Castration in large animals

Dr. Zing Simon

SZIU, DVS, Large Animal Clinic - ÜLLŐ

Overview of the anatomy

- Layers of the scrotum
- Testis and epydidimidis
- Internal inguinal ring,
- Collum proc. vaginalis, canalis inguinalis
- Tunica vag. comm.
- Lig. caudae epididimidis Hunteri

Indications of castration in the horse

- Reduce masculine behavior
  - if performed before secondary sexual characteristics develop results in greater height and smaller girth of neck
- Breeding purposes
- As treatment (injury, inguinal hernia, tumor)
- To further weight grow

Preparation of the patient

- Starv for 8-12 hours
- Clinical examination
  - General examination
  - To examine the scrotum
  - Rectal examination
- Preventive AB, Tetanus ?!
- Tie up the tale, rectal glove
Benifits of standing castration

- Time consuming
- Less expenses
- Less assistance
- You can do it on high performance horses in training
- No complications because of general anesthesia
  - (rhabdomyopathy, fracture)

Disadvantages of standing castration

- You can not perform it on small horses, in donkeys, in mules, and zebras
- Difficult to keep surgical asepsis
- Higher incidence of the following complications:
  - Bleed to death
  - Prolapse of intestine and/or omentum
  - Infection
  - Paralysis of the penis
  - Hydrokele

Sedation for standing castration

α2-receptor agonists - opioid combination

- Detomidin (0.011-0.022 mg/kg) + Butorphanol (0.011-0.022 mg/kg) iv.
Postoperative treatment

- 24 hours box rest, clean bedding
- bind up for several days
- 15 min walk twice a day
- from the third day trot
- daily control with horses on pasture

Recommended operation technique 2.

- In recumbency, closed, covered testicle and plexus

Narcosis

- Short acting general anesthesis
  - Xylazin - Ketamin - Diazepam
  - Xylazin - Butorphanol - Ketamin
  - Xylazin - Ketamin - GGE = three component mixture

Lay down

- Lateral recumbency
- “number eight” knot?? Is it necessary?
- Pull to the neck
- dorsal recumbency
Site of incision

- Scrotal approach
  - max. 2 cm from raphe scroti
  - "scalping"
  - scrotectomy

- Inguinal approach
  - at the external inguinal ring

- Parainguinal approach
  - (by abdominal cryptorchids)
**Inguinal castration with tun. vag. primer closure**

- In general anesthesia, dorsal recumbency
- Inguinal approach
- Tunica vag. opening
- Open castration and ligatur (USP2)
- Tunica closure (USP 2/0)
- Wound closure (USP 0)
Operation techniques in special cases

- **Standing castration**: Intraoperatively recognized adhesions between vaginal tunic and testicle:
  - covered or semicovered, but opened castration

Not recommended castration techniques

- **Standing, covered, closed**
- **In recumbency, opened, uncovered**

„Just for jugglers“!

- **Standing, covered, closed castration**
  - Carefully selected patient material
  - Proper sedation and local anesthesia
  - Assistant must hold and pull the testicle ventrally for being able to perform a high crush and ligature

Cryptorchidism

- Descent of the testicle around 300 days of gestation
  - complete abdominal cryptorchids
  - incomplete abd. cryptorchids
  - inguinal cryptorchids
  - may be inherited
  - Bilateral abdom. crypt. results in sterility,
  - but exhibits sexual behavior
**Etiology of cryptorchidism**

- Improper function of the gubernaculum
- Not sufficient regression of the testicle

**Cryptorchid castration**

- General anesthesia
- Inguinal, parainguinal, flank approach
- Invasive - noninvasive
  - Inguinal approach: the inverted vaginal process
  - Can be everted by careful traction on the inguinal extension of the gubernaculum testis
  - Ligature, closing the external inguinal ring

**Hormon levels in geldings**

- Testosterone: 0.01 ng / ml
- Oestradiol: 5pg / ml
- HcG : 12,000 NE iv.
- 0, 30, 60, 90 min. sample

**Inguinal crytorchid**

- Unilateral-bilateral
- Diagnose:
  - Palpation
  - Ultrasound

**Abdominal crytorchid**

- Unilateral-bilateral
- Standing-laparascop
- In general-inguinal
Congenital inguinal hernias

- Cause no distress
- Spontaneous healing by the time the foal is 3 to 6 months of age
Acquired inguinal hernias

• require immediate treatment
  • rectal retraction (soon after onset)

• surgical management -
  • removal of the other testicle?

Complications

• Haemorrhage
• Infection
• Intestinal prolapse
• penile damage
• pénis paralysis
• Hydrocele (cyst formation of the vaginal tunic)
• Continued masculin behavior
Literature

• Tóth, J.: MAL 1998/1
• Schumacher: EVE 1996/5
• Dwight, F.W.: Large Animal Urogenital Surgery
• Colahan, P.T.: Equine Medicine and Surgery

Castration of bullocks
Castration of pigs

- 2 weeks age, minimal complication
- Adult castration
  - In narcose, closed
  - Local anesthesia

Castration of boars