



बिहार पशु विज्ञान  
विश्वविद्यालय

BIHAR ANIMAL SCIENCES  
UNIVERSITY



# Sexual Behavior and Breeding Soundness Examination of Bulls

UNIT 2 VGO 604

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# Sexual Behavior of Males

- |  |  |
|--|--|
| <input type="checkbox"/> Sexual Arousal    | ➤ Finding of sexual partner  |
| <input type="checkbox"/> Courtship         | ➤ Sexual Display   |
| <input type="checkbox"/> Erection          | ➤ The Penis ( Vascular Type in Stallion and Dogs: Fibro elastic type in Bull, Ram, Boar)       |
| <input type="checkbox"/> Penile Protrusion | ➤ Penile Protrusion  |
| <input type="checkbox"/> Mounting          | ➤ Mounting (Sexually active Male)  |
| <input type="checkbox"/> Intromission      | ➤ Intromission (Vulvar Heat and moisture are detected by superficial nerve ending of G. Penis) |
| <input type="checkbox"/> Ejaculation       | ➤ Ejaculation  |
| <input type="checkbox"/> Dismounting       | ➤ Dismounting  |
| <input type="checkbox"/> Refractoriness    | ➤ Refractoriness   |

**Note:** Courtship and copulation- Shorter in Cattle, sheep and goat (1 Second) while longer in swine (about 5 minute) and horse(About 40 second)

**Flehmen's reaction-**: Making of head in horizontal position with neck extended and the upper lips are curled upward. This is seen in almost all species except in swine

**Vocalization pattern of display-**: Species specific vocalization pattern are observed in male during courtship. Bleats are notice in Male sheep& Goat, Grunts are observed in swine, Neighing is observed in Stallion, No vocalization in bulls

**Nudging-**:Licking of female external genitalia and perineal reagon are noticed in cattle, sheep and goat. Nudging of female through forelegs is common in sheep and goat. The stallion bites over the mare's back and neck.

### **SEXUAL MATURITY**

- |                                 |                        |
|---------------------------------|------------------------|
| 1 Cow bull- 24 to 36 month      | 4. Ram-8 to 12 month   |
| 2. Buffalo bull- 36 to 48 month | 5. Buck- 8 to 12 month |
| 3. Stallion- 36 to 48 month     | 6. Boar-8 to 9 month   |
|                                 | 7.Dog- 12 month        |

## Dog

The dog achieves intromission by **vigorous thrusting of the hindquarters**. Once intromission has been achieved, the bulbos glandis swells considerably, while the constrictor vulvae muscles of the bitch contract behind it, thus forming the 'copulatory tie'. The sperm-rich fraction of canine semen is ejaculated within as little as **80 seconds** of intromission, so that conception may occur even if copulation does not proceed through to its second stage. In this second stage, the dog dismounts but remains connected and faces away from the bitch (Fig. 29.17). This change of position causes the penis to become bent through an angle of **180°**; the efferent veins of the penis are thereby occluded and the penis remains turgid. The function of the tie may be to prevent penile **detumescence** during the prolonged second stage of copulation, during which some 30 ml of sperm-free accessory fluid is pumped into the vagina and thence to the uterus, where it flushes the sperm-rich fraction through the uterus. The sexes remain locked until the vulval muscles relax and penile erection wanes.

## Ruminants

Copulation in all the domestic species of ruminants is brief. After detecting an oestrous female, mounting is followed quickly by the single ejaculatory thrust. The male then immediately dismounts but frequent subsequent matings occur. Farm management of rams and bulls should take this high mating frequency into account. Thus, whereas individual sires can service quite large groups of spontaneously cyclic females, the groups of females have to be much reduced if these have undergone oestrus synchronization. Furthermore, care has to be exercised in the use of young sires. **The testis does not reach its full size and sperm producing capacity until 1-2 years after puberty, nor does the epididymis reach its full length until the same time (reviewed by Salisbury et al 1978)**. Until maturity has been reached, groups of females should be smaller than for adult animals. If overused, both the numbers of sperm produced are too few for adequate conception rates to be achieved and sperm from the tail of the epididymis are ejaculated before their functional maturation is complete. Thus, sperm numbers and sperm maturity are both adversely affected, causing severe limitation of the chances of conception.

## Cat

During mating, the tom mounts the queen and grasps her neck with his teeth. As the tom adjusts his position the queen paddles her hind legs, continuing to do so at an increasing frequency during the 10 seconds or so for which coitus lasts. The queen cries out during copulation and, as the tom dismounts, she may strike out at him, displaying the typical 'rage' reaction. This is followed by a period of frantic rolling and licking at the vulva. As soon as the postcoital reaction has ceased, the tom will attempt to mount again. Several matings may therefore occur within the first 30–60 minutes. The cat is an induced ovulator (see Ch. 1; Shille et al 1983), so the number and frequency of matings are important in ensuring that the LH surge is of sufficient magnitude to cause ovulation (Tsutsui & Stabenfeldt 1993).

