

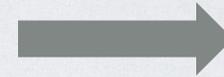
STALLION CLINICAL ANDROLOGY

BSE (Breeding Soundness examination)



Define

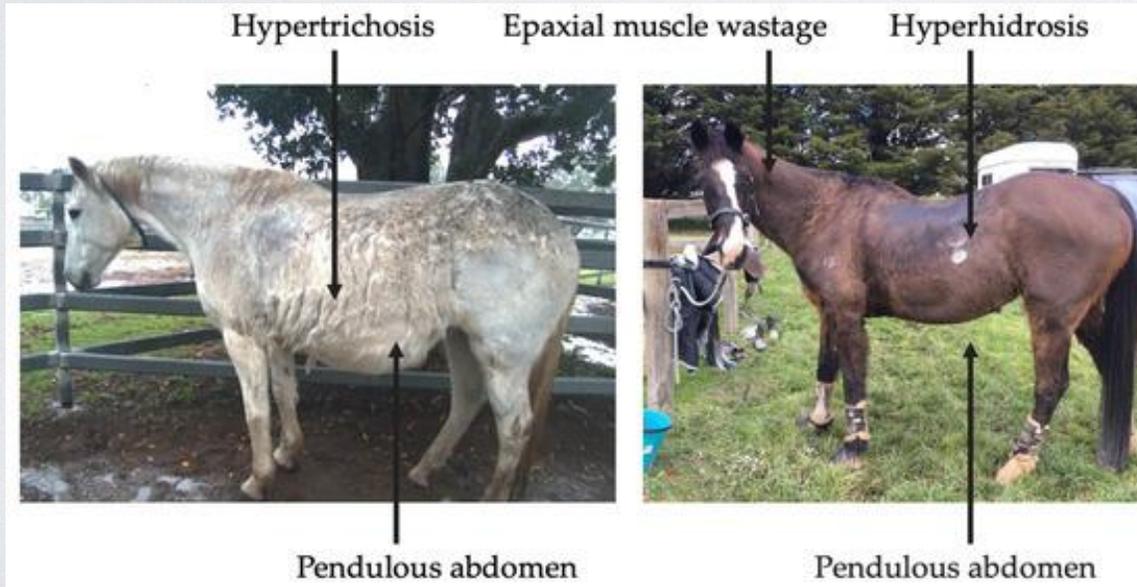
General physical examination



Health & welfare



1. Systemic diseases (Influenza and Herpes)
2. Metabolic (Colic, Cushing's syndrome (pituitary pars intermedia dysfunction))
3. Nutritional elements (trace element deficiencies such as selenium and vitamins or vitamin E deficiency)
4. VKS and locomotor system
5. Respiratory system (oxidative stress)
6. Kidney (Idiopathic renal hematuria, Myoglobinuria, muscle trauma, hematuria) and common diseases (hepatic encephalopathy, icterus and colic)
7. Parasites



Excessive α -MSH



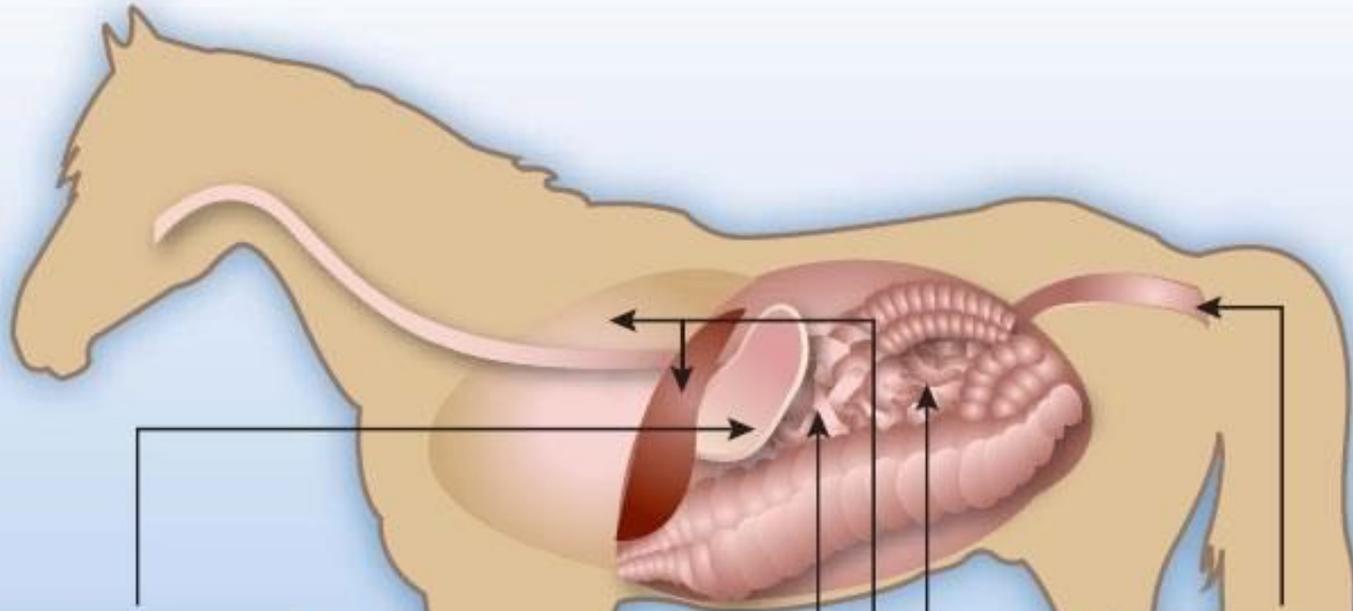
FACTS ABOUT THE EQUINE RESPIRATORY SYSTEM

