**Trypanosoma evansi** infection in three cats

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Note : This study was performed at the International Veterinary Hospital, Ahmadi, KUWAIT.

**SUMMARY**

The clinical signs, haematological findings, medical treatment, and outcome of therapy in three cats from Kuwait diagnosed with *Trypanosoma evansi* (« surra ») are described.

**Keywords** : *Trypanosoma evansi* - cat - melarsomine - Kuwait.

**Introduction**

*Trypanosoma evansi* (Steel, 1885) is a protozoal parasite of mammalian blood which is transmitted mechanically by biting flies of the genera *Tabanus, Lypserosia, Stomoxys* and *Atylotus* [4]. There is no intermediate host. Carnivores may also be affected after feeding on infected meat [11]. *T. evansi* is pathogenic in most domesticated animals and some wild animals, including deer, elephants, capybara, jaguars [4], and tigers [9]. Infections in horses, camels, cattle, buffalo, and dogs are widely documented (‘surra’), and display typical signs such as fever, anaemia, weight loss, oedema, lymphadenomegaly, and sudden death [2, 4, 12]. However, naturally occurring feline trypanosomosis is rarely described in the literature [5-6] and therapeutic indications are lacking. Therefore, the aim of this study is to describe the signs and response to melarsomine (Cymelarsan®, Merial) therapy [13] in three cats from Kuwait diagnosed with *T. evansi*.

**Clinical case 1**

In May 2003 a 10-month old male Persian cat living on a horse-breeding farm of Wafra (Kuwait) presented for consultation at the International Veterinary Hospital (Ahmadi). A 2-day history of anorexia, diarrhoea, watery eyes, pale mucous membranes, inability to stand and extreme exhaustion was reported. Body temperature was low (36.8°C) and biochemistry results were not significant. The cat was born in Kuwait and had never travelled abroad. Microscopic examination (x1000) of fresh blood smears stained with the Wright technique revealed the presence of a large number of circulating trypomastigotes.

Diagnosis of *Trypanosoma evansi* infection was based on detection of trypomastigotes (Figure 1) and on the assumption that « surra » is the only animal trypanosomosis occurring in Kuwait [1, 3]. The trypomastigotes were highly pleomorphic, showing a length ranging from approximately 6 to 30 µm. Concurrent infections were not detected. The validity of the diagnosis was confirmed by the response to specific therapy (melarsomine, Cymelarsan®, Merial) given at the recommended dosage of 0.25 mg/kg body weight [13], but for 4 consecutive days, until recovery signs were evident. Diarrhoea disappeared during day 1. During the second day of treatment the cat appeared more lively and playful. On day 3, the animal started to eat spontaneously and body temperature increased to 37.5°C. On day 4, appetite was sustained and body temperature was normal (38.3°C). The cat was now able to stand and walk. During a check made one week later, no trypomastigotes could be detected in two Wright-stained fresh blood smears and the status of good health was maintained. One month after the end of therapy the cat was re-examined and again found to be healthy and a search for trypomastigotes proved negative.

**Clinical case 2**

In June 2004, a 4-year old female Siamese cat from Ahmadi was admitted for consultation reporting a 7-day history of complete anorexia, inability to stand, and jaundice. Prior antibiotic medication proved ineffective and there was no response to intravenous dripping with dextrose and Ringer lactate administered during three consecutive days. Finally, a Wright-stained fresh blood smear performed at day 10 showed the presence of trypomastigotes in the blood. A
melarsomine injection was immediately administered result-
ing in the observation 10 minutes later that the cat ate sponta-
neously for the first time in 10 days. At the end of the 4-day
course of melarsomine the jaundice had disappeared and the
appetite improved and was maintained. The cat was now
much more lively and could walk properly.

One week later a microscopically examined control blood
smear confirmed the eradication of trypanomatigotes from
the blood in this case as well.

