

Short Communication / Kısa Bilimsel Çalışma

A case of *Leucocytozoon dubreuli* in a starling (*Sturnus vulgaris*)

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Summary: A nestling starling (*Sturnus vulgaris*) which had fallen from its nest was presented to the Department of Pathology in comatose situation. During the physical examination, the bird died and necropsy was performed. At the microscopical examination of the blood smears, numerous *Leucocytozoon* agents were observed. At necropsy, there was no remarkable lesion observed, except for slight enlargement of the spleen. Blood smears were also admitted to the Department of Parasitology for diagnosis of the agents and upon the morphological appearance and relevant literature; they were identified as *Leucocytozoon dubreuli*. This is the first report of *Leucocytozoon dubreuli* identification in a starling.

Keywords: *Leucocytozoon dubreuli*, parasitology, pathology, starling.

Bir sığırcıkta (*Sturnus vulgaris*) *Leucocytozoon dubreuli* olgusu

Özet: Yuvasından düşerek yaralanan bir sığırcık (*Sturnus vulgaris*) yavrusu koma halinde Patoloji Anabilim Dalı'na getirildi. Muayene sırasında ölen kuşun nekropsisi yapıldı. Kan frotisinin incelenmesinde çok sayıda *Leucocytozoon* etkenlerine rastlandı. Nekropside dalakta hafif büyüme dışında bir lezyon saptanmadı. Kan frotisi teşhis için Parazitoloji Anabilim Dalı'na gönderildi. Etkenler, tür spesifitesi ve morfolojik görünümleri doğrultusunda ilgili literatürler eşliğinde *Leucocytozoon dubreuli* olarak tanımlandı. Bu, Türkiye'de bir sığırcıkta *Leucocytozoon dubreuli*'nin tanımlandığı ilk rapordur.

Anahtar sözcükler: *Leucocytozoon dubreuli*, parazitoloji, patoloji, sığırcık.

Leucocytozoonosis is a vector-borne protozoan disease of birds caused by several species of Apicomplexa in the genus *Leucocytozoon* that affects the blood and tissue cells of internal organs (2,3,9). *Leucocytozoon spp.* is easily identified from blood films because it grossly distorts the host cell that it parasitizes. Only the gametocyte stage of *Leucocytozoon* occurs in the peripheral blood of birds (1). The vector of the *Leucocytozoon spp.* is Simuliidae (black flies). Initial development occurs in the liver and spleen followed by the development of gametocytes in blood cells (4). This parasite is assigned to the suborder Haemospororina of the phylum Apicomplexa (5). There are many species of *Leucocytozoon*, but only a few are known to be pathogenic to their hosts. The description of *Leucocytozoon* species has been made based mainly on the morphology of gametocytes in blood cells, although the examination of exoerythrocytic stages (meronts and schizonts) has been used to some extent (2).

Leucocytozoon spp. occurs worldwide including Turkey. However, there is very limited number of studies on *leucocytozoonosis* available (6-8) in birds in Turkey. There is little knowledge about blood parasites in starlings. To the best of our knowledge there is no

previous report about the presence of *L. dubreuli* in a starling.

A nestling starling (*Sturnus vulgaris*) which died after falling from its nest was the material of this study. The bird was presented to the Department of Pathology in comatous situation. During the examination, small amount of blood coagulum was observed in the oral cavity. The bird died and necropsy was performed immediately. Blood smears were prepared and stained with Giemsa. At necropsy, there was no remarkable lesion observed, except for slight enlargement of the spleen. Examination of the blood smears revealed numerous *Leucocytozoon* agents. The blood smears were also admitted to the Department of Parasitology for diagnosis of the agents.

During the necropsy, tissue samples were taken from all visceral organs. Samples were fixed in 10% neutral-buffered formalin, routinely processed and embedded into paraffin for histopathological examination. Tissues were sectioned at 5µm and stained with haematoxylin and eosin (HE). Fecal samples were also taken for parasitological examination.

