

Exercise Induced Pulmonary Haemorrhage and Its Management in a Thoroughbred Horse: Case Report

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Abstract

An eight year old Thoroughbred mare was brought to the Madras Veterinary College Teaching Hospital with a history of Poor performance and epistaxis occur on more than one occasion, especially when horses after riding. Coughing also reported from strenuous exercise and after recovery from exercise. Clinical examination revealed rectal temperature; heart rate and breathing rates were elevated. On auscultation increased intensity of normal breath sounds was noticed. Upper respiratory tract endoscopy was performed at rest which revealed that few small specks of blood on the airway walls occupying the nasopharynx, larynx and ventral one-third of the trachea. Based on clinical examination and endoscopy the case was diagnosed as Exercise Induced Pulmonary haemorrhage. The animal was administered with Inj. Prednisolone @ 1 mg/kg b.wt, bid and Inj. Furosemide @ 1mg/kg b.wt, bid were given intramuscularly for three days uneventful recovery was noticed after 7 days.

Keywords: Exercise-Induced Pulmonary Hemorrhage (EIPH) Thoroughbred, Endoscopic diagnosis, Management.

Introduction

Exercise induced pulmonary hemorrhage (EIPH), also known as "bleeding attack" which refers to the presence of blood in the airways of the lung in association with exercise. EIPH is

common in horses undertaking intense exercise. In the majority of cases EIPH is not apparent unless an endoscopic examination of the airways is performed following exercise (Mason, et al., 1983). However, a small proportion of horses may show bleeding at the nostrils after exercise. Exercise-induced pulmonary hemorrhage (EIPH) occurs common in horses that race at high speeds, such as Thoroughbred and Standardbred racehorses. A variety of different causes of EIPH have been proposed. These include high pulmonary vascular pressure, upper airway obstruction, mechanical trauma, lower airway obstruction, inflammation, abnormalities of blood coagulation, inhomogeneity of ventilation and locomotory trauma. Ultimately, the cause of EIPH is rupture of alveolar capillary membranes with subsequent leakage of blood into interstitial and alveolar spaces (West et al., 1993).

As a general rule, the more intense the exercise or higher the speed attained, the greater the proportion of horses with EIPH. Almost all Thoroughbred racehorses in active training have hemosiderophages in bronchoalveolar lavage fluid, indicating that all have some degree of EIPH (McKane et al., 1993). Poor athletic performance or epistaxis

(bleeding from the nostrils) is the most common presenting complaints for horses with EIPH. Epistaxis due to EIPH occurs during or shortly after exercise and is usually first noticed at the end of a race, particularly when the horse is returned to the paddock or winner's circle and is allowed to lower its head. Failure of racehorses to perform to the expected standard (poor performance) is often attributed to EIPH. Many horses with poor performance have cytologic evidence of EIPH on microscopic examination of tracheobronchial aspirates or bronchoalveolar lavage fluid or have blood evident on endoscopic examination of the tracheobronchial tree performed 30 to 90 minutes after strenuous exercise or racing (McKane et al., 1993; Martin et al., 1999). The present article reports a case of endoscopic diagnosis and management of exercise-induced pulmonary hemorrhage in thoroughbred racehorses and its management.

History and Clinical findings

An eight year old Thoroughbred mare was brought to the Madras Veterinary College Teaching Hospital with a history of Poor performance and epistaxis occur on more than one occasion, especially when horses after riding. Coughing also reported from strenuous exercise and after recovery from exercise. Clinical examination revealed rectal temperature; heart rate and breathing rates were elevated. On auscultation increased intensity of normal breath sounds was noticed. Upper respiratory tract endoscopy was performed at rest which revealed that

few small specks of blood on the airway walls occupying the nasopharynx, larynx (Figure 1) and ventral one-third of the trachea (Figure 2).

Figure 1 Specks of Blood on the Airway Walls Occupying the Nasopharynx, Larynx



Figure 2 Specks of Blood on the Ventral One-Third of the Trachea



Results and Discussion

The history, characteristic clinical findings and endoscopic lesions observed in the animal were similar to those described by Birks et al. (2002); Raphael and Soma (1982) based on these characteristic findings the condition was diagnosed as Exercise Induced Pulmonary haemorrhage. There are a variety of techniques available for determining the presence and severity of EIPH including direct visualization of the airways through a flexible endoscope or examination of

bronchial lavage fluid or tracheal aspirates for evidence of hemorrhage. The utility of these diagnostic tests varies and choice of examination technique depends on the time between the horse racing and the examination, and the desired sensitivity of the test. For instance, tracheobronchoscopic examination is most appropriate if a horse is examined within 1-2 hours of exercise, whereas examination of airway washings is most appropriate if the examination is days to a week after strenuous exercise.

Radiography, pulmonary scintigraphy, and lung function tests are useful in eliminating other respiratory diseases as a cause of poor performance, but are minimally useful in confirming a diagnosis of EIPH or in determining the severity of hemorrhage. Observation of blood in the trachea or large bronchi of horses 30-120 minutes after racing or strenuous exercise provides a definitive diagnosis of EIPH. The amount of blood in the large airways varies from a few small specks on the airway walls to abundant blood covering the tracheal surface. Blood may also be present in the larynx and nasopharynx. If there is a strong suspicion of EIPH and blood is not present on a single examination conducted soon after exercise, the examination should be repeated 60-90 minutes later. Some horses with EIPH do not have blood present in the rostral airways immediately after exercise, but do so when examined 1-2 hours later. Blood is detectable by tracheobronchoscopic examination for 1-3 days in most horses, with some horses

having blood detectable for up to 7 days (Lapointe et al., 1994).

The animal was administered with Inj. Prednisolone @ 1 mg/kg b.wt, bid and Inj. Furosemide @ 1mg/ kg b.wt, bid were given intramuscularly for three days. uneventful recovery was noticed after 7 days. A wide variety of treatments have been used or suggested for treatment of EIPH, including resting, anti-inflammatories (e.g. corticosteroids), bronchodilators, anti-hypertensive agents (including nitric oxide donors and phosphodiesterase inhibitors), conjugated estrogens (e.g. Premarin), antifibrinolytics (e.g. aminocaproic acid and tranexamic acid), snake venom, aspirin, vitamin K, bioflavonoids, diuretics (e.g. furosemide, known as Lasix or Salix), nasal strips (e.g. FLAIR Nasal Strips), concentrated equine serum and omega-3 fatty acids.

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