Enigmatic Unresponsiveness: A Case of Functional Coma in a 26-year-old Male Veteran

Akpene Sarah Agamah, MD, MPH, MBA
Gulam Noorani, MD, MPH Assistant Professor of Pscychiatry

VA | U.S. Department of Veterans Affairs

Loyola Medicine | Loyola University Medical Center — A Member of Trinity Health

INTRODUCTION

Functional coma (FC) is a type of functional neurological disorder in which an *involuntary* coma-like state occurs in the absence of structural or metabolic brain damage. The pathophysiology of FC is unknown and its is unclear which regions of the are primarily indicated, although some proposed explanations include reduced thalamic density (Ryznar et al, 2019). FC is a diagnosis of exclusion and therefore requires a multidisciplinary approach. A through neurological work up is necessary to distinguish FC from more common causes of coma (vascular injury, trauma, infection etc).
In contrast to catatonia, there is no motor rigidity in FC and benzodiazepines are generally avoided in treatment due to sedation (Ludwig et al, 2016). In FC, vitals are stable and there is a spontaneous return to baseline functioning. Clinicians would benefit from increased awareness of how to distinguish and treat FC from other metabolic or neuropsychiatric conditions.

CASE PRESENTATION

A 26-year-old male veteran with a history of unspecified psychosis, MDD recurrent, schizotypal personality disorder and hypertension, to the ED as an OSH transfer for ECT treatment for suspected catatonia. An extensive workup during the preceding month-long admission since July 6, 2022, at the OSH was unremarkable.
Per veteran's mother, since June 2022 he had gradually become more withdrawn, isolative and eventually stopped eating, talking and walking. He worked as a security guard prior to his decline. He had no known history of TBI or seizures.

EXAM FINDINGS

Exam was notable for stupor, mutism, nonresponsive to noxious stimuli, negative for neurological deficits, flaccid tone, lack of catatonic motor findings.
MSE: Patient appeared stated age, obtunded, diaphoretic, fair hygiene, Dobhoff in place, nonresponsive to interview
VITALS: T 98.5F BP 127/80 P 98 R 18
ED LABS: lactate, CBC, CMP, EKG,LFTS, troponin all within normal limits

PSYCHIATRIC HISTORY

- **Past Diagnoses**: Schizotypal personality disorder, rule out conversion disorder, rule out schizoaffective disorder, MDD recurrent
- **Past Medications**: Valproic acid (VPA) 500 mg p.o. BID, olanzapine 15 mg p.o. nightly, IV lorazepam 1mg q6h
- **Past Psychiatric Hospitalizations**: History of one prior psychiatric hospitalization at the Naval Base in San Diego in May 2021 for depression with psychotic features. Of note, patient was admitted five months later, for a presentation nearly identical to the current admission, including stupor and mutism lasting 6 days, with spontaneous recovery after stopping all medications.
- **Substance Use Hx**: Occasional cannabis use, otherwise negative for opiates, cocaine, methamphetamine or psychedelics
- **Suicide Attempts:** No previous attempts, and no history of self injurious behavior
- **Family History:** No known family history of psychiatric disorders, substance abuse or suicide

WORK UP DURING OSH + VA HOSPITALIZATION

OSH WORKUP

- CT head 7/6/22 unremarkable
- UDS 7/6/22 negative for any substances
- Pos ANA 7/6/22, follow up ENA pos positive for SSA-A antibody; rheumatology determined this non-concerning and non-contributing to AMS
- MRI Brain 7/6/22 unremarkable
- LP 7/8/22 was negative for CSF infection with paraneoplastic panel also ordered, results non concerning
- 24-hour EEG from 7/9-7/10/ 22 was negative for any seizure activity.
- Consults: Neurology, Rheumatology, Psychiatry

VA HOSPITAL WORKUP

- MRI 8/11/22 unremarkable
- EEG 8/15/22 Abnormal due to attenuation in the background, indicative of generalized nonspecific cerebral dysfunction, no seizure or epileptiform activity noted
- 8/16- 8/18/22 CRP, CK, ESR, AM Cortisol, Iron studies, all unremarkable
- CXR, CT C/A/P 8/15/22 unremarkable
- 8/19/22 Repeat serum ANA, as well as SSA-A antibody positive
- Consults: Neurology, Psychiatry, Rheumatology, GI, Infectious Disease, PT/OT

FUNCTIONAL COMA vs CATATONIA

	FUNCTIONAL COMA	CATATONIA
VITALS	Normal	Fever, Autonomic instability, Arrythmias
LABS	Normal	Elevated CK,
EXAM FINDINGS	Mutism, immobility, Nonreactive to painful stimuli, No rigidity	Mutism, staring, rigidity, immobility, echolalia, echopraxia, excessive purposeless movement in excited catatonia
CLINICAL ASSOCIATIONS	MDD, anxiety disorders	Wide ranging and heterogenous; includes substance use disorders, Schizophrenia, bipolar disorder, PTSD etc.
CAUSES	unknown	Wide ranging and heterogenous; Substance induced, metabolic derangement, medications such as antipsychotics
TREATMENT	Supportive management	Benzodiazepines, ECT *Avoid Antipsychotics
PROGNOSIS	Spontaneous return to function; prone to recurrence	Treatment is essential for recovery; long term effects may include mobility limitations, cognitive impairment; prone to recurrence

