Scientific Report

Fibrotic myopathy of the semitendinosus muscle in a thoroughbred foal

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Summary

Fibrotic myopathy of the semitendinosus muscle was diagnosed in a 9-months-old female thoroughbred foal on the left hindleg. The cranial phase of the stride was shortened than normal and the foot was suddenly pulled caudally just before contacting to the ground during walking. A non-painful firmness area was palpated over the semitendinosus muscle on the caudal surface of the left hindleg above at the level of the stifle joint. Tenotomy of the tibial insertion of the semitendinosus muscle was undergone. The foal returned to the normal exercise one month after surgery.

Key words: Fibrotic myopathy, Horse, Lameness

Introduction

Fibrotic myopathy in horses is a disease caused by fibrosis of the semitendinosus muscle, with occasional involvement of the semimembranosus and biceps femoris muscles (Adams, 1961; Turner and Trotter, 1984). Fibrosis of the gracilis muscle has also been reported (Bishop, 1972). The disease is characterized by a unique gait abnormality in the rear limbs, caused by restriction of the action of the affected muscles. In most horses, trauma to the muscles with subsequent fibrosis and adhesion formation is the cause of the disease (Adams, 1961; Turner and Trotter, 1984). Congenital fibrotic myopathy has been reported (Bramlege et al., 1985). Horses born with the alterations in gait characteristic of fibrotic myopathy have a taut semitendinosus muscle and tendon but do not have palpated fibrosis of the muscle (Aure and Stick, 1999). The diagnosis of fibrotic myopathy is based on observation of the abnormal gait and the palpation of the fibrotic muscle areas. The gait abnormality is best observed at the walk, is nonpainful and is caused by mechanical restriction of the action of the affected thigh muscles (Turner and Trotter, 1984). The foot of the affected limb is suddenly jerked caudally a distance of 5 to 15 cm during the last phase of protraction just before hitting the ground. Usually this gait abnormality is quickly disappeared when the myositis is treated (Adams and Fessler, 2000). This report describes the clinical features and surgical treatment and outcome of a case of fibrotic myopathy in a thoroughbred foal, which is the first report from Iran.

Case report

A 9-month-old female thoroughbred foal was presented to the clinic of School of Veterinary Medicine, Ferdowsi University of Mashhad with a history of lameness with especial character on the left hindleg. The cranial phase of the stride was shorter than normal and the foot was suddenly pulled caudally just before contacting to the ground during walking. An area of the non-painful firmness was palpated over the semitendinosus muscle on the caudal surface of the left hindleg above at the level of the stifle joint. Ultrasonographic examination by an 8 MHz linear array ultrasound transducer (Concept MC with 8 MHz prob; Dynamic...
Imaging) at the caudal surface of the left hindleg revealed the area of the fibrosis and myopathy of the semitendinosus muscle (Fig. 1).

On the basis of clinical signs and ultrasonographic findings, the condition was diagnosed as fibrotic myopathy of the semitendinosus muscle and tenotomy of the tibial insertion of the semitendinosus muscle was chosen as the treatment of choice. After induction of general anesthesia by Diazepam 0.2 mg/kg IM, Xylazin HCl 1.1 mg/kg and Ketamin HCl 2.2 mg/kg IV, the foal was positioned in lateral recumbency with the left limb down. After clipping the area at the medial site of the left hindlimb, routine surgical preparation of the skin was performed. An 8-cm longitudinal skin incision was made directly over the tendon of the tibial insertion of the semitendinosus muscle on the caudomedial aspect of the tibia slightly distal to the femorotibial joint. The incision was extended through the skin and crural fascia until the tendon was exposed. A curved forceps was passed under the tendon and the tendon was transected (Fig. 2). The subcutaneous fascia was sutured (No.00 catgut SUPA Indus. Co., Iran) using a simple continues pattern. The skin incision was closed with simple interrupted sutures (No. 0 nylon SUPA Indus. Co., Iran). After complete recovery from anesthesia the foal showed marked improvement at the left hindlimb during walking. The foal received 20,000 IU/KG penicillin G procaine once a day for four days as prophylaxis. The foal had stall rest for 2 weeks and hand walking for a month and left enjoys herself without any clinical signs.

Discussion

Fibrotic myopathy in the horse is a disease most commonly occurs in the hindlimbs (Adams, 1961; Turner and Trotter, 1984). This is the first report of semitendinosus muscle fibrotic myopathy in the horse population from Iran with ultrasonographic finding of the fibrotic muscle and surgical outcome by semitendinosus tenotomy. The diagnosis of fibrotic myopathy is made by observation of the abnormal gait and by palpation of the fibrotic muscle area. The gait abnormality is best observed at the walk, is nonpainful and caused by mechanical restriction of the action of the affected thigh muscles (Turner and Trotter, 1984). The case presented here was diagnosed as a fibrotic myopathy based on clinical and ultrasonographic findings. In most horses, trauma to the muscles with subsequent fibrosis and adhesion formation is the cause of the disease (Adams, 1961; Turner and Trotter, 1984). Intramuscular injection have also been reported as a cause of fibrotic myopathy in some horses (Turner and Trotter,1984; Valentine et al., 1994). Congenital fibrotic myopathy also has been reported (Bramle et al., 1985). The etiology is unknown in congenital cases. The case presented here did not have any history of trauma or injection into the semitendinosus muscle area but she can not be presented as a congenital fibrotic myopathy, due to lack of information.

Various surgical techniques have been reported for treatment of fibrotic myopathy (Adams and Fessler, 2000). The traditional surgical technique involves resection of the fibrotic part of the semitendinosus muscle and removal of adhesion to the surrounding muscles, this technique has been abandoned because of the high recurrence rate and the unfavorable cosmetic results (Adams, 1961; Turner and Trotter, 1984). Two modifications of the traditional surgery have been reported, one of them described by Irwin and Howell, reported as an effective method and can be done in standing horses (Irwin and Howell, 1981; Gomez et al., 1995). Semitendinosus tenotomy is presently the treatment of choice of fibrotic myopathy of the semitendinosus muscle which was used in the case presented here. In case presented here good prognosis is due to the lack of any adhesion of the fibrosis area of the semitendinosus muscle to the other muscles. Although, the tenotomy procedure alone results in fewer complications than the other techniques, but may not results in complete resolution of the gait abnormality in sever cases having fibrosis with adhesion.
Fig. 1: Sonogram of fibrotic myopathy involving the semitendinosus muscle in the left hindleg. Notice the echogenic area (arrows) with the loss of some of the normal speckled muscle fiber pattern. This sonogram was obtained with an 8-MHz Linear-scanner transducer at a displayed depth of 4 cm.

Fig. 2: Transection of semitendinosus tendon at the incision line. A curved scissors was passed under the tendon, and tendon was transected.
References