Development of Female Reproductive system

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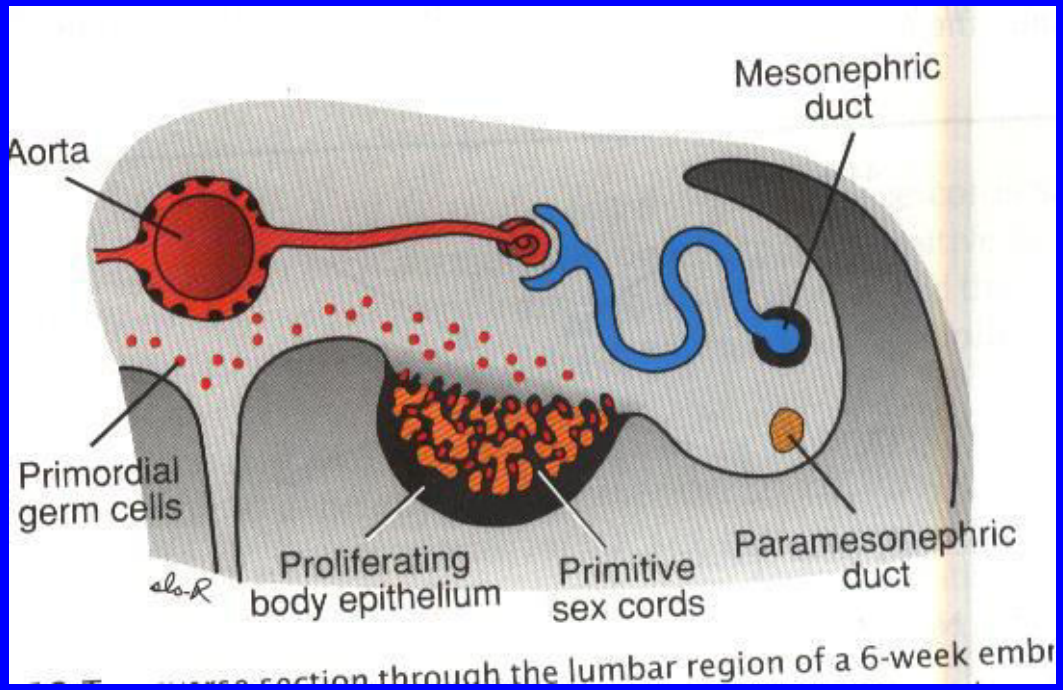
Genital system

- Sex differentiation is a complex process. It involves many genes.
- The key to sexual dismorphism is the Y chromosome which contains the TDF gene on its short arm.
- Sex of embryo is genetically determined at the time of fertilization.
- Gonads do not acquire male or female features until 7th week of development.

Development of Gonads

- **Gonads initially appear as a part of longitudinal ridges or genital ridges. These are made up of proliferation of coelomic epitheium and a condensation of underlying mesenchyme.**
- **Primordial germ cells among the endodermal cells of the yolk sac migrate to genital ridges at 6th week of development.**
- **The primordial germ cells have an inductive influence on the development of gonad into ovary or testis.**



Development of Ovary

- **Coelomic epithelium proliferate and form a number of irregular shape cords (Primitive sex cords).**
- **Primitive sex cords breakup and form irregular cell clusters. They contain primitive germ cells. They are located in the medullary part of ovary.**
- **Later they disappear and are replaced by a vascular stroma, which forms the ovarian medulla.**

