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A case of lymphadenopathic theileriosis in a five-months pregnant jersey cross-bred: Clinical, cytological and therapeutic observations

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Abstract
A five-months pregnant Jersey cross-bred was presented to the Teaching Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli, with enlarged superficial lymph nodes, reduced feed intake, hind-limb weakness with tremors, and mucus-coated faeces. One week earlier, the cow had been treated by a field veterinarian for recumbency and weakness. Cytological examination of a lymph node aspirate revealed lymphocytes and monocytes containing characteristic Koch's blue bodies along with eosinophils. A diagnosis of the lymphoproliferative form of bovine tropical theileriosis caused by *Theileria annulata* was established. The animal was treated with oxytetracycline and supportive therapy, leading to complete recovery. This case highlights the diagnostic value of cytology for rapid identification of *T. annulata* infection and demonstrates the effectiveness of timely therapy in pregnant Jersey cross-bred cattle.

Keywords: Cross-bred Jersey, *Theileria annulata*, Koch's blue bodies, lymphadenopathy, cytology

Introduction
Tropical theileriosis of cattle, caused by *Theileria annulata*, is a tick-borne haemoprotozoan disease of major economic importance in tropical and subtropical regions (Gharbi *et al*., 2011) [3]. The schizont stage of *T. annulata* invades bovine lymphocytes and macrophages, producing the characteristic "Koch's blue bodies" visible in cytological or histological smears (Gupta *et al*., 2016) [1]. These schizonts induce lymphocytic proliferation, leading to lymph node enlargement, anaemia, emaciation, and weakness (OIE, 2019) [6].
Cross-bred and exotic breeds such as Jersey and Holstein-Friesian are highly susceptible and often exhibit severe clinical manifestations (Al-Hosary *et al*., 2018) [2]. Early diagnosis and prompt administration of specific antiprotozoal therapy are crucial for a favourable prognosis (Gill *et al*., 2015) [4].
This paper reports a case of lymphadenopathic theileriosis in a five-months pregnant Jersey cross-bred, emphasizing cytological diagnosis and successful therapeutic management.

Materials and Methods
Animal and History
A five-months pregnant Jersey cross-bred was presented to the Teaching Veterinary Clinical Complex, Tirunelveli, with a history of gradual enlargement of superficial lymph nodes (prescapular and prefemoral), decreased feed intake, hind-limb weakness with tremors, and passage of soft faeces coated with mucus.

Clinical Examination
On clinical examination, the animal appeared dull and depressed with poor body condition. The superficial lymph nodes were enlarged, firm, and movable. The hind limbs showed weakness and fine tremors. The mucous membranes were pale, and the faeces were soft and coated with mucus, without visible blood. Rectal temperature remained within normal limits.

Cytological Examination

Fine-needle aspiration cytology (FNAC) was performed on the enlarged prescapular lymph node using a 22-gauge needle. Smears were air-dried, fixed in methanol, stained with Leishman stain, and examined microscopically. The smears revealed numerous large lymphocytes and occasional lymphoblasts containing intracytoplasmic, blue-staining schizont inclusion bodies (Koch's blue bodies), (Figure 1) (Figure 3), along with 5-10% eosinophils and a few monocytes (Figure 2). These findings were diagnostic of lymphoproliferative theileriosis (Gupta *et al*., 2016) [1].

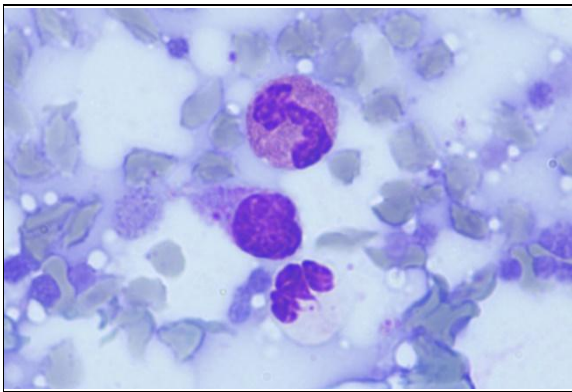

Fig 1: Lymphnode cytology-Lymphoblasts containing intracytoplasmic, schizont inclusion bodies (Koch's blue bodies) along with eosinophils

