

### c Tick bite fever

Tick bite fever was confirmed as the cause of illness in a 28-year-old man from the Kempton Park area in Gauteng Province, where he lives on a plot. The patient had been on a fishing trip one week before falling ill. He was admitted to a Tshwane hospital with fever and headache; clinical examination showed features of encephalopathy. He was initially treated with antibiotics for suspected otitis media, but deteriorated over the following week, developing a maculopapular rash (including palmar lesions, but sparing the soles), confusion and delirium.

Initial laboratory test results were misleading, with a positive PCR result for enterovirus infection and negative rickettsia serology. Two eschars (characteristic of tick bite fever) were noted on further examination and prompted empiric tick bite fever treatment with oral doxycycline. His condition continued to deteriorate; mucosal bleeding was noted, and he required intubation and inotropic support. Treatment was changed to intravenous ciprofloxacin as an assured alternative to oral doxycycline in critically ill patients with tick bite fever. The clinicopathological findings were as follows: white cell count =  $12.68 \times 10^9/L$  with an absolute neutrophilia; platelets =  $43 \times 10^9/L$ ; CRP = 327mg/L; ALT and AST both  $>200$  IU/L; CSF monocytes =  $47/mm^3$ , CSF protein = 0.65g/L and

CSF glucose = 2.5mmol/L. The patient responded well to treatment. The diagnosis of tick bite fever was confirmed by PCR on a dry swab collected from one of the eschars. Anti-rickettsia IgG and IgM antibodies were detectable using an indirect immunofluorescence assay on serum collected more than a week after onset of illness.

Tick bite fever must be considered in the differential diagnosis of all patients with acute febrile illness plus headache - not only in those who have visited a rural area, but also those with a history of possible exposure to dog ticks in the urban setting. The spectrum of illness may vary from mild to severe multisystem disease closely resembling Crimean-Congo haemorrhagic fever or bacterial septicaemia. The diagnosis is primarily clinical, supported by the presence of an eschar, and doxycycline treatment should be instituted immediately. PCR for rickettsia on eschar swabs is very useful and sensitive for diagnosis in early disease, given that serology in the first week of illness is often negative, and PCR on blood samples is frequently negative.

**Source:** Division of Public Health Surveillance and Response and Centre for Emerging and Zoonotic Diseases, NICD-NHLS