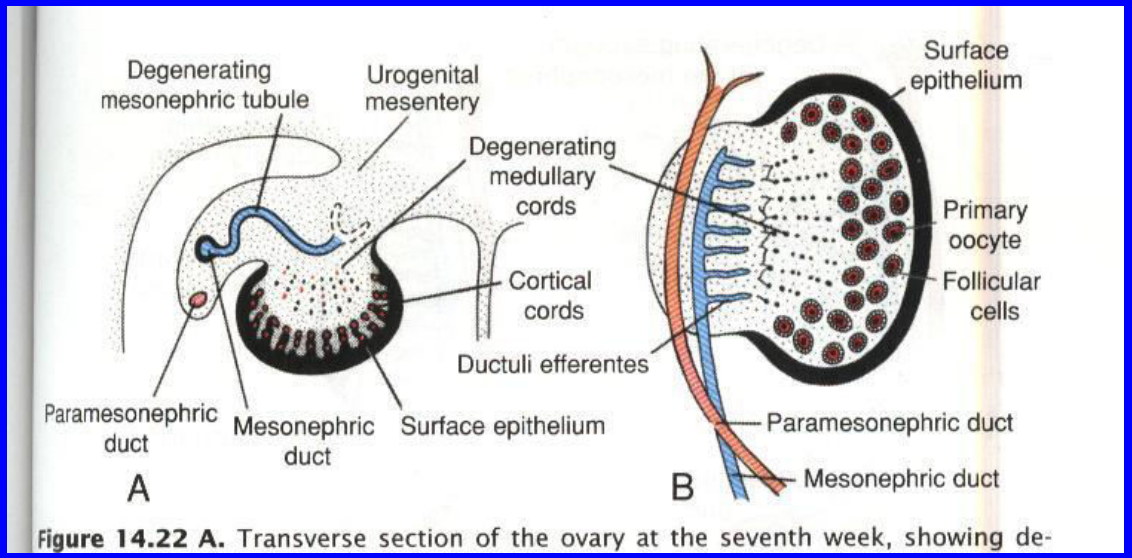
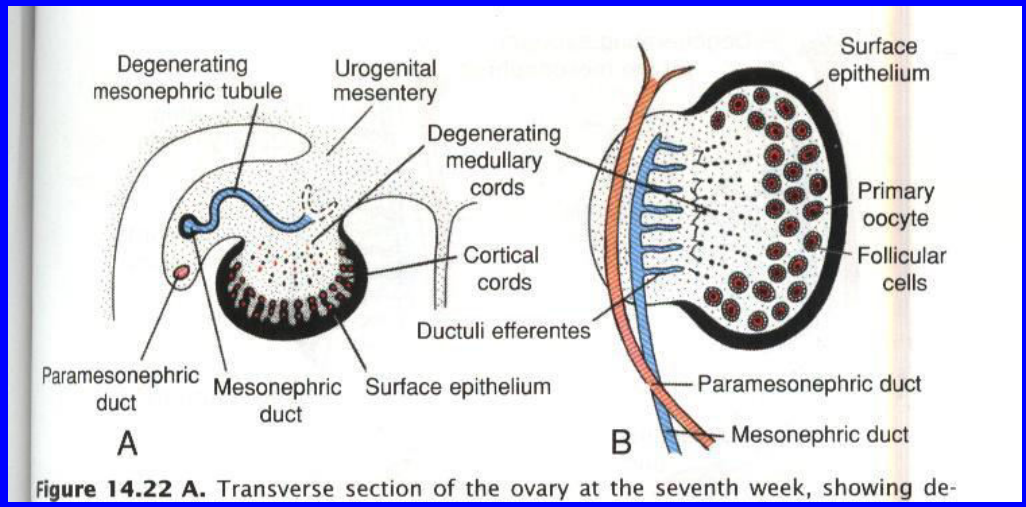


Figure 14.22 A. Transverse section of the ovary at the seventh week, showing de-

Development of Ovary

- Surface epithelium proliferate and at 7th week gives rise to cortical cords.
- At the 4th month cortical cords give rise to isolated cell clusters. Each surround one or more primitive germ cells.
- These germ cells give rise to oogonia. Surrounding epithelial cells form the follicular cells.