## Boar

Copulation is relatively prolonged in pigs, lasting for between 5 and 15 minutes. Following intromission, the first phase is occupied by a series of vigorous thrusting movements of the hindquarters of the boar. During this phase, the first part of the fractionated ejaculate is produced, which comprises only accessory fluid. The second phase is quieter and accompanied by production of the sperm-rich fraction of the ejaculate. This is followed by a final, more vigorous phase, in which the third jelly-like accessory secretion is discharged. Ejaculation occurs directly into the uterus, which is distended with semen immediately after copulation, while the cervix is often sealed with a gelatinous plug. The large volume of semen produced by the boar is necessary to convey its spermatozoa through the extensive length of the uterus of the sow.

**Male Fertility- & Infertility :-Fertility is the ability to sire progeny and infertility is failure to do**

**VETS ARE CALLED UPON**

1. For diagnosis of infertility
2. To ascertain the level of fertility
3. **Identification and Elimination of sub-fertile and sterile sire**

**Outcome**

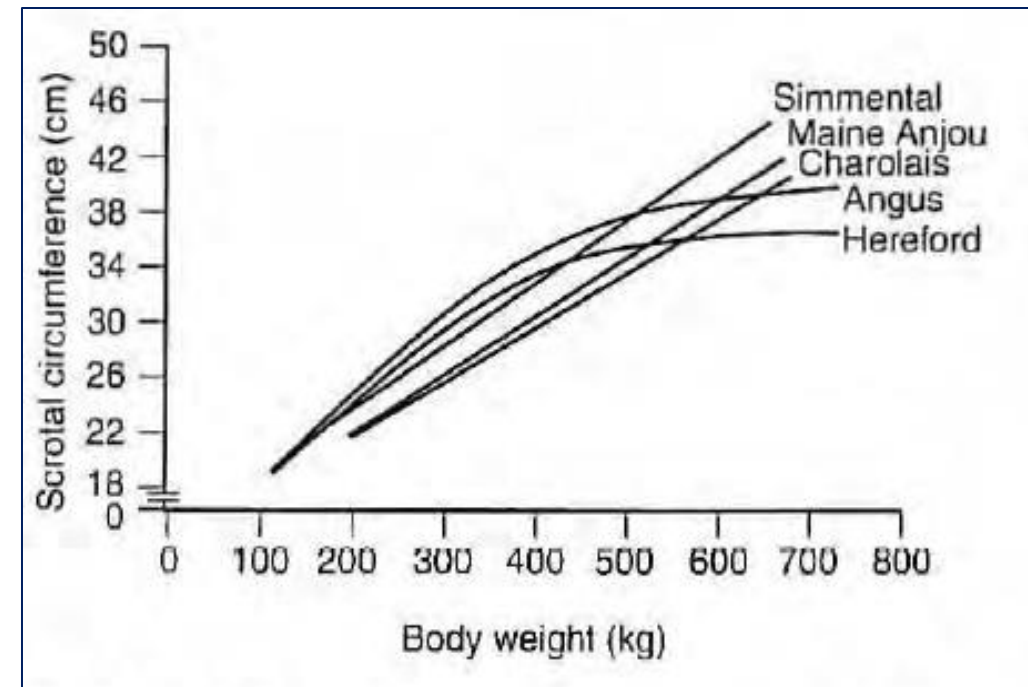
1. Satisfactory
2. Re-evaluate
3. Unsatisfactory
4. Qualified

The components of a breeding soundness examination are:

- identification, history and general clinical examination
- a detailed clinical examination of the genital tract
- observation of mating behaviour and coitus
- collection and evaluation of semen.

### **General examination**

General examination should take into account age, sexual maturity, body condition, conformation, intercurrent illness and temperament.



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When ram lambs that are born early in the season and have good growth rates may become pubertal in their first autumn, whereas those that are born late or do not grow so rapidly will not become pubertal until the following year.

Timing of sexual maturity is an important issue, however. There is clear evidence that timing of puberty in males is heritable, as both a male and female trait, so selection against (i.e. rejection of) animals with delayed maturity would be logical

late sexual maturity can cause difficulties in procedures such as progeny testing, in which it is imperative to have semen available from young sires by the time that the majority of females are being bred.

late sexual maturity can cause difficulties in procedures such as progeny testing, in which it is imperative to have semen available from young sires by the time that the majority of females are being bred. Semen from progeny-test bulls, for example, should be available at  $\approx$ 12 months of age, whereas some Holstein bulls are insufficiently sexually mature to produce semen that is fit for use in AI programs until perhaps 15-18 months of age.

