Rupture of the lateral lobe of the biceps brachii tendon in an Arabian horse

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Introduction

The proximal tendon of the biceps brachii muscle originates from the supraglenoid tubercle of the scapula, and it is composed of two lobes (lateral and medial) which pass over the humeral head in the sulcus intertubercularis (1–4). At this site, the intertubercular bursa lies between humerus and the tendon and extends around its sides (1, 5). Trauma is the most common aetiology of biceps tendon diseases in horses (3). Severe lameness of the forelimb is the most evident clinical finding when deep wounds, septic bursitis, tendon mineralisation or tendonitis of the biceps brachii have occurred (5–9). Rupture of the biceps brachii tendon is uncommon; a single report of complete disruption of the biceps brachii tendon in a thoroughbred steeplechase horse was described by Secco Diaz and colleagues (7). To the authors’ knowledge, rupture of a single lobe of this tendon has not been previously reported.

Case presentation

A two-year-old female Arabian horse was referred for examination to the Veterinary Clinical Department – Surgical Section, University of Bologna with a one-year history of severe lameness of the right forelimb following trauma. The owner reported a mild improvement in soundness following treatment with phenylbutazone at a dosage of 2.2 mg/kg, IV, q 24h.

Clinical findings included generalised atrophy of the infraspinatus, supraspinatus, and biceps brachii muscles of the right forelimb, with a visually and palpably prominent greater tubercle of the humerus, as well an absence of any tissue swelling. A continuous grade 3 lameness (AAEP scale 1–5) (10) of the right forelimb was observed during walking. While the horse was trotting on the straight, a grade 4 lameness with reduction in the swing phase of the stride and abduction of the shoulder were observed.

Radiographic examination of the right scapulo-humeral region using medio-lateral and cranioproximal-craniodistal ‘skyline’ views of the proximal humerus was performed. There were no pathological findings visualised. Ultrasonographic examination of the proximal insertion of the biceps brachii tendon was performed using a 7.5 MHz linear transducer as previously described (1).

The medial lobe of biceps brachii tendon was normal in appearance, but the lateral lobe was not identified. In the lateral ‘intertubercularis sulcus’, a hypoechoic region was seen without any evidence of tendon being present. The intertubercularis sulcus showed the typical W- or M-hyperechoic bony interface with the intermediate tubercle in the middle (1, 10) (Fig. 1). Ten centimetres distal to this lesion the biceps tendon regained normal ultrasonographic appearance (1). There were not any abnormalities detected in the visible portion of the articular surface of the scapulo-humeral joint.

A sample of synovial fluid aspirated from the bursa under ultrasonographic guidance resulted in normal physical (colour, clarity, viscosity) and chemical features. A bursoscopic examination of the right intertubercular bursa was performed as reported previously (11). The horse was positioned in left lateral recumbency. The intertubercular bursa was distended by the injection of 100 ml of sterile lactated Ringer’s solution through an 18-gauge spinal needle. A 4.0 mm diameter, 30° arthroscope was inserted distal to the greater tubercle of the humerus and an instrumental port, identified by percutaneous needle placement, was created proximal to the optic port.

Arthroscopic examination confirmed the absence of the lateral lobe of the biceps bra-

Keywords
Biceps brachii tendon, singular lobe rupture, horse, ultrasonography, bursoscopic examination

Summary
Rupture of the lateral lobe of the proximal tendon of the biceps brachii muscle was diagnosed in an Arabian horse. To the authors’ knowledge, this is the only report of this condition in horses. Although clinical signs were helpful in the identification of the location of disease, ultrasonographic examination was a more definitive and non-invasive means of diagnosing the pathological condition. Bursoscopic examination of the intertubercular bursa was also useful in obtaining confirmation of the diagnosis, and for debridement and lavage of the bursa.

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tenotomy of medial lobe of biceps brachii tendon was suggested to the owner, in order to reduce tension in this structure and the associated pain. However the owner did not give permission for this additional procedure.

Post-operative treatment included intravenous administration of sodium ampicillin (15 mg/kg q 8h) and gentamicin (6.6 mg/kg q 24h) for six days, and phenylbutazone (4.4 mg/kg q 24h) for two days (12). The dosage of phenylbutazone was then reduced to 2.2 mg/kg q 24h for four days. Mild functional recovery of the right forelimb lameness was observed for one month after surgery by the referring veterinarian. However, follow-up at 12 and 24 months after surgery did not reveal any improvement in the severity of lameness, with a clinical condition similar to the pre-surgical status.

Discussion

Although the clinical signs present in this horse were helpful in the identification of the site of disease, ultrasonography was found to be a more definitive and non-invasive means of diagnosing the pathological condition, and in detecting the absence of the lateral lobe of biceps brachii tendon in the sulcus intertuberculatus (1, 4). Moreover, ultrasound examination of the contralateral biceps tendon would also be recommended to provide a comparative image to facilitate the diagnosis. A guided fluid aspiration for cytology is also suggested to rule out other diagnoses such as sepsis. Finally, endoscopic examination of the bursa was found to be useful in confirming the diagnosis, and to allow debridement and lavage of the bursa (11, 12).

Surgical treatment of this lesion by medial lobe tenotomy, in addition to bursal debridement and lavage, may have resulted in a greater clinical improvement. However, this is only the authors’ hypothesis because no similar cases of unilateral rupture have been described. Seco Díaz et al. treated a complete rupture of the biceps tendon with phenylbutazone and rest alone, but during hospitalization there was not any improvement and the horse was euthanised (7).

However, when Fugaro and Adams performed a biceps brachii tenotomy or tenectomy for bicipital bursitis and tendonitis in three horses, the reported outcomes implied a...
good prognosis for return to athletic function (8). A similar conclusion was reached previously by Bleyart and Madison, who performed a complete biceps brachii tenotomy to facilitate internal fixation of supraglenoid tubercle fractures in three horses, apparently without precluding return to a successful athletic career (13). Based on this, tenotomy of the biceps brachii tendon in this case might have decrease tensioned and pain in the medial bicipital tendon lobe, and thus improved the horse’s lameness and gait.

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References