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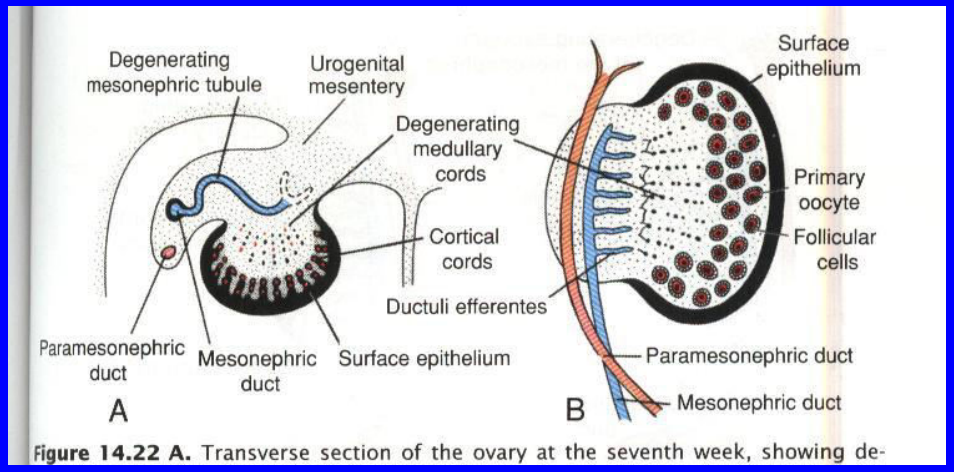
Genital Ducts



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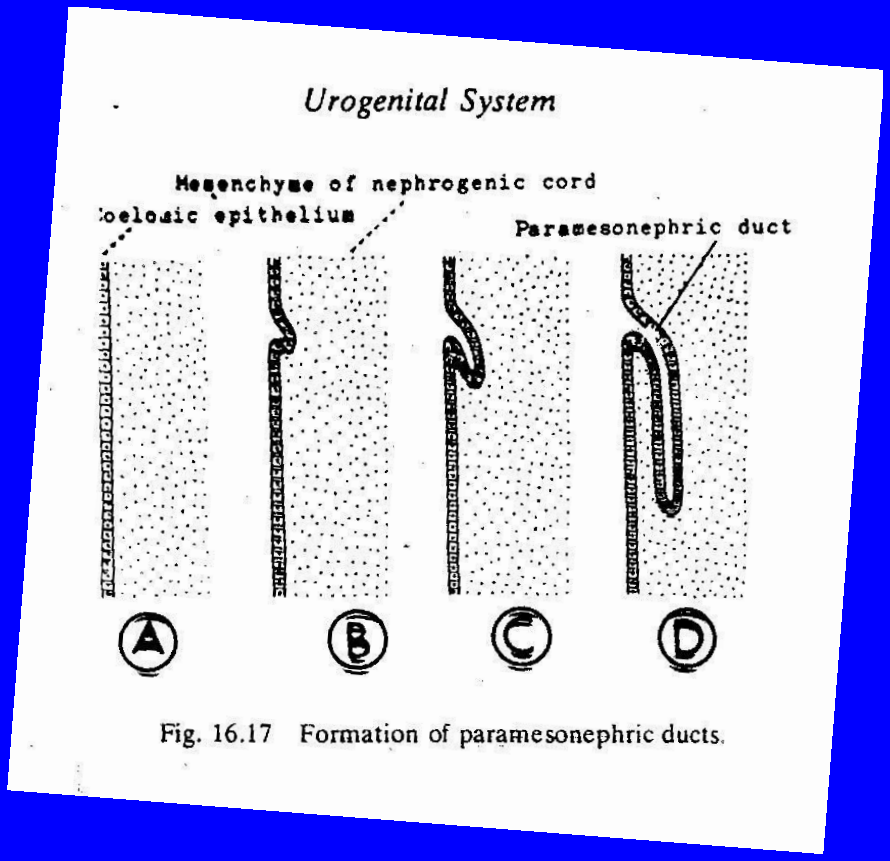


Fig. 16.17 Formation of paramesonephric ducts.

Genital Ducts-

- Initially males and females have two pairs of genital ducts. They are the mesonephric and paramesonephric ducts.
- The paramesonephric duct arise as a longitudinal invagination of the coelomic epithelium on the antero lateral surface of the urogenital ridge.

Development of uterus and uterine tubes

The paramesonephric ducts on either side unite and form the uterovaginal canal.

The caudal tips of combined ducts project into posterior wall of urogenital sinus and form a swelling known as paramesonephric or mullarian tubercle.

