



An Outbreak of Trypanosomiasis in Camel at Rajasthan

KEYWORDS

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ABSTRACT An outbreak of Trypanosomiasis occurred in a herd of around 200 camels among total population of 6000 at Ramgarh, a village nearby Dungarpur in Rajasthan, India, in which 16 were reported died in time span of 7 days. Symptoms reported were debility, laboured respiration, abortion in pregnant females, nasal discharge, drooping hump cachexia, abortion in pregnant females and anorexia. post mortem revealed Pneumonia and sero sanguenous fluid in thoracic cavity as well as in pericardial cavity. When systematic study was done on sick animals drooping hump, anaemia, dried faeces, abortion and characteristic fruity smell of urine were main symptoms recorded. Animals were treated with single shot treatment of anticyde prosalt and supportive therapy with antibiotics, anti-inflammatory agents, alongwith I/V fluids and vitamins to control secondary invaders.

Introduction

Camel is very important animal of Rajasthan, India for draught purpose and livelihood of farmers as it can very well survive in desert area for its drought capacity. Dungarpur district, a very potential area for camel rearing as its environment is very well suited for Mewari camel. Raibari community is mainly involved in rearing of camels for their livelihood. An outbreak of trypanosomiasis was reported in a herd of 200 camel approx, 16 camels died in that outbreak in September 2012.

The Trypanosoma evansi was discovered in India more than a hundred years ago by Evans (1880), who detected it in Horses, Mules and Camel with a disease called as 'Surra'(means-Rotten). Mechanical vector of Trypanosoma in these animals are many flies like Tabanus spp, Haematopota spp, Lyperosia spp and Stomoxys spp etc.

The parasite replicates in camels, horses, donkeys, dogs, cattle, water buffaloes and even elephants. Equines and dogs are very susceptible and usually die after an acute course of the disease. Dogs may also become infected by eating meat from a trypanosome-infected carcass. Cattle, sheep, goats and antelopes often carry the parasite subclinically reservoir.

Symptoms and Course of disease

Surra can attack camels at any age, even fetuses. There is particularly high incidence of infection in juvenile camels shortly after weaning. Numerous environmental and host factors influence the course of disease, such as other infections, nutritional status, age, pregnancy, previous exposure or immunosuppression by other diseases and stress.

When a systemic study was done on live animals, very systematic progressive symptoms of trypanosomiasis were found in camels. Signs of diseases which are noted are as follow, animals become thin and hump disappears (Rottcher et al. 1987) Gradual Disappearance of hump was reported and observed in animals. (Fig.1).



Fig 1 Photo showing drooping of hump with cachexia and dry coat.

Hair falls in marked amount from tail. Tail hair and body coat becomes dull and rough (Rottcher et al-1987).

The membrane around the eyes was pale. The animal showed progressive anaemia, weakness and loss of body weight (Ilse Kohler-Rollefson et al 2001). In the initial attack of fever there is lacrimation, shivering, reduced appetite and mild diarrhoea. Eyes became watery. (Fig 2)



Fig 2: Photo showing watery eye and oedema.

Diagnosis

Trypanosomiasis is diagnosed by demonstrating the parasite.

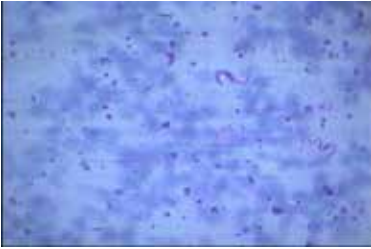


Fig.3 photograph of blood film showing Trypanosoma evansi in camel blood .

However, dromedaries are usually far away from laboratory facilities. A tentative diagnosis can be reached without microscopy, by taking into account the owner's observations and clinical examination of camels in field.

The herder may report weight loss, weakness, blindness, abortions or changes in the odour of the urine. For the veterinarian, the leading sign in anaemia, the mucous membranes being pale or white. There may or may not be pyrexia, lacrimation, cachexia, enlarged lymph node, reduced appetite and oedemas, the latter appearing first on the underbelly.

