

If Only They Could Talk



Our regular focus on equine health. This month vet **JOHN MARTIN** discusses the problems that can be caused by a piece of dead bone.

A RELATIVELY COMMON problem encountered by equine vets is a wound, particularly on the lower limb of the horse, which will not heal as expected. One cause of such a scenario is the presence of a bone sequestrum preventing the wound from healing.

A sequestrum is a piece of dead bone which has detached from the surrounding healthy bone. There are three parts to most sequestra: the sequestrum itself, which is the fragment of dead bone; the involucrum, which is an area of bony reaction around the sequestrum; and the cloaca, which is a draining tract from the sequestrum to the skin.

A sequestrum forms when a piece of bone separates from its parent bone and permanently lose its blood supply. A fragment of bone can separate from the parent bone either through a fracture due to direct trauma or when the periosteum

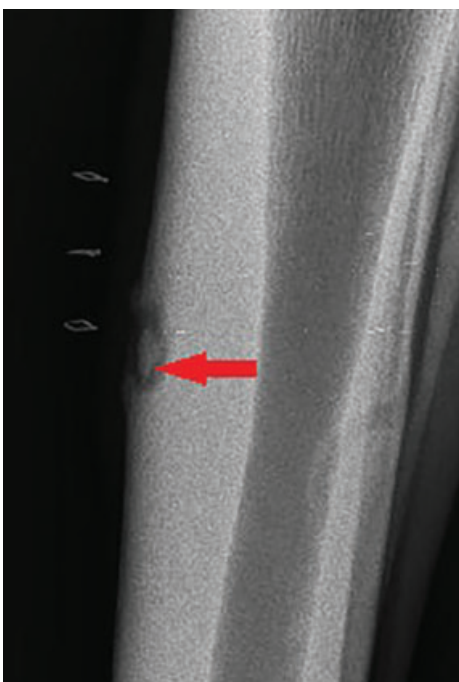
overlying the piece of bone is compromised, eventually resulting in lack of blood supply.

The outer portion of the bone surface or cortex then becomes avascular (has no blood supply) while the remaining internal portion of the cortex achieves its blood supply from inside the bone. Infection can then occur at the junction between the area of bone with a blood supply and the area without, resulting in loss of bone structure and formation of a sequestrum. Once the fragment of bone becomes devitalised it acts as a foreign body and the horse's immune system acts to wall the fragment off and works to break it down.

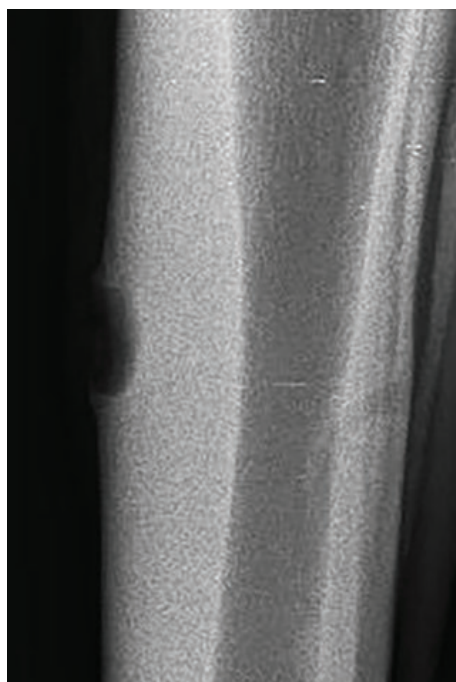
Bone sequestra are particularly common in areas of the horse where the bone is poorly protected by overlying soft tissues, such as the front of the cannon bones, the inside of the radius in the forelimbs and the inside of the tibia on the hind limbs.

The diagnosis of a bone sequestrum is usually made after a wound over a poorly protected bone fails to heal normally, develops localised swelling and quite often a draining tract. Radiographs of the affected area will result in a definitive diagnosis.

The bone sequestrum will be visible as a sharply margined fragment of bone which appears denser than the parent bone surrounding it. There will also be evidence of the bony reaction on the surface of the parent bone caused by the periosteum with blood supply being stimulated by the disease process. These radiographic changes may not be visible initially as bone remodelling can take time and a sequestrum may not become evident until a couple of weeks after the injury occurs. It can therefore be necessary to repeat the radiographic exam even if the initial images are unremarkable but the wound is failing to heal.



The red arrow points to a bone sequestrum



Post surgery x-ray. The involucrum was debrided and bone sequestrum removed under general anaesthesia

THERE are two options to treat bone sequestra depending on the severity of the injury and the size of the piece of fragmented bone. If the fragment of sequestered bone is small enough and there is minimal associated lameness, then medical management of the infection and time may be enough to allow the fragmented bone to resorb and the wound to heal.

In more severe cases where the fragment of bone is too large to resorb then surgery is indicated to debride the draining tract and scrape out the sequestrum and bony periosteal reaction. Surgery in these cases will result in a much quicker healing time and ultimately a quicker return to full work.

* AS WITH all veterinary treatments and procedures at Johnston Racing, the cost of diagnosis and any subsequent in-house medical treatment or surgical referral to Newmarket Equine Hospital is covered in the daily training rate.