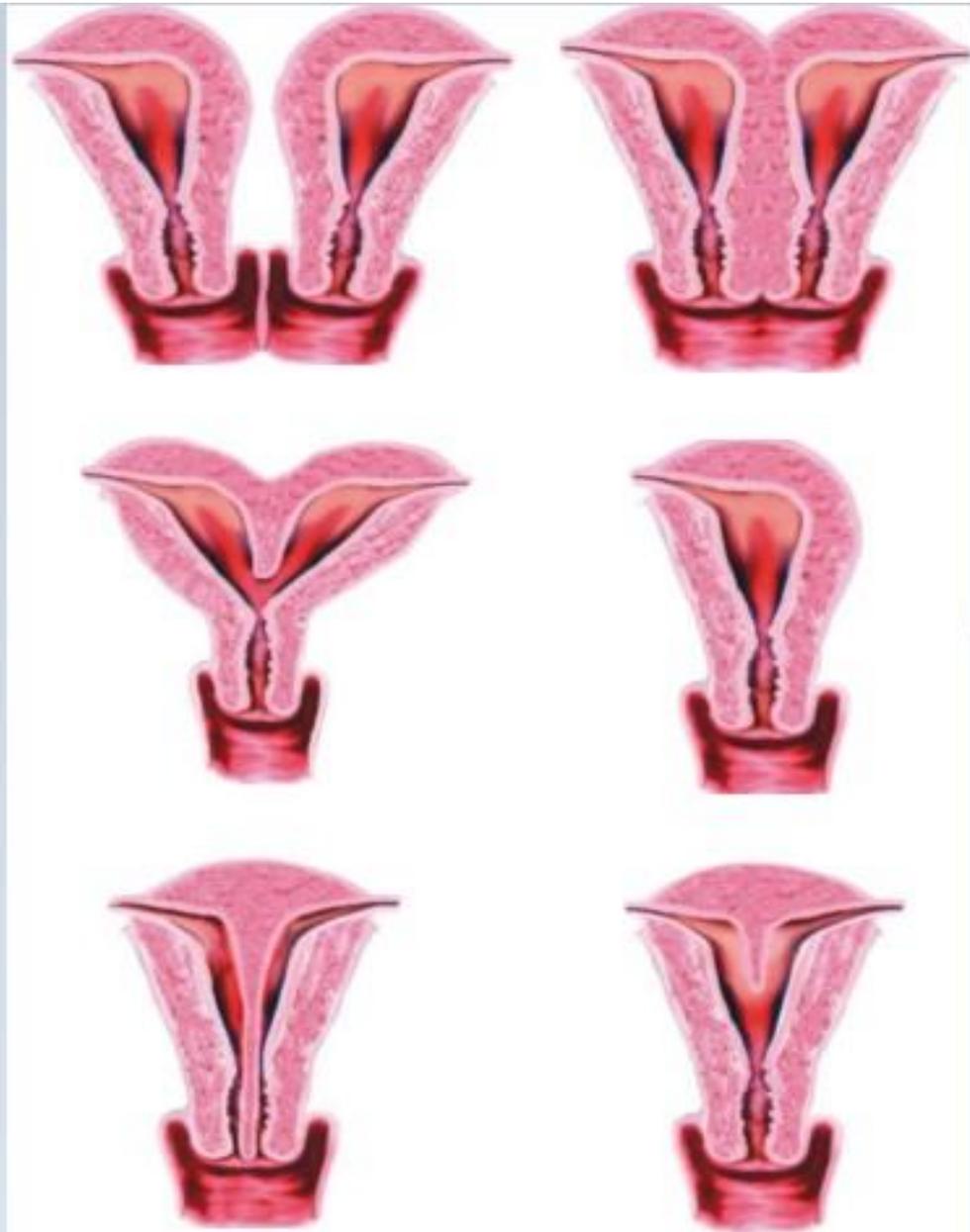


DEVELOPMENT OF THE GENITAL SYSTEM 2

