Are You Sure?: Difficulties in Diagnosing African Tick Bite Fever in a Returning Traveller

Louella Vaughan\textsuperscript{1} and Nicola Jones\textsuperscript{2}

\textsuperscript{1} Consultant Acute Physician, Department of Acute Medicine, Chelsea and Westminster Hospital, London

\textsuperscript{2} Consultant Physician in Infectious Disease, Nuffield Department of Medicine, The John Radcliffe Hospital, Oxford

\textbf{Background}

African Tick Bite Fever (ATBF) is an acute febrile illness, characterised by inoculation eschars, headaches, neck muscle myalgias and regional lymphadenopathy.\textsuperscript{1} The disease is caused by \textit{Rickettsia africae} and transmitted by ticks of the \textit{Amblyomma} genus in sub-Saharan Africa. First described as a new disease entity in 1996,\textsuperscript{2} ATBF can present with a constellation of symptoms, making diagnosis challenging.

\textbf{Case Presentation}

The first author travelled to Swaziland in early July of this year. The trip included a three day stay at the Mkhaya Game Park, where the author went big game watching on foot.

Upon return, a small, painless, purpuric lesion was noted in the left groin. This subsequently developed into a small pustular lesion 3 days later. A self-diagnosis was made of \textit{Staphylococcus} infection was made and treatment was commenced with topical Gentamicin cream and occlusive dressing. Despite treatment, the lesion progressively enlarged and oral Co-amoxiclav was started. A second furuncular lesion was noted behind the right knee several days later (day 9 after return). Expert infectious diseases opinion was sought. A provisional diagnosis of Tumbu Fly infection was made and topical Vaseline applied to the lesions. Thirty-six hours into treatment, the author suddenly developed a fever and became tachycardic and borderline hypotensive. A concomitant diagnosis of malaria was considered and blood films were sent. Later that evening, the fever spiked to 39.2°C, accompanied by rigors and headache. A vesicular rash was noted to have erupted on the lower limbs (Figure 1) and there was now widespread lymphadenopathy present.

The diagnosis was revised to African Tick Bite Fever and doxycycline was commenced. Defervescence occurred within 48 hours, with resolution of the other symptoms within 7 days. The lesions in the groin and knee became typical eschars following the cessation of topical treatments (Figure 2).

\textbf{Investigations}

Lymphopaenia, raised transaminases, elevated CRP and low albumin supported the diagnosis of ATBF. Malaria films were negative on two occasions. Serology for ATBF was initially negative, but samples taken 4 weeks after the resolution of symptoms were IgG and IgM positive for ATBF, confirming the diagnosis.

\textbf{Discussion}

Although ATBF has only been described in the literature for twenty years, the incidence of ATBF in returning travellers has been found to be 4.0-5.3%, a rate in excess of those reported for other tropical fevers, such as malaria and typhoid fever.\textsuperscript{3}

Previous series of ATBF have all described patients as presenting at the point of becoming clinically unwell, at which time, eschars, if present, are fully developed.\textsuperscript{3-5} As \textit{Amblyomma} ticks are unusually aggressive and actively converge on potential hosts, multiple eschars are a pathognomonic clinical feature and make the diagnosis relatively easy.

In this case, diagnosis was hindered by two things. The first author was not systemically unwell at the point of initial presentation and the use of topical treatments for a week in total prevented the formation of typical eschars.

The case underlines the importance of being willing to revise diagnoses when either new symptoms emerge or existing symptoms fail to respond appropriately to treatment. Returning travellers with fever should also be reviewed on more than one occasion, particularly when a clinical, rather than a laboratory, diagnosis has been made.

\textbf{References}

