

A novel technique for **CASTRATION** of Cryptorchid 'rigs' in horses

Castration (gelding) has been used for hundreds of years to control unwanted aggressive behaviour along with taking away the ability to reproduce. It is one of the most common surgeries performed by the equine practitioner. Male performance horses not used for breeding purposes are traditionally gelded as they are easier to handle and train and more suitable as an everyday riding horse. The testicles are the organs responsible for producing testosterone, the main hormone that produces the stallion-like behaviour and normally these descend from the abdominal cavity into the scrotum just before or after birth. The age of the horse at the time of castration can have an effect on its stallion-like behaviour.

Older horses, particularly those that have been breeding, are more likely to retain some of their stallion-like behaviour after gelding than those gelded as yearlings. There is no 'ideal' time to castrate a horse. However, most people castrate their horses as yearlings, before they can develop these stallion-like mannerisms. If both testicles have descended normal it is a routine surgical procedure to castrate the animal. On an interesting side note the age of when you castrate a horse will influence how tall they grow. Horses that are castrated very young (for example younger than 6 months) then grow taller. This is because the male hormones produced by the testicles tend to increase muscle mass and decrease vehicle growth. The age of the horse at the time of castration can have an effect on the future behaviour of the horse.



Occasionally one or both testicles may fail to descend into the scrotal sac. This condition is called Cryptorchidism, known as rigs. Removing one testicle is not ideal as this will not stop the stallion-like behaviour occurring because the internal testis continue to produce testosterone and male hormones regardless of where it is in the horse's body. In rare instances the horse may also be able to successfully breed with a mare.

The undescended testicle can be located anywhere from the inguinal ring/canal (high flanker) to completely within the abdomen. The majority of left-hand side testicles are retained within the abdomen whilst right testicles are commonly 'high flankers'. It is most common to have only one testicle affected, however bilateral cryptorchidism is possible.

Cryptorchid horses require more specialized skills to remove the retained testicle. It is important to be able to distinguish a cryptorchid horse from one that is retractile. A retractile horse is one that 'retracts' the testicle up towards the abdomen when palpated.

The actual cause of cryptorchidism is still debated however there are several genetic studies that show there may be hereditary components involved as well as several other factors. Occasionally, physical examination is inadequate to determine whether a horse possesses a retained testis (as in only one has been removed during castration), in which case a blood test may be necessary to confirm the presence of a retained testicle. The removal of a cryptorchid testicle is much more difficult than removing testicles that have descended. Traditionally this has always been performed under general anaesthesia with the horse on its back. This is a very successful method however it poses increased risk to the animal having a general anaesthetic. Complications such as muscle or nerve paralysis, along with limb fracture can occur with horse's recovering from general anaesthesia.



Removal of the normally descended testicle



The smaller abdominal testicle in comparison to a normally descended testicle.



Visualization of the internal testicle

The benefits of this technique are no risk of complications associated with general anaesthesia, small surgical incisions, and less convalescence time post operatively.

With laparoscopy the horse is sedated and local anaesthetic injected into the skin. They are in stocks during the surgery and rarely move or object to the surgery occurring whilst they are awake. The laparoscope is inserted into the side of the abdomen and the internal testicles grasped. Image 4 and 5: A horse standing in stocks undergoing Laparoscopic castration. This horse has been sedated and local anaesthetic injected into the small portal holes.

Prior to insertion of the laparoscope the abdomen is inflated with carbon dioxide to aid with visualization and locating the internal testicle. The testicle is then visualized and removed with the aid of a ligating device. The small portal holes are closed with sutures and the horse kept in hospital for 24-hours. The horse is confined for the next several days. Following this period, the horse can be broken in/treated as normal. Very low complication rates are associated with this surgery technique. The normally descended testicle is usually removed using a standard standing method with the use of local anaesthetic. Some horses are not candidates for laparoscopic castration due to temperament and occasionally the location of the retained testicle. These horses need to be castrated under general anaesthesia using traditional methods. The aftercare for horses undergoing this operation is difficult to what would be standard castration practice. Classically horses are exercised following castration to decrease swelling and allow drainage. Swelling of the surgical site along with superficial infections (pus-like discharge) are common complications associated with these techniques. Laparoscopic castration only requires a short period of box rest, to ensure that the sutures remain intact. Swelling and infection are rare complications following this procedure.