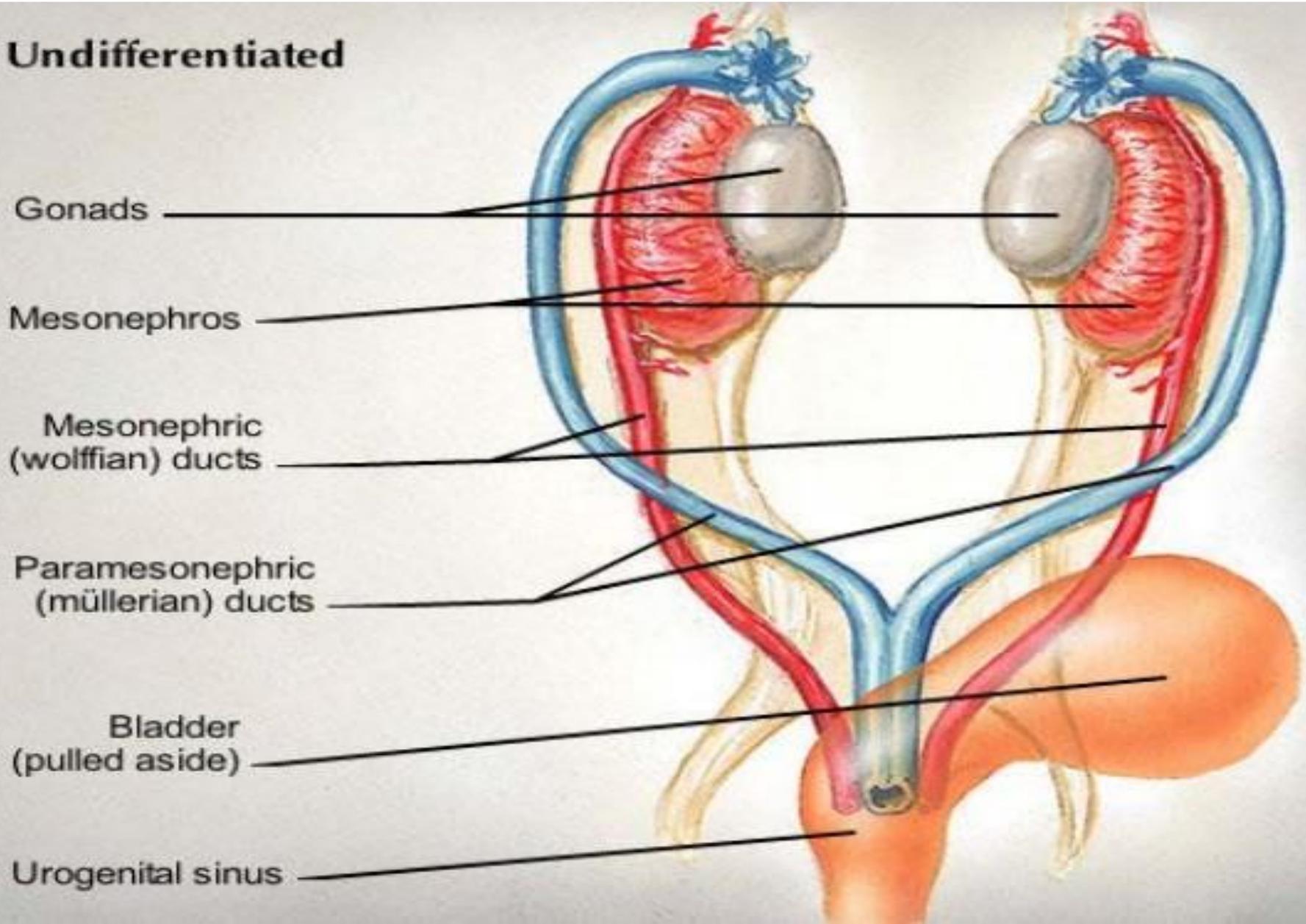


BY

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REV.

