Closed Method

- **Anaesthesia:**
  - Not required
- **Animal Position**
  - Lateral or Dorsal recumbence with the head and limbs restrained properly
  - Standing position

**Burdizzo Castrator**

- The spermatic cords with the blood vessels leading to the testicles are crushed
- One spermatic cord clipped at a time
- Clip the two cords at different levels
  - Scrotal sec will receive enough blood
  - Otherwise it will become gangrenous
- Thrombus formation in the spermatic vessels
o Arrest of blood supply – Gradual atrophy of the testicles

Steps below:

- Restraining position
- Lateral placement of spermatic cord
 Crushing of the Spermatic cords using Burdizzo clamp

CLAMP CRUSSED AREA
Undamaged Midline (blood supply)

CLAMP CRUSSED AREA
**Elastic Ring Banding**

- The rubber ring is placed around the scrotum with the testicles below it
- Scrotum falls off with few weeks
- **Elastrator**
  - Young Animals
  - Before 10 days of age
- **Calicate Bander** – adult animals

**ADVANTAGES**
- Bloodless.
- Less chance of infection - no open wounds.
- No risk of maggot infestation if done during the fly season.
- More painless than cutting.
- Quick and easy.

**DISADVANTAGES**
- Chance of injury to the animal or operator.
- Mistakes while clamping:
  - Slip of the cord from the crush
  - Lack of blood supply to the scrotum – gangrene – infection.
  - Cord may be incompletely crushed.
Both testes should be palpated in the scrotum before Rubber ring is placed.

The whole of both testes should be palpable below the Rubber ring.
**Short Scrotum Method**

- Cryptorchid procedure
  - The rubber ring is placed around the scrotum with the testicles above it
    - Testicles are pushed up against the body wall
  - Testicles at body temperature – Infertile but still getting the growth benefit of male hormones
  - The scrotum drops off after a few weeks
  - If the testicles aren’t held high enough against the body, the animal may be fertile
CHEMICAL OR IMMUNOCASTRATION

- Immunization against sex hormones such as LHRH, LH, FSH, and hCG
  - Reversible and subsequent fertility normal

- Antibodies against LHRH
  - First intracellular messenger of the control of fertility
  - Block pituitary secretion of LH and FSH – lead to gonadal dysfunction
  - Lamb, Heifer – reduction of fertility
  - Vaxstrate – Australia – Suppresses ovarian cyclicity for 6 to 8 months

- Immunization against testosterone in rams
  - Not characterized by inhibition of sexual behaviour
  - No suppression of testicular function

- Chem-Cast, Improvac – pig

- Immunization against ova and sperm
  - Anti-male or anti-female monoclonal antibodies
  - Block gamete interactions – sperm antigens, ZP3 antigen

<table>
<thead>
<tr>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>➤ Painless procedure</td>
<td>➤ Not as effective as cutting or banding</td>
</tr>
<tr>
<td>➤ Reduction in aggressive behavior – no Testosterone</td>
<td>➤ Not a permanent method</td>
</tr>
<tr>
<td>➤ No risk of blood loss, infection</td>
<td>➤ Need to vaccinate at regular intervals</td>
</tr>
<tr>
<td>➤ May be reversible</td>
<td>➤ Limited duration of effect</td>
</tr>
<tr>
<td></td>
<td>➤ Risk of vaccine failure</td>
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<tr>
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<td>➤ Chance for drug adverse effects</td>
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# OPEN CASTRATION METHOD

- **Anaesthesia:**
  - Age – young – not required
  - Local Infiltration
    - Site of incision
    - Testicles, Spermatic Cord
  - General Anaesthesia

- **Animal Position**
  - Lateral or dorsal recumbence
  - Standing position

- **Open Uncovered** or “Open Open” method
  - Vaginal tunic incised
  - Correction of the scrotal hernia – Horses

- **Open Covered** or “Open Closed” method
  - Vaginal tunic sutured

- Emasculator
- Newberry castrating knife
- Castrating knife
- Henderson castrating tool

<table>
<thead>
<tr>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Permanent method</td>
<td>➢ Blood loss and other post op complications</td>
</tr>
<tr>
<td>➢ No chance for sperm production</td>
<td>➢ More chance of infection</td>
</tr>
<tr>
<td>➢ Reduction in aggressive behavior – no Testosterone</td>
<td>➢ High risk of maggot infestation if done during the fly season</td>
</tr>
<tr>
<td>➢ For both young and adult</td>
<td>➢ Not reversible</td>
</tr>
<tr>
<td></td>
<td>➢ Require more skill</td>
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</tbody>
</table>
Reimer Emasculator
2 Crushing/1 Cutting surface

Different Types of Emasculator

Serra emasculator
White emasculator
Hausmann emasculator
White modified
Single action (crushing) Emasculatome

Placement of Dual-action Emasculatome on spermatic cord.

Dual-action Emasculatome Cutting surface

Dual-action Emasculatome Crushing surface

Henderson castrating tool
Newberry Castration Technique

Vertical Incision method

incision on side of scrotum next to leg

Horizontal Incision method

incision below testicles
**Single horizontal incision at the widest part of the scrotum**

1. **Proximal 3rd**
2. **Middle 3rd**
3. **Distal 3rd**

**Distal segment of scrotum**

**Spermatic cords are separated by blunt dissection**

**Fascia separated from spermatic cord**

**Site of emasculature**

**Elasticated testicles after emasculature**
Spermatic cords are being emasculated

Spermatic cord (still contained within vaginal tunic)