Sigrid Grulke, DVM, Phd, Dipl. ECVS

Senior Lecturer, Equine surgery, Faculty of Veterinary Medicine

University of Liege, Belgium

Emergencies of locomotor origin, what can be done in the field, when to refer, what can be done in the clinic?

Hoof abscess

The septic pododermatitis is probably the most frequent and severe lameness seen in the field. Nevertheless, the diagnosis may be challenging and some special cases should be recognized.

Clinical presentation: Severe, non-weightbearing lameness until the abscess opens or fistulises. The hoof is warm, sometimes only on one side of the hoof. Digital pulse is increased. Diffuse swelling of the limb up to the carpus or the tarsus may be present. As the horse is very painful, it may be reluctant to touch the limb mimicking pain on the tendon region and inducing in error. The hoof tester will show the precise site of the abscess to open it. In case of diffuse response to the hoof tester, the abscess is not well collected and the hoof should be put in a wet bandage to allow maturation. No systemic treatment is necessary at that time. Otherwise, maturation will not take place. When the abscess is opened and the black, oily secretion is evacuated, the opening should be flushed with diluted povidone iodine and a hoof bandage posed. In case of evacuation of typical white pus, the lesion is deeper in the tissue and pedal osteitis should be suspected. In that case, a complete examination with radiographies should be done. In some cases deep curetting of the lesion down to the bone is necessary. Such curettage can be done with a sedation and abaxial sesamoidal block. As the pedal bone bleeds a lot, a tourniquet can be applied. In that case it is necessary to keep under bandage for a longer time and to give systemic treatment (AB and NSAID's).

In case of recurrence of a hoof abscess several times at the same level, an underlying cause may be present, e.g. a space occupying mass like a keratoma (tubule of abnormal horn produced at the inside of the hoof and having its origin near to the coronary band) or abnormal enlarged white line due chronic laminitis or white line disease. In such cases a more complete workup with radiographies of the foot are necessary. In case of keratoma, a characteristic V or croissant shaped compression lysis of the coffin bone is observed on DP radiography. The compression of the bone cane be a source of lameness even without the development of abscess. The best treatment option for keratoma is a partial avulsion of the hoof wall near to the origin of the keratoma, near to the coronary band in order to remove all abnormal horn and to avoid regrowth. This can be done on the standing horse under sedation and local analgesia with a tourniquet or under general anaesthesia, depending of the character of the horse and the localisation of the keratoma.

Traumatic pododermatitis (street nail)

The workup is similar to a hoof abscess with osteitis but the veterinarian should react very promptly. Especially in case of a puncture wound in the mid frog region, the risk for puncture of the navicular bursa is very important. Horses treated surgically by bursoscopy within 24 hours after the lesion still have reasonable prognosis for athletic soundness. If you find the horse with the nail in place and you are able to take radiographs immediately, to not remove the nail. If this is not possible, observe the

direction of the nail in the tissue and the depth of penetration. This should give you an indication if there is a risk of navicular bursa penetration. The coffin joint may also be involved as well as the digital sheath or the navicular bone himself. In case of penetration of the bursae the overlying DDFT is also punctured. Most horses with these lesions are severely lame and are reluctant to put weight on their heels. Injection of contrast medium may also help to determine the depth of the puncture. Radiography shows lesions in more chronic cases. Ultrasound can show the distended bursae or distension of the coffin joint.

Ideal treatment is realized in a clinic under general anaesthesia by bursoscopy to lavage the navicular bursae and to debride the puncture wound and the DDFT in the foot. Bandages as well as AB and NSAID's were continued after the surgery. In the first phase after the surgery, the DDFT and the navicular bursa may still be painful even if sepsis is controlled and a shoe with a high heel is indicated (only on the injured foot).

