The accessory ligament of the deep digital flexor tendon (ALDDFT) in the hindlimb is frequently forgotten about, not only because the frequency of injury affecting this structure is a fraction of that affecting its bigger sister in the forelimb, but also because of its small size and the description of its variable presence in older anatomical texts. In contrast to this latter commonly held belief, the advent of diagnostic ultrasonography has demonstrated that the accessory ligament is certainly present in every horse, deep to the deep digital flexor tendon on the dorsal margin the tarsal sheath wall in the proximal metatarsal region (Fig 1).

While injury to this structure is relatively rare, a case series of 23 cases has been published (Eliashar et al. 2005), which documented 2 different syndromes associated with this structure: an acute desmitis giving rise to lameness, and a chronic manifestation associated with swelling and distal interphalangeal joint flexural deformity. It was not possible based on this case series to determine whether these 2 syndromes were mutually exclusive or whether one could lead to the other. Certainly each syndrome has been identified with no history of the other preceding it.

It is strange that such a small structure can contribute, albeit rarely, to such marked clinical problems. A normal ALDDFT in the hindlimb is usually only approximately 2 mm in thickness and <1 cm in width. However, in all clinical cases the ligament can be identified both by palpation and ultrasonography to be considerably enlarged, such that its size was at least equivalent to its forelimb counterpart and hence mechanically was substantially stronger and capable of influencing the mechanics of the limb or causing pain on loading. With injury, the transverse and longitudinal ultrasonographic images from the proximal metatarsal region more closely represent the appearance of a generalised forelimb desmitis (see Fig 1 in Lamas et al. 2008 and compare with Fig 1 here).

The cause of these injuries is not well understood; the ALDDFT in the forelimb receives the second highest load of the palmar soft tissue structures (Jansen et al. 1993) but, interestingly, the strain in the ALDDFT did not alter significantly

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**Clinical Commentary**

**Size isn’t everything: The importance of the hindlimb accessory ligament of the deep digital flexor tendon**

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The accessory ligament of the deep digital flexor tendon (ALDDFT) in the hindlimb is frequently forgotten about, not only because the frequency of injury affecting this structure is a fraction of that affecting its bigger sister in the forelimb, but also because of its small size and the description of its variable presence in older anatomical texts. In contrast to this latter commonly held belief, the advent of diagnostic ultrasonography has demonstrated that the accessory ligament is certainly present in every horse, deep to the deep digital flexor tendon on the dorsal margin the tarsal sheath wall in the proximal metatarsal region (Fig 1).

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It is strange that such a small structure can contribute, albeit rarely, to such marked clinical problems. A normal ALDDFT in the hindlimb is usually only approximately 2 mm in thickness and <1 cm in width. However, in all clinical cases the ligament can be identified both by palpation and ultrasonography to be considerably enlarged, such that its size was at least equivalent to its forelimb counterpart and hence mechanically was substantially stronger and capable of influencing the mechanics of the limb or causing pain on loading. With injury, the transverse and longitudinal ultrasonographic images from the proximal metatarsal region more closely represent the appearance of a generalised forelimb desmitis (see Fig 1 in Lamas et al. 2008 and compare with Fig 1 here).

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Fig 1: The appearance of the accessory ligament of the deep digital flexor tendon in the hindlimb. a) Ultrasonographic appearance; b) Computed tomographic appearance. Some differences in the shape and position of the tendons and ligaments can be accounted for by the nonweightbearing load when performing computed tomography.

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between walk and trot, although it was increased by hard surfaces on which the ponies were walked and trotted (Riemersma et al. 1996). The strength of the ligament has been shown to decrease with age (Becker et al. 1994), which suggests that horses may be more prone to injury later in life. Similar studies on the mechanics of the ALDDFT in the hindlimb have not been performed but given its similar anatomy, a similar function could be proposed for the hindlimb. The strain can be decreased by raising the heels (Lawson et al. 2007) and so this could be considered a treatment strategy for injuries affecting this ligament.

The Case Report in this edition of EVE (Lamas et al. 2008) is unusual on 2 counts: it describes an unusual additional cause of desmitis of this ligament (sepsis following a wound), and also a method of resecting the ligament under only regional analgesia and standing sedation. Desmotomy has been described as a treatment for distal interphalangeal joint flexural deformity where its transaction has been described in the standing horse. Desmotomy has also been advocated for the treatment of chronic and problematical desmits of the ALDDFT in the forelimb (Todhunter et al. 1997) and the logical extension to desmectomy to avoid premature healing of a transected desmitic ligament with the return of symptoms. Desmectomy has been described for treatment of hindlimb ALDDFT desmits with a successful outcome (Boswell and Schramme 2000; Eliashar et al. 2005), which suggests that surgical resection may represent an alternative treatment for refractory cases. The prognosis for desmits of the forelimb ALDDFT is usually considered good (77% return to full work [uncomplicated desmitis], Dyson 1991; 63% return to full work, McDiarmid 1994) although some reports have given the opposite impression (16% return to full work; van den Belt et al. 1993). Hindlimb ALDDFT desmits appears to carry a similar prognosis for simple desmits (73%) but a considerably worse prognosis (10%) for desmits associated with flexural deformity (Eliashar et al. 2005). In most cases, the initial approach is usually conservative, although in the case described by Lamas et al. (2008) the presence of infection necessitated adequate surgical debridement which resulted in resection of the ligament. Ultrasonography can be used intraoperatively to ensure accurate and adequate transection/resection (White 1995). Even with the presence of infection, the prognosis in this reported case was favourable.

Injection of tendonous and ligamentous structures is remarkably rare (Kidd et al. 2002) considering their common superficial location and hence susceptibility to percutaneous injury and this suggests that these structures are resistant to infection. Certainly in cases of chronic septic tenosynovitis of the digital sheath, infection usually extends into the adjacent bony structures, such as the proximal sesamoid bones before it affects the tendons themselves, even though they may be surrounded by active bacterial infection. Confirmation of sepsis within a tendon or ligament requires the demonstration of large numbers of neutrophils within the body of the structure.

Infection of tendons and ligaments is usually manifest clinically with severe lameness, as in Lamas et al. (2008), and ultrasonographically by a rapidly enlarging lesion over only a few days with sharp borders, compared to the slow change of an indistinct lesion seen with over-strain injuries. In this case, the septic desmits was associated with a discharging wound and it would appear that the entire ligament was affected. There is no detail on the initiating cause but there must have been a penetrating injury that damaged the ligament and deposited bacteria in it, a remarkable event given the size of a normal ligament (Fig 1).

When infection of a tendon or ligament is located within the confines of a tendon sheath, there is invariably an associated septic tenosynovitis. Given the close proximity of the ALDDFT to the tarsal sheath it was fortunate that the infection was not concurrently present in this structure, nor extended into it subsequently after resection. It is probably prudent to consider synoviocentesis of this synovial structure in such cases to rule out this possibility.

References