




Case report: laryngoplasty followed by ventriculectomy in a hemiplegic horse

Case report: laryngoplasty followed by ventriculectomy in equine hemiplegic

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Summary

Among the frequent conditions that affect the respiratory system of racehorses, laryngeal hemiplegia is considered the main one of these pathologies, which is characterized by the collapse of the arytenoid cartilage, resulting from a distal progressive degenerative axonopathy of the recurrent laryngeal nerves, the left one being more commonly affected, coursing with respiratory noises during exercise, dyspnea and loss of athletic performance. The present work reports a case of surgical correction of laryngeal hemiplegia in a Thoroughbred horse competing in turf, the animal presented progressive loss of performance in races, dyspnea and exacerbation of respiratory noises, an endoscopy of the upper airways was performed as a method of confirming diagnosis of the disease and the therapeutic approach was based on a laryngoplasty using the Tie Back technique followed by a Ventriculectomy maneuver. After the postoperative period, the animal presented complete remission of the disease, returning to its normal sports performance.

Keywords: Laryngeal Hemiplegia. Laryngoplasty . Ventriculectomy .

Abstract

Among the frequent affections that affect the respiratory system of racehorses, laryngeal hemiplegia is considered the main of these pathologies, which is characterized by the collapse of the arytenoid cartilage, resulting from a progressive distal degenerative axonopathy of the recurrent laryngeal nerves, the left being more commonly affected, with breathing noises during exercise, dyspnea and loss of athletic performance. The present work reports a case of surgical correction of laryngeal hemiplegia in a horse racing English horse, the animal presented progressive loss of performance in running, dyspnea and exacerbation of respiratory sounds, endoscopy of the upper airways was performed as a confirmatory method of diagnosis of the disease and the therapeutic approach was based on a laryngoplasty using the Tie Back technique followed by a Ventriculectomy maneuver. After the postoperative

period, the animal showed complete remission of the condition, returning to its normal sports performance.

Keywords : *Laryngeal hemiplegia. Laryngoplasty. Ventriculectomy .*

Introduction

Laryngeal hemiplegia is considered the most common cause of upper airway obstruction in horses, affecting their athletic performance (Poças, 2015). The disorder is caused by a neuropathy of the recurrent laryngeal nerve (Nunes, 2017). The recurrent laryngeal nerve innervates the muscles intrinsic to the larynx, due to the denervation of these muscles, especially the dorsal cricoarytenoid abductor muscle , undergoes neurogenic atrophy resulting in a complete paresis or paralysis of the arytenoid cartilage (Cramp & Barakzai , 2011). This dysfunction in motor function causes a desynchronization in the adduction and abduction of the arytenoid cartilage , resulting in the development of a characteristic respiratory noise when the horse moves and, leading to a decrease in the transit of air through the larynx (Steiner, 2013)

Case report

On September 18, 2019, a 4-year-old male Thoroughbred horse, weighing 455 kg, competed in turf, was seen . The animal had a history of a decline in sports performance, dyspnea and exacerbation of respiratory noises when exercised. Endoscopy was performed in order to diagnose possible anomalies in the upper respiratory tract, in which a total hemiplegia of the left arytenoid cartilage was detected and surgical correction was indicated. Prior to the procedure, preoperative hematological examinations were performed ; complete blood count, renal and hepatic profile, which presented results within the reference values.

After solid and water fasting, the animal was sent to the anesthetic induction room where pre- anesthetic medication was performed with 0.05 mg/kg of Acepromazine and 0.05 mg/kg of Xylazine , after 5 minutes anesthetic induction was performed with 2, 2 mg/kg of Ketamine and 0.1 mg/kg of Midazolam , upon assuming the decubitus position the animal was taken to the operating room and positioned in right lateral decubitus and anesthetic maintenance was based on general anesthesia balanced with an Inhalational agent: isoflurane and intravenous anesthesia: Triple Driple . The " Tie Back" technique was performed , guided by endoscopy and with left lateral access to the larynx, the procedure consisted of anchoring, by means of a non-absorbable thread , the caudal margin of the arytenoid cartilage to the surface of the cricoid lamina in its caudal branch, with the To perform the anchorage, a slight lateral traction of the arytenoid cartilage is performed , causing a lateral and permanent abduction of this cartilage, the maneuver allows it to return to its original anatomical position.

After laryngoplasty, the animal was positioned in dorsal decubitus and an incision on the ventral edge of the thyroid cartilage gave access to the laryngeal ventricle, located laterally to the vocal folds, and total ventriculectomy was performed . The postoperative period was conducted with daily dressings based on washing the wound with 1% potassium permanganate and topical application of 2% Rifamycin for 15 days, in addition to the systemic application of 25,000 IU of penicillin G benzathine , 1.1 mg/kg of Flinixim Meglumine and Omeoprazole 2.2 mg/kg for 7 days. Fifteen days after the surgical procedure, the animal presented complete remission of the clinical signs, returning to its normal performance and maintenance of the stability of the arytenoid cartilages was confirmed by a new endoscopy.

Discussion

According to Poças (2015), laryngoplasty associated with a ventriculocordectomy maneuver has been techniques considered effective and long-lasting in the correction of laryngeal hemiplegia in athletic horses . Regarding the possible post-surgical complications, among them the reduction in the degree of arytenoid abduction , acute cough and laryngeal inflammation, most of the time they are resolvable and of a temporary nature (Poças 2015 & Zapata, 2014). Oliveira (2013) states that ventriculectomy associated with laryngoplasty increases the diameter of the rima glottis, raising the rates of clinical improvement. The success rate of the techniques when applied simultaneously ranges from 25 to 75% (Parente, 2011).