Wounds

Wounds especially on distal limbs were very frequent in horses. The first thing to check is the absence of severe haemorrhage. In case of circular lesions around the leg, the risk for severe vascular deficit should be checked (section of principal arterial supply, complete disruption of venous return). Afterwards it is important to see if the wound opens a joint or another synovial structure or the abdominal or pleural cavity. If this is the case the best treatment would be in a clinic with an arthroscopic lavage of the joint or the deep zones of the wound. Remember that it is better to remove a contamination of a joint than to wait for infection and to try to get rid of the infection. Most horses with wounds on limbs do not show severe lameness. If this is the case, you should thoroughly palpate the limb and the bone underneath the wound in order to see if there is no incomplete fracture. In that case, the palpation of the bone is very painful. Evaluation of section of a tendon is also important. In case of deficit of fetlock suspension the SDFT may be cut and in case of a lifted toe, the DDFT may be cut. The prognosis is guarded for return to full function and the horse should receive a half limb cast before referral to a clinic. Extensor tendon deficit has a good prognosis for future soundness. During the healing phase a palmar/plantar splint should be included in the bandage. In case of exposure of bone, the trauma may have caused necrosis of an external part of the bone and a sequester will form in the weeks that follow the initial wound. This piece of devitalized bone acts like a foreign body and has to be removed as it hinders the development of granulation tissue and favours infection.

Many wounds in horses have to heal by 2nd intention healing as there is a big tissue deficit. In most cases the wound has to be debrided to remove necrotic tissue and contamination to favour the inflammatory phase. During the proliferative phase, the wound forms granulation tissue that will fill the defect. This tissue is richly vascularized but not innervated and if the horse goes out to pasture, the tissue will disrupt and bleed. Therefore correct immobilization and bandaging are important. In the 2nd part of the proliferative phase there is neoepithelialization, a new epithelium will cover the granulation tissue to close the wound. When wounds are located on the abdomen or trunk the wound will have contraction and it will close very rapidly.

Complications that can occur are the formation of exuberant granulation tissue and of a sequestrum.

In the clinic we now have a new treatment option with the use of negative pressure therapy (VAC Therapy = vacuum assisted closure) for wounds. This technique applied to the wound via a pump and

a hermetic bandage, produces better vascularisation of the granulation tissue, increased formation of granulation tissue and even granulation. It can also be used to favour the acceptance of skin grafting.

Septic joint/synovial sheath

Diagnosis is based on severe lameness and on a swollen joint or sheath. Radiographies have to be taken to check if there is osteolysis reducing drastically the prognosis. In case of concurrent fracture the treatment is modified. The analysis of synovial fluid will show increase in WBC and neutrophils (from normal 10 % up to 90 to 99 %). As already indicated before, the best treatment option is articular lavage under arthroscopic control. If this technique is not available, simple drainage, even in the standing horse can be realised. At the end of the drainage, local antibiotics can be injected into the joint and systemic AB and NSAID's continued. If more than one articular lavage is necessary, the prognosis is poor.

Non-displaced or incomplete fractures

The major symptom of fractures is pain on palpation of the bone and non-weight bearing lameness without crepitus or abnormal movement. It is very important to treat the horse with strict stall confinement and/or with a heavy bandage or cast to avoid displacement of the fracture. In many cases the fracture line may be so tiny, that it cannot be seen on radiographs directly but only after 1-2 weeks. This is due to remodelling of the fracture line, so that it becomes visible and larger after 2 weeks. Horses should not be mobilized before 8-10 weeks. In case of continued exercise catastrophic fracture can occur.

Fractures (phalanx, distal metacarpus/tarsus)

As with other medical problems, the treatment of fractures has nowadays some possibilities and therefore correct transfer to the clinic is necessary. As the transfer to the clinic is not a vital emergency, the veterinarian should better go home and take cast and bandage material than to send the horse to the clinic without stabilisation.

Fractures of phalanx and distal metacarpus/metatarsus should be put in a half limb cast with alignment of the phalanx and the metacarpus, in order to avoid spread of the fracture fragments. This allows the horse to bear little weight on the tip of the cast without charging completely. Such a cast always includes the whole foot and should have sufficient padding material. At least 5-6 rolls of resine cast are necessary.

In case of fracture of the proximal metacarpus or distal radius/tibia a full limb cast can be applied.

If the fracture is in the proximal radial or tibial region, a Robert Jones bandage with lateral splint is necessary to avoid abduction of the limb and opening of the fracture at the medial side of the radius/tibia. If the fracture is higher in the limb, immobilisation is not possible and a bandage would only increase the weight of the distal limb and induce more strain on the fracture.

The development of new implants, especially the LCP, locking compression plates, has increased the stability and the success rate of the repair.