A Rare Cause of New Onset Psychosis in a Young Male

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ED Case Presentation

• 23 y/o graduate student with no past medical or psychological history
• Seen in ED by Psychiatry, discharged on Olanzapine
• Returned to ED 1 day later with family following suicide attempt
Case Continued

• CC: Agitation, Suicidal Ideation, Euphoria
  - Confusion, bizarre behavior after diarrheal illness 10 days PTA
  - Bizarre sensory hallucinations:
    • Seeing elephants
    • Hearing music he knows is not there
    • Strange smells
    • Pervasive electrical sensation through his body
Case Continued

• Fluctuating mental status
  - Getting lost in familiar places
  - Inability to control thoughts
  - Inappropriate laughing/crying
  - Labile mood

• Insomnia

• Depression

• Short-term memory loss
Physical Exam

- T 98.4°F; BP 120/70; HR 80’s; RR 16; SpO2 98%
- Neurologic Exam:
  - No Meningeal Signs
  - CN: intact
  - Motor: wnl, no pronator drift
  - Sensation: intact to pin-prick + vibration
  - Reflexes: 2/4 throughout
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Mental Status Exam

- Awake and oriented x 3
- Able to spell “World” forwards/backwards
- Could not complete serial 7’s
- Able to interpret proverb
- Disorganized thought content
- Waxing/waning for different interviewers
Initial Work-Up

- Urine Drug Screen: Negative
- TSH, CBC, CMP, B12: Normal
- CT Head: Negative
- Lumbar Puncture:
  - >100 Lymphocytes, glucose + protein wnl
EEG Day 1 of admission:

- **Findings:**
  - Moderate Diffuse Slowing
  - No epileptiform activity
  - Intermittent rhythmic delta activity in the temporal region

- **Interpretation:** *mild diffuse cerebral dysfunction, physiologic dysfunction in the temporal regions*
MRI Day 2 of Admission
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MRI Impression

- Abnormal long TR hyperintensity within the amygdala and right hippocampus, asymmetric when compared to the left.
- There is also diffuse abnormal leptomeningeal enhancement and non-suppression of FLAIR throughout the supratentorial brain.
- Findings are most consistent with meningoencephalitis.
Differential Diagnosis:

- Primary psychiatric disturbance
- Etiologies of Limbic Encephalitis
  - Viral meningoencephalitis (HSV)
  - Autoimmune or Vasculitic Encephalitis (SLE)
  - Hashimoto’s Encephalitis
  - Paraneoplastic encephalitis
Further Work-Up

- **Negative:** Lyme, West Nile Virus, EBV, HSV, VZV, Bartonella Henslæ, anti-TPO, ANA

- **CT C/A/P, PET SCAN, Testicular and Thyroid Ultrasound:** negative

- **NMDA-R Ab titer returned 1:40 on Hospital Day 14**
  - Confirming diagnosis of Anti-NMDA Receptor encephalitis
Therapeutic Interventions

- **Empiric Acyclovir x 2 courses**
- **Treated empirically with high dose corticosteroids and IVIG (Hospital day 12)**
  - High suspicion for NMDA-R Encephalitis given psychiatric, behavioral and neurologic disturbance
  - Marginal clinical improvement
- **Second Line Immunotherapy: Rituximab**
Hospital Course and Outcome

- Two month hospitalization, treating psychiatric and behavioral disturbance
  - Mentation waxed/waned
  - Kluver-Bucy Syndrome
  - Periodic Catatonia
  - Oral dyskinesia, dystonia, rigidity
- Patient discharged to Neuro Rehab
- Returned to school ~ Two months later
Anti NMDA-Receptor Encephalitis

- Anti-NMDAR encephalitis is an autoimmune encephalitis
  - Antibodies attack synaptic NMDA receptors leading to receptor depletion
- Neurologic syndrome with prominent psychiatric manifestations
  - ie: Limbic encephalitis and frontal lobe dysfunction
- Usually affects children and young adults
Age at Disease Onset

![Bar chart showing age at disease onset for different groups of patients.](chart.png)
Distribution of Cumulative Symptoms during 1<sup>st</sup> month of Disease

- Behaviour/cognition
- Memory deficit
- Speech disorder
- Seizures
- Movement disorder
- Loss of consciousness
- Autonomic symptoms
- Central hypoventilation
- Cerebellar ataxia
- Hemiparesis
Take Home Points

• Consider Anti NMDA-Receptor Encephalitis if:
  - Absence of personal history, family history
    Schizophrenia
  - Presence of neurologic features: i.e. memory, cognition
  - Lack of negative symptoms (social withdrawal, flat affect)
  - Abrupt onset vs. slow progressive decline
  - CSF with lymphocytic pleocytosis or + oligoclonal Bands

• Treat empirically if strong suspicion for Anti-NMDAR Encephalitis
  - Lengthy time for assay resolution (Two weeks)

• Search for malignancy if diagnosed
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References