

## CASTRATION COMPLICATIONS

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Castration is one of the most common surgical procedures in the horse. The primary indication for castration is the development of intolerable masculine behavior. Routine castration can be performed either standing or under general anesthesia. If the castration is performed under general anesthesia, the incision can be left open or sutured closed. Most castrations are left open to heal because the procedure is typically performed in a field situation, in which there is inevitably some degree of contamination to the surgical site. Leaving the incisions open promotes drainage and helps prevent infection. On the other hand, the incision site can be sutured closed if performed under strictly sterile conditions and bleeding is adequately controlled. Suture closure of the incision site speeds healing and recovery, decreases the chance for post-operative infection, and decreases the chance for edema formation. This may be particularly useful if vigorous exercise cannot be enforced post-operatively.

As with any surgical procedure, castration has potential complications. The most common complication after castration is swelling or edema. All horses will get some degree of prepuccial and scrotal edema, but in some instances, the swelling may be excessive. This is typically due to inadequate exercise and inadequate drainage from the incision site. Vigorous daily exercise and hydrotherapy should begin the day after castration to promote drainage and prevent closure of the scrotal wound. This significantly helps to reduce the amount of swelling. If in addition to the swelling, the horse is depressed, not eating well, or has a fever (rectal temperature greater than 102°F), then your

veterinarian should be notified because an infection may be present. If infected, your veterinarian may begin antibiotic therapy for the horse.

The most common immediate post-operative complication after castration is excessive bleeding. It is normal for some bleeding to occur after castration. However, if the blood flow does not diminish after standing quietly for 15-30 minutes, then your veterinarian should be contacted. Your veterinarian can determine the appropriate steps to take depending on the information that you provide regarding the amount, rate, and duration of bleeding. Treatment includes clamping of the spermatic cord with forceps, ligation of the spermatic cord with suture, and re-emasulation. If it is not possible to identify the stump of the spermatic cord, the scrotum can be packed with gauze and secured in place with towel clamps. After bleeding is under control, the horse should be kept quiet in a stall and the scrotal area not disturbed for 24 to 48 hours. Referral to a surgical facility may be indicated if there is significant blood loss or if the bleeding cannot be controlled.

An uncommon but potentially fatal complication of castration is eventration. Eventration refers to the prolapse of intestine through the scrotal incision. This usually occurs within 4 hours of castration but has been reported up to 1 week post-operatively. It is believed that horses less than 6 months old are at greater risk for eventration due to potential persistence of a congenital inguinal hernia. By waiting until the colt is at least 6 months old, there is an increased likelihood that any potential hernia has resolved. Furthermore, Standardbreds, Draft horses, Tennessee Walking horses, and American Saddlebreds are thought to be at increased risk due to higher incidence of congenital inguinal herniation in these breeds. If tissue is seen protruding from the scrotal incision, call your veterinarian immediately. If omentum (soft tissue attachment to organs) is protruding from the incision, your veterinarian may be able to emasculate the omentum while standing, with no serious consequences. If evisceration of the intestine occurs, however, emergency

treatment is required to prevent further protrusion of intestine and prevent excessive damage and contamination of the exposed intestine. The goal of treatment is to re-anesthetize the horse, lavage the intestine of any debris, and replace the intestine into the abdomen. This may require an abdominal exploratory surgery to thoroughly evaluate the condition of the intestine, pull the intestine back into the abdomen through a midline incision, and close the inguinal ring to prevent reoccurrence.

Another complication, septic funiculitis, is infection of the spermatic cord. This can occur from extension of a scrotal infection, especially if the scrotal cavity does not properly drain. A contaminated emasculator or ligature can also cause this condition. Clinical signs include preputial and scrotal edema, pain, fever, and sometimes lameness. This condition may resolve with antibiotic therapy and re-establishment of drainage, but occasionally, removal of the infected stump is required. If not treated, the scrotum may heal but the stump will remain infected. The spermatic cord stump may enlarge with granulation tissue and abscesses, resulting in draining sinus tracts. A chronically infected stump is commonly referred to as a scirrhus cord. The cord is typically firm and rarely painful to palpation. Treatment for scirrhus cord requires removal of the infected mass.

Septic peritonitis, or infection of the abdominal cavity, can occur following castration because the cavity surrounding the testes (vaginal cavity) communicates with the abdomen (peritoneal cavity). Although this is rare, it may occur. Signs include colic, fever, elevated heart rate, diarrhea, and weight loss.

A hydrocele (also called vaginocoele or water seed) is another potential complication of castration. It is a fluid-filled, painless swelling in the scrotum that can develop months to years after castration and can become excessively large (ranging from tennis ball to football size). The condition is uncommon

but does appear more prevalent in mules compared to horses. The cause is unknown. If the swelling does not increase in size and does not cause discomfort to the horse, no treatment is necessary. Otherwise, the hydrocele can be surgically removed.

Finally, continued masculine behavior sometimes occurs in horses after castration. These horses are oftentimes referred to as "false rigs". This has been attributed to incomplete removal of epididymal tissue during castration, and these horses are said to be "proud cut". Because epididymal tissue is not responsible for production or release of hormones and because the epididymis is closely attached to the testes, this is unlikely to be the cause of persistent masculine behavior. Instead, it is thought this behavior is most likely innate and not caused by continued hormonal release.

In summary, complications can occur as a result of castration. Complications include swelling, hemorrhage, eventration, septic funiculitis, hydrocele formation, and persistent masculine behavior. While the most common of these complications is swelling and edema, proper post-operative care, including exercise and hydrotherapy, will reduce the risk of this occurrence. Fortunately, the other mentioned complications are rare. If any of these problems are suspected after castration, it should be addressed with your veterinarian.

Contact Brandon Equine Medical Center at 813-643-7177 or email [info@brandonequine.com](mailto:info@brandonequine.com) with any questions regarding this topic.

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