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TROPICAL THEILERIOSIS IN NEWBORN TWO CALVES - A CASE REPORT

ABSTRACT

This was a case report written in order to present the congenital *Theileria annulata* infection diagnosed in the two newborn calves in our region. Following completion of the clinical examinations of cases of a day-old female and a 6 day-old male calves, thin blood smears were prepared from ear apex and stained by Giemsa. Examination under light microscopy revealed piroplasm forms of *Theileria annulata* in erythrocytes and thus concluded the diagnosis of tropical theileriosis. As a result, we are of the opinion that congenital *Theileria annulata* may cause the congenital tropical theileriosis cases in newborn calves via intrauterine transmission and prognosis may be poor in this cases.

Keywords: Congenital, Intrauterine transmission, Theileriosis, *Theileria annulata*, Newborn, Calves.

YENİ DOĞAN İKİ BUZAĞIDA TROPİKAL TAYLERİYÖZİS OLGUSU

ÖZET

Bu gözlem bölgemizde yeni doğan iki buzağıda saptanan konjenital tropikal tayleriyozis olgusunu bildirmek amacıyla yazılmıştır. Bir günlük ve 6 günlük olan buzağuların sistematik klinik muayeneleri yapıldıktan sonra kulak ucundan hazırlanan ince kan frotilerinin Giemsa metodu ile boyanıp mikroskopta incelenmesiyle alyuvarlar içerisinde *Theileria annulata*'nın piroplazm formlarının görülmesiyle tropikal theileriosis tanısı konmuştur. Sonuç olarak, intrauterin bulaşmayla yeni doğan buzağılarda konjenital tropikal tayleriyozis olgularının görülebileceği ve bu olgularda prognozun kötü olabileceğinin dikkate alınması gerektiği kanısındayız.

Anahtar Kelimeler: Konjenital infeksiyon, İntrauterin bulaşma, Tayleriyozis, *Theileria annulata*, Yeni doğan, Buzağı



1. INTRODUCTION (GİRİŞ)

Tropical theileriosis, caused by *Theileria annulata* (Dschunkowsk and Luhs, 1904) is a protozoon disease of blood and lymph tissues [1, 2 and 3]. The disease is transmitted by natural (biological), mechanical and intrauterine routes. The causative agent is carried biologically by ticks [4]. Different researchers [3, 5, 6 and 7] informed that mechanical transmission is carried out by injecting blood and internal organ (spleen, liver and lymph nodule) emulsion taken from the infected animal to the susceptible cattle by intravenous, subcutaneous or intraperitoneal ways. However, transmission by intrauterine route is rarely reported and only *Theileria sergenti* and *Theileria annulata* are transmitted by this way [4].

2. RESEARCH SIGNIFICATION (ÇALIŞMANIN ÖNEMİ)

This clinical observation is presented in order to inform the congenital *Theileria annulata* infection diagnosed in two calves in our region.

3. CASE HISTORY (OLGU SUNUMU)

After the completion of the systematic clinical examinations [8] of the patients thin blood smears prepared from ear apex were stained with Giemsa and examined under light microscopy, and piroplasm forms of *Theileria annulata* seen in erythrocytes made diagnosis of tropical theileriosis. By taking the parasitic erythrocyte averages into consideration, assessment of thin blood smears was expressed as follows [9];

+	: Rare	+++	: 75%
++	: 50%	++++	: more than 75%

3.1. Case 1 (Olgu 1)

This case was a day-old female cross-bred (Southeastern Anatolian Red X Swiss Brown) calf belonging to a farmer in Yurtbaşı District of Elazığ. The body temperature, heart and respiratory rates were 40.8°C, 132 and 56, respectively. Calf was recumbent and had petechial and echymotic haemorrhages on the sclera and conjunctiva, soft nails, dry muzzle, slightly enlarged prescapular lymph nodules, slightly hard umbilical cord, opisthotonus, mild palpebre and pupilla reflex and no suckling reflex. Piroplasm forms of *Theileria annulata* were rarely (+) observed within erythrocytes in the blood smear of the case.

After completion of clinical examination and diagnosis, the case was treated with 2.5 mg/kg dose of IM Buparvaquone (Butalex; Sanofi-Dif), 10 mg/kg dose of IM Oxytetracyclin (Primamycin LA; Pfizer) and 10 ml/kg dose of IV dextrose (%5 Dekstroz; İbrahim Etem) and the case was discharged from the hospital. The calf died on the following day.

