Male genital system

***Orchitis:** inflammation of the testicular tissue either unilateral or bilateral & either local or diffuse.

***Types of orchitis**

1-Acute suppurative orchitis: Mostly common in animals & human being.

2-Chronic non suppurative orchitis: Infiltration of lymphocytes, Macrophages with fibroblast proliferation.

3-Chronic granulomatus orchitis.

In case of T.B, actinomycosis caused by Actinomyces bovis it characterized by infiltration of lymphocytes, macrophages and langhans giant cells (T.B). The center of granuloma there is caseous necrosis. Orchitis it begans in epididymus & followd by orchitis, in certain cases both occur together.

***Causes**

1-Traumatic mostly common in bull & ram.

2-Infections agents: bacteria come into testicular tissue through different routs.

a-hematogenous rout.

b-direct extension from epididymis rout.

c-from the urinary tract rout.

d-external wound rout.

*In bull. Brucella abortus, T.B., Actinomyces, Nocardia asteroides causes necrotizing suppurative orchitis.

*In ram: Brucella ovis, corynebacterium ovis, Actinobacillus

*In horses: Brucella equi, pseudomonus mallei cause glander orchitis.

***Effect of orchitis**

1-There is destruction of the testicular tissue & a spermatogenesis which depend on the amount of destruction in the testicular tissue (mainly germinal cell lining of seminiferous tubules) in this case high percentage of deformed & abnormal sperms are seen.

2-regeneration its not occur once the germinal epithelia is completely destruction.

* **Developmental disorders or pathological:**

(1)Cryptorchidism(hidden testis)

Developmental disorder in which failure of one or both testis to descend with their tunics from their fetal position in sub lumber in to the scrotal sac through inguinal canal.

***Morphological & histological appearance.**

1-small

2-soft & spongy

3-lack in the development of seminiferous tubules & lack in the development of germinal epithelia.

4-decrease leydig cells.

Causes:

1-shortening of spermatic cord.

2- shortening of cremaster muscles.

3- shortening of vas deference.

4- Hereditary.

(2)Atrophy of the testis9

Its one of the pathological disorders, Its regressive process in the testicular tissue, in which cessation of the spermatogenesis and characterized by

1-Reduce the number of epithelial layers lining the seminiferous tubules.

2-Extenssive proliferation of the fatty tissue.

***Causes:-**

1-chronic parasitic disease\. Ex. Mange.

2-Chronic bacterial disease. Ex T.B, because these disease caused exhaustion.

3-chronic nutritional disease.

4-Senile atrophy in the aged dogs.

***Torsion of the testis:**

It occur when the spermatic cord is very long so the testis rotated with the longitudinal axis in this cases twisting of B.V. Then lead to edema, congestion of testicular tissue & coagulative necrosis & finally infarction.

***Spermatic Granuloma:-**

In this type of granulomatous reaction developed around the escaped spermatozoa out side the lumen of seminiferous tubules and epididymis & caused chronic inflammatory response characterized by aggregation of lymphocytes, macrophages and foreign body giant cells surrounded by fibrous tissue.

***Hermaphroditism:-**

Presence of both sexes in the same individual because both sexes will developed from the embryonic primordium, So from this tissue both sexual organ will developed especially in the congenital defects.

1-True hermaphrodite.

Both sexual organ, Testis & ovaries are present in the same individual either separated or united together.

2-pseudo hermaphrodite.

a-male pseudo hermaphrodite.

b-female pseudo hermaphrodite.

***Causes**:- congenital defect.

***Hydrocele**:-

Its accumulation of the fluid in the scrotal sac between layers of tunica vaginalis & testis.

Causes

1-Failur of venous return.

2-truma

3-chronic inflammation disease.

4-Twisting of B.V.as in case testicular torsion.

***Scirrhous cord:-**

This pathological condition characterized by chronic hyperplastic proliferative inflammatory process of spermatic cords. It occur following castration in bulls, donkeys, horses. This inflammatory process characterized by:

1-Extenssive fibrous tissue proliferation.

2-Extenssive mononuclear cells infiltration in certain cases occur following chronic abscess of chronic granulomatous reaction due to mostly *staph. aureous* which cause

granuloma in the spermatic cord called botryomycosis also granulomatus process occur in the spermatic cord by *Actinomyces bovis* (Actinomycosis).

***Accessory sex organs.**

1-epididymus

2-Vasdeference

3-Seminal vesicles

All these organs inflamed in combination with inflammation of testicular tissue.

***Seminal vesicles**

Is consider to be the sit of localization of the microorganism that cause testicular inflammation among these micro organism ,*Brucella* ,*vibriofetous* ,*Trichomonus*, *Chlamydia*, *corynebacterium pyogenes*, *Actino bacillus seminis* which cause inflammation of testis in the bull & ram because anatomical complex structure of seminal vesicles.

