

Ileal leiomyoma in a captive zebra (*Equus burchelli*)

Rahşan YILMAZ¹, Ahmet AKKOÇ^{2,*}, M. Özgür ÖZYİĞİT²

¹Department of Pathology, Faculty of Veterinary Medicine, Harran University, Şanlıurfa - TURKEY

²Department of Pathology, Faculty of Veterinary Medicine, Uludağ University, 16059 Görükle, Bursa - TURKEY

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Abstract: In the present study, an ileal leiomyoma encountered in a captive zebra (*Equus burchelli*) was reported. A 29-year-old, female zebra was found dead in the Bursa zoo. According to the referring veterinarian the most prominent clinical signs were intermittent colic (responsive to analgesics) and constipation. At post mortem examination, abdomen was severely distended. A firm, multilobular, well vascularized and encapsulated tumoural mass, 12 cm in diameter, embedded into the proximal part of the ileum wall, and protruded from the serosal surface was found. The cut section of the mass had whorled appearance, pale yellow to white in colour, and had no sign of coagulation necroses and haemorrhages. In the microscopical examination, it was observed that tumoural mass consisted of interlacing bundles of well-differentiated, haphazardly arranged, and smooth muscle cells. Mitotic figures were not common. Immunohistochemically, neoplastic cells were stained strongly with alpha smooth muscle actin and the mass was diagnosed as leiomyoma.

Key words: Leiomyoma, ileum, zebra (*Equus burchelli*), immunohistochemistry

Bir zebrada (*Equus burchelli*) ileal düz kas tümörü

Özet: Bu çalışmada Bursa hayvanat bahçesinde ölü olarak bulunan 29 yaşlı, dişi bir zebrada karşılaşılan ileal leiomyoma olgusu sunulmaktadır. Alınan anemnezde hayvanın genel durumunun iyi olduğu ancak aralıklı kolik (ağrı kesicilerle hafifletilen) ve kabızlık şikayetiinin bulunduğu bildirilmiştir. Postmortem muayenede karın duvarının aşırı gergin olduğu görüldü. Ileumun proksimalinde 12 cm çapında, bağırsak duvarına gömülü ve serozal yüzeyden dışarıya çıkıntı yapan, nodüler görünümülü, bağ doku kapsülü ile sınırlanmış, fibroelastik kıvamlı, iyi vaskularize olmuş bir kitleye rastlandı. Kitlenin kesit yüzü açık sarı-beyaz renktediyi ve iç içe geçmiş kas demetlerini andıran yapılar mevcuttu. Mikroskopik incelemede kitlenin gelişti güzil dizilmiş ve yer yer birbirleri içerisinde girmiş düz kas hücrelerinden oluşan görüldü. Mitotik figürler yaygın değildi. Kesitlere uygulanan Crossman boyama yöntemi ile kitleyi oluşturan hücrelerinin, bağırsak duvarındaki kas tabakası ile benzer boyanma özelliği gösterdiği tespit edildi. İmmunohistokimyasal olarak tümör hücrelerinin alpha smooth muscle actin ile pozitif olarak boyandığı görüldü ve tümör leiomyoma olarak teşhis edildi.

Anahtar sözcükler: Düz kas tümörü, ileum, zebra (*Equus burchelli*), immünonhistokimya

Introduction

Leiomyoma is a benign tumour originating from smooth muscle cells arising from any organ containing smooth muscle cells but the uterus and

gastrointestinal tract are the most common sites (1). Leiomyomas from gastrointestinal tract and from various organs have also been reported in equines but they are more common in dogs (1-3). Most of the

* E-mail: aakkoc@uludag.edu.tr

benign tumours of the small intestine are asymptomatic and most of them are diagnosed incidentally during other examinations (2). Depending on the size, large tumoural masses can cause clinical signs, such as colic and constipation. Tumours of the gastrointestinal tract are rare in the horse and are reported to constitute 3.2% of horse tumours. The adenocarcinomas, lipomas, and lymphomas are the members of tumours most commonly seen in equine intestines (4).

