Castration was 22% (Mason et al. 2005). In the same survey this complication rate was compared to an overall complication rate of only 6% using a ‘standing, sutured’ technique. According to another practice based survey there is a preference to perform the technique in the standing patient (Price et al. 2005); this survey of current practice relating to equine castration in the United Kingdom found that 66% of respondents performed at least some of their castrations with the patient standing, using standing surgical anaesthesia (SSA). The most common peri-operative complications associated with the technique, in the chronological order when they are likely to occur, are listed below:

- Inadequate restraint/anaesthesia
- Poor surgical access
- Penile trauma
- Excessive haemorrhage
- Omental herniation and/or evisceration
- Excessive swelling and oedema
- Infection – champignon/scirrhous cord/peritonitis
- (Not getting paid!)

The decision to perform the technique in the standing patient is often determined by cost, the patient’s size and temperament, the size and location of the testes, owner preference and the surgeon’s experience and/or preference. The sedative/analgesic drug(s) used most commonly is an alpha2 agonist (99.5%), in combination with butorphanol (90.3%) (Price et al. 2005). In this study, only 49% of respondents who performed castrations in the standing patient under SSA used additional intra-testicular local anaesthetic solution.

Penile trauma is an uncommon complication of castration and may occur as a result of either self-trauma of the penis following the administration of certain sedative drugs, which can cause penile paralysis. Alternatively, the shaft of the penis can be mistaken for an inguinally retained testis.

Most textbooks and journals refer to 3 surgical techniques, namely open, closed and semi-closed. The latter 2 are more technically difficult and require strict asepsis, making them less favourable options to be attempted in the standing patient.

Haemostasis can be achieved using ligatures alone but is usually achieved by the use of emasculators. In the UK, the ‘Serra’ pattern is the most popular and is widely believed to provide the best haemostasis (Green 2001). Peri-operative haemorrhage can occur from the scrotal skin and deferent vessels but in most cases the source of excessive haemorrhage is the testicular artery (Cox 1987).

Eventration (omental or intestinal prolapse) occurs rarely (0.2%); Moll et al. 1995) but is a life-threatening emergency in the case of intestinal prolapse (Schumacher 1996). Evisceration typically occurs within the first 4 h post castration but has been reported to occur at 6 days after surgery (Shoemaker et al. 2004). According to Bousauw and Wilderjans (1996) it can be avoided by placing a ligature, which incorporates the spermatic cord and vaginal tunic.

However, in a review of 568 castrations by Shoemaker et al. (2004) there was no difference between the closed and open castration techniques and the subsequent rate of eventration.

A certain amount of post castration scrotal and preputial swelling usually occurs (Cox 1987; Green 2001) and reaches a maximum at 4 days and then subsides (Cox 1987). However, excessive or prolonged swelling and oedema is reported as the most common complication associated with castration (Moll et al. 1995).

This swelling may be associated with accumulation of fluid (seroma) within the scrotal sac, which may become infected, or as a result of infection of the surrounding tissues. Many authors, in the case of open castrations, advocate the use of large scrotal incisions to aid drainage (Cox 1987; Green 2001) and forced exercise (ridden trotting) post operatively (Mason et al. 2005) to minimise the incidence of excessive swelling and oedema formation.

Administration of nonsteroidal anti-inflammatory drugs (NSAIDs) may reduce inflammation and increase the horse’s tolerance to exercise (Schumacher 1996). In addition systemic broad-spectrum antibiotics should be administered (Green 2001). Scrotal infections can become established and develop into champignon, scirrhous cord or can ascend to cause septic peritonitis.

Complications associated with castration are the most common cause of malpractice claims against equine practitioners in North America (Searle et al. 1999). In the author’s experience, the cost of treating any complications associated with a ‘routine’ castration is a potential cause of conflict between the veterinary surgeon and the animal owner. The reported high incidence of complications associated with castration would suggest that they are inevitable and that better education of owners may avoid disappointment and subsequent conflict.

References