## Body condition and live weight conformation

- ❑ Note:- The testes of young sires are not fully grown, so their daily sperm production rate is less than that of older animals. The epididymis are relatively short, so there is a greater risk of ejaculation of immature sperm. Consequently, sires that are within a few months post-pubertal are most unlikely to achieve high pregnancy rates among large groups of females and are generally unsuitable for use in groups of oestrus synchronized females.
- ❑ Unless post-pubertal sires have had exposure to female animals, they may not have learnt to mount and copulate. Moreover, coitus between young sires and fully mature females may not be physically achievable
- ❑ Conformational defects of the limbs, such as hock angle and foot shape, are likely to impair mounting ability, while congenital defects with a hereditary basis (*e.g.* jaw occlusion, hernias) and disorders such as cryptorchidism should preclude the sire from use.
- ❑ Diseases of the locomotor system can significantly affect the reproductive performance of sires. In particular, hind limb pain (mainly foot and hock) and back pain are generally incompatible with normal mating behavior. Furthermore, not only does locomotor pain limit mating directly, but also the stress of prolonged, unresolved pain may cause corticosteroid-mediated impairment of spermatogenesis.



## Temperament

Many veterinarians classify males that are excessively aggressive as unsuitable for use as natural service sires.

## Examination of the genital tract

Penis and prepuce

Scrotum

1. Size
2. Texture
3. Tone
4. Evenness
5. Movement in scrotum
6. Firm & resilient

**Table 30.2** Classification of testicular tone in the bull (Bishop 2007)

Score	Description	Semen	Action
1	Firm and springy	Likely to be acceptable	Meets standard
2	Slightly softer	Adequate semen	Meets standard
3	Poor tone	Probably unacceptable	Evaluate semen
4	Flaccid/atrophied	Unlikely to be adequate	Classify as unsound



Testes should not be softness or flabbiness -----TDF/TDG

Excess hardness or an irregular contour may indicate fibrosis or calcification after degeneration or inflammation.

Increased temperature should be noted

- ❑ It is possible to palpate the head and tail of the epididymis, but the body is often difficult because of its medial position. The tail of epididymis should be assessed for turgidity: a flaccid structure is associated with either a disruption of sperm production or depletion of sperm reservoir through overuse
- ❑ Testis volume is highly correlated with daily sperm output. Hence, measurement of scrotal circumference is a common part of breeding soundness examination of animals with a pendulous scrotum

<b>Age</b>	<b>Minimum scrotal circumference</b>
Yearling	32 cm
2-year-old	34 cm
> 2 years old	38 cm (clear pass)
	36 cm (provided testis tone and turgor of epididymal tail are normal)

- ❑ Scrotal circumference of rams is highly dependent upon season, with a 25-35% increase in size between the non-breeding and breeding season. The texture of the testes and the turgor of the cauda epididymis undergo parallel changes. Hence, much care must be exercised in interpretation of clinical findings in rams during the non-breeding season. It should also be noted that, although rams continue to produce sperm during the non-breeding season, it becomes difficult to collect semen from them by electro ejaculation during that period.
  
- ❑ In the bull and the stallion: Prostate, vesicular glands and ampulla can be palpated per rectum Seminal Vasculitis is very common in bull. In the stallion, the ampullae are more commonly affected than the vesicular glands. The bulbourethral glands, although present, cannot be palpated per rectum
  
- ❑ In smaller dogs, digital examination of the prostate is possible but radiography or ultrasonography, which is essential when prostatic disease is suspected, is required in any case for examination of the prostate in larger dogs.

## Observation of mating behaviour and coitus

### Service testing of bulls

- I. Libido test
- II. Service capacity test

**The serving capacity test** -: This is the type competitive mating test, in which groups of four to six bulls are admitted to restrained, oestrogenized heifers and the numbers of mounts and effective services are recorded.

**The libido test** -: an assessment of individual bulls' performance. In this test, a single pre-stimulated bull is introduced to one restrained heifer. Libido is scored according to the number and vigor of mating attempts.

**Service test**: The quantitative and qualitative aspects of bulls' performance are emphasized according to the type and age of animals under examination

**Libido** -: This is Unrelated to sperm production and semen quality (Chenoweth et al 1988, Coulter & Kozub 1989). Social dominance is also tenuously related to libido.

The primary function of service testing is that it allows the examiner to see penile and locomotor problems and to eliminate bulls with unacceptably low libido

- ❑ Older bulls, with their increased risk of locomotor and penile problems, can be examined over a greater number of mounts' than is required for young bulls; while inexperienced bulls can be observed for the ratio of mounts to intromissions

## COLLECTION AND ASSESSMENT OF SEMEN



Fig. 30.6 Semen collection from the bull by means of an artificial vagina. (With permission from Parkinson & Bruere 2007.)



Fig. 30.5 Artificial vagina for use in the bull.

**The space between the outer cylinder and latex liner is filled with warm water, so that the temperature in the lumen of the AV is between 45°C and 48°C. If this temperature falls below about 4Y C ejaculation is unlikely.**

## COLLECTION AND ASSESSMENT OF SEMEN



Fig. 30.7 Electroejaculation equipment for use in the bull. (With permission from Parkinson & Bruere 2007.)



Fig. 30.8 Semen collection from the stallion. The urethra is palpated for the peristaltic waves that characterize ejaculation.



Fig. 30.9 Electroejaculator for the ram.



