Septic Tenosynovitis

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Septic tenosynovitis most commonly occurs in the digital flexor tendon sheath and typically results from extension of a local septic inflammation such as sole ulcer, white line disease, a septic distal interphalangeal joint, a heel bulb abscess or direct introduction via penetrating wounds or foreign bodies. It may rarely follow hematogenous spread.

Clinical signs

Moderate to non-weight bearing lameness or recumbency. Decreased feed intake and pain lead to rapid weight loss. The animal limbs are often soiled with manure because of its reluctance to stand. Purulent effusion of the tendon sheath results in swelling of the affected digit particularly proximal to the accessory digits (dew-claws). Swelling is most obvious on the lateral aspect of the tendon sheath above the fetlock.

Diagnosis

Include physical examination and ultrasound evaluation shows a heterogenous fluid effusion, which is consistent with a viscous purulent exudate and synovial fluid collection for cytologic evaluation and culture. Insertion of a blunt probe through the wound or injection of contrast material into the wound may facilitate diagnosis of septic tenosynovitis. Radiographs may be indicated if a septic distal interphalangeal joint is suspected.

Treatment
Medical management alone including systemic antibiotics, hydrotherapy, protective bandages is rarely effective because of the severity of the inflammatory process with excessive fibrin deposition within the tendon sheath. Antibiotics do not effectively penetrate to achieve therapeutic concentrations. Effective treatment of septic tenosynovitis involves surgical debridement and lavage of the affected tendon sheath including resection of necrotic digital flexor tendons if indicated. Digit amputation or arthrodesis via the bulbar approach in cases where septic tenosynovitis is associated with sepsis of the distal interphalangeal joint.

Exploration of the tendons and sheath is best performed with the animal restrained on a tilt table or stand up foot chute. After local intravenous anesthesia, which should include an antibiotic, a wooden block is applied to the healthy claw to relieve weight bearing. Next, the tendon sheath is opened beginning at its origin proximal to the dew claws and extending distally to a point approximately 2 cm proximal to the coronary band or down to the sole ulcer site using the probe as a guide. After debridement and lavage the sheath and skin incision may be closed primarily or an indwelling penrose or a multifenestrated silicone rubber drain placed, which is anchored both proximally as well as at the distal end of the incision line. The drain is removed after 5-7 days and a bandage re-applied if deemed necessary. Dehiscence of the wound is a potential complication because of the high motion of the foot. The tendon sheath is better left open if the tendons are necrotic and had to be resected and the wound left to heal with granulation tissue. To place a drain in the tendon sheath a 14-gauge needle is inserted into the tendon sheath proximally and distally to guide optimal placement of the stab incisions. A stab
incision is made in the proximal aspect of the tendon sheath. Next, a malleable probe is pushed down to the tendon sheath to its most distal part where a second stab incision is made. Gentle curettage of the tendon sheath is now done using an appropriate size curet. The probe is again inserted through the proximal stab to emerge at the distal stab incision. A piece of umbilical tape is fixed to the end of the probe and the probe pulled back through the sheath to emerge at the proximal stab incision. The multifrnrstrated drain can be tied to the umbilical tape followed by pulling it through the length of the sheath. The drain is then sutured into place and the excess fenestrated portion of the drain is discarded. Drainage and lavage is performed by high-pressure infusion of sterile, isotonic electrolyte solutions into the drain and allowing the fluid to exit distally around the end of the drain. A 60-mL syringe and three-way stopcock is used for this purpose to achieve high pressure lavage. The distal end of the drain is sutured to occlude the lumen and force the fluids to exit the drain into the tendon sheath. High-pressure lavage is performed once daily for 5 to 7 days, using 1 to 2 L of saline. Antibiotics such as dilute procaine penicillin may be instilled into the drain and tendon sheath after each lavage and when the drain is removed. Systemic antibiotics and anti-inflammatory medication should be administered at the same time.

Digit amputation should be considered if there is concurrent sepsis of the distal interphalangeal joint.

**Recommended reading**