3.2. Case 2 (Olgu 2)

A 6 day-old male calf was referred to Clinic of Internal Diseases Faculty of Veterinary Medicine, Firat University, for examination and treatment (protocol no. 415). The calf was Holstein and belonged to a farmer in Aksaray, Elazığ. The history revealed that the case was groggy since it was born and had not sucked for one day. The body temperature, heart and respiratory rates were 41°C, 140 and 48, respectively on the clinical examination. Piroplasm forms of *Theileria annulata* were found within the erythrocytes at the rate of 50% (++) on the blood smear of the patient.

Treatment of this case included 2.5 mg/kg dose of IM Buparvaquone (Butalex; Sanofi-Dif), 10 mg/kg dose of IM Oxytetracyclin



(Primamycin LA; Pfizer), 10 ml/kg dose of IV Lactated Ringer + 5% Dextros (Dekstroz Laktatlı Ringer %5 Sol; Eczacıbaşı), 15 ml hypodermic septi-serum (Septikol; Vetaş) and 0.5 ml of IM A, D₃ and E (Ademin; Sanofi-Dif) vitamins and the case was discharged from the hospital. This case also died on the following day.

Necropsy was not performed on these cases because of a delay in notifying the death of cases.

The dams of these two cases were clinically healthy.

4. DISCUSSION (TARTIŞMA)

Tropical theileriosis caused by *Theileria annulata* is main reason of the economic loss in our country especially of culture-race animals in spite of the efficient treatment and extensive vaccination [1, 10 and 11].

Clinical signs of increased body temperature, heart and respiratory rates and particularly petechial and echymotic haemorrhages on the sclera and conjunctiva in one-day old calf was important and in compliance with the literature [1, 10 and 11].

Studies have reported that the accurate diagnosis of tropical theileriosis can be made after piroplasm forms of parasite are seen in the smears made from peripheral blood and lymph nodules [10, 12, 13 and 14]. The diagnosis of cases in this study was similarly made by observing piroplasm forms of *Theileria annulata* in erythrocytes.

The incubation period of natural infection by tropical theileriosis agent is about 8-25 days [1 and 10], however, congenital infections can also be seen [4]. The cases of 1-day and 6-day-old indicated that the infection had developed prenatally in this report.

The intrauterine transmission of *Theileria annulata* has firstly been found by Sergeant et al. [3]. Sergeant et al. [3] have reported the presence of *Theileria annulata* in the foetuses belonging to two cattle with theileriosis and in the 7-day old calf which was born from cattle suffering from theileirosis. Woltschowski and Pawlov [15] have observed the gamontes of parasite in the erythrocytes of foetuses and schizonts of *Theileria annulata* in the various organs of foetuses born to 6 cows with theileriosis. A study from Turkey reported erythrocytic forms and koch particles of *Theileria annulata* in the internal organs (liver, spleen, lymph nodules, kidney) of a 7-month-old foetus of a cow with theileriosis died at the Ankara University Faculty of Veterinary, Clinic of Internal Diseases [4]. Hubbert et al. [16] reported the presence of *Theileria annulata* in the erythrocyte of contaminant foetus. Mishra and others [17] reported *Theileria annulata* infection in the neonatal calves. Purohit and others [18] explained that they identified the case of prenatal theileriosis in two calves and Sharma and Gauton [19] have stated that there has been a clinical theileirosis in the 7 day-old calves. In other study Issi and Gul [20] have reported the presence of *Theileria annulata* infection along with hematuria in a newborn calf. These literatures [3, 4, 15, 16, 17, 18, 19 and 20] support that current cases contracted congenital tropical theileriosis and the agent was transmitted by intrauterine ways.

Purohit et al. [18] reported effectiveness of Berenil (10 mg/kg) and Oxycytetracyclin (20 mg/kg) in the treatment of two prenatal calves with theileriosis. Although buparvaquone, the most effective medicines [10 and 21] with antitheilerial characteristic were used in both cases in this study but both cases died.

It has been stated [1, 10 and 11] that the resistance, age of animals, availability of secondary infection, care and nutritional conditions are effective on the prognosis of the disease. Mortality has been reported to be high in new-born calves in spite of the treatment as newborns have low resistance because of insufficient



antibody, when the severe septicaemia occurs, this can leads to intensifying of lesions and death of animals, and also there can be deaths even though there is not very much theilerial piroplasmas in the erythrocytes in the hyper-acute types of infections related to *Theileria annulata* [22].

5. CONCLUSION AND SUGGESTIONS (SONUÇ VE ÖNERİLER)

As a result, we are of the opinion that congenital *Theileria annulata* may cause the congenital tropical theileriosis cases in newborn calves via intrauterine transmission and prognosis may be poor in these cases.

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