Undifferentiated



DEVELOPMENT OF MESONEPHRIC TUBULES & DUCTS

IN MALES

1- The mesonephric tubules

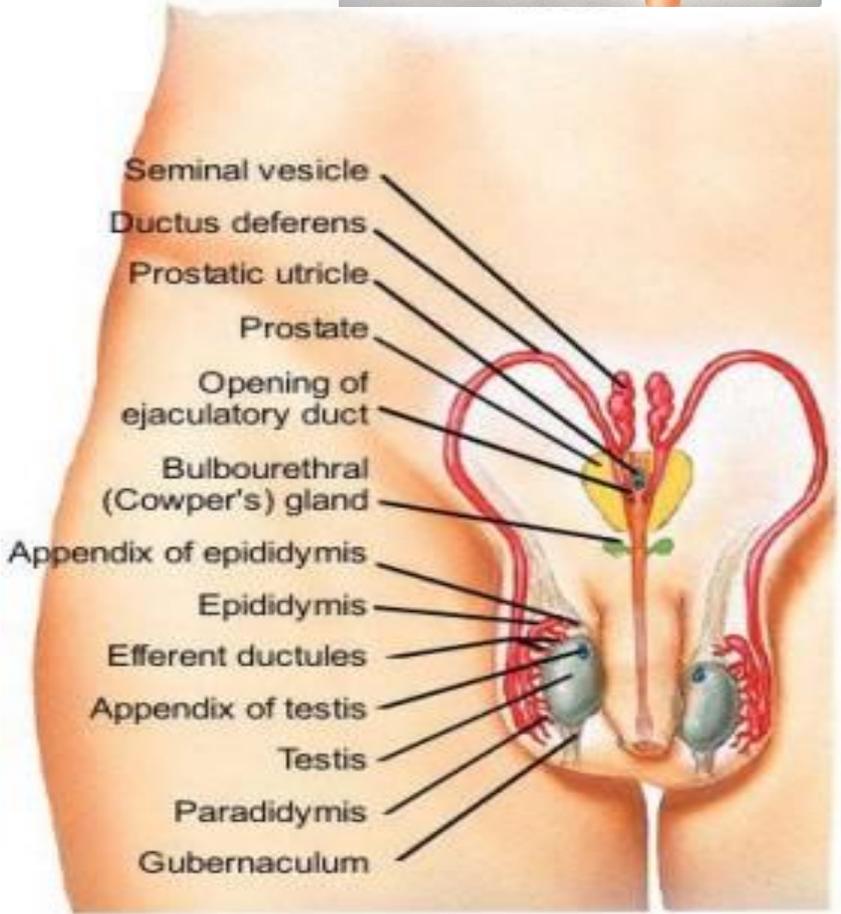
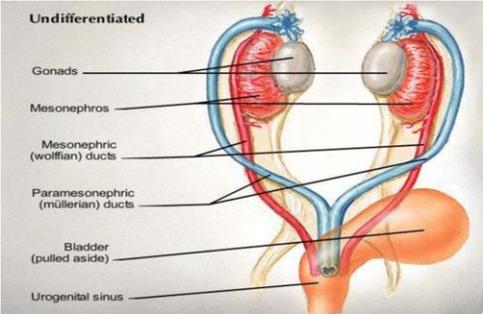
degenerate **except** middle ones that related to testis to form **efferent ductules**

that connect rete testis with mesonephric duct.

2- The mesonephric duct

Immediately below the entrance of efferent ductules the mesonephric duct gives

- 1- epididymis.
- 2- vas deferens.
- 3- seminal vesicle
- 4- ejaculatory duct.



