Retro-articular and bulbar abscesses

Sarel van Amstel

Lesions affecting the heel include retro-articular and bulbar abscesses. These are distinct different entities causing swelling and pain of the heel bulb resulting in moderate to severe lameness. In the majority of cases, both bulbar and retro-articular abscesses are complications of either white line disease at the heel/wall/sole junction, septic pedal osteitis resulting from sole ulcer in the axial region of the sole near the sole/heel junction (Rusterholtz ulcer) or traumatic injury\(^1,2\).

**Bulbar abscess.**

In cases where bulbar abscess is associated with white line disease or sole ulcer, separation of the horn of the abaxial wall or sole dissects caudally to cause infection in the heel retinaculum. The heel is swollen, painful, soft, fluctuant and warm on palpation. There may a discharging tract at the coronary band in the region of the heel. Lameness is variable but affected animals are often only moderately lame.

Diagnosis is based on ultrasound examination of the swollen heel bulb which usually shows a walled off cavity containing a heterogenous fluid as seen with purulent exudates. The presence of puss on needle aspirate confirms a diagnosis of a bulbar abscess.

Treatment consists of lancing the abscess through the caudal aspect of the heel bulb. Some skin adjacent to the incision should be removed in order to create an open cavity, which will facilitate effective flushing and healing. In addition, all loose and undermined abaxial wall and sole horn should be trimmed.

An orthopedic block to relieve weight is placed on the opposite claw. The abscess cavity should be cleaned and monitored for progressive healing which occurs
through the formation of a healthy even granulation bed.

**Retro-articular abscess**

Retro-articular abscess is typically located between distal aspect of P2, the deep digital flexor tendon (DDFT), navicular bone and the joint capsule of the distal interphalangeal joint\(^1,2\). It results from an ascending infection caused by extension of infection from septic pedal osteitis caused by sole ulcer or white line disease \(^2\). Because of the close proximity of the retro-articular abscess with the DDFT, avulsion of the tendon from its insertion to the third phalanx may occur resulting in hyperextension of the toe\(^1,2\). Swelling of the heel is usually firm, non-fluctuant and painful and may be confined to the heel or may spread up the digit to above the dewclaws, which is an indication that the digital flexor tendon sheath may be affected \(^2\). In such cases a fluctuant swelling will be present above the dewclaws. In addition, the suppurative inflammation of the structures in the palmar/plantar aspect of the heel may or may not be associated with septic changes within the DIP joint. Animals with concurrent infection of the DIP joint are severely lame \(^3\).

Diagnosis is based on clinical signs, the presence of an ascending tract, demonstrated by insertion of a teat canula, into the deep structures of the heel after removal of loose and undermined horn associated with a sole ulcer or white line lesion. On ultrasound examination a cavity with heterogenous content can be visualized adjacent to the deep digital flexor tendon as well as fluid accumulation within the tendon sheath. Gas may be detected radiographically immediately caudally to the DIP joint\(^1,2\). In addition, changes within the DIP joint indicating septic arthropits such as widening of the joint space with chondral and subchondral bone lysis may be present. However, retro-articular abscessation is not consistently associated with septic changes of the DIP joint.
Treatment consists of surgical drainage, which is done as follows. After administration of local intravenous anesthesia, the affected digit is aseptically prepared for the surgical procedure. A blunt probe such as a teat canula is passed into the sinus tract in order to determine both the depth and direction of the tract. A wedge shaped incision is made from the most proximal end of the probe to the level of the lesion. The incision is made to the level of the probe. Incised tissues will include the skin, subcutaneous fibro-elastic pad (retinaculum) and both the heel and the solar corium in case of complicated sole ulcer, the digital cushion and the tendon sheath. Removal of a wedge of these tissues should expose the deep flexor tendon, which often will be necrotic and avulsed, the navicular bursa and navicular bone. The DDFT is resected at a level where the tendon appears normal but usually at the level of the annular ligament where the DDFT emerges through the ring made by the superficial digital flexor tendon (SDFT).

Using a curette the abscess cavity is debrided of remaining necrotic material taking care not to enter the proximal interphalangeal or fetlock joints. The entire abscess capsule is removed down to the sole ulcer site. The navicular bone should be examined for signs of osteolysis and any necrotic bone removed. After completing the debridement, no cracks or crevices should remain, which will retard or prevent healing from taking place because of persistent infection.

The tendon sheath should be flushed using a dilute povidone iodine solution. The cavity is packed with gauze soaked in saline or a weak povidone iodine solution and a pressure bandage is applied. The bandage is removed after four days and then at weekly intervals. Healing usually takes place over a five to six week period. After healing is completed the claw block on the sound claw should be removed. The affected claw will be functional but weight bearing could be limited to the heel and heel sole junction in some cases due to tipping of the claw resulting in shifting of the bearing surface towards the heel ⁴.
References