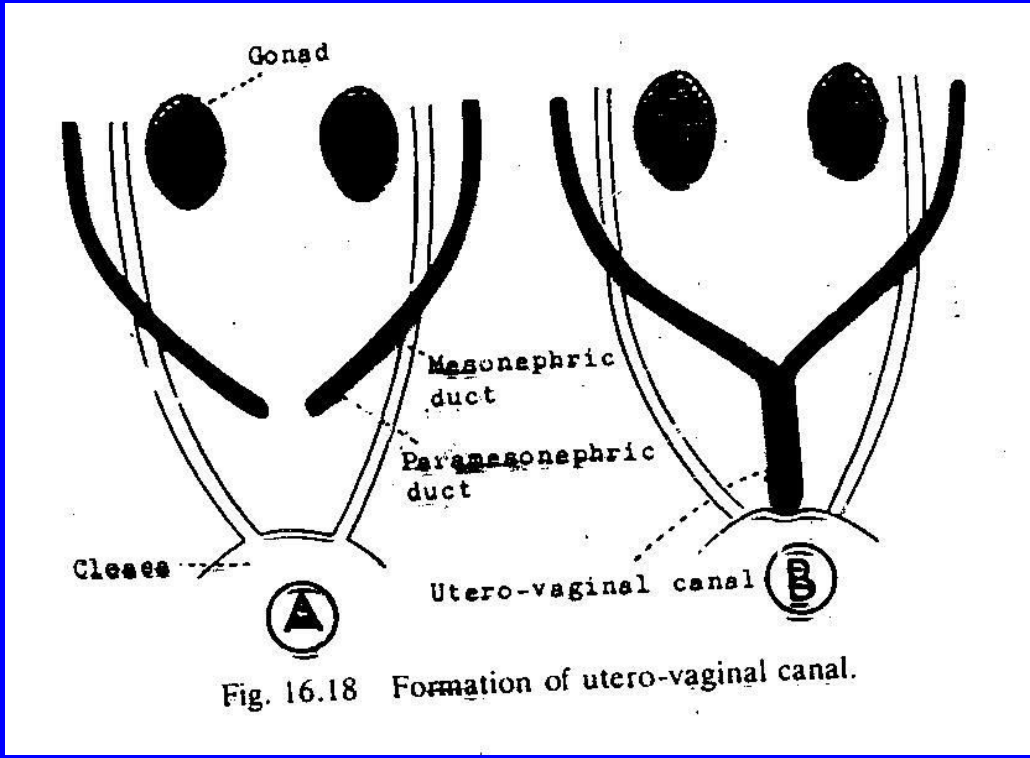


Fig. 16.18 Formation of utero-vaginal canal.

Development of uterus and uterine tubes

- Uterovaginal canal give rise to epithelium of uterus.
- Surrounding mesoderm give rise to the myometrium.
- Unfused parts of paramesonephric ducts form the uterine tubes.