The narrow upper airway and the long distance between nose and lungs makes it that much harder for a horse to move the column of air in and out.

Horses bodies are over 60% muscle, and muscles demand a lot of oxygen. By comparison, muscle mass for a "normal" 18- to 40-year-old man is 33% to 39%.

Horses breathe only through their nose

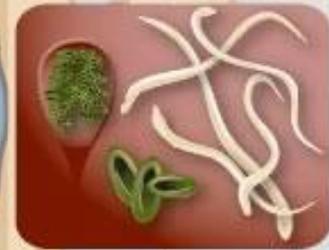




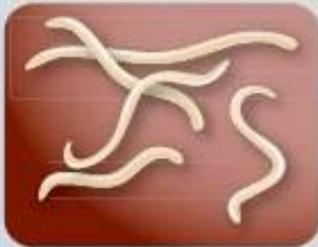
BOT FLY LARVAE
• stomach ulceration
• stomach rupture



PINWORMS
• severe itching of the tail region



LARGE STRONGYLES
• arterial embolism
• internal organ scarring
• mild to severe colic



SMALL STRONGYLES
• persistent diarrhea
• progressive emaciation
• mild colic



ROUNDWORMS
• liver and lung scarring
• intestinal blockage
• mild to severe colic



TAPEWORMS
• spasmodic colic
• ileal impaction colic
• ileocecal intussusception colic



DIAGNOSE!!

- Congenital

1. Cryptorchidism
2. Hypoplasia
3. Hermaphroditism

- Acquired

1. Torsion
2. Testicular Degeneration and cyst
3. Testicular trauma
4. Testicular neoplasia
5. Orchitis

CONGENITAL

Cryptorchidism

% 8

1 or 2 testicles not descending

Diagnose

Transabdominal ultrasound (61.2%)

per rectum palpation (42.9%)

Inguinal palpation (28.9%)

Hcg Stimulation test

Apply for ages 3 and up

Testosterone level (>0.3 nmol/L).

Treatment

Cryptorchidectomy

Laparoscopy (62.8%), Open inguinal orchiectomy (37.2%).



Unilateral 92.8%

Bilateral 7.1%

HCG STIMULATION TEST

The hCG challenge test is a diagnostic test used to assess testicular function in stallions. It is also used to distinguish fully castrated animals from those with retained testicles or testicular remnants.

- Take a baseline blood sample.
- Inject 6000 IU HCG IV
- Collect blood between 30 minutes and 2 hours after HCG
- A true cryptorchid should show an increase in testosterone from 0.3 – 4.3 nmol/L to 1 – 12.9 nmol/L.
- Castrated horses should remain below 0.19 nmol/L.