Case history

A 29-year-old, female zebra from a local zoo was submitted to the pathology department after sudden death with the history of intermittent colic (responsive to analgesics) and constipation. At necropsy, abdomen was severely distended and large intestines were tympanic due to air and little amount of digested clover. The lumen of the small intestines was filled with watery partly-digested clover. A firm, multilobular, well vascularized, and encapsulated tumoural mass, 12 cm in diameter, and embedded and protruded from the proximal part of the ileum wall was found. The cut section of the mass had whorled appearance, pale yellow to white in colour, and had no sign of coagulation necroses and haemorrhages. No metastatic involvements were observed in the local mesenteric lymph nodes and in the other organs located in both abdominal and thoracic cavity.

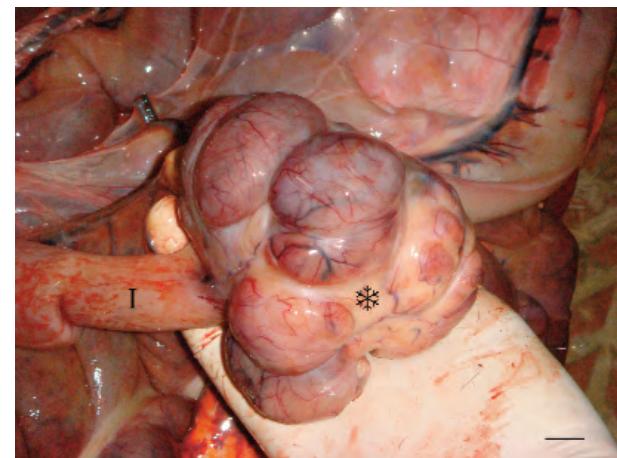


Figure 1. Multilobular (snowflake), tumoural mass protruded from the ileum (I) wall. Bar: 2 cm.

Tissue samples taken from the major organs and the mass were fixed in neutral-buffered formalin and processed routinely. All sections were stained with haematoxylin-eosin (H&E) and some selected slides from the ileal mass were stained immunohistochemically with 1:100 diluted anti-alpha smooth muscle actin (LabVision, Fremont, CA) antibody using streptavidin-biotin-peroxidase method as previously described (5) after autoclaving the slides at 120 °C for 15 min for antigen retrieval. Diaminobenzidine (DAB) was used as chromogen. Some selected slides were also stained with modified Crossman staining for the demonstration of muscle cells in the muscular layer of the intestine and also in the mass (6).

Results and discussion

On H&E stained tissue sections, spindle-shaped, densely arranged neoplastic cells with eosinophilic granular cytoplasm, and elongated, blunt ended often centrally located nuclei were observed. Mitotic figures were not common. No inflammatory reaction, coagulation necroses, and other signs of malignant behaviour were noticed throughout the sections. In the cross sections of the ileum, cellular projections from muscular layer into the tumoural mass were found and it was thought that the tumour originated from the muscular layer of the ileum. Crossman stained sections revealed that the tumoural cells were from muscle origin. The muscle cells from normal

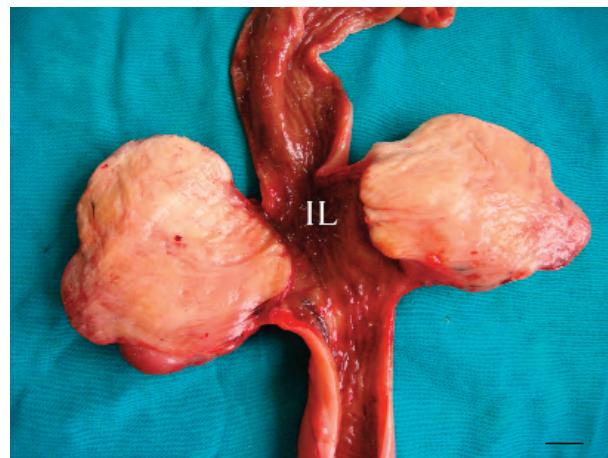


Figure 2. The cross section of the ileum and neoplastic mass. Ileum lumen (IL) Bar: 2 cm.