TIMELINE OF EVENTS: VA HOSPITAL ADMISSION

- Patient admitted to General Medicine with Psychiatry Consult and request for eval for ECT 8/6/22
- Neurology workup was unremarkable. Recommend methylphenidate trial, CT C/A/P for possible paraneoplastic syndrome
- On 8/24/22 day 19 of hospitalization, tube feeds were incidentally stopped due to tachycardia and concern for infection. Upon removal of dobhoff and replacement, he spontaneously awakened and tearfully requested removal of dobhoff tube
- Discharged from Gen Med Floor to ECC (VA long term rehab center) 8/29/22
- Neuropsychiatry determined he was not a candidate for ECT. Home VPA and IV lorazepam were continued
- Trials of methylphenidate and bromocriptine were ineffective. All medications were tapered and discontinued by 8/22/22
- 8/23/22 Patient found to have staph epi bacteremia. ID consulted and started treatment with Vancomycin
- Diet was advanced, and by 8/27 he remained alert, able to follow commands, and hold logical conversations. He endorsed anxiety and depressed mood.
- Discharged to home from ECC (VA long term rehab center) 11/1/22

DISCUSSION + CASE UPDATES

- This case appears to be the first in the literature to describe a FC that lasted for this length of time and involved recurrent episodes in the absence of anesthesia.
- Neuropsychiatric SLE was in the differential diagnosis given his lab findings but considered less likely. Psychogenic nonepileptiform seizures (PNES) was considered given the history of recurrent episodes but was less likely given his prolonged stuporous state and no seizure like activity. Long COVID was also considered, however, per chart review, no Covid diagnoses was noted, and he was fully vaccinated.
- He was formally diagnosed with MDD recurrent, severe with psychotic features, r/o functional neurological disorder
- Patient agreed to meet with outpatient psychiatrist but refused all psychotropic medications; by April 2023, patient had not continued with mental health (MH) treatment.
- Per chart review, in May 2023 patient reported episode of leg pain and requested to come to VA ED but did not have transportation and decided to wait until June 2023 appointment.
- Patient no showed General Medicine follow up appointment scheduled for June 2023 and since then has been lost to follow up.

CONCLUSIONS, CHALLLENGES + OPPORTUNITES

FC is a diagnosis of exclusion that highlights the role of multidisciplinary teams given the complexity of diagnosis and treatment. More research is needed to elucidate the neuropsychiatric pathology of FC and to develop preventative strategies. This episode was a repeat event for him based on chart review, but this was the most prolonged duration. Given this history of MDD, recurrent, his prior stuporous episode and his refusal to accept MH treatment, he is at risk for recurrence.
The patient is an African American male with limited access to healthcare due to major barrier of limited transportation. Additional psychosocial factor of stigma towards MH treatment that is prevalent in minoritized communities may be an additional barrier to him agreeing to treatment. Experiences of racism while seeking healthcare that many minoritized people face is an additional barrier that impedes engagement in treatment and should be explored further.

Potential Preventative strategies:

- Collaborating with family and social supports to increase patient engagement in MH
- Connecting patients to peer groups to enhance communal sense of belonging
- Advocating for funding for psychiatric home visits, ACT programs
- Increased training for clinicians to equip their work with diverse populations
- Increased outreach and collaboration between MH clinicians and community organizations in traditionally marginalized communities to help end the MH stigma.

REFERENCES + ACKNOWLEDGMENTS

Hall WJ, Chapman MV, Lee KM, Merino YM, Thomas TW, Payne BK, Eng E, Day SH, Coyne-Beasley T. Implicit Racial/Ethnic Bias Among Health Care Professionals and Its Influence on Health Care Outcomes: A Systematic Review. Am J Public Health. 2015 Dec;105(12):e60-76. doi: 10.2105/AJPH.2015.302903

Kim SH, Kim KM, Lim YH, Yoo BH, Cho J, Jun IJ. Psychogenic coma after general anesthesia with remimazolam and remifentanil -a case report. Korean J Anesthesiol. 2022 Oct;75(5):449-452. doi: 10.4097/kja.22242. Epub 2022 May 10. PMID: 35535428; PMCID: PMC9539421.

Ludwig L, McWhirter L, Williams S, Derry C, Stone J. Functional coma. Handb Clin Neurol. 2016;139:313-327. doi: 10.1016/B978-0-12-801772-2.00028-X. PMID: 27719852.

Oldham MA. Describing the features of catatonia: A comparative phenotypic analysis. Schizophr Res. 2022 Aug 19:S0920-9964(22)00294-8. doi: 10.1016/j.schres.2022.08.002. Epub ahead of print. PMID: 35995651; PMCID: PMC9938840.

Varley, D, Sweetman, J., Brabyn S., Lagos, D., van der Feltz-Cornelis, C.
The clinical management of functional neurological disorder: A scoping review of the literature,
Journal of Psychosomatic Research, Volume 165, 2023, https://doi.org/10.1016/j.jpsychores.2022.111121.

Vandermeulen L, Van Melkebeke L, Bollen O, Remans J. Functioneel coma: casusbeschrijving en systematisch literatuuroverzicht [Functional coma: case report and systematic review]. Tijdschr Psychiatr. 2022;64(10):696-700. Dutch. PMID: 36583281

Ryznar E, Wilcox D. Functional Coma: Two Case Reports and a Review of the Literature. Psychosomatics. 2019 Jul-Aug;60(4):343-351. doi: 10.1016/j.psym.2019.03.005. Epub 2019 Mar 27. PMID: 31053419.

Special thanks to Dr. Jaroslav Czarnowski for his mentorship and guidance in presenting this case