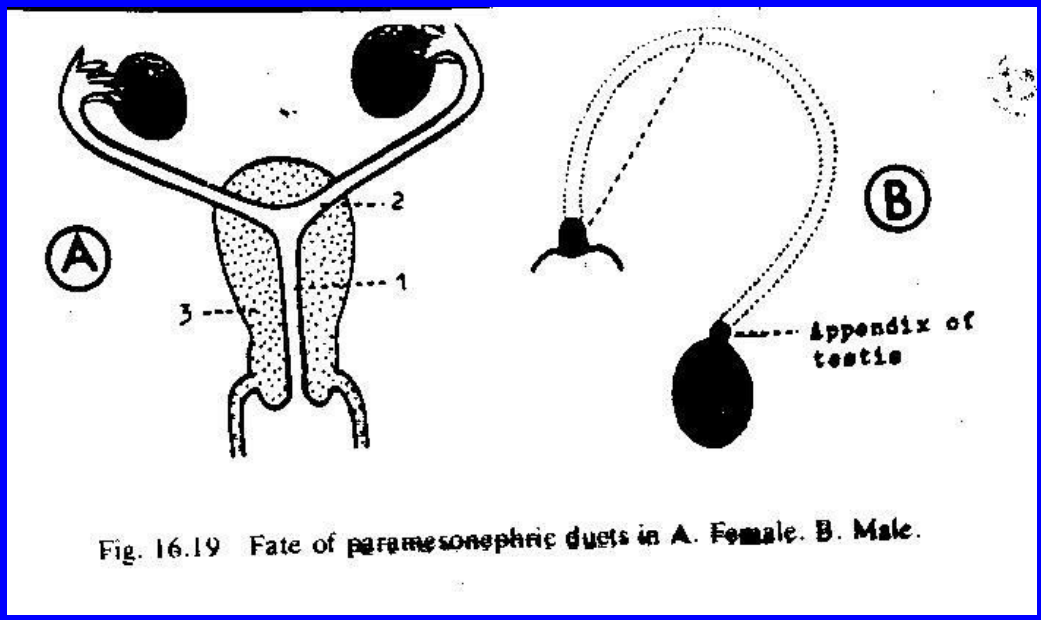


Fig. 16.19 Fate of paramesonephric ducts in A. Female. B. Male.

Development of the Vagina

- **Once paramesonephric ducts reach the urogenital sinus two solid evaginations grow out from the pelvic part of urogenital sinus (sinovaginal bulbs). They proliferate and form a solid vaginal plate.**
- **Proliferation continues at the cranial end of the plate and increases the distance between the uterus and urogenital sinus.**
- **By the 5th month vaginal outgrowth is entirely canalyzed.**

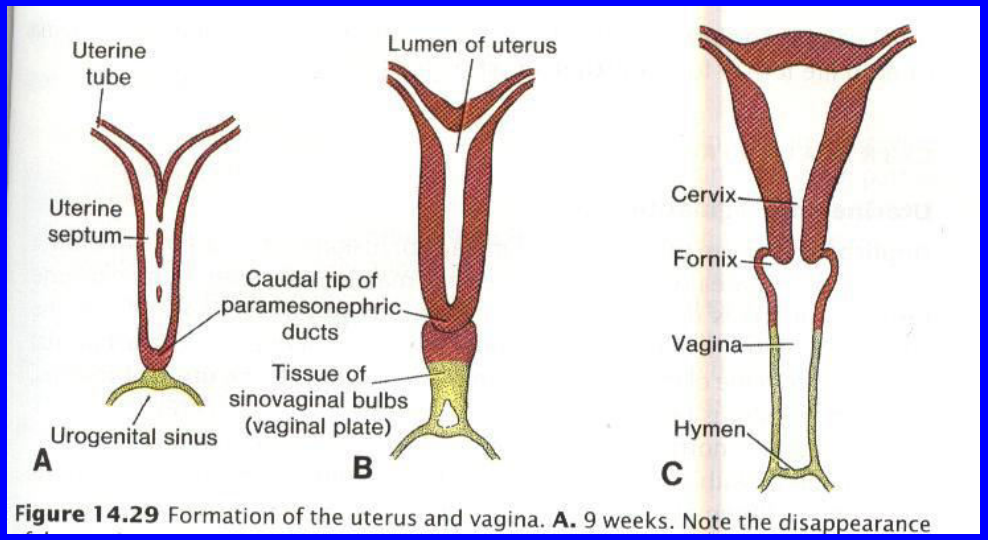


Figure 14.29 Formation of the uterus and vagina. **A.** 9 weeks. Note the disappearance

Development of Vagina

- **Vaginal fornices – paramesonephric in origin.**
- **Vagina – upper portion – PMN in origin.**
- **Vagina - lower portion – urogenital sinus**
- **The lumen of vagina remain separate from the urogenital sinus from a thin tissue plate (hymen). It develops a small opening during perinatal life.**