DEVELOPMENT OF MESONEPHRIC TUBULES & DUCTS

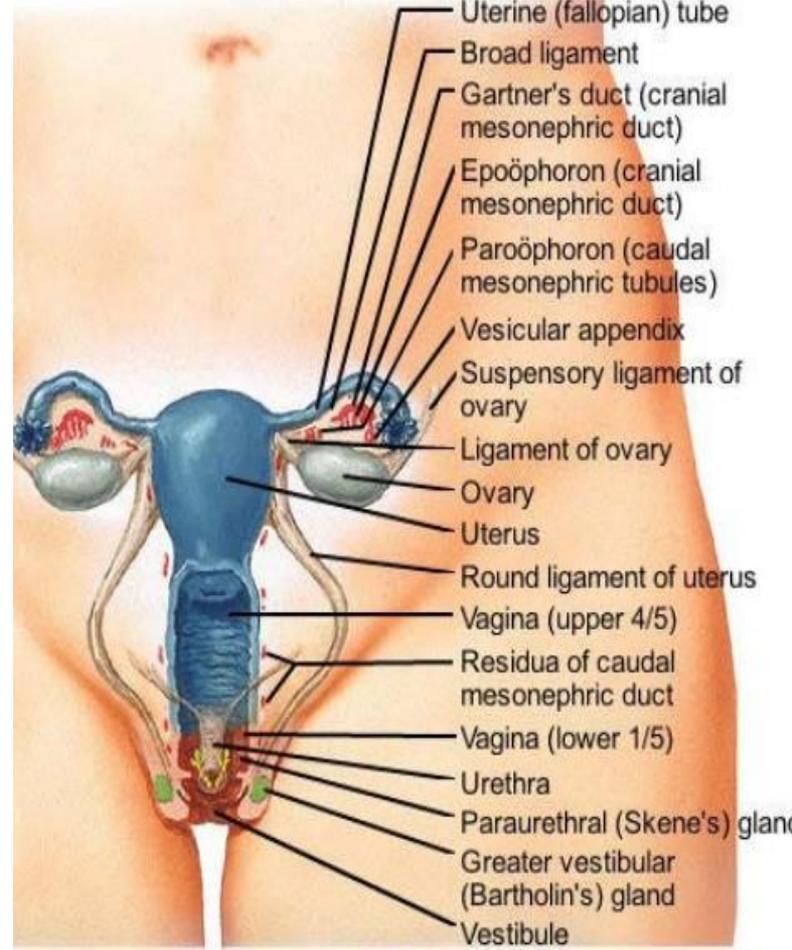
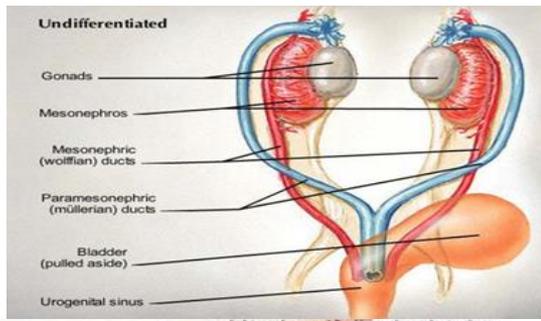
IN FEMALES

1- The mesonephric tubule

-the most cephalic group of mesonephric tubules degenerate leaving a vestigial structure, **the epoophoron**
-while the caudal ones degenerate leaving the **paroophoron**

2- The mesonephric duct

degenerates, leaving only
-its most cephalic part, **the duct of epoophoron**
-its most caudal part, **the Gartner duct.**



DEVELOPMENT OF PARAMESONEPHRIC DUCT

DEVELOPMENT

develop by invagination of dorsal wall of intraembryonic coelom (mesodermal)

3 parts:

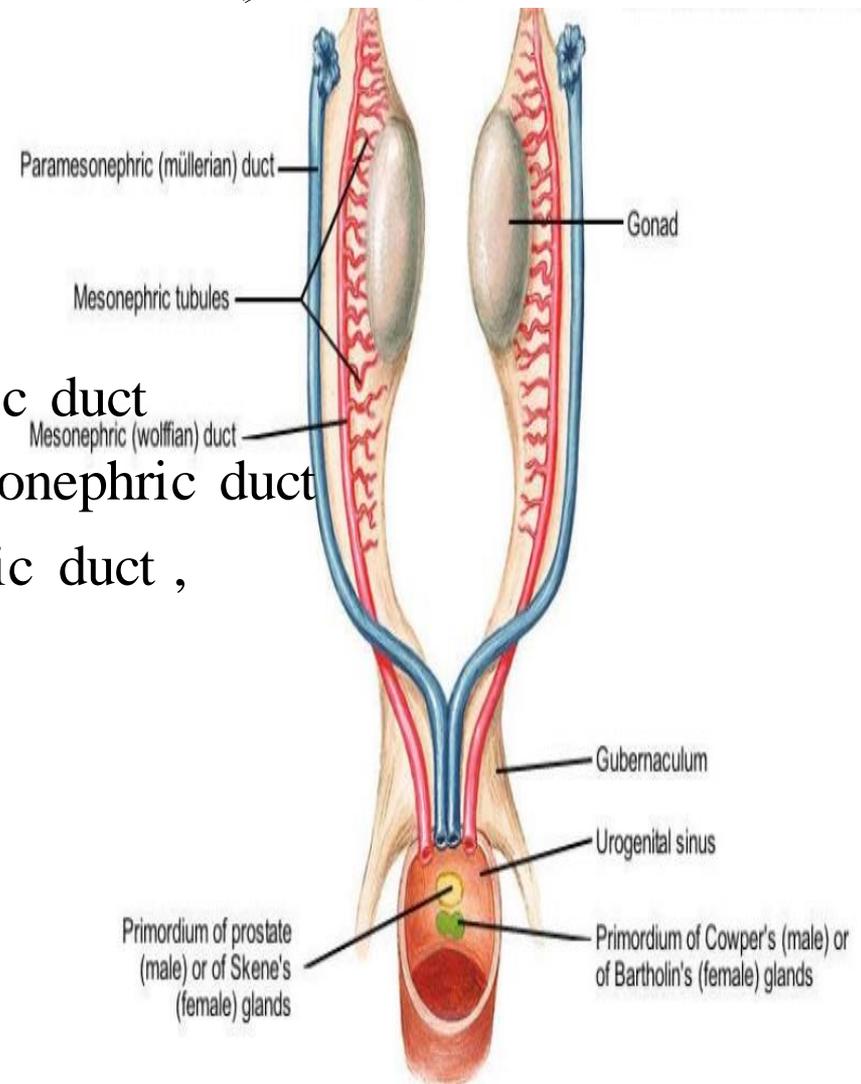
- cranial vertical part: lateral to mesonephric duct
- middle horizontal part: cross in front mesonephric duct
- caudal vertical part: medial to mesonephric duct ,
in close contact with the other paramesonephric duct

2ends

-cranial end:

open in intraembryonic coelom with a funnel like structure

-caudal end : blind & press on post wall of definitive urogenital sinus forming Mullerian tubercle inside it.



DEVELOPMENT OF PARAMESONEPHRIC DUCT

FATE

In male :

degenerate except cranial end that form

-appendix of testis

-prostatic utricle

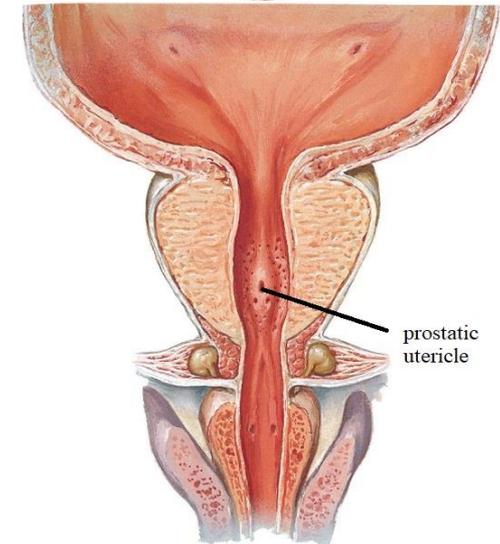
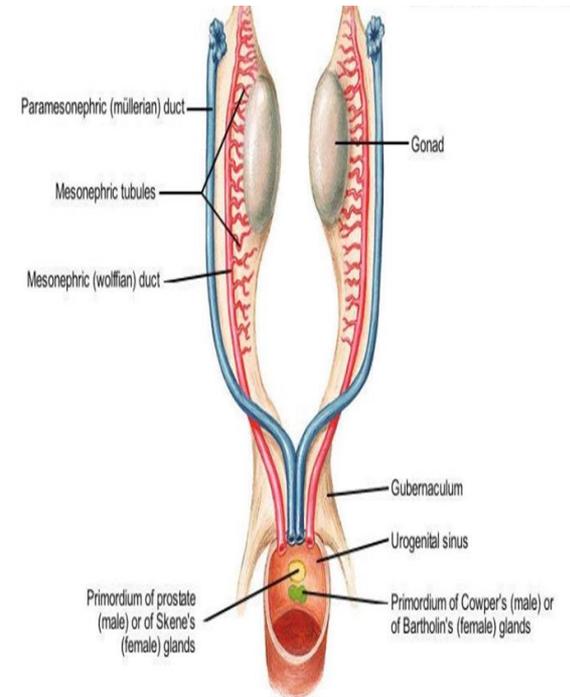
In female:

