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Case Report

Dyspnea Caused by an Obstructive Tracheal Leiomyoma in a Horse: A Rare Case

Edson Antonio Santamaria-Martínez DVM [a], Alicia Magdalena Nevárez-Garza MSc [a], Armando Trejo-Chávez MSc [a], Gustavo Hernández-Vidal PhD [a], Juan José Zárate-Ramos PhD [b], Enrique Martín Aburto-Fernández PhD [c], Luis Edgar Rodríguez-Tovar PhD [a,*]

[a] *Cuerpo Académico de Zoonosis y Enfermedades Emergentes, Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma de Nuevo León, Escobedo, Nuevo León, México*
[b] *Epidemiología Veterinaria, Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma de Nuevo León, Escobedo, Nuevo León, México*
[c] *Department of Pathology and Microbiology, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, Canada*

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ABSTRACT

Tracheal leiomyoma is a rare neoplasm of the respiratory tract in animals. This primary benign tumor arises from smooth muscle cells of the trachea. We report a 13-year-old female horse with clinical signs of severe airways obstruction. It had dyspnea, exercise intolerance, chronic progressive respiratory noises, and cyanosis in mucosa membranes. Radiography revealed a foreign body obliterating the luminal trachea. Endoscopic biopsy showed a 3 × 3-cm ovoid mass attached to the dorsal aspect of the trachea. Hematoxylin and eosin and Masson's trichrome stains showed dense spindle cells forming irregular bundles disposed in short interlacing fascicles. Nuclei were elongated with blunt ends, eosinophilic cytoplasm with indistinguishable cell borders, and low mitotic activity. This study is considered the first reported case of an obstructive intratracheal leiomyoma in the horse.

1. Introduction

Tracheal tumors are rarely observed in domestic animals and humans although they have been reported [1,2]. Osteochondroma, osteosarcoma, mast cell tumors, lymphoma, and leiomyoma have been primarily described in cats and dogs [3,4]. There are a few case reports dealing with tracheal obstruction tumors in horses including mastocytosis [5], sarcoma of rounded cells, polyps [6], and leiomyosarcoma [7]. However, studies describing respiratory tract leiomyomas in veterinary medicine are scarce. The present study describes the histopathologic findings of an airway obstructive benign smooth muscle cell tumor, and it is considered the first report of a primary leiomyoma arising from the trachea in a mare with dyspnea problems.

2. Case History

A 13-year-old Warmblood mare was referred to the Equine Hospital of the Veterinary College, Universidad Nacional Autónoma de México, with respiratory problems. The animal had dyspnea, signs of exercise intolerance, and chronic progressive respiratory noises. Respiration was costoabdominal, rate of 32 breaths/min (reference range [rr], 10–24 breaths/min). Pulse was 44 beats/min (rr, 28–44 beats/min), heart rate was 62 beats/min (rr, 20–40 beats/min), and body temperature was 37.5°C (rr, 37.2–38°C). Over the 2 months before presentation at the hospital,

* Corresponding author at: Luis Edgar Rodríguez-Tovar, PhD, Departamento de Inmunología, Campus de Ciencias Agropecuarias, Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma de Nuevo León, Calle Francisco Villa s/n. Escobedo, Nuevo León, C.P. 66050, Mexico.
E-mail address: ledgart@hotmail.com (L.E. Rodríguez-Tovar).