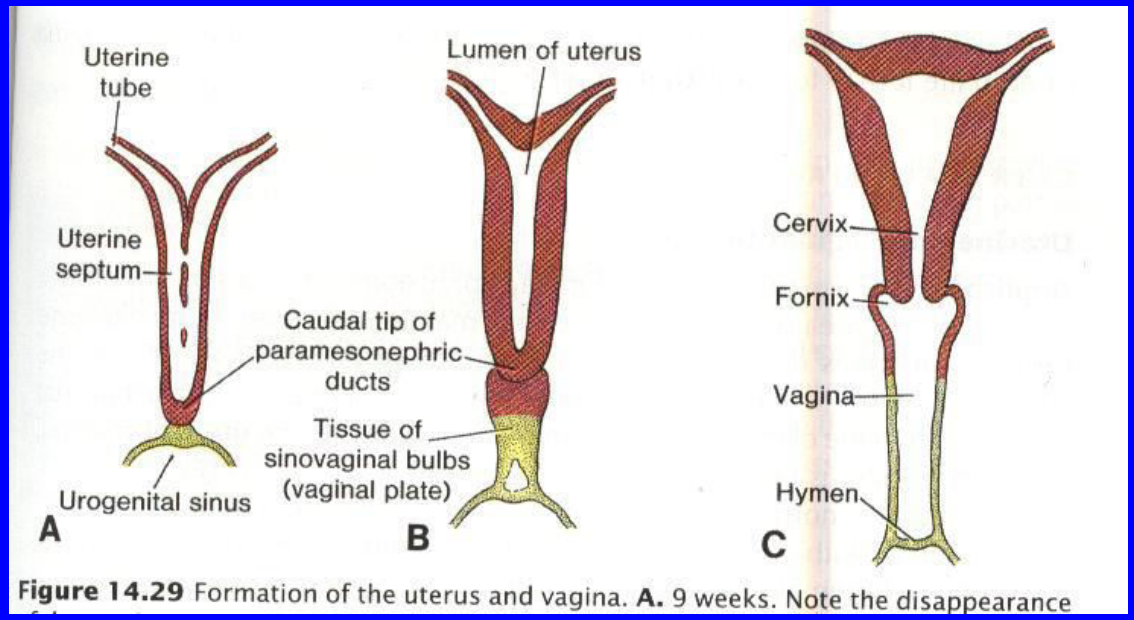


Figure 14.29 Formation of the uterus and vagina. **A.** 9 weeks. Note the disappearance

