



ISSN: 2456-2912

VET 2024; SP-9(6): 247-248

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www.veterinarypaper.com

Received: 06-10-2024

Accepted: 08-11-2024

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Surgical management of epiglottis entrapment in race horse by an oral approach: Case report

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Abstract

A 3-year-old thoroughbred racehorse was presented to the madras race club equine Hospital with complaints including exercise intolerance, loss of racing performance, abnormal respiratory noise, and coughing. An endoscopic examination revealed dorsally displaced subepiglottic mucosa with mild ulceration and edema. Using an oral approach, an axial division of the aryepiglottic fold was performed to correct the entrapment of the epiglottis in the sedated horse, with a hooked bistoury knife and topical anesthesia. The surgical procedure was relatively simple, requiring minimal instrumentation. The horse was rested for an average of 6 days before resuming race training or riding. After the transoral surgery, no significant epiglottal entrapment was observed on endoscopy during the racing journey. A therapeutic regimen combining analgesics, neurotonics, and antibiotics resulted in a successful recovery.

Keywords: Aryepiglottic fold, bistoury, race horse, epiglottis entrapment

Introduction

Epiglottic entrapment is one of the rarest conditions in the equine field. It occurs due to the dorsal displacement of the subepiglottic mucosal fold (*Plica aryepiglottica*) over the epiglottic cartilage. The typical clinical signs are often asymptomatic, but in some cases, respiratory noise, coughing, and exercise intolerance are observed (Haynes 1984 & Greet, 1995) [4, 3]. In many cases, the etiology is unknown, although it may be associated with epiglottic hypoplasia in thoroughbreds (Boles, 1976) [1]. This condition reduces the efficiency of airflow in the upper respiratory tract, leading to poor racing performance and abnormal respiratory noise in thoroughbred horses. Surgical access to the epiglottis is achieved under general anesthesia, and resection of the entrapping mucous membrane is carried out via an oral approach. This technique reduces postoperative complications, requires minimal instrumentation, and is low-cost, allowing for a faster return to regular work.

Case history and clinical observation

A 3-year-old thoroughbred racehorse was presented to the Madras Race Club Equine Hospital, Guindy, Chennai, with a history of exercise intolerance, loss of racing performance, abnormal respiratory noise, and coughing. The animal was found to be active and alert, with normal vital parameters. An endoscopic examination was performed to assess the condition. The examination confirmed that the epiglottic entrapment resulted from the dorsal displacement of the aryepiglottic fold over the epiglottic cartilage, as described by Curtiss *et al.*, (2020) [2].

Surgical procedure and Treatment

The horse was initially premedicated with xylazine (1.1 mg/kg) and butorphanol (0.01 mg/kg). Induction was achieved with 2.2 mg/kg ketamine, followed by maintenance with a 5% GGE (guaifenesin 50 mg/ml), xylazine (500 mg), and ketamine (1000 mg) as a triple drip. Under lateral recumbency, the animal's head was tilted and securely held by an assistant. For the oral cavity examination, a mouth gag was placed and properly secured. A curved-handled bistoury knife was then inserted via the oral cavity. Larynx and epiglottic entrapment were visualized by endoscopy through the right or left nostril. A hook or bistoury was placed over the dorsally displaced subepiglottic mucosa, which was sectioned with steady traction on the curved-handled bistoury knife under endoscopic observation. The trapped epiglottis was then released.

Confirmation of satisfactory mucosal section and epiglottis release was achieved by endoscopic examination. The horse was treated topically with a local analgesic, applied to the nasopharynx and larynx for 3 days. Postoperatively, the

animal was administered intravenous injections of Artizone (4.4 mg/kg), Tonophosphan (20 mL), and Neurobion Forte (20 mL) for a period of seven days.



Fig 1: Hooked bistoury knife

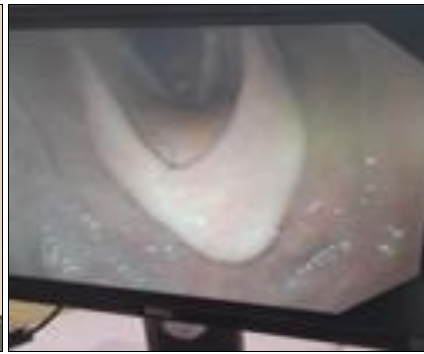


Fig 2: Before surgery: Epiglottis



Fig 3: After surgery: Epiglottis

Discussion

Lee and Lee (2019) [7] described four different surgical correction techniques used to treat epiglottic entrapment: transnasal hook bistoury, transoral unshielded hook bistoury, transnasal shielded hook bistoury, and transendoscopic laser techniques. Surgical complications should be thoroughly considered when choosing a technique for the correction of epiglottic entrapment. The selection of an appropriate surgical technique for effective correction should depend on the clinician's expertise and experience, the availability of instruments, and the potential for complications. The oral approach is considered potentially safer than the nasal approach, as described by Jann and Cook (1985) [6] and Honnas and Wheat (1988) [5], who noted difficulty in removing instruments from the nasal passages.

In this case, the transoral surgical technique was used, which aligns with the report of Lumsden *et al.* (1994) [8], stating that the intraoral approach has been successful with minimal complications and has led to better race performance than epiglottic resection using the laryngotomy technique. The hook knife, a low-cost instrument, provides a relatively inexpensive and effective means of surgical treatment for epiglottic entrapment, as previously reported by Honnas and Wheat (1988) [5].

In contrast, the oral approach requires only adequate restraint of the animal to ensure accurate application of the hook knife and to prevent accidental palatal injury. Intermittent or persistent soft palate displacement is one of the most common causes of poor racing performance following surgery (Haynes, 1984) [4]. However, in this case, there was no recurrence, and the animal had an uneventful recovery after surgery.

Conclusion

Based on endoscopic examination, the bistoury hook knife inserted via the oral cavity offers a safe, relatively inexpensive, and time-efficient method for successfully treating epiglottic entrapment. This surgery can improve the performance of racehorses without any postoperative complications.

Acknowledgement

The authors are deeply grateful to the Madras Race Club Equine Hospital, Guindy, Chennai, for providing the facilities to carry out this operational work.

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How to Cite This Article

Rajasekar S, Mahesha HS, Balaji TJ, Srinivas D, Vasandhan J. Surgical management of epiglottis entrapment in race horse by an oral approach: Case report. *International Journal of Veterinary Sciences and Animal Husbandry.* 2024;SP-9(6):247-248.

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