Fig. 30.11 Digital collection of semen from the dog.

- Collection from the vagina of a mare is not normally possible, since ejaculation occurs directly into the uterus.
- The ram- Semen is relatively easy to collect from rams by electroejaculation or by the use of an AV.
- The boar-Semen is most easily collected from the boar by manual stimulation of the penis. AVs have been designed for the boar (Melrose & O'I-lagen 1959) but are less effective than the manual method

- The dog-Semen can be taken fairly readily from most dogs by digital manipulation. The presence of a teaser bitch, preferably in estrus, facilitates procedures. It is generally considered that semen collected by digital manipulation is of better quality and quantity, probably. because of deleterious effects of the latex of the AV upon canine sperm, for this reason they are no longer used.

Initial Phase of ejaculation-Dog is quiet- Pre-ejaculatory fluid (0.5-5 ml watery for 50 sec.)



SPERM RICH FRACTION

0.5-2.0 ml of

thick, creamy fluid is produced within a few seconds



The dog then attempts to turn and tie, whereupon the post-sperm, prostatic fluid fraction of the ejaculate is produced. This third component is again watery, comprising up to 30 ml of fluid, which is ejaculated over 3- 30 minutes.

# CAUSES OF MALE INFERTILITY

## IMPOTENTIA COEUNDI

Lack of libido

Failure of Erection

Diseases of joint

Tumour of penis and prepuce

Diseases of the penis and prepuce

Other causes

Rupture of penis

Deviation of Penis

Balanoprophitis

Pizzle rot

Phimosis

Para phimosis

Diphallus

Priapism

Hypospadias and Epispadias

Hernia

Premature erection

Loss of sensory innervation of the glans penis

Inherited sperm defects

Infectious diseases

Cryptorchidism

Inguinal hernia

Imperfect testicular descent

Testicular hypoplasia

Testicular degeneration

Testicular fibrosis

Neoplasm

Epididymitis

Congenital defect

Scrotal torsion

Orchitis

Diadem defect

Knobbed sperm

Chromosomal defect

## IMPOTENTIA GENERENDI

With apparently normal semen

With apparently abnormal semen



**Testicular Hypoplasia:** This is a congenital failure in the development of the Spermatogenic epithelium.

**It is found in two form**

Hereditary and non hereditary

Hereditary: Recessive gene

Non-genetic: Extra X chromosome Klinefelter syndrom

Unilateral is more common than bilateral hypoplasia. In bull left side hypoplasia is more than the right

### **Symptoms**

- The scrotum of the affected male is smaller than normal male
- The spermatic chord is shorter
- Increase in proximal protoplasmic droplet
- Sexual desire is not affected
- Low concentration of semen
- Low mortality
- High incidence of proximal protoplasmic droplet
- Presence of giant cell and medusa cell in semen

### **Bilateral**

Clear watery

Few and no sperm

### **Diagnosis**

Size of testes- small and flabby

Epididymis – small and hard

Libido-normal

Prognosis- poor

Treatment – affected bull should not be used for breeding purpose

**Cryptorchidism** :- Failure of testes to descend into the scrotum is called cryptorchidism

**High Flanker**: When testes are located in the inguinal canal, the male is called high flanker and when cranial to the scrotum is called low flanker

- Bilateral
- Unilateral
- Monorchidic
- Anorchidism

**Incidence** : Stallion; Boar; Dog; Unilateral are more common than bilateral

**Aetiology** : Genetic factor : Defect in testis ;Inadequate abdominal pressure : Excessive enlargement of the Gubernaculum

**Symptoms**: Neoplasia and feminization; decrease fertility; behavioural modification eg. Hyper sexuality , excitability & irritability

**Diagnosis**: External palpation ;ultrasonography; Semen picture (low concentration ; abnormal sperm; Azoospermia

**Prognosis**: Poor

**Treatment** : The affected animal should not be used for breeding purpose : Animal should be castrated

**Testicular Degeneration:** The partial or complete failure of epithelium of seminiferous tubules to proceed with spermatogenesis. Acquire disorder and is most common cause of infertility in male domestic animals. It may happen very but reaaeration is very slow fast

**Aetiology :** Endless : Commons are hyperthermia; Extreme cold; Advance age; Stress; Irradiation; Autoimmune; hormonal imbalance ; Nutritional Disorder

**Incidence:** Bilateral is very common

**Symptoms:** Smaller and softer than normal; libido is not affected; Adhesions between testis and scrotum are usually found; fibrosis and calcification also occur in late stage; Testes becomes hard and shrunken and irregular

**Semen picture:** Depend on degree and involvement testicular tissue

- Increasing in the incidence of loos head
- Immature spermatozoa
- Ejaculate volume is nit affected
- Motility falls
- Abnormality rise

**Diagnosis:** Based on

- history
- Careful examination of scrotum
- Semen picture
- Ultrasonography

**Prognosis-** Fair to good

**Treatment:** Correction of cause ; supplementation of nutrition; Supplementation of vit A; Sexual rest; Keep animal in cool

