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Abstract Form

Hospital Affiliation:	Kern Medical Center
Presenter Name (Last, First):	Bilagi, Rohini
Co-Authors:	Lawrence Liu, MD; Ratha Kulasingam, MD; Rupam Sharma, MD; Baldeep Mann, MD; Kasey Radicic, MD
Project Title:	West Nile Meningoencephalitis in a Patient with Leiomyosarcoma Presenting with Neutropenic Fever

Research Category (please check one):

☐	**Original Research**	**X**	**Clinical Vignette**	☐	**Quality Improvement**	☐	**Medical Education Innovation**

Abstract

Introduction: West Nile Virus (WNV) was first isolated from the West Nile district of Northern Uganda in 1937, but was first detected in the United States well over half a century later in 1999. The arthropod-borne virus has since persisted, with 2,401 cases reported to the CDC on average annually. The infection typically causes a nonspecific acute systemic febrile illness with occasional gastrointestinal and skin manifestations; however, in less than 1% of infected patients, it can cause severe and potentially fatal neuroinvasive disease, presenting as meningitis, encephalitis or acute flaccid paralysis. Immunosuppression is one of the risk factors associated with the development of neuroinvasive disease, and chemotherapy thus places patients at risk. Uterine leiomyosarcoma is a rare gynecological malignancy. Palliative chemotherapy is common in late stage disease, but may predispose patients to conditions that present as neutropenic fever, leading to a diagnostic conundrum. This is the first case report where patient with neutropenic fever was found to have West Nile neuroinvasive disease, so it is important to include West Nile disease in the differential diagnosis.

Case Description: This is a case of a 45-year-old female with history of diabetes, hypothyroidism and recently diagnosed uterine leiomyosarcoma status post tumor debulking with metastasis on palliative chemotherapy with gemcitabine that presented to the Emergency Room for a fever of 103.8 degrees Fahrenheit. Given the history of advanced leiomyosarcoma, the patient was admitted for neutropenic fever with an absolute neutrophil count of 1000. During the hospitalization, the patient became acutely altered and confused. CT head without contrast and lumbar puncture were performed. Due to clinical suspicion of meningitis, she was started on broad spectrum antibiotics. Lumbar puncture revealed leukocytosis of 168 with lymphocytic predominance and elevated protein level in the cerebrospinal fluid, therefore acyclovir was started due to high suspicion of viral meningoencephalitis. An EEG showed severe diffuse encephalopathy as the patient was persistently altered. A broad workup of infectious etiology was considered including HIV, syphilis, hepatitis A, B, C, COVID-19, adenovirus, pertussis, influenza, WNV, HHV6, coccidiomycosis, aspergillus, and tuberculosis. Patient was ultimately found to have elevated IgM and IgG titers for West Nile Virus.

Discussion: It is important to consider a broad spectrum of diagnosis in patients with metastatic carcinoma presenting with new-onset fever and acute encephalopathy. This includes working up for other causes of altered mental status including cardiac, neurologic, psychiatric, endocrine, metabolic, electrolyte, drug, and infectious etiology. While uncommon in the healthy population, WNV encephalitis should be on the radar for any patient who is immunocompromised or on immunosuppressive therapy, especially those who present with a neutropenic fever.