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Common post-operative complications occurring in the field veterinary practice

Post-castration complications

Even if castration is the most common surgical procedure realized in the field, the rate of complications is high (up to 22 %) and potentially fatal complications can occur whatever the used technique.

Postcastration evisceration

The most severe complication is post-castration evisceration, in most cases it is the distal jejunum or the ileum that comes out via the vaginal ring and the inguinal canal. Horses get severely painful and due to the violent colic signs, more and more meters of intestine come out. If the vet is still present at the stable, he should re-induce general anaesthesia in order to get the intestine back into the abdomen, after lavage with sterile saline. If this is not possible, the intestine should be introduced into the inguinal canal and the scrotum closed/sutured before sending the horse to a clinic. In most cases, when the intestine has touched the hairy skin and the ground, the serosa is irregular and rough predisposing the horse to adhesions. Another risk is the lesion of the mesentery with rent formation predisposing the horses to future incarceration. Therefore, after referral to a clinic the best is to do a resection at the level of the inguinal canal, get the intestine back to the abdomen via a ventral midline coeliotomy and do the definitive anastomosis. Except a castration with closure of the tunica vaginalis, subcutaneous tissue and skin, there is no 100 % method. Nevertheless, proper technique with removal of a long part of the spermatic cord permits to the tissue to retract and close the vaginal ring. Standing castration is not less at risk of evisceration nor the use of a transfixation on the spermatic cord.

Haemorrhage of the spermatic cord

The vet should rapidly differentiate if the haemorrhage comes from the cord (arterial blood, big quantity) or from a vessel of the scrotum. If the haemorrhage is less severe, the scrotum can be packed with sponges and coldpacks applied. If the cord was cut short, the chance of getting caught the cord in the standing horse is very low. Therefore it is often necessary to get the horse in general anaesthesia to be able to catch the cord and put a hemostatic instrument on. After such procedures, the risk of infection of the surgical site is increased.

Excessive oedema

Excessive oedema is a less severe complication that mostly occurs when the skin wounds close rapidly. Therefore medical treatment alone with nonsteroidals cannot resolve the condition and the castration wounds should be opened again, after local disinfection. Mostly this can be done with the fingers only, in the standing, sedated horse. Drainage of serosities from the scrotum will rapidly diminish the swelling of the sheath.

Seroma or abscess formation in the scrotum

This condition can develop when an excessive oedema is not treated correctly and the castration wounds close with accumulated fluid inside the scrotum. The serous liquid can transform into pus. Horses can show fever and reluctance to walk due to the swelling. In order to be sure that there is no problem like a squirrhous cord, no thickened cord should be palpated. In some cases even on rectal palpation a buldge of the internal inguinal ring can be felt. Treatment with antibiotics and NSAID's is necessary, but again the pouch has to be drained. If the castration wound is already closed, an incision has to be done, with local anaesthetic's and sedation, in order to drain the liquid. Afterwards, daily local care has to be done to resolve the infection.

Funiculitis or squirrhous cord

Funiculitis is due to insufficient resection of the spermatic cord that comes out through the castration wound and gets thickened and infected. In case of chronic purulent discharge of the cord and the wound, you call the affection squirrhous cord. A firm and thick cord (5-10 cm in diameter or even more) can be palpated in the inguinal region and the castration wound stays open with a purulent fistula. On rectal palpation in some cases enlargement of the internal inguinal ring can be palpated (infection very high on the cord). In most cases medical treatment is not successful and a second castration with dissection of the cord and its complete resection has to be done under general anaesthesia. This is a long procedure and should be done in a clinic, there is a risk of haemorrhage due to adhesions of vessels of the thigh to the infected tissue. In most cases we do not close the wounds to permit residual infection to drain. Antibiotics and NSAID's as well as local care are necessary after the surgery. In some cases infection can still take a lot of time to resume.

Hydrocele

This condition mostly occurs after open castration in the standing horse when the vaginal tunic is left in place and not resected. It fills with peritoneal fluid. In that case the internal vaginal and inguinal rings do not close and in the scrotum a mass big or bigger than a testicle can be palpated. A 2nd castration is the only treatment.

Peritonitis

Transient peritoneal reaction is considered normal after castration, as it opens the peritoneum. In case of infection like funiculitis or abscess formation in the scrotum, the infection can go deeper and cause a septic peritonitis. General signs like fever, anorexia and signs of endotoxemia may occur. Diagnosis can be ascertained by peritoneal fluid analysis, with increased leucocyte count (> 20,000 per µl and only neutrophils-. Bacterial culture of PF is interesting but can only give results when taken on haemoculture vials. Broad spectrum antibiotics have to be given for a long period (10 – 15 days or even longer).

Persistent male behaviour

This complication occurs for about 20 % of castrations. It is more frequent when elder horses were castrated and may be present even if no testicular tissue is left in place in the horse. In some cases a second resection of the spermatic cord may help.

Complications due to injections (phlebitis, abscess formation after intra-muscular injection)

Complications due to intravenous injections mostly occur with irritant solutions like nonsteroidals or in case of perivenous injection or if an intravenous catheter is left in situ. Horses with signs of endotoxemia are much more at risk for such a complication. Local swelling of the vein, severe pain and local cellulitis can be observed. Treatment should be immediately initiated, with hydrotherapy, local massage with heparin-gels and antibiotics and NSAID's orally. If a purulent collection is palpated or seen on ultrasound, it should be opened and squeezed out with daily local care. The complication is severe, as we have had a horse that developed a fatal metastatic pulmonary abscess from phlebitis of the jugular vein.

Abscess formation due to intramuscular injection can occur after abnormal reaction of the horse to a product and after bleeding in the muscle after the injection. This is especially true when the horse moves a lot during the injection. Pain to move the neck (or the zone of the abscess) and fever are the main symptoms. A swelling can be seen at the level of the abscess. It has to be opened and a Penrose drain placed to drain the pus and clean the cavity. Again AB and NSAID's can be associated.

Complications due to bandage or cast application

Pressure sores under bandages and casts are a frequent complication but can inhibit to continue the treatment for the primary lesion. Inadequate padding of the bandage and/or excessive pressure of the bandage over sites like carpal accessory bone cause the pressure sore. The best is to avoid formation of sores by adequate padding; additional padding has to be applied in the pastern, around the accessory carpal bone and around the Achilles tendon.

Complications after suturing of wounds (dehiscence, seroma formation, SSI)

Wound dehiscence after primary wound closure of a traumatic wound is not really a complication as 75 % of wounds with primary closure will have dehiscence. In order to reduce dehiscence, adequate suture pattern with tension sutures and correct immobilisation have to be used.

Seroma formation is a fluid pocket under the skin, which develops with the skin closed. It often appears when there is a dead space. Filling of the tissue defect with gauze can be done in surgery. For treatment of a seroma, some stitches of the wound have to be opened, to drain the seroma.