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Fatal fulminant Murine Typhus (MT) presenting with status epilepticus and multiorgan failure: A case report

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Background: MT is a flea-borne infection caused by *Rickettsia typhi* presenting with fever, headache, rash, chills, malaise, myalgias and anorexia. Of the 3,048 probable and confirmed MT cases in Texas (1985-2015), 11 were fatal.

Methodology: A 46-year-old Caucasian man with history of alcohol abuse and cranioplasty at 12 years of age, but no recent significant travel history or exposure to fleas, ticks, rodents, cats or dogs, presented with hypotension, tachycardia, convulsions and hypoxemia. Physical examination revealed central cyanosis, horizontal nystagmus, rhythmic jerking of extremities, and coarse breath sounds. An EEG showed nonconvulsive status epilepticus. Serologic studies for MT and Rocky Mountain spotted fever were both positive. Despite fluid resuscitation and antimicrobials for septic shock and suspected meningoencephalitis, he developed multiorgan dysfunction and succumbed 6 days post-admission.

Results: At autopsy, external findings included a petechial rash on both legs, gangrenous toe tips, multiple cutaneous ecchymoses, and scleral hemorrhages. Gross examination of internal organs revealed hemorrhagic pneumonia, cerebral edema, and mild cerebellar tonsillar herniation. Microscopic findings included multifocal small-vessel thromboses in the lungs, skin and kidneys, along with cutaneous vasculitis and scattered perivascular mononuclear cell infiltrates in the brain. Liver, adrenal glands, kidneys, and watershed areas of the cerebrum showed hypoxic ischemic necrosis.

Discussion: There are few published reports of morphologic findings in fatal cases of MT. Three case reports have described myocarditis, and one described diffuse alveolar damage, encephalitis and renal failure. In our case, the patient had a rapid course leading to death within 6 days of hospitalization, and showed autopsy evidence of cutaneous and cerebral vasculitis, and disseminated intravascular coagulation. CNS involvement is unusual in MT and was undoubtedly the cause of patient's intractable status epilepticus.

Biography

Apeksha Agarwal is a third year anatomic and clinical pathology resident at University of Texas Health Science Center at San Antonio, Texas, USA.

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