Letter to the Editor

A Case of Paraneoplastic Limbic Encephalitis Associated With Ovarian Teratoma and *N*-Methyl-D-Aspartate Receptor Antibodies

To the Editor: Paraneoplastic limbic encephalitis (PLE) is a disorder of the nervous system, often the result of malignancy such as lung, ovarian, or testicular tumors.[1] Neuropsychiatric symptoms such as mood disturbance, psychosis, cognitive impairment, sleep changes, and irritability are common.[2] Psychiatric treatment primarily involves medications to target symptoms such as agitation and hallucinations.[3] Despite symptoms such as severe hypoventilation requiring ventilator support, individuals often make a full recovery. The majority of PLE cases have been reported in neurologic or subspecialty psychiatric journals (per a MEDLINE review March 9, 2011, using the keywords *paraneoplastic limbic encephalitis* for the years 1998 to 2011). We describe the psychiatric and neurologic presentation and management of a patient with PLE associated with mature ovarian teratoma and *N*-methyl-D-aspartate (NMDA) receptor antibodies.

Case report. Ms A, a 25-year-old woman without past medical or psychiatric history, initially presented in 2009 to the emergency department with complaints of near syncope and the following day returned with left temporal headaches, episodic confusion, and memory disturbance. Medical workup including computed tomography (CT) of the head and drug toxicology was unremarkable. She returned to the emergency department on the third day and was admitted to the hospital after complaining of a seizure that was unwitnessed. She was started on treatment with acyclovir 10 mg/kg (for a total dose of 905 mg) for presumed herpes encephalitis and fosphenytoin 18 mg/kg (for a total dose of 1,633 mg) for seizures, but these medications were ultimately discontinued due to negative tests for herpes simplex virus and no further seizures. Electroencephalogram revealed mild-to-moderate disorganized activity with occasional increase in β activity and slow waves, but no epileptiform activity. Magnetic resonance imaging (MRI) of the head showed cerebrospinal fluid (CSF) collection and mass effect on the left hippocampus. Lumbar puncture revealed the following values: 75% lymphocytes, white blood cells (WBCs) 8/mm^3, 16% neutrophils, 9% monocytes, red blood cells 2/mm^3, protein 42 mg/dL, and glucose 72 mg/dL. A second lumbar puncture 10 days later revealed 92% lymphocytes and WBCs 15/mm^3.

Three days after discharge (the discharge occurred 3 days after hospitalization), the patient presented to the emergency department with paranoia, hallucinations, and acute agitation. She was admitted to the psychiatric unit for new-onset psychotic disorder not otherwise specified (*DSM-IV*), although notes indicate the suggestion of "pseudoseizures." Urine toxicology findings were again unremarkable. The patient was started on risperidone 0.5 mg twice daily, but her condition rapidly deteriorated with drooling, dyskinesias (slapping thighs), poor intake, and decrease in responsiveness despite discontinuation of risperidone after 4 days. She was then transferred to the medical intensive care unit 6 days after admission to the psychiatric unit.

In the medical intensive care unit, Ms A had respiratory failure due to aspiration pneumonia and thus was intubated and started on treatment with vancomycin 1 g every 8 hours and piperacillin/tazobactam 3.375 g every 6 hours. Propofol 5 μg/kg/min and dexmedetomidine 0.2–0.7 μg/kg/h were used to manage agitation. She was seen by psychiatric, neurologic, and infectious disease specialists and underwent a battery of tests including ceruloplasmin, cytomegalovirus, cryptococcus, antinuclear antibodies, Epstein-Barr virus, enterovirus polymerase chain reaction, IgM and IgG, mycoplasma, chlamydia, bartonella, rickettsia, influenza, measles, mumps, rubeola, West Nile virus, leptospira, herpes simplex virus types 1 and 2, ova and parasites (stool tests), botulism, microfilaria, and malaria. Findings of a second MRI, magnetic resonance angiography, and single photon emission computed tomography of the head were unremarkable. Negative autoimmune studies included tests for antinuclear antibodies, antineutrophil cytoplastic antibody and antithyroid peroxidase, anti-dsDNA, anticardiolipin, anti-SSA/Ro, anti-SSB/La, and anti-Sm and anti-ribonucleoprotein antibodies. Paraneoplastic workup included CSF studies for anti-CV2, anti-Hu, anti-Ma, and anti-Ta antibodies; voltage-gated potassium channel, NMDA antibodies; collapsin response mediator protein; and acetylcholine receptor, with all tests negative other than that for NMDA receptor antibodies. Subsequent CT and MRI of the pelvis showed a mature teratoma of the left ovary measuring 4.7 cm × 2.7 cm. The patient had recovery with return to baseline shortly after undergoing a left salpingo-oophorectomy.

This case illustrates the sudden presentation yet difficult diagnosis of PLE. Treatment resulting in full recovery is not uncommon, particularly with ovarian teratoma. The confusing neuropsychiatric and medical symptoms result in diagnostic confusion with the differential including drug abuse, malingering, and seizure disorders.[4] Paraneoplastic limbic encephalitis has also been confused with bipolar disorder.[5] False attribution of symptoms to a psychiatric disorder may result in inadequate treatment or delay in seeking medical attention. Patients with PLE may present to the primary care practitioner or general psychiatrist. Therefore, PLE and ovarian teratoma should be considered in young women with encephalitis who present with acute onset of psychiatric symptoms, seizures, autonomic instability, hypoventilation, and dyskinesias.

References

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