**Clinical case 3**

In July 2004, a 3-year old female Persian cat from Kuwait
City was admitted for examination displaying a 3-day his-
tory of poor appetite, fever (39.8°C), diarrhoea, vomiting, and
inability to stand and walk. Wright-stained blood smears
were immediately performed and showed the presence of a
high number of circulating trypanomatigotes at light micro-
scopy. The response to a 4-day course of melarsomine at the
recommended dosages was immediate and favourable, lead-
ning to disappearance of all clinical signs by day 4. One
week later a new examination showed the complete lasting
remission and disappearance of trypanomatigotes in control
blood smears.

**Discussion**

A naturally occurring *Trypanosoma evansi* infection was
detected in three diseased cats from Kuwait (Figure 1) and
successfully treated with melarsomine (Cymelarsan®,
Merial), a medicament registered for the therapy of *T. evansi*
infection in camels [13]. Although *T. evansi* is difficult to
distinguish morphologically from other members of the sub-
genus Trypanozoan, such as *Trypanosoma brucei* [10], up to
now it is the sole animal trypanosome isolated from camels
and dogs in Kuwait [1, 3]. Serology may not distinguish be-
 tween current and past infections [4]. For these reasons, dia-
gnosis in these cases was uniquely based on the microscopic
detection of trypanomatigotes and by response to therapy. The
rapid clinical improvement accompanied by the disappear-
ance of trypanomatigotes in blood smears performed after the
end of therapy seems to confirm the diagnosis and indicates
that melarsomine is active also in feline trypanosomosis.

Cats can be affected by *Trypanosoma evansi* [4], however, in
the literature, this author has been able to track down only
experimental infections [5–6]. It is therefore worth reporting
such cases, also due to the fact that cats may become reser-
voir hosts for horses and camels in endemic areas [4]. Transmis-
sion to cats is possibly easier, if compared with other species, since they can be affected either through the bites of flies or by feeding on infected mice [11].

In the Equidae, the incubation period varies from 5 to 60
days and the disease is often fatal within two weeks to four
months, with signs such as anaemia, intermittent fever,
weakness, oedema, urticaria and progressive paresis of hind-
quarters [4]. No test for trypanosomiasis was performed on
thirty apparently healthy horses living in the farm where the
first feline case originated. However, a group of Arabian dor-
cas gazelles (*Gazella dorcas saudiva*) living on the same
farm tested positive for *T. evansi*, suggesting a possible
transmission through *Tabanidae*. In contrast, feline cases 2
and 3 lived in the urban areas of Ahmadi and Kuwait City
and their clinical history showed no indications of the possi-
ble source of infection.

Signs of « surra » observed in these cats were somewhat
different from those usually seen in dogs (oedema, fever and
lymph-adenomegaly). Anorexia/poor appetite and inability
to stand were reported in all three cats, diarrhoea in two, and
vomiting, jaundice and fever were recorded once. The inabil-
ity to stand and walk is often seen in many sensitive species
[4] and was very evident in these feline cases. This is consis-
tent with the observation that anomalies of muscle fibres and
of capillary endothelial cells are common in infections due to
*Trypanosoma evansi* [7]. The trypanomatigotes observed in these cats were highly pleomorphic, with length ranging from 6 to 30 µm and width varying appreciably from one parasite to the other. A logical explanation is that such protozoa are sub-
stantially changing their size in unusual hosts [8]. Trypanomatigotes from dogs are mostly diskinetoplastic [12] with a mean total length of 21.6 µm [2], which are in accor-
dance with the observations made on the cats of this study.

Biometrical studies carried out on buffalo, bovine, and
canine strains of *T. evansi*, showed that the buffalo strain had
greater free flagellum, total length, and width compared with the
canine strain [8].

These clinical cases suggest that in endemic areas trypano-
somisis in cats may show elusive non-specific signs and that
melarsomine (Cymelarsan®, Merial) may also be useful in the
 treatment of felines.

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