Microscopical examination of the starling's blood smears revealed numerous roundish *Leucocytozoon*

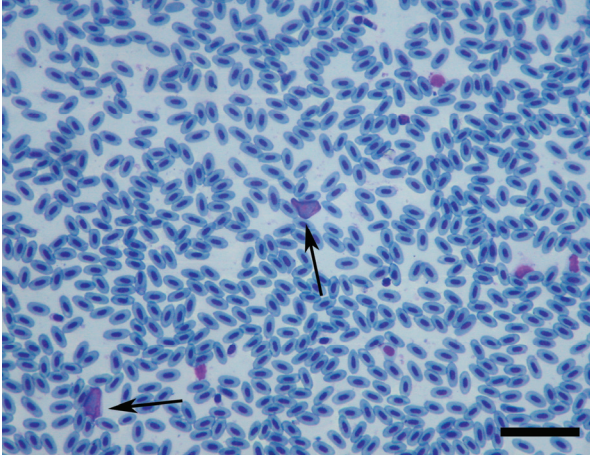


Figure 1. *Leucocytozoon dubreuilii* gametocytes (arrows) in blood smear, starling, Giemsa stain, Bar= 50µm.
Şekil 1. Kan frotisinde *Leucocytozoon dubreuilii* gametositi, sığırcık, Giemsa, Bar= 50µm.

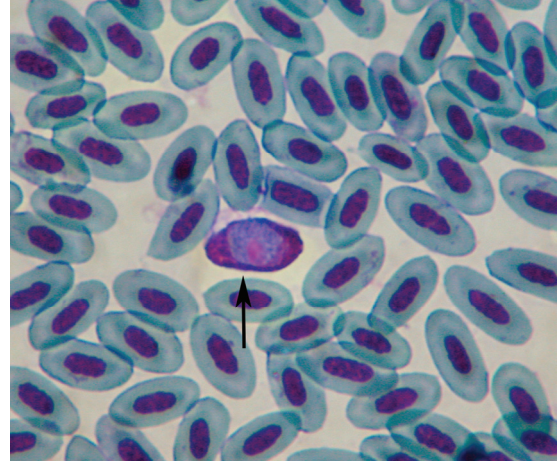


Figure 2. Higher magnification of a *Leucocytozoon dubreuilii* gametocyte (arrow) in blood smear, starling, Giemsa stain, immersion oil.
Şekil 2. Bir *Leucocytozoon dubreuilii* gametositinin yakından görünümü, sığırcık, Giemsa, immersiyo yağ.

agents in its red blood cells. The nucleus of the parasite was generally round in shape and the nucleolus was prominent. However, the nuclei of the bird's erythrocytes were pushed aside and were markedly deformed. Numerous *L. dubreuilii* gametocytes were observed in the prepared blood smears (Figure 1). The parasites were located peripherally in the host's cells and had evident dumbbell-shaped structure with marked thickening at both ends (Figure 2). The agents were identified as *L. dubreuilii*, according to their morphological appearance and relevant literature. No clinical symptom was observed related to haemoparasites in the bird. Morphology of the *L. dubreuilii* in this study was identical with the classical knowledge (10).

Leucocytozoon spp. is one of the most common blood parasites in the wild birds. *Leucocytozoon* species are considered nonpathogenic, while only a few species of this parasite are considered pathogenic. If a bird is under stress or is immunocompromised, then the *Leucocytozoon* can cause clinical problems (3,4). In this study, numerous intracytoplasmic *L. dubreuilii* gametocytes were observed in the blood smears of the bird. No pathological findings were observed in any organ of the bird, related to haemoparasites. Furthermore, at histopathological examination, there was no developmental stage of *L. dubreuilii*, as well as no inflammatory reaction around the vessels in any organ.

Leucocytozoon spp. is transmitted from infected to uninfected birds by a variety of biting flies. Simuliidae is a common fly throughout the Turkey. The prevalence of this blood parasite in wild birds is still unknown. Thus, we can say that, this is the first report of *L. dubreuilii* identification in starlings.

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Geliş tarihi: 03.08.2012 / Kabul tarihi: 13.11.2012

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