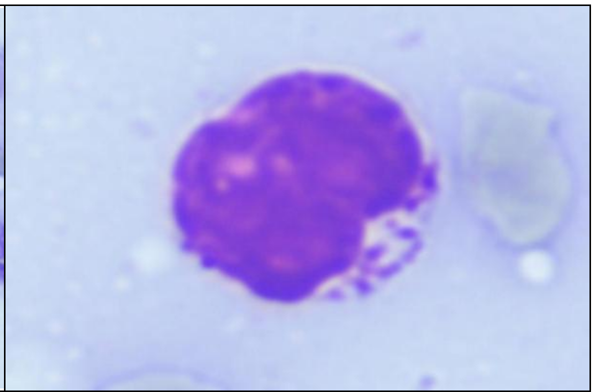

Fig 2: Lymphnode cytology-cytoplasm of monocyte containing schizont inclusion

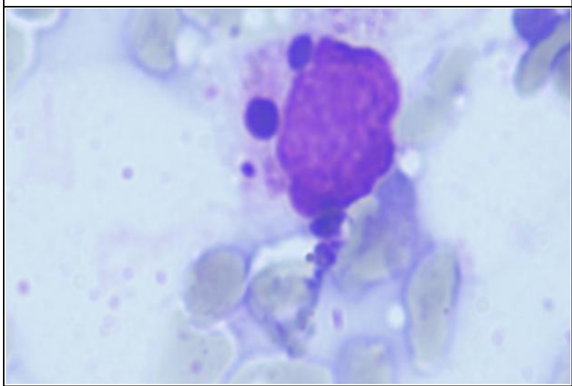

Fig 3: Lymphnode cytology-Lymphoblasts containing intracytoplasmic, Blue stained round schizont inclusion bodies (Koch's blue bodies)

Fig 4: Cow-Fully recovered in standing posture with normal prescapular lymph node

Therapy

The cow was treated as follows

- **Oxytetracycline:** @ 10 mg/kg intravenously once daily for 5 days

- **Supportive therapy**
  - Injection Chlorpheniramine maleate, 12.5 mL intramuscularly
  - Injection Meloxicam, 25 mL intramuscularly
  - Injection Tribivet, 20 mL intramuscularly
  - Bolus *Ecotas* (probiotic and rumen supplement) for 4 days

Follow-up

The animal was monitored daily for improvement in feed intake, lymph node size, and reduction in tremors. A re-examination was conducted on Day 5 post-treatment.

Results

On presentation, the prescapular lymph nodes measured approximately 8 cm in diameter. The animal exhibited marked anorexia and reluctance to walk. Faecal material was soft and covered with mucus.

Cytological examination confirmed *Theileria annulata* infection by the presence of Koch's blue bodies in lymphocytes.

By Day 4, feed intake improved, and hind-limb tremors subsided. By Day 5, the lymph nodes had regressed significantly, and faeces returned to normal consistency. The animal was clinically normal (Figure 4), indicating complete recovery. No adverse drug reactions were observed, and pregnancy was maintained uneventfully.

Discussion

The clinical signs of lymphadenopathy, anorexia, weakness, and tremors in this case correspond with previous reports of bovine tropical theileriosis (Gharbi *et al*., 2011; Gupta *et al*., 2016) [3, 1]. The cytological detection of Koch's blue bodies within lymphocytes is pathognomonic for *Theileria annulata* infection (Al-Hosary *et al*., 2018; OIE, 2019) [2, 6]. These findings reaffirm the diagnostic value of FNAC as a rapid, field-applicable test in endemic regions.

The use of oxytetracycline, along with supportive therapy, likely minimized secondary bacterial infections and improved systemic resilience. Cross-bred cattle, particularly Jerseys, are known to be more susceptible to theileriosis due to limited tick resistance and higher physiological stress during pregnancy (Durrani *et al*., 2011) [5]. Therefore, theileriosis should be considered a differential diagnosis in pregnant cross-bred heifers presenting with lymphadenopathy and weakness.

Conclusion
Cytological identification of Koch's blue bodies in lymphocytes provides a rapid and reliable diagnosis of *Theileria annulata* infection. Early treatment with oxytetracycline and supportive care led to complete recovery in this five-months pregnant Jersey cross-bred heifer. Early detection and timely intervention remain vital for the successful management of bovine tropical theileriosis in cross-bred cattle under field conditions.

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Conflict of Interest
Not available

Financial Support
Not available

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