

Castration

Complications

Adapted from “Techniques in Large Animal Surgery - Dean A. Hendrickson”

Complications of equine castration are uncommon, but they can be life threatening to the horse and of great concern to the surgeon. A number of possible complications may arise following castration, such as:

1. Severe haemorrhage is usually associated with inadequate emasculating of the testicular artery of the spermatic cord, but considerable haemorrhage can occur from one of the branches of the external pudendal vein in the scrotal wall or septum, if accidentally ruptured, or in the transected external cremaster muscle.
2. Excessive swelling of the surgical site can arise because of inadequate drainage or inadequate exercise, or a hydrocele may form because of collection of fluid in a common tunic that has been inadequately resected.
3. Evisceration may occur through an inguinal hernia.
4. Acute wound infection and septicaemia may occur; scirrhus cord formation is due to chronic infection and generally can be related to poor technique and inadequate exercise or drainage.
5. Persistent masculine behaviour can occur following removal of two normal testes.
6. Penile paralysis.

Haemorrhage

Minor haemorrhage may occur for several hours, but significant haemorrhage beyond approximately 12 hours may require surgical intervention. If the source of haemorrhage is the testicular artery, ligation using a synthetic absorbable suture material may be required. This procedure may warrant general anaesthesia if the horse is difficult to manage. Curved forceps, such as Mixter curved haemostatic forceps, are helpful. Standing laparoscopy can be used to look for intraabdominal bleeding.

Oedema

Oedema of the scrotum and prepuce, a more common complication of castration, usually begins on the third or fourth postoperative day and is often associated with inadequate exercise. Simply turning the gelding out to pasture without forced exercise is often inadequate because of postoperative pain. Horses with excessive oedema of the scrotum and prepuce should be checked for a temperature rise because it may indicate impending infection. To help re-establish drainage,

a sterile surgical glove is donned, and the scrotal incision is opened cautiously. Parenteral antibiotics, such as procaine penicillin G, may be indicated, as well as a conscientious program of forced exercise. Phenylbutazone may be indicated to reduce soreness and to encourage pain-free movement. Long-standing chronic infections with abscess formation in the inguinal canal may need surgical exploration and abscess drainage.

Visceral Prolapse

Visceral prolapse through the inguinal canal and open scrotum is the most serious potential complication of castration. Eventration of the intestine or omentum may occur within the first few hours after castration before swelling has closed the inguinal canal, but it has been observed up to 6 days after surgery. The postoperative complication rate is high for repair of intestinal prolapse, and the condition requires immediate attention.

With the animal under general anaesthesia and in dorsal recumbency, the offending viscera is cleaned by lavage of balanced electrolyte solutions. The incision and scrotal area are prepared for aseptic surgery as thoroughly as possible. Debris, such as straw or blood clots, may have to be manually removed from the bowel in the earlier stages of preparation for surgery. Small segments of bowel, if viable and relatively uncontaminated, can be replaced in the abdomen. Some enlargement of the inguinal ring may be required if the bowel has become congested and oedematous. Greater lengths of intestine may be sufficiently contaminated or devitalized causing resection and anastomosis to be required. The internal ring may have to be enlarged, a portion of normal bowel exteriorized, and then anastomosis performed. If a portion of omentum is the only abdominal content involved, it can be excised, and remaining healthy omentum can be replaced in the abdomen. Closure of the internal ring is usually impossible, but closure of the external ring using preplaced simple interrupted synthetic absorbable suture material is necessary. Packing of the external canal is then performed. Fluid therapy should be instituted, as well as other adjunctive therapy for shock, such as Flunixin meglumine. The prognosis following eventration is always guarded. A long-term complication may be adhesion of bowel to the inguinal ring.

Persistent Masculine Behaviour

Many practitioners and horsemen believe that if a stallion is “cut-proud” (a small quantity of epididymis was not removed during surgery); he will continue to show stallion like behaviour. The removal of identifiable epididymal tissue or another piece of a long spermatic cord has resolved the problem in some instances and lends some support to this idea.

Wound Infection

Wound infection may be either acute or chronic. Acute infection can be treated by enlarging the scrotal incisions to allow drainage and by increasing exercise. Antibiotics may be useful. Chronic infection, or scirrhous cord formation, generally requires a second surgery to remove the abnormal tissue. This procedure generally requires more surgical time, and plans should be made accordingly.

Penile Paralysis

Penile paralysis (paraphimosis), a rare complication, is usually seen when phenothiazine tranquilizers have been used. If the penis is flaccid and does not retract in 4 to 8 hours, mechanical support of the penis is indicated. *Priapism* is an abnormally prolonged erection of the penis, not associated with sexual desire. It also has been associated with the use of phenothiazine tranquilizers; but fortunately, it is an even rarer complication of castration. Priapism has been treated medically using an anticholinergic agent, benztropine mesylate. The condition has also been treated by drainage and irrigation of the corpus cavernosum penis, along with creation of a vascular shunt between that structure and the corpus spongiosum penis.

Adhesions

Other long-term complications of castration are uncommon, but they are serious and require surgical management. Adhesions of small intestine may occur following ascending infection. Muscular hypertrophy, fibrosis, and thickening of the bowel wall aboral to the adhesion usually result. A ventral midline celiotomy, in combination with an inguinal approach, may be required to treat an adhesion in this region. Following identification of the offending bowel and the extent of the adhesion, the adhesion is broken down by carefully separating the bowel from the inguinal region. If the adhesion is of long duration, blind transection of the adhesion with scissors may be required. Standing laparoscopy may be helpful in diagnosing and treating adhesions. With either method, the risk of tearing the intestinal wall and contaminating the abdominal cavity with intestinal contents is real and may be fatal. Peeling the bowel off the adhesion has been successful, but it leaves a raw, bleeding edge that itself is prone to future adhesion formation. Daily rectal examinations, if the horse's size and temperament permit, allow the surgeon to "wipe away" carefully any potentially adhering bowel from these raw surfaces.