- HCG stimulates T4



TESTICULAR HYPOPLASIA

- The reduction in the size of the testicles may be due to hypoplasia or degeneration.
- Most cases of hypoplasia are associated with cryptorchidism or intersexuality.
- However, the cause of hypoplasia in descending horse testicles is unknown.
- Hypoplastic testicles have no or low fertility
- These testicles contain few germ cells. Macroscopically differentiated from degeneration/atrophy
- The epididymis is proportionally smaller than the hypoplastic testis;



A degenerated testis is associated with an epididymis that is relatively large compared to the testis.

TESTICULAR DEGENERATION

Testicular degeneration is a condition in which the testicles of a stallion shrink and lose their ability to produce sperm. It is a common cause of subfertility and infertility in stallions.

- There are two main types of testicular degeneration:

idiopathic

- Idiopathic testicular degeneration is a progressive decline in testicular function that occurs with age.

secondary

- Secondary testicular degeneration is caused by an underlying medical condition, such as an infection, a tumor, or a nutritional deficiency, toxins, exogenous androgens,



TESTICULAR DEGENERATION

- The signs of testicular degeneration in stallions include:
- A decrease in testicular size ↓
- A decrease in libido
- A decrease in the volume and quality of semen ↓
- An increase in the number of abnormal sperm



Figure 3. Ultrasonogram of a testicular tumor in a stallion. Most of the parenchyma has been obliterated by the tumor.

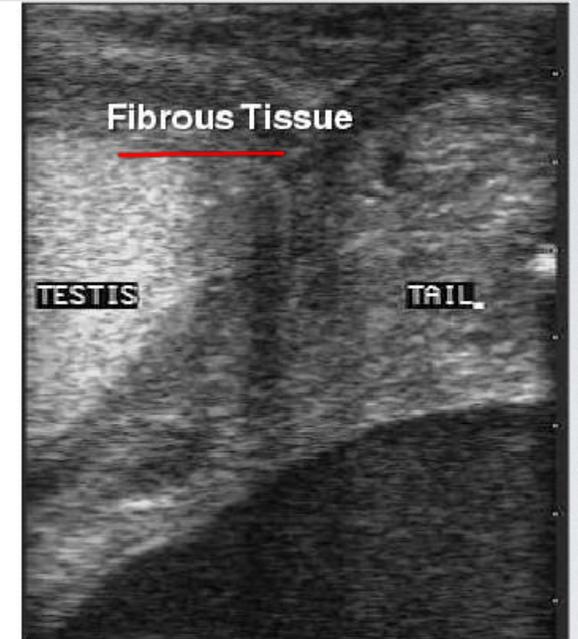
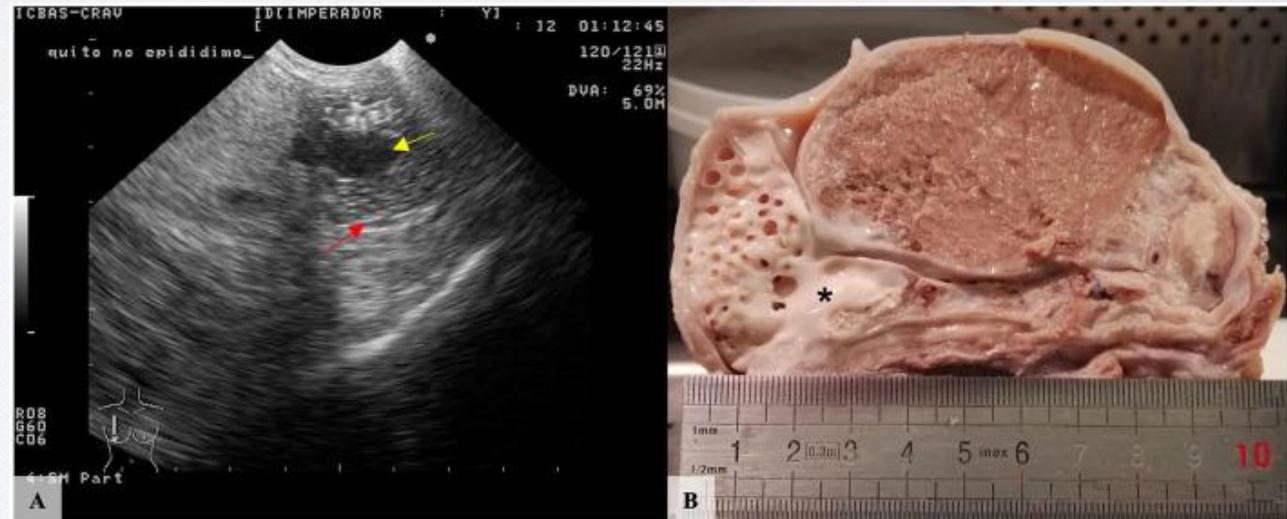
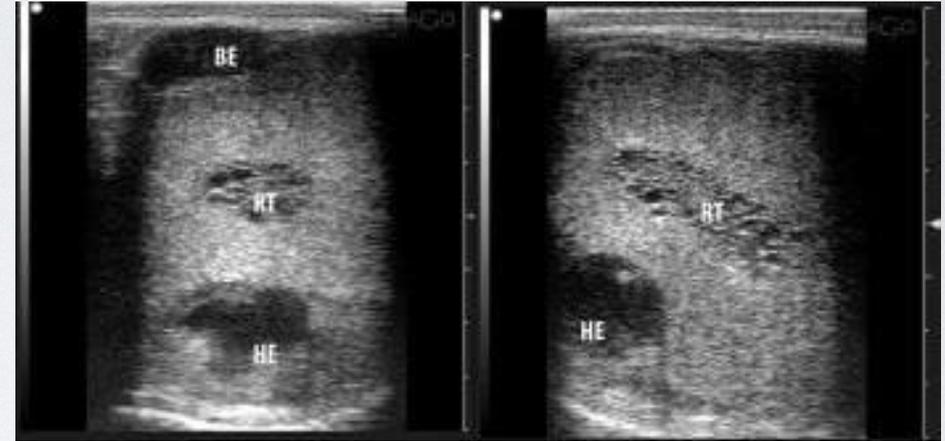


