Theileria parva infections

Author: Dr Hein Stoltsz

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FAQ

1. Do buffalo develop any clinical signs of disease when infected with T. parva?

No, although clinical signs have been observed in buffalo calves kept in captivity.

2. Are cattle and African buffalo the only animals susceptible to infection with T. parva?

Generally, yes. However, an experimental infection with a buffalo-derived isolate has been reported in defassa waterbuck (Kobus defassa) in East Africa. However, waterbuck do not generally appear to be susceptible to infection, or play a significant role in the epidemiology of the disease.

3. Does endemic stability to T. parva develop in cattle raised in endemic areas?

A degree of endemic stability can be achieved in indigenous breeds raised in T. parva-endemic areas, but this is generally not as well-developed as in the case of other tick-borne diseases such as babesiosis, anaplasmosis and heartwater.

4. Why is the infection and treatment method of vaccination not more widely used to immunize cattle against both cattle-derived and buffalo-derived T. parva?

Production, storage, distribution and administration of the vaccines are highly specialised and expensive. In addition, it would seem that no single parasite isolate of T. parva will provide immunity to all field strains, thus requiring inclusion of several parasite isolates in the vaccine. This has raised concerns that foreign parasite strains (not endemic in particular areas or countries) may be introduced with the vaccine, which may result in disease outbreaks in cattle already immune to local strains of the parasite.
5. Can buffalo be bred and raised to be “Corridor disease-free”?

Yes. Provided breeding stock and their off-spring are kept in a vector-free environment, no infection of calves should occur. Although transplacental infection is probably extremely rare, the possibility exists that calves may become infected in utero. Therefore, it is recommended that the progeny of infected parent stock be screened for infection by specific and sensitive molecular diagnostic tests.

6. What are the differences, if any, between East Coast fever (ECF) and Corridor disease (CD)?

Classical ECF is generally regarded as being caused by *T. parva* genotypes which are readily transmitted amongst cattle in the absence of buffalo. In cattle, the infections are usually characterised by high piroplasm parasitaemias and high schizont parasitoses. CD, on the other hand, is generally regarded as *T. parva* genotypes which are predominantly transmitted from buffalo to cattle, are not readily transmissible amongst cattle, and are characterised by low piroplasm parasitaemias and low schizont parasitoses in cattle.

7. What role, if any, do African buffalo play in the epidemiology of East Coast fever?

Buffalo are regarded as the original host of *T. parva* and it is generally accepted that. ECF represents the selection a subpopulation of *T. parva* parasites that are better adapted to cattle-cattle transmission from buffalo. Due to the diversity of *T. parva* genotypes present in buffalo populations, such selection of parasites that can readily be transmitted amongst cattle, may occur wherever cattle and buffalo share common grazing, even in areas where classical ECF has long been absent. The variety of genotypes potentially transmitted from buffalo to cattle may also preclude the development of an effective vaccine which will protect against all field strains of *T. parva*.

8. How does the infection-and-treatment method of vaccination against ECF differ from those against other important tick-borne diseases of cattle?

The vaccines against babesiosis, anaplasmosis and heartwater are blood-based vaccines in which infective blood is used as a vaccine and treatment is usually only administered if clinical signs of disease are observed in vaccinated animals, or, in the case of heartwater, at the time when vaccine reactions are expected to occur. In the case of ECF vaccination, infective sporozoites (derived from infected ticks) are used to infect animals and tetracycline treatment is administered at the time of vaccination.

9. What role, if any, do the so-called benign theilerioses of cattle play in the epidemiology of ECF?
The most important role that they play is that they may complicate or confuse the diagnosis of *T. parva*. This is especially true of *T. taurotragi* which occasionally may cause clinical signs which closely resemble those caused by *T. parva*.

10. **Is the distribution of East Coast fever and Corridor disease limited to the distribution of the brown ear tick *Rhipicephalus appendiculatus*?**

No. It may also occur within the distribution range of the closely related tick species *R. zambeziensis, R. duttoni* and, possibly, *R. nitens*. 