COLLEGE OF MEDICINE / THE OHIO STATE UNIVERSITY / DEPARTMENT OF PSYCHIATRY

Schizencephalic Porencephaly: an Unexpected Finding in an Aggressive Individual with Polysubstance Use Disorder

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INTRODUCTION

- Cerebral palsy affects approximately 1.6 per 1000 live births.[1]
- 8.6% of these patients have comorbid cerebral malformations, such as hydrocephalus.[2]
- Both conditions can impact behavior, judgment, and cognitive reserve, often resulting in aggression and threats of self-harm.
- Additional challenges include non-compliance with care and comorbid substance use disorders.

This report highlights diagnostic and management challenges in a 37-year-old male with comorbid neurodevelopmental disabilities and polysubstance use disorder, emphasizing the value of neuroimaging and tailored withdrawal treatment.

CASE PRESENTATION

Background

- 37-year-old Caucasian male presents for inpatient management for detoxification from opioids.
- Two days ago, patient presented to the emergency department with flu-like symptoms, requested treatment for fentanyl, and left against medical advice (AMA).
- Since then, he has been experiencing abdominal cramps, muscle aches, headaches, fatigue, cold sweats, & insomnia.
- *Past medical history*: cerebral palsy, hepatitis C, dyspepsia, abdominal cramps, hydrocephalus
- *Psychiatric history*: polysubstance use disorder (cocaine, fentanyl, benzodiazepine, methamphetamine, nicotine), depression, anxiety, bipolar II disorder, previous suicide attempt, noncompliance with medical treatment
- *Home medications*: Quetiapine 100 mg po hs, dicyclomine 20 mg TID, omeprazole 40 mg, hydroxyzine HCl 25 mg po bid prn, naloxone spray prn

Exam

- Vitals: tachypneic
- Physical exam: respiratory distress with crackles, dental decay with missing teeth, scarring and scabs on bilateral legs, mild hearing loss
- Psychiatric interview:
  - Appearance: disheveled
  - Attention: somnolent, difficulty concentrating
  - Orientation: person, place, time, and situation
  - Behavior: cooperative
  - Attire: hospital gown
  - Grooming: poor
  - Eye Contact: suboptimal
  - Mood: "not good"
  - Affect: consistent
  - Motor Activity: grossly normal
  - Speech: soft
  - Thought Process/Associations: normal
  - Suicidal/Homicidal Ideation: denied by patient
  - Delusions: none
  - Hallucination: none
  - Memory: impaired
  - Insight/Judgment: poor insight and poor judgement
  - Impulse Control: poor
  - Fund of Knowledge: intact to conversation
  - Language/Vocabulary: English
  - Cognition: impaired

Please refer to **Figure 1** for patient's hospital course.