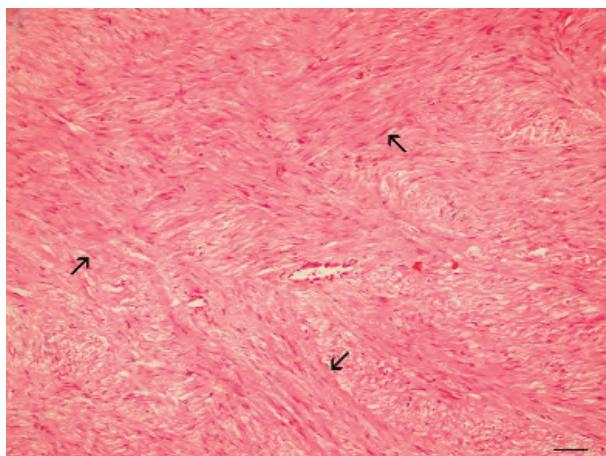


Figure 3. Tumoural mass, neoplastic cells forming bundles (arrows). HE. Bar = 50 µm cells.

muscular layer of the ileum and from tumoural mass had the same histochemical features.

Immunohistochemically almost all tumour cells reacted with the antibody that recognized alpha-smooth muscle actin. The staining with the antibody was cytoplasmic and diffuse. In the light of the macroscopic, microscopic, and immunohistochemical findings the tumour was diagnosed as leiomyoma originated from the ileum wall.

Equine colic originated from several factors is often encountered in equine practice and may cause severe clinical conditions and death (7). In colic cases, the evaluation of significant clinical and laboratory variables is necessary to predict a reliable treatment and prognosis. According to the referring veterinarian, intermittent colic was the most striking sign and they tried to alleviate colic using common analgesics. The narrowing of the ileal lumen would explain the history of intermittence colic in this animal. If the cause of the colic is a tumoural mass located in any part of gastrointestinal tract as in the case, surgical treatment should be considered for a

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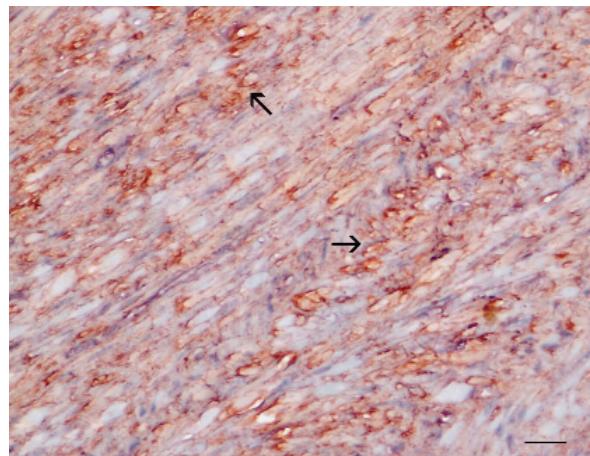


Figure 4. Neoplastic cells (arrows) expressed alpha smooth muscle actin in the cytoplasm (DAB). Streptavidin-biotin-peroxidase complex method, Harris haematoxylin counterstain. Bar = 50 µm.

radical treatment. The equine practitioners should be aware of such kind of situations.

A combination of H&E, Crossman and immunohistochemistry stainings is used to differentiate leiomyoma from other tumours of mesenchymal origin in the ileum. In the immunohistochemistry, commercially available primary antibody was performed as a diagnostic tool and the staining result was in accordance with the other studies (8). As far as we know there is no report of such kind of tumour in zebra. Therefore authors intend to report this incidence of ileal leiomyoma in a captive zebra (*Equus burchelli*).

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