***Prostate:-**

Among the pathological disorders is

***Acute prostistis:-**

This mostly common in dog, monkeys and in the form of suppurative prostitis with multiple abscess.

Causes: Pyogenic bacteria such as *staphylococcus*, *streptococcus*, *corynebacterium pyogen*, *E-coli*, *proteus vulgaris*, *Brucella canis* in dogs.

***Benign prostatic hyperplasia(BPH).**

In which the prostate become increase in the size due to increase in the size & number of glandular acini & increase in the number of epithelial lining layer, increase fibrous tissue proliferation and hyperplasia in the smooth muscles and cystic dilatation in the prostatic acini because filled with fluid.

***Effects:-**

BPH interfere with urinary out flow through

1-It compress on urethral lumen.

2-It located on the orifice of the bladder.

3-may cause improper closing of sphincter or orifice ,in this case the urine escape contrary the patient volition.

***Causes**

1-Excessive androgenic

2-Tumors. Ex. Sertoli cell tumor.

3-Expermantaly produced when injected estrogen in male rat.

4-Chronic prostitis.

***Tumor of Prostate:**

Fibroma, leiomyoma, Adenocarcinoma

***Tumor in testis:**

Seratoli cell tumor, siminoma, Leydig cell tumor, Carcinoma.

***Penis, prepuce & urethra.**

Balanitis ➔ inflammation of glans penis

Posthitis ➔ inflammation of prepuce

Balano posthitis ➔ inflammation of prepuce & glans penis.

Causes

In ovine ➔ *corynebacterium renali*

In bovine ➔ IBR= infectious bovine rhino trachitis.

In equine ➔ herpes virus.

Other microorganism which causes inflammation of the testicular tissue also may be associated with the inflammation of penis.

***Tumors of penis**

1-Papilloma

2-Squamous cell carcinoma {equine}.

3-Fibropapilloma ➔ bull

4-Renal tumor ➔ dog. Transmissible venereal tumors (T.V.T).

Female genital system

***Development disorder:**

***ovarian hypoplasia:**

Small in size, no cortex and no graffian follicle.

***Endocrine disorder.**

Ex. cystic ovary. The type of cystic ovary are.

(1) Graffian follicle cyst or follicular cyst.

Which is cystic dilatation of the graffian follicle and filled with fluid due to .

a- increase F.S.H secretion.

b- Defect in secretion of progesterone substance from the corpus leuteum.

***Microscopically:-**

Its consist from the thin layer of flattened epithelia with few amount of C.T surrounded a cavity filled with fluid.

(2)Corpus leuteum cyst (leuteal cyst). increase leuteal hormone (L.H).

***Microscopically:**

a-one or more of polyhider cell layers or spherical cells containing lipid vacuoles surrounded by theca internal layer.

b- remnant of degenerated corpus leuteum tissue.

(3)Theca leuten cyst.

Similar to leuten cyst but the polyhidral or spherical leuteal cell containing lipids originated from theca internal layer. It occur associated with chorioephithelioma cyst.

(4) Dermoid cyst.

This type occur in association with teratoma which is tumor of mixture type of tissue bone, fibrous tissue, glandular & non glandular tissue.

(5) Para ovarian cyst.

Attached on the ovarian & salpnix and call cystic ducted & similar to cysticercus tennicollis

***Tumors of ovary:-**

1-granulosa cell tumor.

2-Theca cell tumor.

3-Chorio carcinoma.

***Oophoritis:-** Inflammation of the ovary and ovarian tissue is resistance to inflammation because of (a) increase fibrous tissue (b)increase B.V. and therefore oophoritis may be

granulomatous type due to T.B or may be pyogenic (suppurative) type due to pyogenic bacteria.

The infection reach to the ovary through the blood

***Fallopian tube (salpnix or oviduct or uterine tube).**

***Salpingitis:-**

Inflammation of oviduct mostly pyogenic type with abscess formation. Pyosalpnix, abscess located in oviduct following the pyogenic infection.

*The causative agent reach to the oviduct through

(1)Hematogenous rout (blood).

(2)Extended infection from endometrium as in case of endometritis.

(3)From peritoneum.

(4)Through intrauterine therapy.

***Effects of salpingitis:-**

(1)sterility caused by the following .

a-Exudate filling the oviduct lumen inhibit reaching of the spermatozoa to ova & even ova fertilized it degenerated because toxic effect of the exudate.

b-Hydrosalpnix:- Fluid cystic dilatation of the oviduct lumen due to excessive accumulation of edema.

c-Adhesion of the oviduct fimberia to ovary.

d-Lethal or toxic effect of inflammation exudate.