

Clinical Commentary

Post castration evisceration

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Although uncommon, unfortunately post castration evisceration of small intestine through the vaginal ring does occur. However, herniation of the small intestine through the femoral canal following castration as reported by Torre *et al.* (2013) in the current issue is extremely rare. This is the first report to describe such a herniation fully and it provides a good reference for the clinical presentation, treatment, and outcome of such a hernia. It is interesting to note that this case occurred in a horse of a breed that is not considered to be 'at risk' of herniating and after having a closed castration performed with a ligature placed – a technique that is generally thought to prevent inguinal herniation (Schumacher 2006). However, as this case illustrates, this technique would not be expected to prevent herniation through other anatomical structures such as the femoral canal. In agreement with the authors' theory, it seems likely that the femoral canal herniation was present at the time of admission to the referral centre due to the degree of damage present within the entrapped portion of the small intestine that was found at the second surgery. Had a ventral midline approach been used initially, this would probably have been identified. In hindsight, the large amount of swelling noted in the medial thigh area at presentation may have been an indication that this was not a 'routine' evisceration; however, in the author's experience it is not unusual to note a fair amount of unilateral swelling in the inguinal area in horses with post castration evisceration.

The nomenclature used to describe inguinal hernias can be somewhat confusing and is inconsistently used throughout the literature. Hernias that occur when a portion of intestine goes through the vaginal ring into the inguinal canal and exiting to the scrotum are called scrotal or inguinal hernias. The herniated portion of intestine is still confined within the vaginal tunic with inguinal hernias and these hernias can be congenital or acquired. When they are congenital there may not be any obvious clinical signs associated with them (until the horse is castrated). Acquired inguinal hernias cause post castration evisceration in recently gelded horses or colic in stallions and rarely geldings. Although they are correctly classified as 'indirect' hernias, this nomenclature is taken from the human literature and is somewhat confusing.

If a herniated portion of intestine goes through the vaginal ring and inguinal canal but then passes through a rent in the vaginal tunic to lie subcutaneously in the inguinal or scrotal area this is referred to as a ruptured inguinal hernia. This condition occurs more commonly in foals and is typically only seen in adults due to trauma. Finally, inguinal rupture refers to when a portion of intestine passes through a rent *adjacent* to the vaginal ring. This has also been called a 'direct' hernia again with reference to the human literature but this does not accurately describe the condition in horses, which is fairly rare.

Luckily post castration evisceration is a rare event, occurring in only 0.2–2.6% of castrations, but since it is likely to be fatal without proper treatment, referral to a surgical facility is always indicated (Moll *et al.* 1995; Thomas *et al.* 1998; May and Moll 2002; Shoemaker *et al.* 2004; Schumacher 2006). Like the case reported by Torre *et al.* (2013), evisceration typically occurs within 4–6 h after castration, but there are reports of it occurring as late as 12 days after surgery (Thomas *et al.* 1998; May and Moll 2002; Shoemaker *et al.* 2004; Schumacher 2006). Risk factors include breed (Standardbreds and draught horses are over represented, and anecdotally Saddlebreds and Tennessee Walking Horses are also at increased risk), pre-existing inguinal hernias, the presence of an inguinal hernia as a foal, and an internal inguinal ring that is 2 or more fingers wide on rectal palpation (Schumacher 2006). If a horse has any of these risk factors, it is recommended that the scrotum be palpated carefully prior to castration to identify possible pre-existing inguinal hernias. Some authors also recommend performing a rectal examination on at-risk horses prior to castration to determine the size of the inguinal rings; however, this is not always practical or safe. In the current author's opinion, any horse with the above risk factors should at least have ligatures placed around the cremaster muscle and spermatic cord separately (as the cremaster muscle adds considerable bulk in mature horses, and contraction of this muscle can cause the ligature to loosen). If there is reason to believe that the horse has an excessively large inguinal ring, then either surgical closure of the superficial inguinal ring or packing of the ring with gauze overnight should also be considered. It may also be beneficial to hospitalise at-risk horses overnight for careful observation and immediate identification of post operative evisceration.

If post castration evisceration does occur, prompt emergency care is essential for a successful outcome. Initial therapy is aimed at keeping the bowel safe from damage and further contamination and preparing the horse for transport to a referral centre. The protruding portion of bowel should be cleaned of all gross contamination with sterile saline and then replaced into the scrotum, which is sutured closed or closed with several towel clamps. If this is not possible – either due to the amount of bowel that is prolapsed or lack of enough scrotal skin to do so – then a moist towel or drape should be made into a sling and used to support the bowel during transport. Alternately a hand towel can be sutured to the inguinal region to keep the bowel in place. The horse should be given sedation (if systemically stable), broad-spectrum i.v. antimicrobials, and flunixin meglumine for analgesic and antiendotoxic therapy. In some cases the horse will be painful enough to require i.v. anaesthesia during transport. Once at a surgical facility exploration by both an inguinal and ventral midline approach is warranted, since a better determination of the health of the entire small intestine can be made by fully

exploring the intestinal tract. Survival rates following surgical treatment of intestinal evisceration range from 36–87%, with the lowest survival rates associated with an inguinal-only surgical approach, increased length of prolapsed bowel, and the need to perform a resection and anastomosis (Thomas *et al.* 1998; Shoemaker *et al.* 2004).

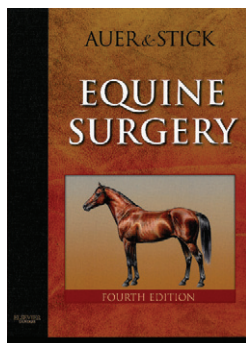
Author's declaration of interests

No conflicts of interest have been declared.

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