**Orchitis** : Inflammation of testis

**Inflammation testis and epididymis** : Orchiepididymitis

**Inflammation of Tunica vaginalis**: Periorchitis

**Incidence**: Unilaterla orchitis is more common than bilateral Orchitis

**Aetiology**: Brucella species and Mycobacterium tuberculosis are most common cause of Orchitis : Physical trauma

**Symptoms**: Acute Orchitis

- High fever
- Scrotum becomes swollen, hot and painful
- Last for 7-14 days after which the scrotal enlargement gradually subside
- Fibrosis may develop in last stage and testis become reduce in size, irregular in shape and very hard in consistency

**Diagnosis**:

- Scrotal palpation (hot painful and oedematous)
- Sex libido: reduce due to pain in scrotal region
- Semen picture
  - I. Watery
  - II. Abnormal spermatozoa
  - III. Giant cell
  - IV. Blood and pus cell
  - V. Volume normal

**Treatment**: Sexual rest ,application of ice pack to testes, Systemic administration of antibiotic, Anti inflammatory drug,

## Disease of Accessory Sex Glands

**Seminal Vasculitis**- it is common in bulls, stallion and boar

**Aetiology**- Bacteria, Virus,

**Clinical signs** – Most of the affected animal do not show sign of vasculitis, abdominal pain abscess in infected gland, unilateral

**Semen picture** - Decrease in motility, elevate pH level, Low fructose concentration, brownish colour of semen

**Diagnosis**- confirmed by per rectal examination ch/by enlarged, tens and painful during the acute phase or lobular fibrous

**Prognosis**- fair to poor

**Treatment**- Bull older than 9 years of age seldom recover from vesiculitis. Younger bull recovered within 6 month. Medical treatment of this disease condition is based on long term antibiotic therapy. Amputation of affected gland or removal is only hope for treatment

## Disease of Prostate Gland

Prostatic disease is rare in all animals except dog. In which prostatitis and hyperplasia are common. This may be due to continuous expansion of the gland throughout life that enable development of prostatic hyperplasia in this species.

**Prostatitis**- Inflammation of the prostate is common in dog. This is very uncommon in castrated dogs than intact dogs.

Prostatitis and Prostatic hyperplasia often occur together

**Aetiology**- Brucella canis , Proteus, Streptococcus

**Clinical Sign**-Fever, High pulse rate, constipation, arch back, Anorexia, Vomiting, Leucocytosis , weakness, lethargy, Blood in urine,

**Treatment**- Parental administration of broad range antibiotic for longer period are indicative. If the cause is Brucella then prognosis is poor. In intact male treatment is very difficult. Castration is choice as it prevent the reoccurrences

**Prostatic hyperplasia (BPH)**- The most common canine prostatic disorder of intact old dog. It is c/a by an increase in epithelial cell number (hyperplasia) as well as an increase in epithelial cell size (hypertrophy)

**Pathogenesis**-BPH is androgen dependant and therefore does not occur in castrated dog. This associated with an altered androgen: oestrogen ratio and required the presence of the testes. DHT is the main hormonal mediator for hyperplasia

**Clinical Sign**-Enlarged and non-painful gland on palpation. Due to becoming of highly vascularization nature of the gland the penis on little pressure bleed or blood in urine. The intensity of bleeding in urethra is so intense that the ejaculate may appear completely red. The size of the prostate is large enough to cause faecal obstruction rather than urinary obstruction. The enlarged prostate hang over the pelvic brim

**Diagnosis**- by symptoms; radiography; ultrasonography; biopsy

**Treatment**-The most effective treatment is castration; if not castrated then Finasteride or P4 may be used

## Testicular Neoplasm

Testicular neoplasm is rare in the bull, ram, and Boar but common in dog. Testicular tumour are considered one of the most common tumour in old intact male dog. There are mainly three type of testicular tumour in dogs eg. Interstitial CT, Seminoma and Sertoli cell tumour. Crypt orchid dogs are more sensitive

ICT (50%) and Seminoma (42%) Sertoli cell tumor (8%) ICT or Ledyding cell tumour led to prostatic hyperplasia and feminization

**Seminoma** – Second most common type of tumour in dog. This arises from the germinal epithelium of the somniferous tubules. This will be found more in crypt orchid dog.

**Sertoli cell tumour**- this rare in occurrence. Canine Sertoli cell tumour is c/b feminization. Excessive E2 production lead to hair loss, brittle hair, thin Skin, female like deposition of body fat, gynaecomastia, penile atrophy, preputial swelling, Anaemia

Contd.