develop into the main genital ducts

-uterine tubes

-uterus

-upper 3/4 of vagina



DEVELOPMENT OF UTERUS

DEVELOPMENTAL SOURCE: mullerian ducts (mesodermal)

DEVELOPMENT

Cranial vertical parts of ducts

gives the uterine tubes

that open in intraembryonic coelom

Middle horizontal parts of ducts

fuse together & septum in () disappear

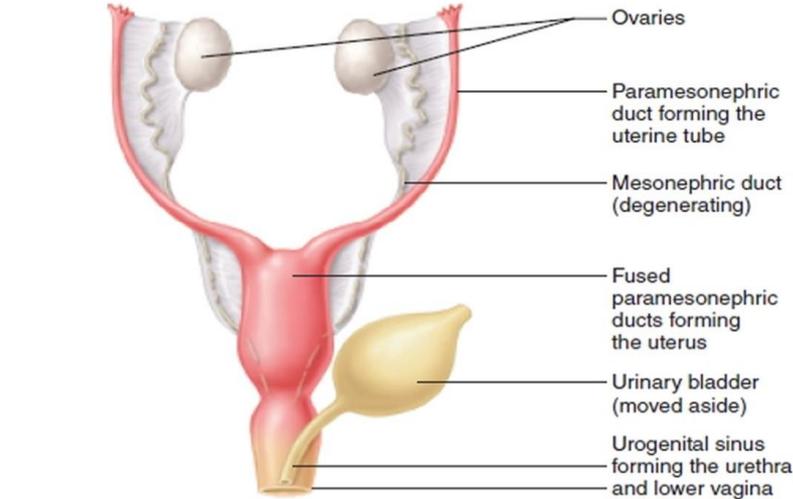
giving the fundus

Caudal vertical parts of ducts

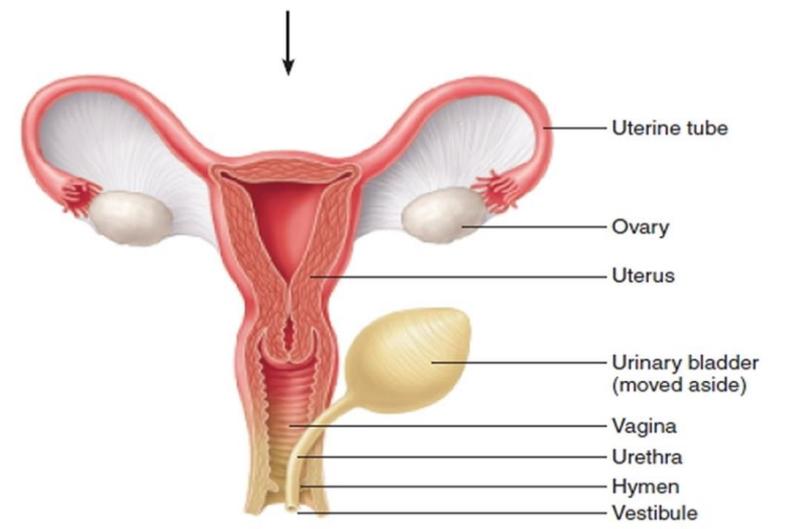
fuse together & septum in () disappear

giving uterovaginal canal giving

body & cervix of uterus (and most of vagina)



