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Short Communication / *Kısa Bilimsel Çalışma*

Schistosoma reflexum in a dog

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Summary: In this paper *schistosoma reflexum* was reported with anatomical and pathological findings in a dog for the first time.

Key words: Dog, schistosoma reflexum.

Bir köpekte schistosoma reflexum olgusu

Özet: Çalışmada ilk kez bir köpekte gözlenen *schistosoma reflexum* olgusu anatomic ve patolojik bulguları ile tanımlandı.

Anahtar sözcükler: Köpek, schistosoma reflexum.

Schistosoma reflexum is a major congenital anomaly which occurs during embryonal development (2). Congenital anomalies and less frequently, multiple congenital anomalies, are reported to be encountered in domestic animals. Although the aetiology of certain congenital anomalies remains unclear, the majority of these anomalies are reported to can be related to genetic factors, mutations, chromosomal anomalies, infectious agents, and environmental factors or the combination of all the factors listed (6). *Schistosoma reflexum* is characterized with congenital anomaly of fusion and involves the severe ventral curvature of the spine and the inversion of the back of the neck towards the sacrum (anteroposterior abnormal curvature) (3). Furthermore, the anterior and lateral positioning of the pelvic bones, sacrum and hind limbs, fissure of the thoracic and abdominal walls, and limb ankylosis may be observed (1).

The present study was aimed at the definition of a case of *Schistosoma reflexum* observed for the first time in a dog, based on anatomical and pathological findings.

A one-day-old male German Shepherd dog sent for examination, in formalin, from the Nevşehir Gendarmerie Equine and Canine Education Centre constituted the material of the study. Anamnesis revealed the dog to have been delivered at a birth weight of 430 grams, and to have died due to respiratory failure within approximately ten minutes. The second male puppy which was delivered 30 minutes after the birth of the study material was reported to be healthy.

Figure : Eventration of the abdominal viscera due to a sternal cleft, starting from the xiphoid process of the sternum and extending to the anterior aspect of the pubic bone. Herniation of the heart into the abdominal cavity through the rudimentary diaphragm.
Şekil : Sternum'un prosessus xiphoideus'undan başlayıp os pubis'in önüne kadar uzanan yarıklanma sebebiyle tüm karın bölgesi organları tamamen dışarıda. Kalp rudimenter şekillenen diyafragmadan fıtıklaşıp karın boşluğuna geçmiş.

Macroscopic examination demonstrated the presence of a sternal cleft, characterized with a fissure, 6 x 3.5 cm in size, starting from the xiphoid process of the sternum and extending to the anterior aspect of the pubic bone. The fore and hind limbs were observed to be fully developed, and to display normal bone structure. Also, the head, eyes and nose were formed completely. The cervical, thoracic and lumbal vertebrae as well as the

sacrum and costae were also determined to be fully developed. The lungs were located in the thoracic cavity, yet the heart was observed to be herniated into the abdominal cavity through the rudimentary diaphragm. The heart which was observed to have no apex, did not display the common funnel-like shape. The thyroid and parathyroid glands were determined to be present.

The abdominal viscera were completely exposed. The spleen, stomach, intestines and pancreas were observed to be normal. The liver and gall bladder were come into entirely being, yet yellowish coloured necrotic foci were observed on the diaphragmatic surface of the liver, on lobus hepatis dexter lateralis et medialis (Figure). Both of the kidneys and the genital organs were fully developed. The cerebrum, cerebellum and hypophysis were observed to display normal anatomical structure.

Microscopic examination revealed no pathological findings in any of the indicated organs, except for the liver. Dissociation of the Remark cords was observed in the liver. Intense mononuclear cell infiltration, erythrocyte accumulation, vacuolar degeneration and necrosis of megacaryocytes and hepatocytes were observed in sinusoidal regions.

Schistosoma reflexum appears primarily in cattle, and less frequently in sheep and goats (3). This anomaly has also been reported in cats (4). However, based on literature review, no previous case report of *Schistosoma reflexum* in dogs exists.

Schistosoma reflexum cause dystocia in cattle, and to be associated with the abnormal curvature of the spine (3). However, in the present study, dystocia was not indicated in the anamnesis given, and also macroscopic examination did not reveal any anatomical disorder in the spine.

Similar to macroscopic findings reported to be observed in other animal species in literature (1), in the present case, the abdominal and thoracic cavities were partly open due to the rudimentary formation of the diaphragm, and the abdominal viscera were exposed as a result of a sternal cleft, characterized with a fissure extending from the xiphoid process of the sternum to the anterior aspect of the pubic bone.

Cystic lesions in the liver, and hypoplasia of the lungs in cases of *Schistosoma reflexum* was reported previously (5). In the present case, necrotic and degenerative lesions were observed in the liver, and the lungs were determined to be normal.

In conclusion, the first *Schistosoma reflexum* case to be observed in a dog has been defined in detail, including anatomo-pathological findings.

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