

Case Report

Use of Cymelarsan® and Manganese Chloride for Treatment of the Canine *Trypanosomiasis* (Surra): A Research report

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ABSTRACT

The present report describes a case of *Trypanosoma evansi* infection (surra) in a 5 months old male bulldog pup weighing 13 kg. Clinical signs included a moderate fever (39.6°C), pulse (140 beats/min) and an accelerated respiration rate (45/min; normal 10–30/min), anemia, watery eyes and dehydration. Microscopic examination of wet blood films revealed an extremely large number of trypo-mastigotes and thin blood smears stained with Dip Quick™ stain revealed a large numbers of trypanosomes with a characteristic flagellum, kinetoplast and undulating membrane. The pup was treated with 4 mg Cymelarsan® (Rhone Merieux, France) powder dissolved in 3 ml distilled water and administered by deep intramuscular injection once and oral administration of 100 mg manganese chloride dissolved in 10 ml water daily for 5 days. Wet blood films and Dip Quick™ stained blood smears were negative for trypanosomes on day 3, 7, and 14 of post treatment and all vital parameters returned to normal on day-4 post-medication.

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Surra is a protozoan disease caused by *Trypanosoma evansi* that affects a wide variety of mammalian hosts. Several reports have described the occurrence of surra in adult dogs (Rashid et al., 2008; Eloy and Lucheis, 2009; Defontis et al., 2012). However, as far as could be ascertained, documentation of treatment of this disease in pups doesn't exist. The present report describes surra in a 5-month old bulldog male pup and subsequent treatment.

A 5-month old bulldog male pup weighing about 13 kg was presented to the Veterinary Teaching Hospital, Department of Clinical Medicine and Surgery, University of Agriculture, Faisalabad, Pakistan. Presenting complaint included episodes of recurrent fever for the last one month, inappetence and a considerable weight loss. Prior to referral, the subject had been treated with various antibiotics/antipyretics but the condition remained unresponsive. Clinical examination revealed a moderate fever (39.6°C), pulse (140 beats / min) and an accelerated respiration rate (45/min; normal 10–30/min). The mucous membranes were anemic. Eyes were watery. Capillary refill time, as noted from gingival mucous membrane, was 3 seconds. Fecal examination was negative for endo-parasites. Microscopic examination of wet blood films revealed an astronomical number of motile trypanosomes (Is it possible to present a figure?). Microscopic examination of thin blood smears stained with Dip Quick™ stain (Jorgensen Labs. Loveland, Colorado, USA) revealed a large numbers of

trypanosomes with a characteristic flagellum, kinetoplast and undulating membrane.

On the basis of clinical examination and demonstration of trypanosomes, the subject pup was diagnosed as suffering from surra (*Trypanosoma evansi* infection).

The following treatment was instituted:

1. Inj. Cymelarsan® (Bis (aminoethylino) 4-metaminophenylarsine di-hydrochloride; Rhone Merieux, France) 4 mg powder dissolved in 3 ml distilled water and administered by deep intramuscular injection.
2. The oral administration of 100 mg manganese chloride (BDH Chemicals Ltd. Poole, UK), dissolved in 10 ml water daily for 5 days.

Wet blood films and Dip Quick™ stained blood smears were negative for trypanosomes on day 3, 7, and 14 of post treatment and all vital parameters returned to normal on day-4 post-medication.

In dog, surra usually follows an acute course of infection (Ravindran et al., 2008). Although in dogs, the disease is usually sporadic, outbreaks of canine trypanosomiasis have been reported from India, Brazil, Iran and South America (Herrera et al., 2004; Ian et al., 2004; Morteza et al., 2007; Umezawa et al., 2009; Eloy and Lucheis, 2009). Of the several species of trypanosomes, only *Trypanosoma evansi* has been reported from subcontinent (Ravindran et al., 2008). Dogs may contract *Trypanosoma evansi* infection even by

eating meat of infected animals (Hoare et al., 1972). The disease is marked by fever, anorexia, edema of head and throat, corneal opacity and even blindness. Edema of the larynx may change the voice of the dog, which can be confused with that in rabies. Not all of these signs were noticed in the pup, which might be explained by the postulation that it has recently contracted the *Trypanosoma evansi* infection. In the present report, the clinical signs observed in the pup are consistent with those of previously reports on surra in dog (Rashid et al., 2008). The reports of the occurrence of surra in pups are very sparse.

The development of new trypanosomicidal drugs has been pathetically slow as evidenced by the introduction of only 1–2 new drugs over the past two decades. It follows that the currently available drugs have to be exploited to the best their potential (Touratier et al., 1990).

Animals maintained on a proper plan of nutrition are likely to withstand viral, bacterial and parasitic diseases better than those on a poor nutrition plan (Otesile et al., 1991). Mineral supplementation has been reported to ameliorate the severity of trypanosome infection in rats (Egbe–Nwlyl et al., 2003). Oral feeding of magnesium chloride @ 50mg/kg for 10 days prior to artificial infection on day 20 post infection in rats has been shown to reduce the severity of trypanosome infection by delaying the onset of parasitemia, reducing the levels of parasitemia and accompanying anemia (Egbe–Nwlyl et al., 2005). The present report is the preliminary case report on the use of manganese chloride as an adjunct in the treatment of *Trypanosoma evansi* infection. To what extent, magnesium chloride aided the recovery in the solitary subject of the present report remains to be determined in carefully controlled trials involving a large number of canine surra patients.

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