**Diagnosis**- By symptoms, CBC count, radiography, ultrasonography

**Treatment**- Surgical castration

**Prognosis**- poor

# SPERM ABNORMALITY

A maximum of 20% total sperm abnormalities, with not more than 5 % of any individual class is allowed in bovine semen for use in AI

## CLASSIFICATIONS OF SPERM ABNORMALITY

BASED ON LOCATION OF ABNORMALITY ON THE SPERM- Head defects ; Mid piece defects; Tail defects

Based on abnormality arises on different part of the genital tract- Pr. abnormality; Secondary Abnormality; Tertiary abnormality

### BASED ON LOCATION OF ABNORMALITY

#### Head abnormality

- I. Microcephalic
- II. Macrocephalic
- III. Elongated
- IV. Shot broad head
- V. Pyriform
- VI. Double head
- VII. Knobbed acrosome defects
- VIII. Diadem defect
- IX. Free head

#### Mid piece abnormality

- I. Double mid piece
- II. Abaxially attached
- III. Highly coiled middle piece
- IV. Swollen neck
- V. Kinked neck
- VI. Swelling of the middle piece
- VII. Corkscrew middle piece
- VIII. Proximal droplets

#### Tail defects

- I. Tightly coiled tail
- II. Double tail
- III. Bent tail
- IV. Broken tail



## BASED ON ABNORMALITY ARISING DURING PASSAGE IN DIFFERENT PARTS OF GENITAL TRACT

**Primary abnormality:** this defect is arising during spermatogenesis due to faulty spermatogenesis. This is mostly of testicular in origin eg. head and mid piece defect are mostly pr. Abnormality. The defect such as Knobbed acrosome, pyriform head, micro cephalic sperm . Tail defect such as dag, mitochondrial sheath defect and coiled tail defect.

Secondary Abnormality- these occur after the sperm have left the seminiferous tubule and during their passage through the efferent duct, epididymis and vas deferens

- Detached normal head
- Bent tail
- Distal Protoplasmic Droplet

**Tertiary abnormality-** these arises during or after ejaculation. This happen usually due to handling technique eg. Excessive agitation, over heating , too rapid cooling, presence of water and urine

- Coiled tail
- Bent tail
- Acrosome defects

**GENETIC DEFECTS**

## Reproductive abnormalities of male animals

Conditions causing failure of normal service (Impotentia Coeundi)

- I. First, conditions causing unwillingness or inability to mount
- II. Prevention of normal copulation from occurring, despite normal libido.

conditions causing failure of conception after normal service (Impotentia Generandi)

**Abnormalities of coitus** Disorders associated with failure of coitus can be considered under the following headings:

- immaturity or inexperience
- inability or unwillingness to mount
- inability to achieve intromission
- failure of ejaculation