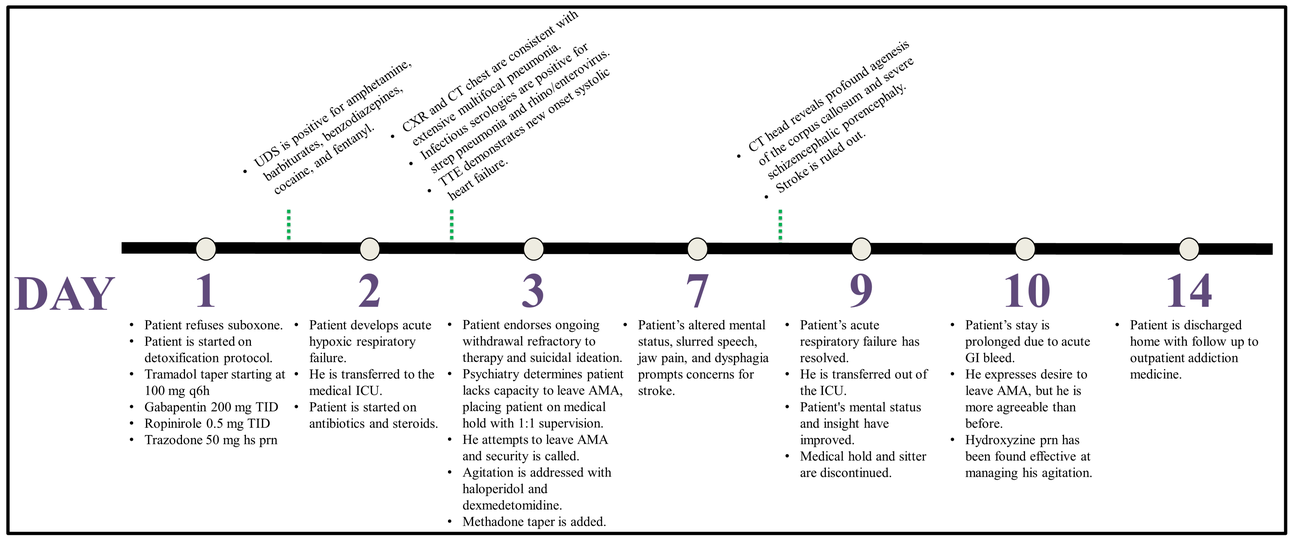

Figure 1. Timeline of patient's hospital course. Central axis denotes day of patient's hospital stay. Green dashed lines above the central axis show results of diagnostic workup. Texts below central axis highlight important events during stay.

DISCUSSION

- Neuroimaging provides essential context, identifies structural abnormalities, and informs treatment planning;[3] it is a valuable aid in assessment and treatment of aggressive patients.
- Although cerebral palsy and hydrocephalus were known, lack of prior imaging obscured profound structural abnormalities contributing to aggression and impaired ability to communicate distress, resulting in severe agitation.
- To our knowledge, this is the first reported case of polysubstance abuse in a patient with schizencephalic porencephaly – an extremely rare congenital malformative disorder characterized by abnormal clefts that can lead to significant neurological impairment[4] (**Figure 2**).
- There are limitations to using traditional guidelines for substance withdrawal in patients with reduced cognitive reserve.
- There has been limited research into the acute and long-term management of substance use disorders in neuro-atypical patients, such as those with cerebral palsy.

CONCLUSIONS

- This case highlights the role of neuroimaging in patients with substance use disorders and comorbid neurologic conditions.
- Imaging helped our team better appreciate the patient's limitations and tailor individualized treatment planning.
- It can help prevent diagnostic overshadowing in medically complex patients.[5]
- We recommend maintaining a low threshold for neuroimaging in neuro-atypical patients refractory to treatment.
- Withdrawal protocols are not "one-size-fits-all" and may require tailoring for those with cognitive impairment.

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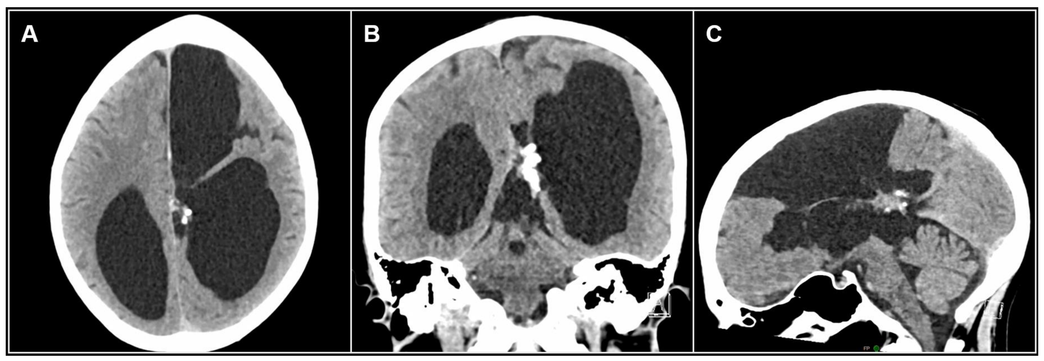

Figure 2. CT head with Axial (A), Coronal (B), and Sagittal (C) slices. There is profound agenesis of the corpus callosum and bilateral cystic encephalomalacia, including a large left hemispheric cavity (148x47x90 mm) consistent with severe schizencephalic porencephaly, extending from the anterior frontal lobe to the occipital lobe.

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