Conclusion

The application of appropriate surgical techniques in the treatment of hemiplegic horses improves the prognosis of the pathology. Tie 's Techniques back followed by ventriculectomy showed satisfactory results in the treatment of the condition.

1. Location

Veterinary Hospital of the Jockey Club of São Paulo, containing a surgical center, outpatient clinic, clinical analysis laboratory, pharmacy, hospitalization bays, intensive care unit (ICU), endoscopy room, office and official laboratory for the diagnosis of equine infectious anemia and glanders. Located on the premises of the Jockey Club of São Paulo; Gate: 6 at Rua Bento Frias, 248 - Pinheiros, São Paulo.

1.1 Justification for the choice of location

Search for knowledge related to orthopedics, anesthesiology, diagnostic imaging, physiotherapy and rehabilitation, otorhinolaryngology of athletic horses, medical and surgical clinic of horses, in addition to the affinity with the field of equine sports veterinary medicine. The Veterinary Hospital of the Jockey Club of São Paulo is considered a pioneer in the segment in the country and has nationally and internationally renowned veterinarians, in addition to having a complete hospital structure and actively working with intensive care , a clinical practice of great importance in Hypiatrics, serving more than 600 horses. directly or indirectly present at the Jockey Club of São Paulo.

1.2 Description of the field routine

The internship began on September 2, 2019, ending on September 30, 2019, totaling 240 hours, from 8 am to 6 pm with night shifts, from Monday to Saturday, under the supervision of Veterinary Doctor Rodrigo Silvério Ferreira da Cruz, graduated from Universidade Estadual Paulista (UNESP), with a residency and master's degree in the area of Veterinary Clinic and Surgery from the University of São Paulo (USP). In addition to the supervision of other Jockey veterinarians and hospital residents.

The activities were based on accompanying veterinarians in clinical and surgical procedures. Surgical procedures were performed in the hospital's operating room, with orthopedic, abdominal and respiratory system surgeries being performed during the internship period, in addition to monitoring anesthetic practices. In the imaging diagnostic follow-up, thoracic and abdominal ultrasounds, endoscopies, radiographs and thermographs of the limbs were performed. In the clinical part , thoracentesis, treatment of critical patients, lameness tests, tests for equine infectious anemia and glanders, prophylactic vaccinations, sutures and necropsies were carried out.

In addition to the clinical routine, sanitary procedures carried out at the hospital for the release and reception of animals in the equestrian village were followed, such as the collection of material for the diagnosis of equine infectious anemia and glanders, verification of identification cards, conference of reviews and exams. The veterinary department also controlled the application of diuretics as a standard pre- race protocol recommended by the National Racing Code (CNC), in horses with exercise-induced pulmonary hemorrhage syndrome.

1.3 Quantified summary of activities

TABLE 1 - Activities Performed

PROCEDURES	AMOUNT
thoracentesis	two
Thoracic Ultrasound	5
Diagnosis of Tendinitis	6
Locomotor Clinical Examination	3
General anesthesia	4
Long Catheter Placement	1
Necropsy	5
EIA exam	150
glanders exam	50
Harpeggio Correction	1
Band Aid	4
Suture Removal	1
plaster placement	1
Endoscopy	8
laser therapy	1
Lymphatic drainage	1
ozone therapy	1
thermography	two
Presentation on Pleuropneumonia	1
X-ray	15
rabies vaccination	300
Influenza Vaccination	200
Tetanus Vaccination	350
Encephalitis Vaccination	300
Herpes virus vaccination	300
Pre-Race Diuretic Application	400
TOTAL:	2,112

Source: Author of the Work, 2019.

2. Second location

Internship in the area of equine reproduction with Veterinary Doctor André Lucas Valadares, with emphasis on embryo transfer in horses, assisted reproduction

of mares, collection and freezing of stallion semen, therapeutics of reproductive pathologies, collections for diagnosis of (EIA) and Glands

2.1 Justification for choosing the second location

Affinity with the area of equine reproduction and growing demand for qualified professionals able to perform assisted reproduction and reproductive biotechnologies such as embryo transfer.

2.2 Description of the field routine

The internship lasted from July 1 to August 30, 2019, with a total of 500 hours, from 8 am to 6 pm, Monday to Saturday, under the supervision of Veterinary Doctor André Lucas Valadares, formed by União Pioneira da Integração Social – UPIS, specialist in animal reproduction. The activities were based on monitoring the follicular dynamics of donor and recipient mares using ultrasound, embryo recovery and transfer, uterine monitoring, hormone therapy, artificial insemination with fresh, cooled and frozen semen, semen collection and freezing and diagnosis. of gestation.

2.3 Quantified summary of activities

TABLE 2 - Procedures performed

PROCEDURES	AMOUNT
Pregnancy Diagnosis	460
Artificial insemination	300
hormone therapy	470
Ultrasonography for Follicular Dynamics	360
Semen Freezing	12
Semen Collection	80
Embryo Transfer	240
Blood collection for EIA and glanders testing	415
TOTAL:	2,337

Source: Author of the Work, 2019.

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