

1 ZOO NOTIC AND VECTOR-BORNE DISEASES

a Dengue in returned travellers

In recent years there has been a dramatic increase in the prevalence of dengue fever in endemic countries. This has resulted in more cases amongst travellers returning home from the dengue-endemic regions: South-East Asia, the Western Pacific, the Americas (Central and the northern parts of South America), Central, West and East Africa and the Eastern Mediterranean. The NICD has documented 17 laboratory-confirmed dengue cases up to and including October during 2015. All cases were amongst travellers returning from known dengue-endemic countries, including Thailand, India, Philippines, Papua New Guinea and Uganda. In October 2015, acute dengue infection was confirmed in four travellers returning to South Africa from Papua New Guinea, India and Thailand. We describe these four cases, all of whom recovered without complication.

1) A 27-year-old man from Gauteng became ill after visiting Papua New Guinea in mid-October 2015. He reported an influenza-like illness and skin rash. Blood tests demonstrated a thrombocytopenia ($128 \times 10^9/L$) and leucopenia ($0.5 \times 10^9/L$). Negative smear, antigen and PCR tests excluded malaria as a diagnosis. Blood collected three days after symptom onset tested positive by RT-PCR for dengue, confirming an acute dengue infection.

2) A 39-year-old female South African traveller returned from Thailand on 17 October 2015 and developed fever, headache, photophobia, severe lower back and joint pain. The patient presented with a macular rash on the face and body. She was admitted to a Cape Town hospital on 22 October 2015. Abnormal blood findings included leucopenia ($3.5 \times 10^9/L$) and elevated liver transaminases (ALT 280 IU/L) on admission. Blood collected on day five post-onset (24 October) tested positive by RT-PCR, confirming acute dengue fever.

3) A 62-year-old female spent two weeks in India's westernmost state Gujarat, visiting her relatives in the cities of Vadodara and Surat. On her way from Vadodara to Mumbai she experienced a single febrile episode, followed by weakness, nausea, gastric distress, and mild muscle pain. She was given antibiotics (ofloxacin) and stayed in a hotel in Mumbai to recover before returning to South Africa. Upon arrival in East London on 29 October 2015,

she consulted her general practitioner who observed a fine petechial rash over her lower legs. Blood tests revealed thrombocytopenia ($28 \times 10^9/L$) and elevated transaminases (ALT 181 IU/L, AST 292 IU/L). A diagnosis of dengue fever was made by RT-PCR and serology.

4) A 10-year-old girl returned from Thailand 10 days prior to onset of symptoms which included high fever, headache and rash. Blood collected three days after onset of illness tested positive for dengue by RT-PCR.

The differential diagnosis of fever in a traveller returning from Asia, South- and Central America, West, Central and East Africa includes malaria, dengue, hepatitis A, typhoid fever, invasive bacterial diarrhoea, rickettsial infections, or causes not related to travel. The typical clinical presentation in uncomplicated dengue includes fever, severe headache, pain behind the eyes, muscle and joint pains, nausea, vomiting, swollen glands and a maculopapular rash. The NICD provides laboratory diagnostics for dengue. The timing of sample collection after disease onset is important for the interpretation of laboratory results. The presence of dengue virus is consistent with acute-phase infection and is typically detectable within 1 to 2 days following infection and up to 9 days after disease onset. Antibodies to the dengue virus may be detected by day 3 – 7 after symptom onset. If initial antibody tests are negative, a convalescent blood sample with the second specimen collected two weeks after the acute phase of infection will demonstrate seroconversion. Serology may be useful if blood was not collected during the viraemic (acute) phase of infection.

At a public health level, viraemic travellers returning from endemic areas present a risk of introducing dengue into non-endemic countries where the specific vectors are present. While dengue is not found in South Africa, the mosquito vector of dengue fever, *Aedes aegypti* is present in certain regions of South Africa, namely the KwaZulu-Natal coastline.

Source: Centre for Emerging and Zoonotic Diseases, NICD-NHLS