

# Castration



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# Anatomical structure



1. The scrotal wall consist of 2 layers :
  - ∞ Outer skin covered with fine hairs
  - ∞ The dartos consist of smooth muscles and fibrous tissue firmly adhering to the first
2. Layers of external spermatic fascia
3. Tunica vaginalis
4. Tunica albugina
5. Testes

# Testes (Testicles)



The testes are oval-shaped organs, with the long axis being vertical in ruminant. In equine and canine it is horizontal with the long axis of the body.

In all species testes are covered with the tunica vaginalis, a serous tissue, which is an extension of the peritoneum.

# Innervation and blood supply

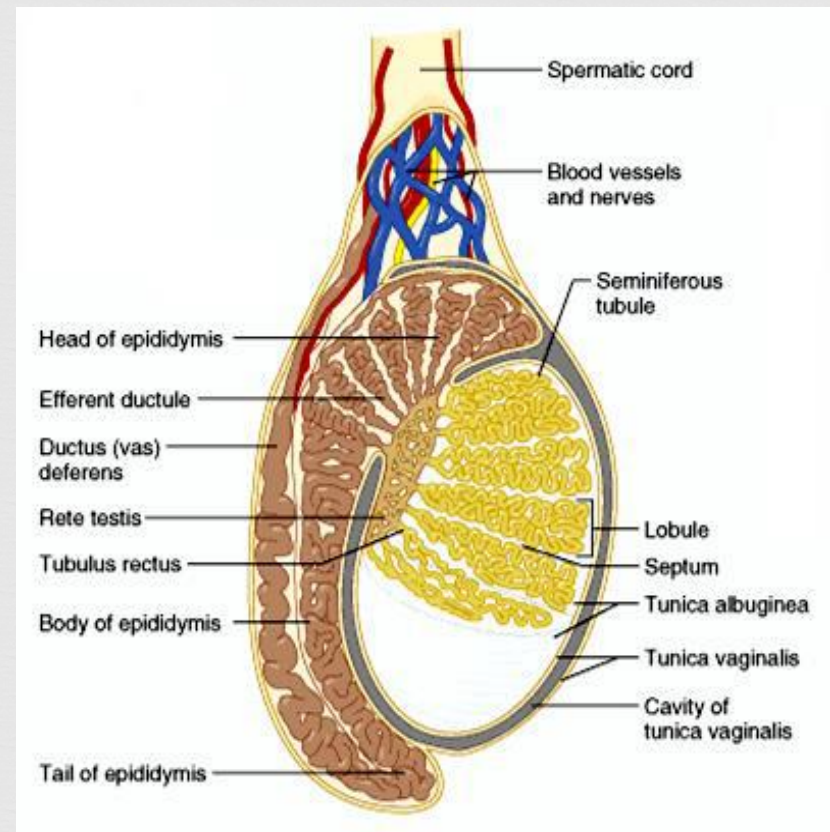


## ∞ Blood Supply

1. The testicular artery
2. The testicular vein

## ∞ Innervation

Nerves to the scrotum are ilio-inguinal and genital branch of the genitor-femoral nerve, two scrotal branches of the perineal nerve and the perineal branch of the posterior-femoral-subcutaneous nerve.



# Orchidectomy (castration )



- ❧ **Definition:** castration (orchidectomy) means removal of the **testis(es)** and associated structures such as **epididymis** and part of the **spermatic cord**.
- ❧ **Synonyms of castration:**
  - In horse= **Gelding**
  - In ruminant= **Orchidectomy**
  - In dog= **Neutering or Sterilization**
  - In chicken= **Caponing**

# Indication



- 1- To stop the production of male hormones and semen.
- 2- To prevent mating of young females before they are in an adequate physical state for pregnancy and parturition.
- 3- To produce docile animal that are easier to handle.
- 4- To decrease aggressiveness, mounting activity, and risk of injuries.
- 5- To enhance on-farm safety for animals, producers and employees.
- 6- To produce untainted meat and therefore qualify for market premium (provide meat products of quality consumers demand).
- 7- To increase growth rates and aid in fattening of animals mainly in small age ruminant.
- 8- To decrease costs associated with fencing and handling facilities.
- 9- To avoid transmission of venereal diseases.

# Indication



☞ The previously mentioned statements are encountered when castrated animals with normal testes. Sometimes testes are removed due to pathological conditions such as testicular tumors, prostate cancer, scrotal hernia, torsion of spermatic cord, Varicocele, hematocele or hydrocele, spermatic granuloma, cryptorchidism and chronic orchitis or epididymitis which not respond to medical treatment.

# Pre-op preparation



- ❧ Fasting the animal from food 24 hours before surgery and water 4 hours at day of operation.
- ❧ Prepare the surgical site by clipping and shaving, then put surgical drape .
- ❧ Anesthesia for Castration:
  1. In male ruminants: Use LA with or without the help of 2% xylazine (IM).
  2. In equine , Canine and feline: use GA mixture of ketamine-xylazine can be used in a dose of 2.2mg/kg and 1.1mg/kg B.W. respectively in equine , But in dog the doses of are 15mg/kg and 5mg/kg B.W. respectively.



# Type of castration



## 1- Non-surgical castration (Bloodless Methods):

These include:

A- Rubber Ring Castration (Until 3 weeks)

B- Burdizzo Castration (1-3 months)

## 2- Surgical castration

A- Closed Castration.

B- Opened Castration.

