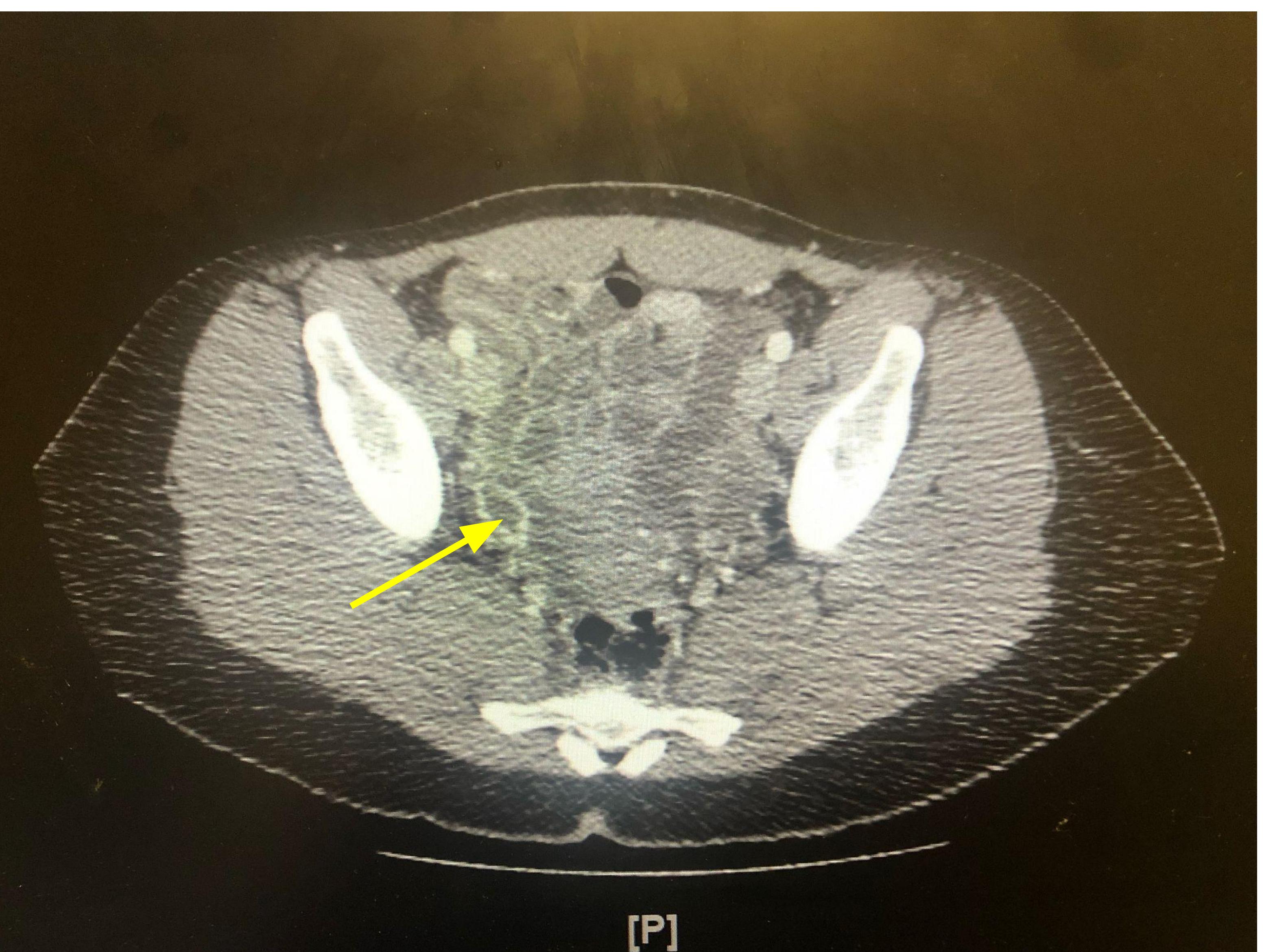


Figure 2. CT abdomen and pelvis demonstrating crenulated right ovarian lesion (indicated by yellow arrow) measuring $2.5 \times 1.6 \text{ cm}$.

Discussion

- Some differential diagnoses considered were toxic encephalopathy, infectious encephalitis, brief psychotic disorder, SLE psychosis, and paraneoplastic encephalitis.
- Toxic encephalopathy could explain the memory loss and behavioral changes, though would not explain the delay in onset of 2 days after return nor the symptom duration of 7 days.
- Infectious encephalitis is supported by the elevated WBC and ANC, but laboratory workup for HIV, HSV-1, HSV-2, RPR, *N. gonorrhoeae*, *C. trachomatis*, Lyme, West Nile, SARS-CoV-2, CSF analysis were all negative.
- Brief psychotic disorder could explain the hallucinations and delusions, but psychiatry consultation did not diagnose this and antipsychotics did not attenuate her symptoms.
- SLE psychosis warranted workup given the commonly affected demographic of African American female of childbearing age, but ANA, which has 98% sensitivity for SLE, was negative.
- Paraneoplastic encephalitis was suspected after discovery of the ovarian lesion and improvement with empiric IV methylprednisolone, but CSF NMDAR IgG later came back negative.
- After a comprehensive workup excluding all other potential etiologies, we treated this as a case of CSF negative anti-NMDAR encephalitis.
- Anti-NMDAR encephalitis is an autoimmune disorder first described in 2005 with an extremely variable presentation.
- In young women, ovarian teratomas are a commonly implicated paraneoplastic syndrome associated with anti-NMDAR encephalitis.
- Testing for NMDAR antibodies in the CSF is the gold standard due to the extremely high sensitivity and specificity.
- Early treatment with surgical tumor removal and immunotherapy has been shown to result in favorable prognosis.
- Though many patients do not respond to first-line immunotherapy, our patient demonstrated remarkable improvement in mentation and behavior after receiving IV methylprednisolone.

Conclusion

- The presentation of anti-NMDAR encephalitis is highly variable, therefore providers must maintain a high degree of suspicion.
- In atypical cases such as this, clinical judgment and decision-making should take precedence over diagnostic studies.
- If missed, this severe, immune-mediated, paraneoplastic condition can quickly escalate and have devastating consequences.

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