

Aortic rupture and aortopulmonary fistulation: increased prevalence in Friesian horses and importance of early ante-mortem diagnosis

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Introduction

Aortic rupture is rare in horses. If it occurs it is usually found near the aortic root, rarely more distal in the aorta. However, over a period of 13 years, aortic rupture or aortopulmonary fistulation was found at necropsy in 32 Friesian horses (1-20 years old) presented at different equine hospitals in Belgium and The Netherlands. Remarkably, all ruptures occurred more distally in the aorta, near the ligamentum arteriosum, and were transversely orientated.

History

Most commonly, clinical signs had started with ('false') colic followed by persistent tachycardia. Additional symptoms included exercise intolerance, a bouncing arterial pulsation, a low-grade cardiac murmur, tachypnea, fever, ventral oedema, jugular pulsation, diarrhoea, intermittent lameness or acute death. Different clinical presentations occurred depending on whether the aortic rupture resulted in haemothorax followed by sudden death, blood cuff formation around the aorta or formation of an aortopulmonary fistulation, whereby horses could survive for weeks or months before developing congestive heart failure. Initial routine clinical, biochemical and ultrasound examinations had failed to make a final diagnosis.

Diagnostic procedures

Eight horses were referred for further cardiac examination by means of ultrasound and catheterisation. In all horses, an aortopulmonary fistula was visualised on ultrasound from a left cranial parasternal approach. Right heart catheterisation showed hypertension and upward oxygen shift in the pulmonary artery indicating left-to-right shunt. Left heart catheterisation and carotid duplex ultrasound showed a wide pulse pressure and arterial hypotension with diastolic back-flow. Horses were euthanized because of a grave prognosis. In all horses, post-mortem confirmed a transverse aortic rupture (4-6.5 cm length) near the ligamentum arteriosum with fistulation into the pulmonary artery.

Conclusions

Aortic rupture and especially aortopulmonary fistulation must be included in the differential diagnosis of colic and persistent tachycardia in Friesian horses, especially when more of the above mentioned signs are present. As the condition is life-threatening and can result in sudden death, early diagnosis is essential. In depth cardiac examinations allow to make a correct ante-mortem diagnosis and may help to develop therapeutic strategies. In addition, phenotype characterisation is essential to unravel the pathogenesis of this disease and investigate the genetic background in Friesian horses.