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A case report of trypanosomiasis in tiger

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Abstract
Tigers are unlisted as endangered species in the redlist of IUCN. India is currently hosting highest numbers of tigers from all over the world. The role of tigers in balancing the ecosystem is very critical. So, it is a call of time to take special care for upholding the population of this species for maintaining a healthy environment. In this case report we have discussed about a tigress infected by *Trypanosoma evensi* captive in Assam state zoo cum botanical garden. The animal, was showing signs of pyrexia, inappetence and depression. The diagnosis was confirmed by microscopic examination of wet blood smears, Giemsa-stained blood smears and positive Formol Gel Slide Test (FGST). Earlier there was no report available for Trypanosoma infection from the concerned population of the zoo. This case report may put some light towards Trypanosomiasis in wildlife.

Keywords: tiger, *Trypanosoma evansi*, wet smear, giemsa, FGST

Introduction
The tigers are very unique animal which is playing a very crucial role in maintaining the balance of the ecosystem. As per IUCN there are around 3900 tigers remain in the wild life. In India 2,967 tigers in the wild, which is about 80% of the total tiger population of world. Their habitat is limited to few national parks and zoological gardens. Along with other causes, there was many health-related issues of tigers which are creating a hindrance in maintaining the population. So, it becomes utmost necessity to understand the diseases afflicting the tiger's health. Trypanosomes found in mammals (including humans) are blood and occasionally tissue parasites belong to the order Kinetoplastida, family of the Trypanosomatidae, genus Trypanosoma, principally transmitted by biting insects, in which most of them undergo a biological cycle [3]. Present article is a report of Trypanosomiasis in an adult tigress in Assam state zoo and botanical garden in the month of December, 2019. The diagnosis was documented on the basis of microscopic examination of wet blood smears, Giemsa-stained blood smears and positive Formol Gel Slide Test (FGST). There is published report of *T. evansi* detected in big cats like leopards (*Panthera pardus*), jaguars (*Panthera onca*) and tigers (*Panthera tigris*) in India [3]. Although, earlier there was no published report of Trypanosomiasis from Assam state zoo cum botanical garden from any wild animals. Sharma *et al*. [1] had reported the occurrence of Trypanosomiasis only from domestic animals.

Case report
The blood and serum samples of an adult female tiger suffering from pyrexia, inappetence and depression were submitted to Teaching veterinary clinical complex, for blood CBC, parasitological and biochemical alterations. The hematological (Table 1) and biochemical (Table 2) parameters recorded were within the reference range. The microscopic examination of wet blood films revealed moderate numbers of *Trypanosoma evansi*. The Giemsa-stained blood smears examination also clearly revealed extracellular trypanomastigotes (Fig 1). In the Formol gel slide test there was clear formation of gel that adhered to the slide and development of opacity.

Discussion
Trypanosoma evansi is having the widest range of host range among salivarian tryapansomes. It is also having a wide range of hosts in wild and captive animals [3]. In a review by Molyneux has mentioned that trypanosomes in mammals may be having very little or no pathogenic effect, but under stress conditions only the clinical signs have been appeared [4].

Trypanosomiasis in domestic Cats can be found in literature [5]. But the author was not able to track any report of Trypanosomiasis in public domain for wild cats of North Eastern Region of India. Due to which the case report will be able to put some light on concerned area. The clinical sign of the present report was not specific, but having similarities with reports of other authors [5,6]. Anemia is one of the evident laboratory finding in Trypanosomiasis as mentioned by different workers [7], but which was not manifested in the present case may be because of the early detection of the disease. The present report will surely be able to draw some attention of the experts about the presence of Trypanosoma in the wild species of NER. Which should be further studied to understand the disease in more depth.

Table 1: Haematological analysis

Parameters	Value	Reference Range [2]
Total Leukocyte Count (thousands/µl)	9.53	6.2–11.05
Lymphocyte (%)	40.9	18–35
Monocyte (%)	2.5	2– 6
Neutrophil (%)	56.0	57–75
Eosinophil (%)	0.1	2– 6
Basophil (%)	0.5	0–4
Red Blood cell (millions/µl)	6.82	4.66–9.15
Mean Corpuscular Volume (femtolitre)	64.7	62.46-64.63
Haematocrit (%)	44.1	36–45
Mean Corpuscular Haemoglobin (picogram)	20.3	18.83-19.0
Mean Corpuscular Haemoglobin Concentration (gram/decilitre)	31.5	26.36-30.16
Haemoglobin (gram/decilitre)	13.9	7.8–13.8
Thrombocyte (millions/µl)	90	120.3-223.6

Table 2: Serum biochemical analysis

Parameters	Value	Reference range [2]
BUN	41.8 mg/dl	6.5–48.2 mg/dl
Bilirubin	0.3 mg/dl	0.4–3.2 mg/dl
ALT	49.8 U/L	21.2–109.0 U/L
AST	63.3 U/L	14.4–84.0 U/L
Creatinine	3.3 U/L	1.6–4.6 U/L
Albumin	2.7 g/dl	2.1–4.6 g/dl
Total serum protein	6.5 U/L	3.7–8.7 U/L

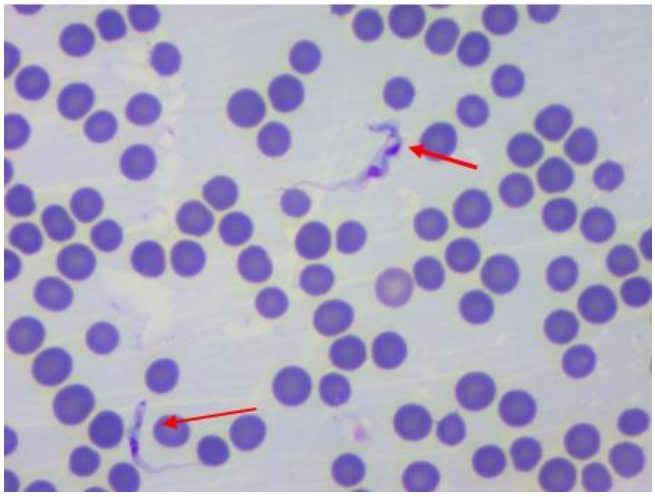

Fig 1: *Trypanosoma evansi* in thin blood smear of tiger

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