

COXIELLA BURNETII (Q-FEVER) INFECTION IN DAMA GAZELLE (*GAZELLA DAMA*)

Christopher Lloyd¹, Mark Stidworthy²

¹ Nad Al Shiba Veterinary Hospital, Dubai, UAE. ² International Zoo Veterinary Group Pathology, Leeds, UK

The Dama gazelle (*Gazella dama*) is a sub Saharan species listed as critically endangered on the 2007 IUCN red list due to uncontrolled hunting and habitat destruction (Newby et al 2006). These antelopes reach sexual maturity between 1.5 and 2 years and throughout their natural range normally give birth to a single calf during the winter or spring (Mallon and Kingswood 2001)

Twenty three Dama gazelle (4 males and 19 females) had been held in a private collection in the United Arab Emirates since March 2006. They were kept in a fenced, sand enclosure with direct contact and exposure to a mixed collection of non-domestic ungulates including Springbok (*Antidorcas marsupialis*), Fallow deer (*Dama dama*) and Nyala (*Tragelaphus angasii*). The enclosure had previously housed domestic goats that had been removed in September 2005 and was top-dressed with sand prior to introducing the Dama gazelles.

Between May and August 2007 five female gazelles from the herd aborted late in their gestation period. Foetuses were fully developed with no external signs of illness. Gross post mortems on all animals revealed no gross abnormalities. Full histopathological examination of foetal tissues from 2 cases (International Zoo Veterinary Group (IZVG), UK) revealed evidence of meconial aspiration in the lung of both foetuses consistent with foetal distress and an acute necrotising placentitis, with intralesional inclusions suspicious for *Coxiella burnetii*.

Samples of placental material, foetal spleen, lung and liver submitted for viral culture testing at the Central Veterinary Research Laboratory, Dubai failed to culture any viruses. Placental material submitted for PCR testing (Molecular Diagnostic Services, South Africa) for *C. burnetii*, *Brucella abortus*, *B. melitensis*, *Leptospiral* spp, *Toxoplasma gondii*, *Neospora caninum*, *Ureaplasma diversum*, Bovine Herpes virus, *Chlamydomphila abortus* and Bovine viral diarrhoea virus revealed a positive result for the presence of *C. burnetii*. Following this result, placental material from all five cases was retrospectively submitted for histopathology (IZVG, UK) and immunohistochemistry (Moredun Institute, UK). All showed a necrotising placentitis with positive labelling for *C. burnetii* organisms.

C. burnetii is a zoonotic, obligate intracellular bacterium. Antibodies to this organism have been reported in a wide range of animals including mammals, reptiles, amphibians

and birds. It is a common cause of abortion in domestic ruminants and affected animals shed large numbers of the organism into the environment. *C. burnetii* is extremely resistant in the environment and may be transmitted via arthropods, direct contact, aerosol and ingestion. Few clinical cases of disease in non domestic species are recorded in the literature. A necrotising placentitis with abortion and still birth has been reported from captive Cuviers gazelles (*Gazella cuvieri*), greater Kudu (*Tragelaphus strepsiceros strepsiceros*) (Stalis 1996), Fallow deer (Simmert et al 1998) and some captive South American pinnepeds (Jurczynski et al 2005).

To the authors knowledge the seroprevalence of *C. burnetii* among domestic animals and humans in the U.A.E is largely unknown although an abortion storm in goats attributed to *C. burnetii* was reported in 2005 (Wernery pers comm.). A published serological survey of racing camels in Abu Dhabi showed a seroprevalence of 7.9% (Afzal and Sakkir 1994) while unpublished work from the UAE has revealed a seroprevalence in camels of 20-40% (Wernery, unpublished data). No abortions were reported in either study. It is possible that because of its geographical location, large population of domestic ungulates and confirmed occurrence of Q fever in surrounding countries (Scrimgeour et al 2000) that the bacterium is endemic in the U.A.E. In countries where *C. burnetii* is endemic, disease occurs sporadically and may be under-diagnosed and under reported (Marrie 1995). In Zimbabwe, where acute Q fever had never been reported *C. burnetii* antibodies were found in 37% of humans.

The authors propose that *C. burnetii* should be considered as a potential cause of late term abortion or still birth in non domestic ungulates in the UAE. The zoonotic potential of this bacterium and the apparent lack of screening within the UAE for this disease should also be considered by practitioners dealing with non domestic and domestic ungulates in the region.

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References

References are available on the pdf version available on the wmenews website



Fig 1: Still born Dama gazelle foetus (©Chris Lloyd).