# Closed Technique



1. Incise the prescrotal skin on the midline while gently pushing one testis in dogs, (In ruminant the incision is made in the distal third of the scrotum, while in equine the incision is made in the middle of the scrotum).
2. Incise the sub cutaneous tissue and spermatic fascia over the testis to expose the parietal vaginal tunic
3. Exteriorized the tunic covered testis and using scissors incise the spermatic fascia and ligament close the testis
4. Reflect fat and fascia surrounding the parietal vaginal tunics using a gauze sponge to enable expose the spermatic cord
5. Double ligate the intact spermatic cord and vaginal tunics using transfixing ligature of absorbable suture material and transect it or emasculate the spermatic cord
6. Close the sub cutaneous tissue with simple interrupted pattern , the skin with interrupted suture pattern

# Open Technique



1. Incise the parietal vaginal tunic
2. Double ligate the spermatic cord using transfixing ligature of absorbable material
3. Ligate the parietal vaginal tunic and cremaster muscle using an encircling ligature transect the spermatic cord and cremastic muscle
4. Close the skin with silk by interrupted suture.

# Surgical Technique



The scrotum and surrounding area are prepared for aseptic surgical castration.



Subcutaneous infiltration of the scrotum with local anesthetic at the site of incision.



# Surgical Technique



The scrotum is incised in its distal third (in male ruminant).



The testis is exposed through scrotal incision and then milking to expose the spermatic cord.

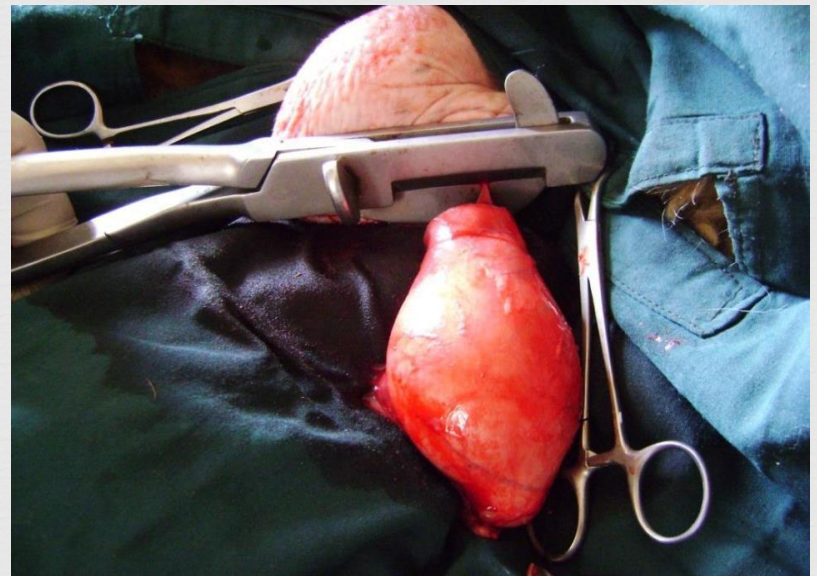
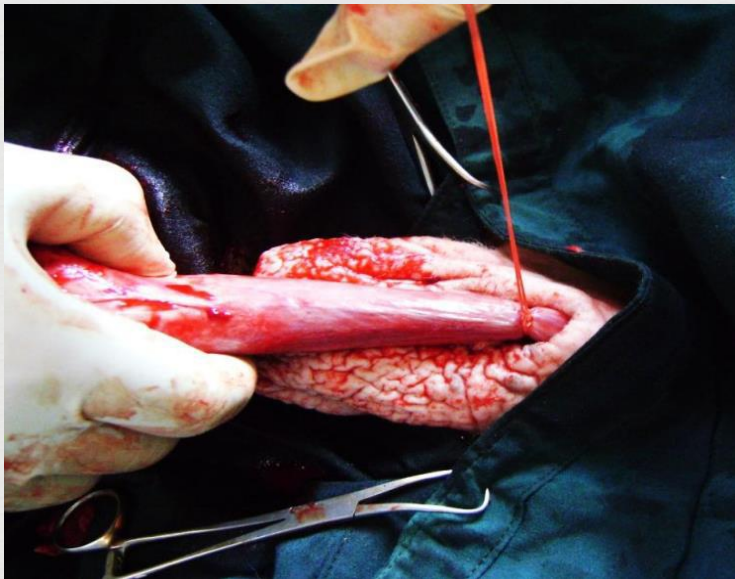


# Surgical Technique



Transfixing ligation of the spermatic cord

An emasculator is fixed onto the spermatic cord in front of ligation, then clamps (crushed) and crimps (cut) the cord.



# Surgical Technique



**The cut end of the spermatic cord.**

# Post operative care



- ❧ Systemic antibiotic for 3-4 days
- ❧ Remove the suture after 7-10 days
- ❧ Analgesia





# Complications of surgical castration:



- 1- There is risk of bleeding from the vessels of the spermatic cord.
- 2- Scrotal swelling.
- 3- Infection due to open wound which may ascend causing peritonitis.
- 4- Tetanus or black leg, thus the animal should be vaccinated (7-10) days before castration.
- 5- Abnormal gait due to pain resulted from transaction of the nerves.
- 6- The most serious complication is the eventration (prolapsed of the intestine through the inguinal ring mainly in open technique)
- 7- Finally there is risk of fracture of bones mainly in large animals during restraining.

When you do not succeed in taking giant steps on the road to your goal, be satisfied with little steps, and wait patiently till the time that you are able to run, or better still, to fly. Be satisfied to be a little bee in the hive who will soon become a big bee capable of making honey...



*Thank you ...*

*Any Question????*