

### c Tick bite fever

A middle-aged female patient presented in late October to Helen Joseph hospital complaining of fever, prominent headache, and myalgia. She was initially diagnosed with an influenza-like syndrome, but when a rash developed the following day (Figure 1) this diagnosis was reconsidered. The patient lived on the outskirts of Johannesburg on a large property and was reported to own many dogs, one of which slept on her bed at night. She did not report a history of travel, nor of exposure to ticks or tick bites. On examination she was found to have an eschar in the scalp. (Figure 2). Blood tests were normal. On the basis of this history and clinical findings, notably the eschar, a diagnosis of tick bite fever was made. The patient was treated with doxycycline, and responded well. Initial serology for rickettsial (IFA), done 8 days after symptoms first started, was negative, but a subsequent specimen done 3 days after that was positive.

While the above case is typical of the majority of cases of tick bite fever (TBF), a number of severe cases have been reported by the NICD in the last few months, one of which was fatal despite doxycycline therapy. Severe tick bite fever may present initially with typical signs and symptoms, but cases deteriorate rapidly. Haematological abnormalities including leucopenia, thrombocytopenia and raised transaminases, and a rash which may be haemorrhagic are often reported. The differential diagnosis includes viral haemorrhagic fever, or overwhelming sepsis secondary to bacterial pathogens. The impact of HIV infection on the clinical course of tick bite fever is not well understood.

Two *Rickettsia* species are thought to be responsible for TBF in South Africa. *R. conorii* is associated with a periurban environment and dog ticks, and causes disease that resembles classical Mediterranean spotted fever. Patients are at risk of severe or even fatal complications. *R. africae* is associated with rural and wilderness areas, and is associated with milder illness, less prominent rash, and uncommonly progresses to complicated disease. In terms of the diagnosis of TBF, serology may be negative early on in the course of illness. In this case, a convalescent specimen may be helpful to confirm the diagnosis. The NICD offers a PCR-based assay for *Rickettsia*, which may be done on blood, or on a dry swab taken from the eschar. PCR tests tend to be positive early on in the course of illness. Both *Rickettsia* species respond well to doxycycline therapy.

Treatment of *Rickettsial* infections is with oral doxycycline, 100mg bd. An intravenous quinolone



**Figure 1.** A maculopapular rash in a patient presenting with clinical signs and symptoms of tick bite fever. Photograph courtesy of Dr Jeremy Nel.

such as ciprofloxacin is effective if oral medication is not possible.

Reference: Frean J., Blumberg L., Ogunbanjo GA. Tick bite fever in South Africa. SA Fam Pract 2008;50 (2):33-35. accessible at <http://www.nicd.ac.za/assets/files/Tick%20bite%20fever%20in%20South%20Africa.pdf>



**Figure 2.** An eschar in a patient presenting with clinical signs and symptoms of tick bite fever. Photographs courtesy of Dr Jeremy Nel.

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