Diagnostic dilemma regarding post-partum seizure in the setting of pre-eclampsia

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Background

Seizures post partum are often associated with eclampsia. Preeclampsia (PET) can evolve into eclampsia affecting 0.1% of pregnancies in Australia. Eclamptic seizures are associated with significant mortality and morbidity. Not all women will have warning symptoms such as headache, visual disturbances or epigastric pain. Eclamptic seizures after the first week postpartum are very rare. A broad differential for seizures should be considered the further it occurs from delivery.

Case

40-year-old primiparous woman of Congolese heritage presented day 14 following an emergency caesarean section (for fetal distress in labour) with an episode of tonic-clonic seizure in the community. Her pregnancy was complicated with risk factors of age; class 1 obesity; post partum hemorrhage and intrapartum PET diagnosis managed with Captopril 50mg twice a day postpartum. Her blood pressures were labile in the postpartum period for 48 hours reaching a maximum of 170/98. She has no other medical or surgical history. She reported compliance with Captopril and denied any recreational substance use. Of note, she migrated from Zambia in 2022

The seizure was terminated with intramuscular and intravenous midazolam given by the paramedics. She was also administered a 4mg loading dose of magnesium sulphate. This was followed by a 24-hour infusion during her admission. Her GCS score of 7 improved rapidly upon presentation. Investigations revealed normal hemoglobin, platelets, white cell count, electrolytes and biochemistry.

Given the timeframe from delivery, the obstetric team had a high index of suspicion for alternate causes and requested a medical admission. A detailed history revealed experience of water scarcity and occasional consumption of dirty water. She denied a history of Tuberculosis (TB), Malaria or Cholera. She reported consuming pork products but did not suspect undercooked or spoilt pork. She did however report seizures were experienced by some of her community members in Zambia.

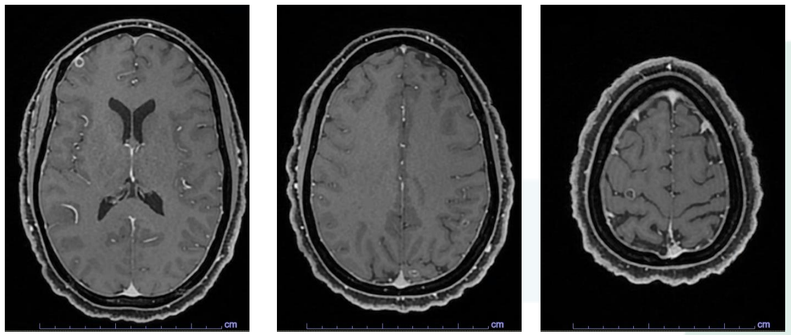

Image 1: Ring enhancing lesions on MRI

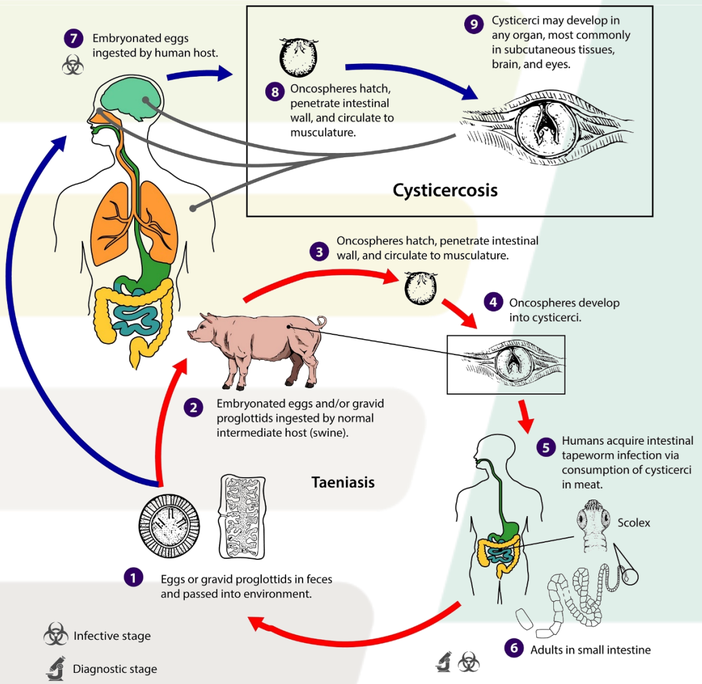

Image2: Lifecycle of *Taenia Solium*

Serology for TB, Neurocysticercosis (NCC) and HIV returned negative for all infections and infestations. Imaging of the brain was conducted with CT venogram demonstrated multiple calcifications in the brain parenchyma. MR brain as an outpatient delineated these lesions as ring enhancing lesions within the supratentorial grey-white matter interface and periventricular regions some of which demonstrated perilesional edema – consistent with NCC lesions in the colloidal vesicular and granular nodular phase. See Image 1.

She was commenced on Levetiracetam as seizure prophylaxis as inpatient. Following a normal EEG and Neurology appointment, the Levetiracetam was ceased. She was advised to undergo surveillance by way of imaging as she has been stable post partum and consider further treatment if there was evidence of progressive disease on imaging or worsening symptomatology.

Discussion and conclusion

NCC, most often caused by *Taenia Solium*, is a major cause of adult-onset seizures, second only to TB. It is endemic in developing countries, particularly in sub-Saharan Africa and southeast Asia. Lifecycle shown in Image 2. It is associated with nearly one-third of seizure disorders in endemic areas, and an estimated 50 million people worldwide have the infection. Routine anti-epileptic medications, steroids to address neuronal edema and anti-parasitic medications are the mainstays of treatment.

In this case, the seizure was determined to be likely due to NCC in the context of a reduced seizure threshold due to PET. In settings of large immigrant populations, obstetricians and gynecologists may encounter patients with NCC. Taking a thorough history and assessment of individualized risk factors will facilitate appropriate and safe management.

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