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## **Lameness in horses: Frequent tendon and ligament disorders**

### **Superficial Digital Flexor Tendonitis (SDFT)**

It is a very frequent disorder with a high recurrence rate in thoroughbreds and most racing horses and appears less frequently in other breeds and disciplines like show jumpers or dressage horses. The high recurrence rate and the long period of rest necessary for the treatment may give a career ending lesion to race-horses.

Clinical presentation: There may be only focal heat and slight swelling on the tendon without lameness but also very severe lameness. In most cases lameness diminishes after some days, increasing the risk of premature return to exercise in these horses. When the distal third or the very proximal third of the flexor tendon present the lesion, the digital sheath or the carpal sheath may also be distended. On palpation with the foot lifted, pain and adhesions may be palpated on the tendon. In case of very acute lesions that are painful on palpation with marked lameness, the examination in movement should be reduced to the strict minimum to avoid severing the lesion. Mostly diagnostic anaesthesia is not necessary, unless the local signs are not palpated.

Diagnostic imaging: Ultrasonography is the best and simplest mean to precise diagnosis. Both limbs should always be examined, in order to compare the thickness of the tendon to the sound one and to check if there is not a beginning lesion on the other limb.

Treatment: Rest and controlled exercise, very long for trainer and owner. In order to have a better quality of repair, local injections in the tendon with stem cell therapy and autologous platelet rich plasma can be done. Visualisation of the lesion before injection or ultrasound guided injection can help to inject precisely the lesion. We mostly advise 8 weeks of box-rest with handwalking increasing by 10 minutes every 2 weeks. Then the horses can be ridden 30 minutes and 5 minutes of trotting can be introduced. Increase the trotting phase by 5 minutes every 2 weeks.

These exercise protocols can also be applied for lesions of the DDFT or the ALDDFT or the suspensory desmitis.

Special shoeing is less specific; a light roller shoe with correct trimming is advised.

### **Deep Digital Flexor Tendonitis and distal check ligament desmitis (accessory ligament of the deep digital flexor tendon or ALDDFT)**

DDFT and ALDDFT are less frequent lesions and appear in all disciplines. Lesions of the DDFT in the metacarpal region are rare, mostly it is the AL that is concerned. In show jumpers AL desmitis can produce severe lameness after a jump with marked swelling in the proximal third of the metacarpus.

DDFT lesions appear mostly in the front limb in the digital sheath and give a complex tenosynovitis of the digital sheath (see below). In most acute cases of lesions of the ALDDFT, the treatment is conservative with rest and controlled exercise. A shoe with a heel extension can support the tendon.

For lesions of the DDFT in the digital sheath, the most predominant symptom is swelling of the digital sheath. These lesions do not respond well to conservative treatment and repeated injections of corticosteroids without diagnosis and specific treatment is not advised. Digital sheath tenoscopy with debridement of the tendon lesion and of adhesions as well as splitting of the proximal annular ligament is the best treatment option. Again, rest with controlled exercise should complete the healing phase.

In the carpal sheath, lesions of the DDFT are induced by osteochondromas or physeal remnant spikes that irritate the tendon and cause distension of the carpal sheath. In that case the best treatment is the surgical removal of the bony lesion via a tenoscopy of the carpal sheath.

### **Suspensory desmitis**

Suspensory desmitis is a very frequent problem in all breeds of horses and in all disciplines, even ponies and leisure horses. The suspensory ligament can be divided in 3 parts, the proximal part, the body and the branches with the distal insertion on the proximal sesamoid bones. The suspensory ligament or 3<sup>rd</sup> interosseous muscle has 2 – 11 % of muscular tissue.

Proximal suspensory desmitis (PSD) in the front limb can have only slight lameness or severe lameness that resolves rapidly or lameness only seen at high speed. In cases of bilateral PSD, only reluctance to work without lameness may be observed. The horses often are lamer on the circle, mostly on the opposing hand. In the hindlimb, lameness often persists even after rest and the problem is often quite chronic.

The flexion test of the fetlock and carpus can be positive, in the hindlimb hock flexion tests are mostly painful. Heel elevation also causes pain. Diagnostic analgesia: the high palmar block with anaesthesia of the deep branch of the lateral palmar nerve to block the origin of the SL is necessary to localise the problem.

Radiography: In case of chronic lesions, sclerosis at the insertion of the SL can be observed.

Ultrasonography: Thickening of the suspensory ligament with hypoechoic zones and irregular bone with avulsion fractures can be seen.

Treatment: Rest and controlled exercise are again the base of the treatment. In our experience, SD does not sufficiently respond to conservative treatment alone and mostly radial pressure wave therapy were associated (RPWT/ESWT). The protocol used in our clinic is of 3 sessions in 2-3 weeks of interval with 2000 hits on the origin at 2.5 bar. Some horses may be reluctant to the therapy and good sedation is necessary. In case of insufficient response to the radial pressure wave therapy, intra-lesional injection of PRP can be added.

Body lesions of the SL are essentially lesions of race horses and shown on ultrasonography. Treatment is based on rest, controlled exercise and local anti-inflammatory treatment. Some cases of good response after PRP or stem cell treatment were also reported.

Branch lesion of the SL: This problem occurs in all types of horses and is quite frequent. Mostly only one branch in one limb is affected, but on hindlimbs both branches may be affected.

Clinical presentation: Local heat and swelling may be palpated as well as pain on pressure or on passive flexion of the fetlock.

Radiography: No lesion, in some cases irregularity or avulsion fracture of the proximal sesamoid bone on the proximo-abaxial border (site of insertion of the SL).

Ultrasonography: An abnormal form of the branch and hypoechoic lesions in the tissue, irregular contour of the proximal sesamoid bone are visualized.

Treatment: In case of acute lesions, 6-8 weeks of rest and beginning exercise as well as appropriate trimming and shoeing can be sufficient.

### **Tenosynovitis of digital sheath (simple and complex)**

The digital sheath courses from the distal third of the metacarpus to the T ligament just proximal to the navicular bursa and includes the SDFT and the DDFT.

In case of tenosynovitis a swelling is always present and perineural or intrathecal anaesthesia should be performed to localize the pain to that region. Fetlock flexion test is painful. Synoviocentesis and analysis of synovial fluid can reveal septic tenosynovitis, but clinical signs are more severe.

Ultrasonography is the best imaging modality. Simple tenosynovitis is not accompanied by other tendon lesions and can respond to medical treatment (steroidals or non steroidals, bandage and rest). Complex or secondary tenosynovitis is due to tendon lesions, mostly DDFT in the frontlimb and tear of the manica flexoria in the hindlimb. Such cases benefit from tenoscopy with debridement of tendon lesions and in case of chronic lesions the release of the palmar annular ligament may help.