

Table 1.
Description of Algorithm Steps in the Evaluation and Treatment of the Patient

Algorithm Step	Evaluation/Treatment	Results and Treatment for Our Patient	Considerations
A	Altered mental status with subsequent generalized tonic-clonic seizure ⁴ Physical examination/vital signs/tests: BAL, UDS, CBC, CMP/STAT glucose, CRP, thyroid function tests (including antithyroid peroxidase), severe acute respiratory syndrome coronavirus-2 polymerase chain reaction, urinalysis, chest x-ray, vitamin B ₁₂ , folate, thiamine Anticonvulsant therapy Meningitis/encephalitis prophylaxis	<u>Hospital Day 1</u> Results unremarkable, except for CRP: 15.8 mg/dL Began levetiracetam and phenytoin Began acyclovir, ceftriaxone, vancomycin	Metabolic, toxic, infectious etiologies of seizure and altered mental status ruled out
B	Neurologic evaluation: EEG MRI of the head CSF analysis	<u>Hospital Day 2</u> Remarkable for sharp transients over left frontotemporal regions Increased hyperintensities in bilateral medial temporal lobes on T2/FLAIR, initially concerning for herpes simplex encephalitis <u>Hospital Day 3</u> Unremarkable for VDRL, HSV I and II, West Nile virus, Lyme disease, other infectious etiologies of meningitis, and encephalitis	Differential diagnosis for etiology of seizure: (1) primary cerebral tumor, (2) HSE/neurosyphilis/other infectious, (3) autoimmune encephalitis Options a–b: essentially ruled out, acyclovir discontinued
C	Autoimmune encephalitis evaluation: Serum antithyroid peroxidase, thyroglobulin antibody, complement 3 and 4, double-stranded deoxyribonucleic acid antibody, antinuclear antibodies, antineuronal antibody Serum NMDA antibody CSF analysis CSF NMDAR antibody	<u>Hospital Day 1–3</u> Results unremarkable Titer = 1:32 Mild lymphocytic pleocytosis, normal protein and glucose, no oligoclonal bands detected Titer = 1:40 (result returned on hospital day 25)	Remainder of serum/CSF paraneoplastic panel unremarkable NMDA receptor antibody encephalitis working etiology of both seizures and altered mental status
D	Tumor screening: CT chest, abdomen, pelvis; transvaginal ultrasound Advanced tumor screening (MRI pelvis) Evolution of anti-NMDA receptor encephalitis: additional EEG <u>Begin immunotherapy</u> : methylprednisone 1 g daily x 5 days, subsequent IVIg and PLEX for 9 days	<u>Hospital Day 14</u> Remarkable solely for bilateral ovarian cysts (ie, no evidence of neoplasms) <u>Hospital Day 30</u> (-) ovarian teratoma <u>Hospital Day 33</u> Extreme delta brush over frontal regions with left-sided predominance <u>Hospital Day 30–44</u> Developed 2 additional seizures, continued to require intensive care/mechanical ventilation, mRS=5	NMDA receptor antibody encephalitis continues to progress
E	<u>Options for Further Treatment</u> (1) immunotherapy without further search for ovarian teratoma, (2) repetitive screening for ovarian teratoma (eg, every 6 months), and/or (3) explorative laparoscopy and/or blind oophorectomy	<u>Hospital Day 46</u> Diagnostic laparoscopy	High clinical probability of ovarian teratoma but imaging negative
F	Diagnostic laparoscopy Unilateral/left salpingo-oophorectomy with cystectomy	<u>Hospital Day 46</u> Did not demonstrate ovarian teratoma Ovarian teratoma pathologically confirmed (result returned hospital day 54)	Consent obtained from next of kin Left-sided procedure chosen in attempt to spare fertility ⁵ with persistent left ovarian cyst
G	Status post left salpingo-oophorectomy with cystectomy	<u>Postoperative Day 5</u> mRS = 4 <u>Postoperative Day 11</u> No longer demonstrated ictal activity, delirium resolved, mRS = 2 <u>Postoperative Day 22</u> Patient was discharged, symptoms of anti-NMDAR-e were no longer present; discharge medications were carbamazepine, lacosamide, and valproate	Residual short-term memory deficits were present
H	3-week neurology outpatient follow-up	Asymptomatic except for cognitive deficits, MMSE ²⁶ score = 25	MMSE remarkable for short-term memory deficits (0/3 on recall)

Abbreviations: BAL = blood alcohol level, CBC = complete blood count, CMP = complete metabolic profile, CRP = C-reactive protein, CSF = cerebrospinal fluid, CT = computed tomography, EEG = electroencephalogram, FLAIR = fluid-attenuated inversion recovery, HSV = herpes simplex virus, IVIg = intravenous immunoglobulin, MMSE = Mini-Mental State Examination, MRI = magnetic resonance imaging, mRS = Modified Rankin Scale, NMDA = N-methyl-D-aspartate, NMDAR-e = NMDA receptor encephalitis, OT = ovarian teratoma, PLEX = plasmapheresis, POD = postoperative day, Tx = treatment, UDS = urine drug screen, VDRL = venereal disease research laboratory.

Symbols: (+) present, (-) not present.