Figure 4. Ultrasonogram of a testis and an epididymis surrounded by fibrous tissue. Extensive fibrous tissue deposition not only insulates the testis, causing degeneration, but also may constrict ductile lumina, preventing movement of sperm into the ductus deferens.

There is no known, proven successful treatment for TD.

TESTICULAR/EPIDIDYMAL CYST

- a fluid-filled sac that develops on the testicle/epididymis
- The cause is mostly unknown
- Cause thought to be caused by a blockage in the tubules
- Testicular cysts are usually not painful. However, they can sometimes cause swelling, discomfort, and a decrease in libido.



TESTICULAR NEOPLAZIA

1. Testicular tumours occur in young and in old horses.
2. Neoplasia occurs in both cryptorchid and descended testes.
3. Malignant testicular neoplasia is relatively common in the horse.

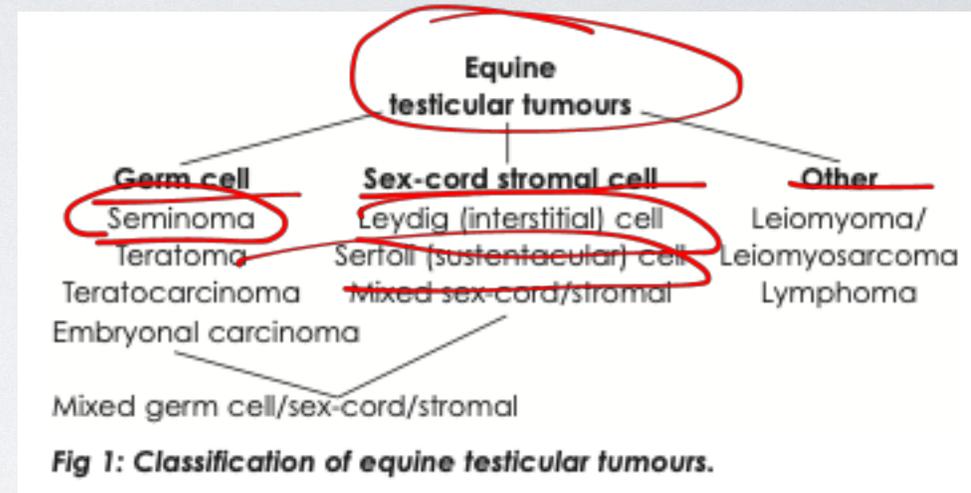


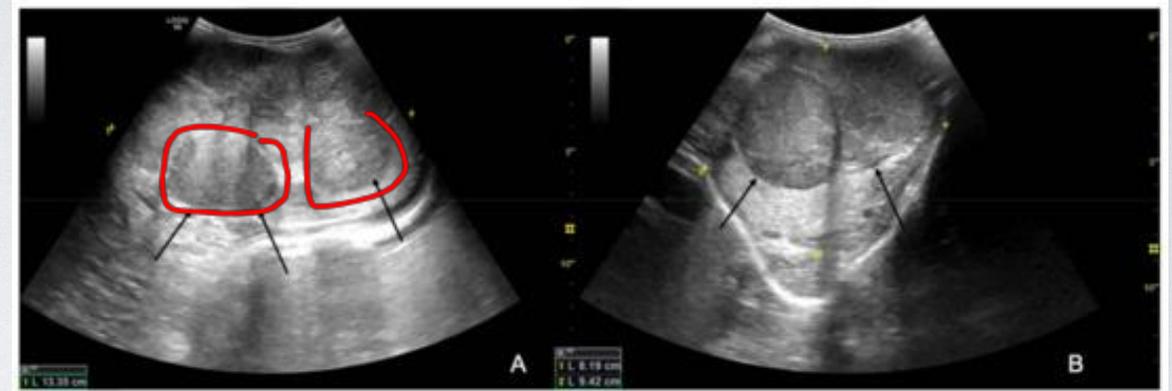
TABLE 1: Summary of published equine testicular tumours

Tumour type	Total	Mean age (years)	Age range (years)	Malignant	Cryptorchid
Seminoma	16	16.5	11-22	6	5
Interstitial cell	12	9	3-15	0	9
Teratoma/ <u>dermoid cyst</u>	12	2	<u>0*-5</u>	0	5
Sertoli/mixed germ cell/sex-cord	6	17	10-30	3	1
Teratocarcinoma/embryonal carcinoma	2	4	1.5-7	2	1

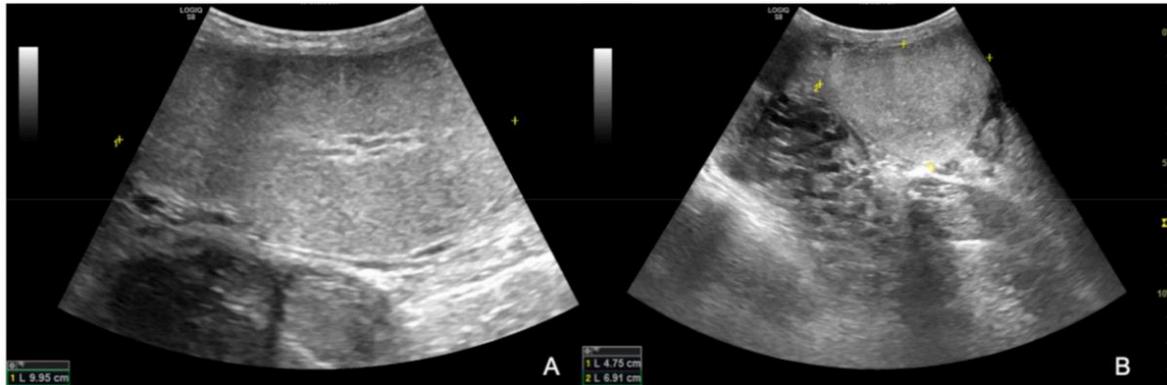
* 3-day-old foal



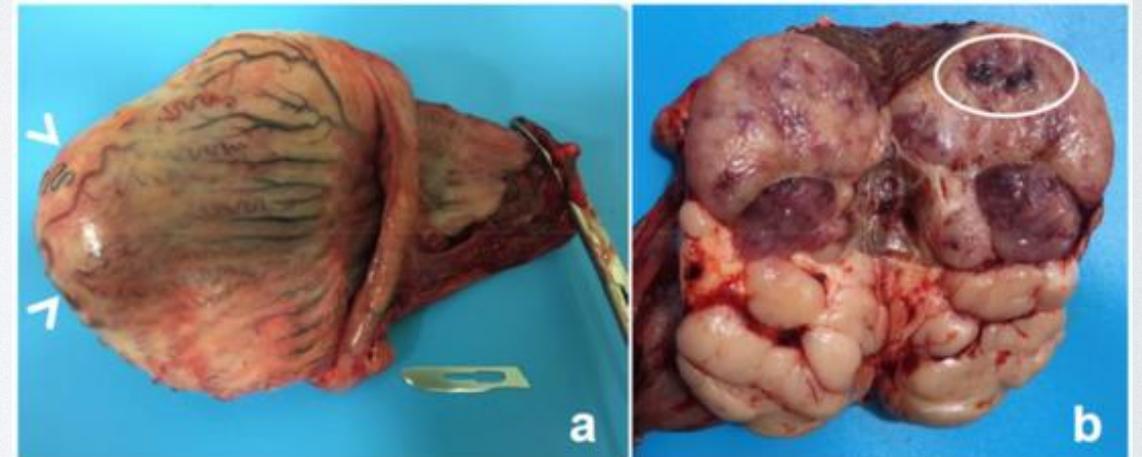
Figure. Medio-lateral (A) and caudo-cranial (B) view of the scrotum, showing an increase in the volume of the pathological testis (left) compared to the contralateral (right).