Post-mortem examination reveals no absolutely typical signs, but some degree of anemia is often visible. Skeleton and heart muscles are pale, and there are signs of dehydration, pericardial effusion, enlarged lymph nodes and spleenomegaly.

When postmortem conducted, death of camels was caused by secondary invasions of bacteria like *Pasteurella*, *Staphylococcus* etc. Main lesions observed were pneumonia, fluid in pericardial cavity as well as in thoracic cavity .

Typanosoma evansi observed, when wet blood films were examined.

The urine of animal has characteristic smell (sand ball test) (Ilse Kohler-Rollefson et al-2001).(Fig. 4).The characteristic odour of the camel's urine may be due to presence of ketones bodies, which were found to be elevated in trypanosome-affected camels (Schillinger et al, 1984).



Fig4: photo showing urine sample collected from affected animals.



Fig 5: photo showing Sand ball test.

Discussion

Trypanosome evansi can infect a variety of hosts and causes a species-specific pathology. The following descriptions are

from the account of Mahmoud and Gray (1980) and Luckins (1998). In camels the disease is manifested by elevation of body temperature which is directly associated with parasitaemia. Infected animals show progressive anaemia, marked depression, dullness, loss of condition, and rapid death. Anaemia was observed to be a major clinical finding in camel trypanosomiasis in Morocco (Rami et al., 2003). Milder cases develop recurrent episode of fever. Some camels develop oedema in their dependent part of the body, urticaria plaques and plaques and petechial haemorrhages in serous membranes. Death finally ensues if untreated. However, some may harbour trypanosomes for 2-3 years thus consisting reservoirs of infection to susceptible camels and host. Other well documented field reports are death (Tuntasuvan et al., 1997); abortion (Lohr et al., 1986); weight loss, reduced draught power (Luckins, 1998) and nervous signs like circling movement and trembling, unusual aggressiveness, running aimlessly and sudden collapse in severely stressed and over worked animal (Manual 1998). At post mortem, necrotic foci in the liver and spleen as well as generated lymphoid tissue hyperplasia are common in camels suffering from surra (Rottcher et al., 1987).

Treatment

Two drugs are recommended for the treatment of evansi infection in suramin and quinapyramine, as sulphate or prosalt. Most of the drugs for cattle trypanosomiasis are either not curative (homidium bromide= Ethidium; pyridium bromide= Prothidium) or are too toxic for camels (diminazene aceturate= Berenil)(Ilse Kohler-Rollefson et al., 2001).

For the treatment of these animal anticycide prosalt quinapyramine methylsulphate and quinapyramine chloride was given under the skin at the dose of 5 mg/kg body weight.(Ilse Kohler-Rollefson et al 2001). For the treatment of secondary bacterial infection ceftriaxone with combination of tazobactam was used effectively with antihistaminics, anti pyretics and analgesics with supportive therapy of i/v fluids and vitamins.

Most of the resistant strains were sensitive to quinapyramine when this drug was introduced. Quinapyramine is simpler to dissolve than suramin and its subcutaneous application is easier. Quinapyramine methylsulphate is used as curative drug, whereas a mixture of two salts, quinapyramine methylsulphate and quinapyramine chloride at a ratio of 3:2 is applied for prophylactic purposes (pro-salt RF). Prophylactic covers lasts for about 4 to 6 months. Severe overdoses causes salivation, muscle tremors, stiffness and collapse or death following "curare-like" symptoms whereas a moderate overdose has a mainly nephrotoxic effect. Numerous resistant strains have also developed against quinapyramine, and many evansi strains with dual resistance to suramin and quinapyramine exists nowadays. (Rottcher et al 1987).

Another drug used for treatment of trypanosomiasis in cattle, isometamedium has only a moderate effect against *T. evansi* and has been used in camels as an emergency measure where dual resistance against suramin and quinapyramine existed. When given intramuscularly, isometamedium produces severe local reactions in camels. 0.5mg/kg of isometamedium given intravenously as a 2% solution is well tolerated. This route of application is curative in acute cases but fails when parasite have already entered extravascular sites. (Schillinger and Rottcher, 1986)

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