Inability or unwillingness to mount

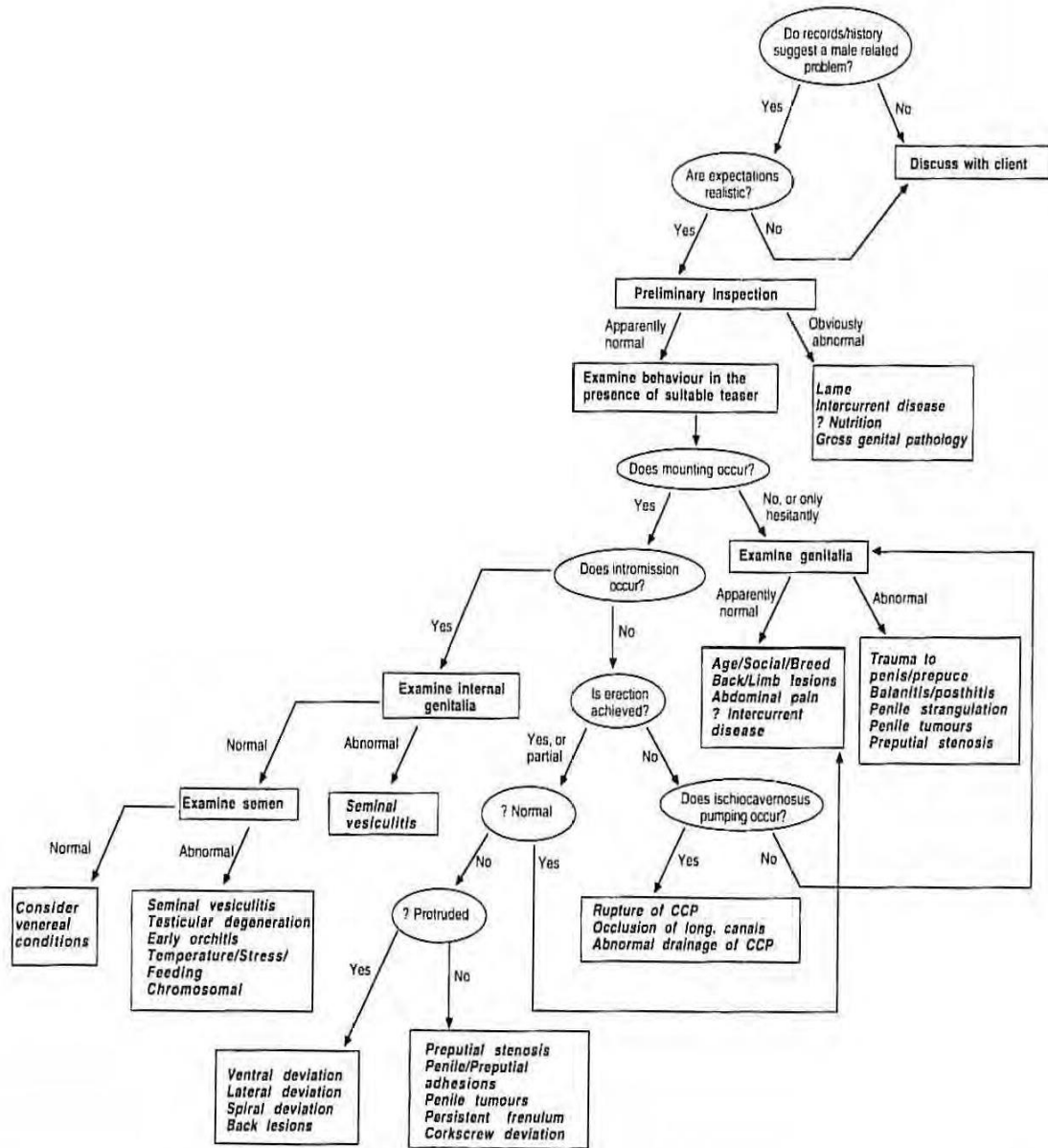


Fig. 30.12 Scheme for the diagnosis of the major conditions causing infertility in the bull. CCP, corpus cavernosum penis. (With permission from Parkinson 1991.)

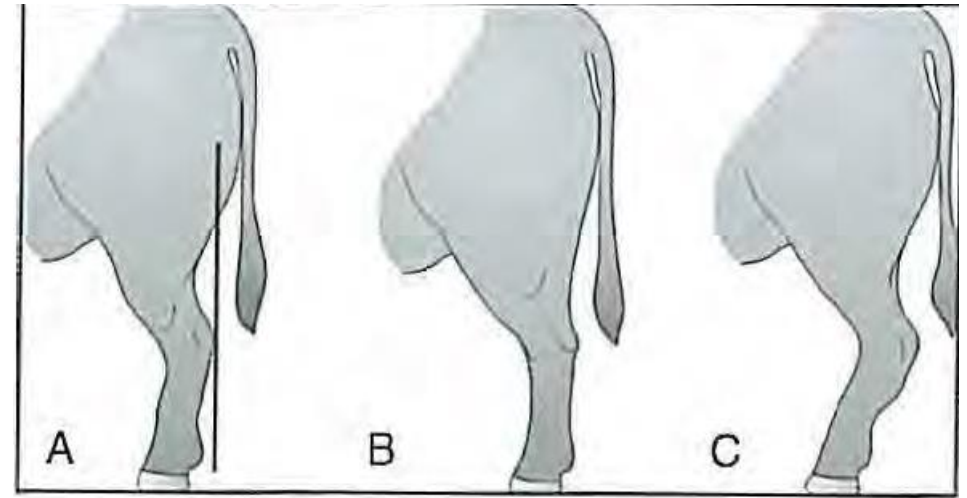


Fig. 30.13 Malconformation of the hock as either (A) too straight or (C) too sickled in comparison with normal (B) is a common cause of impaired mating ability in older bulls. (With permission from Parkinson & Bruere 2007.)

### Honeymoon back-Rupture of lunbodorsal fascia

- In this condition, the pain caused by the rupture of the fascia is such that the forelimb cannot be raised in preparation for mounting



**Fig. 30.14** Radiograph of the lumbar spine of an aged bull. Several of the vertebrae display significant deposition of new bone.

Ruptured penis and corkscrew penis are the most common abnormalities of the genital system of the bull

Occlusion of the longitudinal canals of the penis

Inability to achieve intromission

Failure of erection



## **Disease of penis and prepuce**

- I. Rupture of the corpus cavernous penis – (ruptured, fractured or broken penis) Prognosis -Poor

Persistence of the penile frenulum This is the band of fibrous material that limit the movement of an organ or part. This is results from failure of the separation of the penis and prepuce during puberty. At birth the epithelial surface of the penis and prepuce of bull are fused and ventrally they are united by a band of connective tissue called the frenulum

**Penile deviation (Phallocampsis) :-**This deviation prevent penis from entering the vagina when bulls try to mate

- I. Spiral or corkscrew
- II. Rainbow deviation
- III. S-shaped deviation
- IV. Lateral deviations

**Balanoposthitis-** inflammation of penis and prepuce (common in dog, bull ram); Dourine diseases In equine T. equiperdum

