

# PARALYTIC RABIES

Fortunately, rabies is a relatively rare disease in South Africa, although the National Institute for Communicable Diseases received several possible reports of the disease in July and August 2005. These were mainly in the Eastern Cape and Limpopo. However, in Britain, rabies is only known as a disease contracted by travellers or by infection with the European bat *Lyssavirus*. India possibly has one of the highest incidences of rabies in the world. The *British Medical Journal* carries an interesting report of an apparently trivial contact with a puppy in Goa, India, resulting in a woman's death.

A woman in her late 30s was admitted to a local general hospital in Britain as an orthopaedic case, with lower back pain radiating to her left leg. This shooting pain had started 4 days earlier, was severe and getting worse. She was unable to walk, had a headache and had vomited once. She had been in Goa 3 months before admission and had been nipped on the leg by a puppy, leaving a slight graze that she wiped with a tissue, but she did not seek medical help. She was apparently not aware of the risk of rabies and did not receive any pre- or post-exposure vaccination.

On examination she was febrile. The left leg, which was painful enough to require morphine for pain control, was areflexic and weak, with sensory loss in the L4-S1 dermatomes. Over the next few days she developed a sore throat and had difficulty swallowing, had a swollen left eyelid, a goose pimple rash and marked bilateral hearing loss. By day 8 she was lethargic, had flaccid weakness of her limbs and was referred to the medical team. A provisional diagnosis of Guillain-Barré syndrome was made and she was started on immunoglobulin. A lumbar puncture was normal. By day 11 she was increasingly drowsy and deteriorating, and was intubated and ventilated. By day 13 her occulocephalic reflexes were absent and her pupils were unreactive. A diagnosis of Bickerstaff's encephalitis was considered, but a CT scan of the brain was normal. By day 15 the infectious disease unit and specialist neurologist were contacted for advice. Taking note of the history of a dog bite in India followed by ascending paralysis, she was immediately investigated for rabies. A diagnosis of rabies was confirmed from saliva samples, serum testing and skin biopsy. Once this diagnosis was confirmed, ionotropic support was withdrawn at the family's request and the patient died 18 days after admission. Brain tissue then confirmed the diagnosis.

Delays in diagnosis in a country where rabies is rarely seen are likely, particularly as the presentation was of paralytic

rabies rather than of the more common furious rabies. However, the history of a dog bite, however trivial, in India, was obviously not picked up as important by any of the doctors who first saw the woman. What was even more unfortunate, given that post-exposure prophylaxis is effective, was that the woman was not aware of the risk of rabies and did not seek medical attention after being bitten by the puppy.

Rabies is caused by a bullet-shaped RNA virus. The virus is a member of the genus *Lyssavirus*, four of which (classic rabies, Makola, Duvenhage and Lagos bat virus) occur in Africa. All four have been identified in Zimbabwe and South Africa. Lagos bat virus does not cause disease in humans. Any warm-blooded animal (mammal or bird) can be infected with rabies. However, in practice only mammals, and mainly carnivores, are the important hosts. The main reservoir species are domestic dogs (the single most important reservoir species), jackals and foxes. In South Africa the yellow mongoose, black-backed jackal and bat-eared fox are also important. In Namibia, the kudu is an important reservoir.

Veterinary workers, dog catchers, zoologists and other field and laboratory workers can be protected by vaccination. Post-exposure treatment of any bite, including human bites, entails urgent and thorough wound cleaning by scrubbing with soap and detergent under a running tap for at least 5 minutes, removing foreign bodies and dead tissue. After washing, clean with plain water and apply antiseptics, such as iodine or alcohol, which kill the rabies virus. Any bite by an animal behaving strangely should increase the suspicion of rabies and specific anti-rabies treatment should be started. Imported tissue culture vaccines are the most reliable and safe. These vaccines cause only mild local and rare feverish reactions. If available, rabies immunoglobulin is given immediately after vaccination, infiltrated around the wound. Deaths from rabies have occurred despite vaccination. These are probably attributable to the use of low-potency nervous tissue vaccines, delay in starting vaccination, an incomplete course, omission of passive immunisation, failure to infiltrate rabies immunoglobulin around the wound, injection of vaccine into the buttock (where it is less immunogenic), or, increasingly, decreased immune response caused by immunosuppression by HIV/AIDS.

Solomon T, *et al.* *BMJ* 2005; **331**: 501-503.

Parry E, Godfrey R, Mabey D, Gill G, eds. *Principles of Medicine in Africa*. 3rd ed. Cambridge: Cambridge University Press, 2004.

**Bridget Farham**