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inspiratory stridor became gradually worse at night. Clinical examination revealed asthma-like signs and epistaxis. Hematology showed decreased hemoglobin and red blood cells levels, 10 g/dL (rr, 11.4–17.3 g/dL) and 5.5 $\times$ 10^6/μL (rr, 6.2–10.2 $\times$ 10^6 cells/μL), respectively. White blood cell count was normal, 7.1 $\times$ 10^9 cells/L (rr, 5–7 $\times$ 10^9 cells/L), with neutrophils 30% (rr, 30%–65%) and lymphocytes 35% (rr, 25%–40%). During tracheal palpation, severe coughing and wheezing were noted. Auscultation revealed harsh tracheal and bronchial sounds. Respiratory distress was more intense during exercise, and cyanosis was observed in mucosa membranes. Differential diagnoses suggested bilateral hemiplegia laryngeal, chronic obstructive pulmonary disease, dorsal displacement of soft palate, epiglottic entrapment, laryngeal polyps, tracheal stenosis, or tracheal mechanical obstruction by foreign body. Lateral cervical radiography examination of the distal third of the neck revealed an oval radiopaque intraluminal mass of approximately 3 $\times$ 3 cm, apparently attached to the dorsum of the trachea (Fig. 1). The mass caused severe narrowing of the trachea at the C5 level. Palpation of this anatomic area completely occluded the trachea, causing distress and discomfort to the horse. Endoscopy revealed a pedunculated mass adhered to the dorsal area of the trachea in the soft tissue between the tracheal rings that was almost entirely obliterating the lumen (Fig. 2). Subsequently, the horse was surgically prepared in standing position for ventral tracheotomy. The mare was restrained and cross-tied with its head extended. The animal was sedated with xylazine 10% (Procin Equus; PiSA Agropecuaria S.A. de CV), 2.2 mg/kg body weight (BW) IV. Two percent lidocaine was infiltrated subcutaneously as local anesthetic ventral to the middle line of the trachea (the second and last third of the ventral neck corresponding to the C5 level). The surgical region was shaved and locally disinfected with iodine. A 20-cm incision was made centered over the ventral midline and continuing through muscle tissue until visualizing the muscle rings of the trachea. Trachea muscle rings and mucosa were desensitized by local irrigation with 2% lidocaine. A small incision was made through the tracheal ring to visualize the tumor. The mass was removed by incision at its base with the trachea. The aperture was completed by suturing the tracheal mucosa and submucosa to the skin with simple interrupted sutures of 0-polydioxanone. Postsurgical treatment consisted of gentamicin (Pangram 10%; Virbac, Mexico), 3–6 mg/kg BW intramuscular, for 5 days, and flunixin meglumine (Finadyne; MSD Animal Health), 1.0 mg/kg BW IV for 3 days. On biopsy, the surface of the mass looked smooth, whitish to yellowish in color, and slightly nodular (Fig. 3). On the cut surface, the removed mass was whitish without evidence of hemorrhage or necrosis. There was no evidence of metastases to other organs. Tissue samples of the mass were fixed

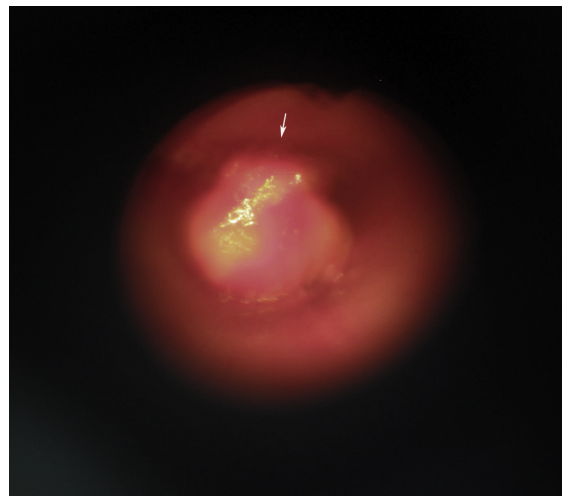

Fig. 2. Bronchoscopy showing a smooth and movable mass arising from the dorsal wall of the trachea (arrow).

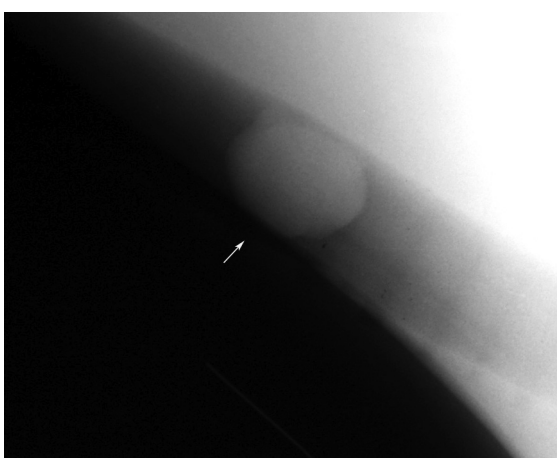

Fig. 1. Lateral radiograph showing almost total occlusion of the trachea by a rounded mass (arrow) at C5 level.

Fig. 3. Intratracheal mass after surgery. It was 3 $\times$ 3 cm. The peduncle in the left upper part was attached to the trachea. This mass occupied approximately 90% of the tracheal lumen (bar = 1 cm).