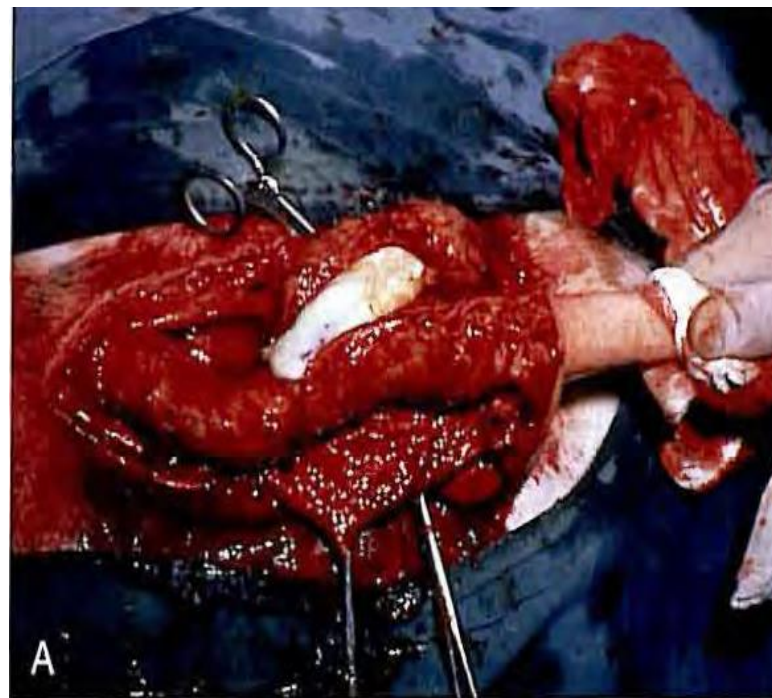
1. **Pizzle rot**-ulcerative prosthitis
2. **Phimosis**
3. **Paraphimosis** (Dog and Stallion)

**Diphallus-** double penis

**Priapism-**Erect penis does not return to its flaccid state

**Hpospadias and Epispadias-:** Defective development of penis(The urethra fails to reach the tip of the penis)

**Treatment: Fascia lata implant technique** is used for repair of both spiral and ventral penile deviation. The objective of the technique is to create a firm union of the dorsal apical ligament to the tunica albuginea to prevent its slippage. This technique uses an autogenous or homologous strip of fascia lata from the cranial border of the biceps femoris muscle to provide dorsal reinforcement of the apical ligament and fixation of the ligament to the tunica albuginea. Homologous strips of fascia lata can be harvested from freshly dead cattle and stored in 70% ethyl alcohol until used.





**Fig. 30.19** Radiographs of the penis of (A) a normal and (B) an impotent bull after the injection of contrast medium into the CCP near the root of the penis. In the normal animal the contrast medium is contained within the CCP but in the impotent animal contrast medium is leaking into the dorsal vein of the penis, indicating the presence of ectopic veins draining the CCP. The CCP was therefore not blind-ending and could not become turgid.

### Failure of erection

- I. Abnormal venous drainage (Prognosis-Poor)
- II. Occlusion of the longitudinal canal of the penis

### Disease of Joint, Muscle, nerve, Bone and tendons

- I. Coxitis
- II. Gonitis
- III. Honeymoon back
- IV. Spastic syndrom (progressive hind limb paralysis)

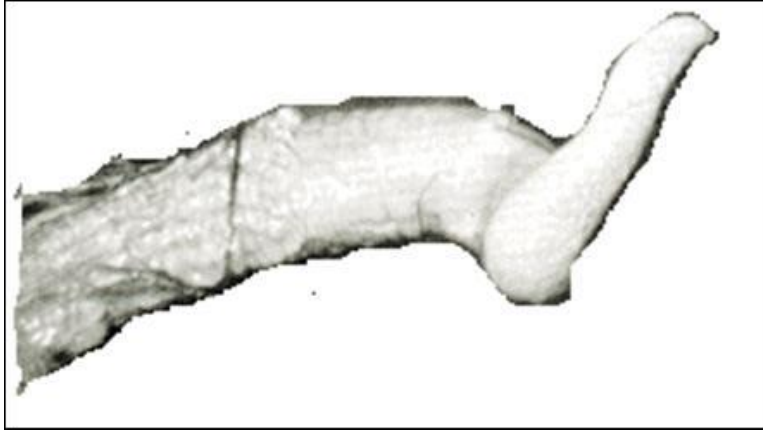




Fig. 30.21 (A) Corkscrew penis ('spiral deviation') manifested after mounting but prior to intromission. (B) Traumatic ulceration of the glans penis secondary to spiral deviation of the penis



(A) Ventral 'rainbow' deviation of the penis. This can sometimes be caused by localized fibrosis. (With permission from Parkinson & Bruere 2007.) (B). This animal was treated by excision of the lesion.



Different types of penile deviations in bull



**Fig. 30.23** Persistent penile frenula in an 18-month-old Friesian bull.



**Fig. 30.24** Trauma to the prepuce of a *Bos taurus* bull with a pendulous prepuce. (Courtesy of J. Malmo.)



Fig. 30.25 (A) Chronic fibrosis in a prolapse of the distal prepuce in a Hereford bull. (B) Submucosal resection. (C) Final repair of the lesion.



**Fig. 30.26** Acute balanoposthitis in the bull, caused by BHV-1 infection.

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