

## Infertility and Sterility of Male

Infertility of male is a reduction or lack of ability of male gametes to fertilize female gametes and produce a zygote and this reduction may occur due to three main reasons which are:

- I. **Lack of libido and/or capability of copulation:** the estimation of libido taken by *servicing capacity test* which consist of three parameters;
  - a. Reaction time.
  - b. Mounting ability.
  - c. Ejaculation time and frequency.

Factors affecting libido and copulation capability:

- A. **Genetic anomalies:** hermaphrodite (true & pseudo.), cryptorchidism (uni & bilateral), cross breeding (mare X donkey=mule; she donkey X horse= Hinney), congenital anomalies (dual penis, arched penis....etc).
- B. **Circumstances:** such as;
  1. **Temperature and photoperiod:** at a summer season ram lost libido due to lack of gonadotropic hormones (GnRH). To resume the libido and fertility, male should be received gonadotropic hormones (LH&FSH) or testosterone i.m injection of 100 mg or one of synthetic androgens e.g. sustanone in dose of 250 mg i.m.
  2. **Nutrition:** animal served in AI center should supplied balanced ration including grass, hay 15 – 20 kg/animal/day + concentrated diet approximately 3 – 5 kg/animal/day.
  3. **Debilitating diseases:** some acute and chronic disease such as T.B.
  4. **Age**
  5. **Structural lesions:** phimosis, paraphimosis and frenulum.
  6. **Managerial reasons:** majorly the following causes;
    - **Sports:** male used in AI should training periodically to avoid obesity which causes accumulation of fat tissues surrounding testes and influence on the thermoregulation of testes.
    - **Lack of sexual stimulant:** continual semen collection from a bull in same conditions (location, dummy, persons, time....etc) for a long periods leads

to gradual decline in libido. Treated with changing the surrounding conditions.

- **Sexual stress:** extensive usage of bull in semen collection leading to exhaustion and increasing in abnormal sperm percentages. Treated with a rest about 2 – 3 months then support with hormonal administration (HCG or LH 1000 – 1500 IU/animal or with testosterone 500 mg im).

## II. Reduction or lack of spermatozoa fertilization ability: which may be due to

**A. Hormonal factors:** especially FSH (SSH), LH (ICSH) and testosterone. Lack of these hormones leading to complete arrested of spermatogenesis or malformation of sperms. Treated with: PMSG 500 – 1000 IU im or HAP (horse anterior pituitary extraction) 100 – 150 mg.

**B. Pathological factors:** mainly diseases affecting male genital organs such as:

1. **Testicular degeneration:** it is a changing in germ cells lined the seminiferous tubules which maybe mild and cause simple deviation in spermatogenesis or maybe sever leading to sloughing of whole epithelial cells leaving Sertoli and Leydig cells only, testicular degeneration is either uni or bilateral in occurrence.

**Etiology:** etiological agents either temporary can treated or permanent resulting sterility if it bilateral testes involvement.

- Lack of tropic hormones: spermatogenesis demands high levels of testosterone intra seminiferous tubules, and any modulator effect on hypothalamic-pituitary-gonads axis such as exogenous treatment with steroids (cause –ve feedback mechanism on this axis), also stress factor effect this axis resulting low concentration of testosterone.
- Elevating of testes temperature: **A.** in case of inflammations of one testis, the collateral testis influenced by fever resulted from inflammation in other testis. **B.** in case of increasing of environmental temperature or increases thickening of scrotum due to keratosis leading to insufficient thermoregulation of testes that followed by increasing in oxygen consumption by germ cells and produce high levels of free radicals with un adequate scavenger process.
- Ischemia due to trauma or thrombosis formation.
- Malnutrition especially adequate zinc supplement which act as cofactor in metabolism and protein synthesis processes of germ cells.

**Clinical signs:** before puberty age, there is no clinical signs, but with advancing of case and became chronic, the affected testis will be harder, rigid in consistency and small in size, semen is normal in volume, low in sperm concentration and have high abnormal morphology percentage.

**Treatment:**

- Removal of cause with continual semen evaluation.
- Hormonal medication GnRH (Fertagyl)<sup>®</sup> 10 – 20 µg im.

2. **Orchitis and Epididymitis:** it is an inflammation of testicular tissue or epididymal tissue may result from extend of infection from scrotum or via blood (endogenous route) such as brucellosis, pseudomoniasis and actinobacillosis or extend from urinary tract.

**Clinical signs:** increasing of testis temperature, edema, painfull in palpation, animal unable to move for a long distance, fever, lack of libido, in chronic case testis tend to be small in size and solid with adhesions.

**Treatment:** local and systemic treatment (mainly with proper antibiotics).

3. **Testicular hypoplasia:** it is an inherited status manifested by incomplete developing of germ cells that lined the seminiferous tubules.

**Clinical signs:** most cases cannot diagnosis until puberty age, and may be suspected when increasing of repeat breeding cases among cows inseminated from a same bull, normal sexual desire, semen characteristics are normal in volume with low density, high abnormal and dead sperms percentages or occasionally “Aspermia”.

**Treatment:** disposing of male is favorable to avoid spread of this disease among filial generation. Sever cases (bilateral) cannot treated but in mild cases the uses of PMSG 500 – 1000 IU has a value in treatment.

**III. Incorrect techniques:**

- A. Improper site of semen deposition and time of insemination.
- B. Incorrect preservation of semen.