8- to 9-week female fetus



At birth: female development

DEVELOPMENT OF UTERUS

CONGENITAL ANOMALIES

duplication of uterus:

due to lack of fusion of Mullerian ducts in a local area or completely

1-uterus didelphys:

double uterus, double cervix, double vagina

2-uterus bicornis bicollis:

double uterus, double cervix, one vagina

3-uterus bicornis unicollis(bicornate uterus):

double uterus with one cervix

4-septate uterus(bipartite uterus): with incomplete septum inside it

5-uterus unicornis :uterus with one normal horn and the other is rudimentary

others:

1-absent one or both uterine tubes

2-infantile uterus

3-atresia of cervix



DEVELOPMENT OF VAGINA

DEVELOPMENTAL SOURCES

upper 3/4: from uterovaginal canal (mesodermal)

lower 1/4: from definitive urogenital sinus (endodermal)

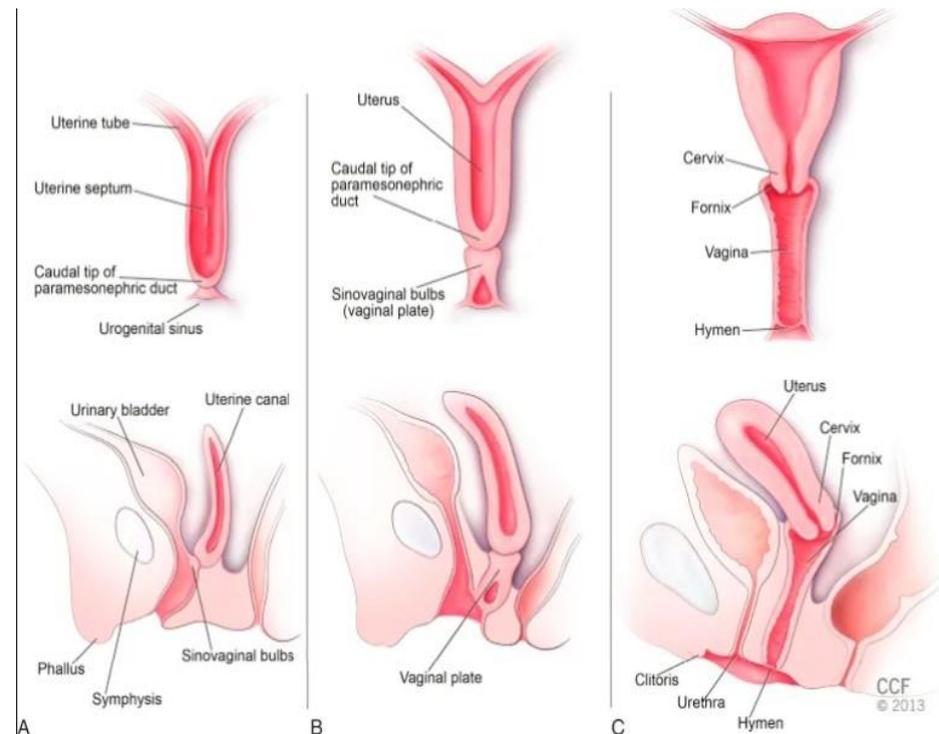
the lower 1/4 of vagina is separated from upper 3/4 (from uterovaginal canal) by thin membrane, the hymen that acquire

an opening in perinatal period for passage of future menstruation

CONGENITAL ANOMALIES:

1-Atresia of vagina

2-Imperforate hymen (cryptmenorrhea)



DEVELOPMENT OF EXTERNAL GENITALIA

DEVELOPMENT

INDIFFERENT STAGE

CLOACAL FOLDS :-

2 mesodermal elevations one on each side of cloacal membrane

Cranially:

fuse forming genital tubercle

Caudally:

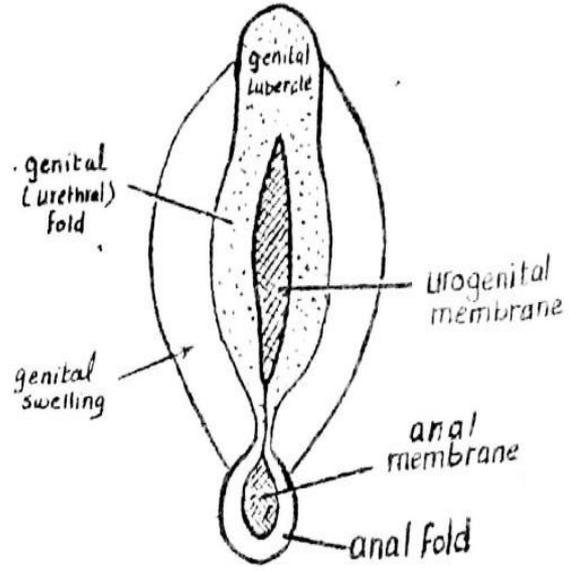
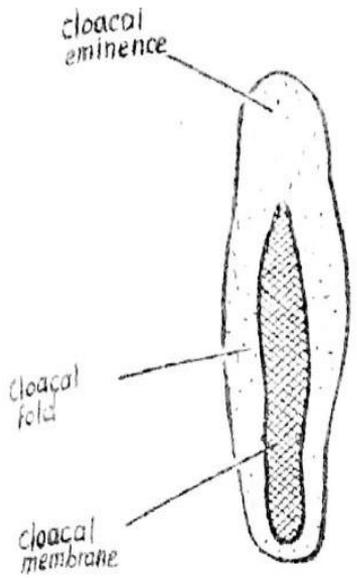
form urethral (genital) folds anteriorly

anal folds

posteriorly

GENITAL SWELLINGS:-

2 elevations one on each side of urethral folds



DEVELOPMENT OF EXTERNAL GENITALIA

DEVELOPMENT

DIFFERENT STAGE:

in male: by androgens from testis

genital tubercle & genital folds form

phallus then **penis** containing penile urethra

genital (scrotal) swellings: they arise in inguinal region, then move caudally forming **the scrotum**.

They are separated by scrotal septum

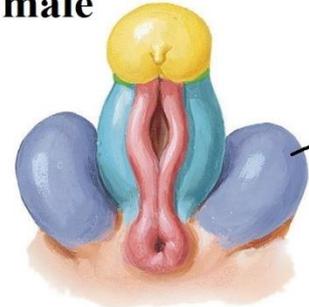
in female: by estrogen

genital tubercle slightly elongate forming

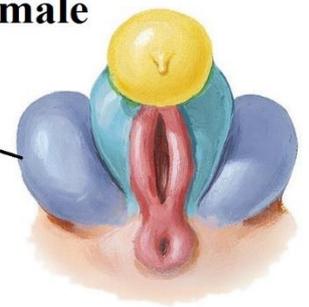
genital folds not fuse as in male but form

genital swellings enlarge greatly forming

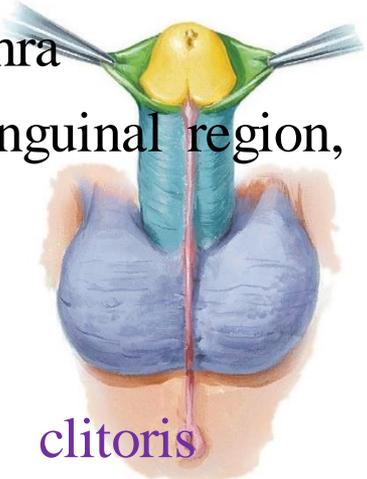
male



female



genital swellings



clitoris

labia minora

labia majora

DEVELOPMENT OF EXTERNAL GENITALIA

CONGENITAL ANOMALIES

IN MALE

1- micro penis: due to low androgens level

2- bifid or double penis: due to splitting of genital tubercle

3- male pseudo hermaphrodite:

Internal genitalia are testes

& ext. genitalia look like female

as scrotal swelling don't fuse

.

DEVELOPMENT OF EXTERNAL GENITALIA

CONGENITAL ANOMALIES

.IN FEMALE

1- absent clitoris: due to low estrogen level

2- bifid clitoris: due to splitting of genital tubercle

3- female pseudo hermaphrodite:

Internal genitalia are ovaries & ext.

genitalia look like male as clitoris is

very large as penis or may be almost

male genitalia

4-imperforate hymen or widely

perforated elastic hymen

THANQ