B-mode longitudinal (A) and transverse (B) images of the left testicle; the black arrows point at the heterogeneous and well-defined nodular lesions effacing the normal testicular parenchyma



B-mode longitudinal (A) and transverse (B) images of the right testicle; note the homogeneous appearance of normal testicular parenchyma.



Horse testis. At the external inspection (a), the shape of the testicle is partially altered, due to the presence of a large bulge (white arrowheads). On the cut section (b), the features of the testicular parenchyma are completely modified.

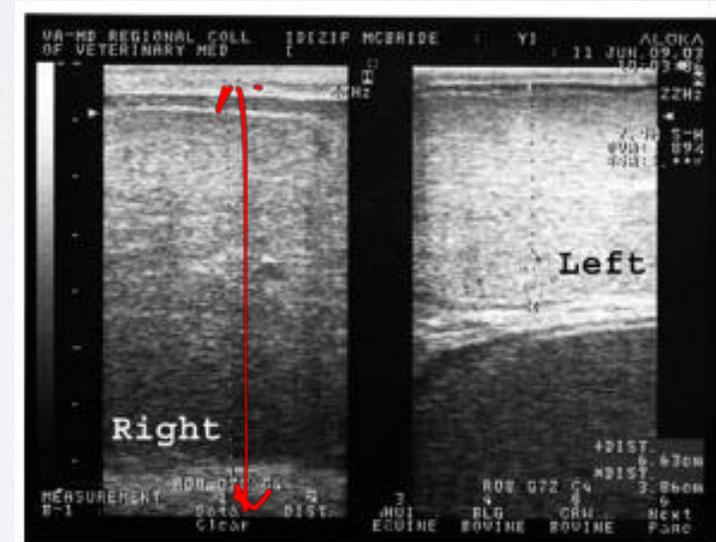
ORCITIS

- Orchitis and epididymitis are rare causes of ^{PMUS} scrotal enlargement in the stallion
- Clinical signs include intermittent colic, fever and infertility.
- Orchitis can be caused by trauma, infection, autoimmune disease or parasites.
- Epididymitis is usually of infectious cause in horses, and reported aetiologies include Streptococcus zooepidemicus, Proteus mirabilis and Strongylus oedentatus.



Scrotal enlargement due to right-sided orchitis, epididymitis and pampiniform phlebitis.

V S b



Parenchymal enlargement and oedema of the right testicle. Right measured 6.63 cm, left measured 3.86 cm.

ORCHITIS

- The history of fever, scrotal enlargement, and the clinical findings of fluid within the vaginal tunic, neutrophilia and left shift suggested that the signs of colic were caused by orchitis and/or epididymitis. ✓
- Other differential diagnoses for scrotal enlargement included torsion of the spermatic cord, inguinal herniation, testicular neoplasia, haematocele, trauma/haematoma and scrotal oedema.

Treatment

The horse was treated with ceftiofur (2.2 mg/kg bwt i.v. q. 12 h) and iv fluid therapy (lactated Ringer's solution 50 ml/kg bwt/day). Hydrotherapy of the scrotum was administered for 10 min every 2 h.

Administration of detomidine (0.01 mg/kg bwt i.v.) and butorphanol (0.01 mg/kg bwt i.v.) to the stallion provided minimal signs of pain relief. Flunixin meglumine (1.1 mg/kg bwt i.v.) was administered for both analgesic and anti-inflammatory effects.

NS AD

No recovery

Castration