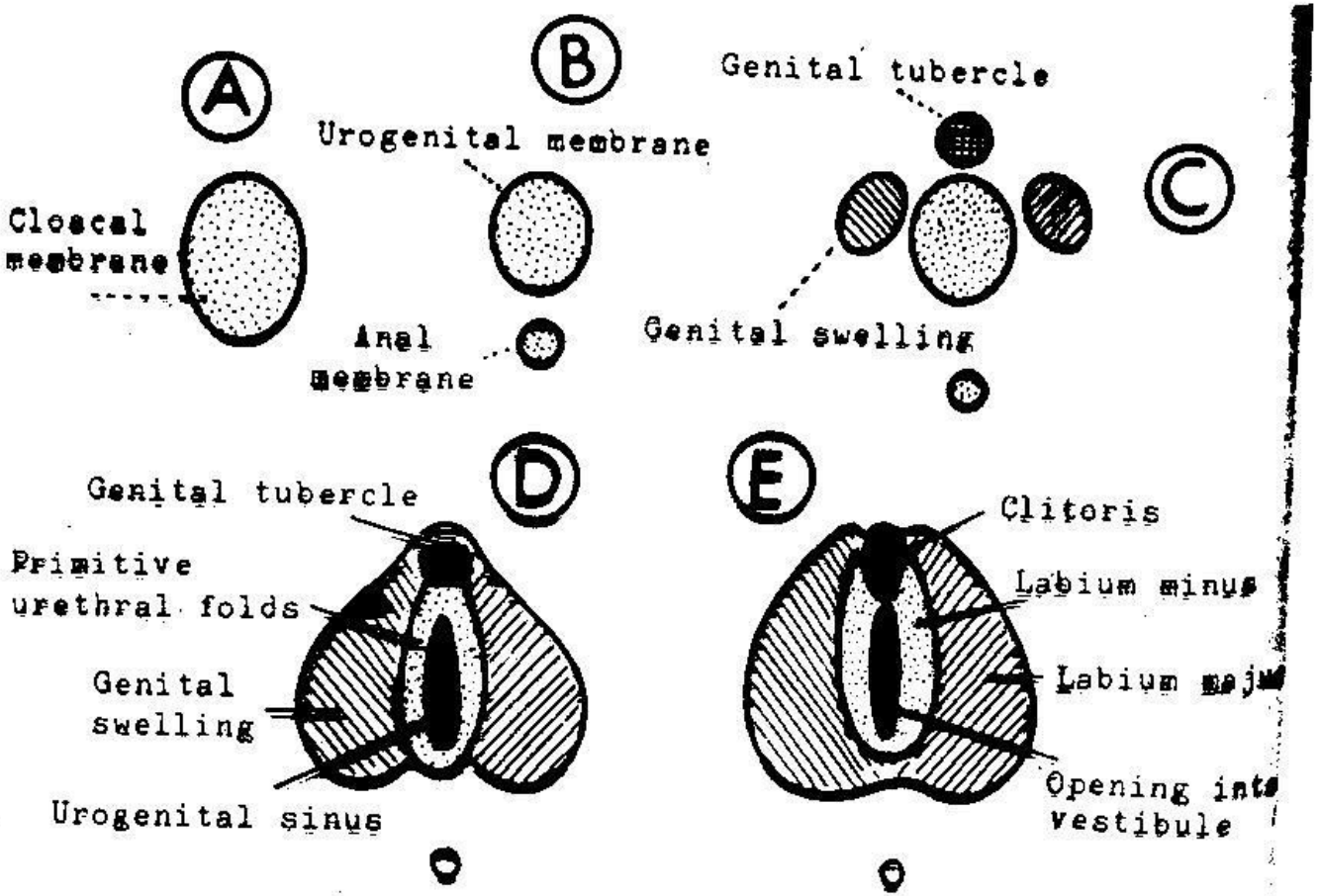
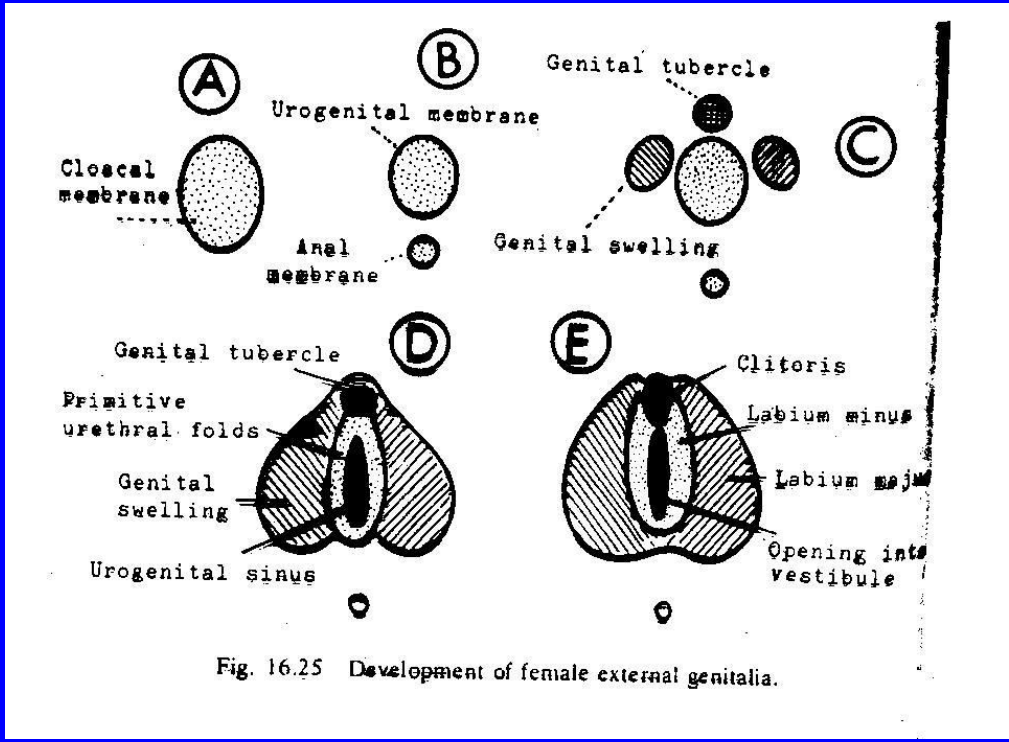


Fig. 16.25 Development of female external genitalia.

Development of External Genitalia

- Genital tubercle elongates slightly and form the clitoris.
- Urethral folds form the labium minora. They do not fuse as in males.
- Genital swellings enlarge grately and form the labium majora.
- Urethral groove opens into the surface of the Vestibule.



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Congenital Anomalies

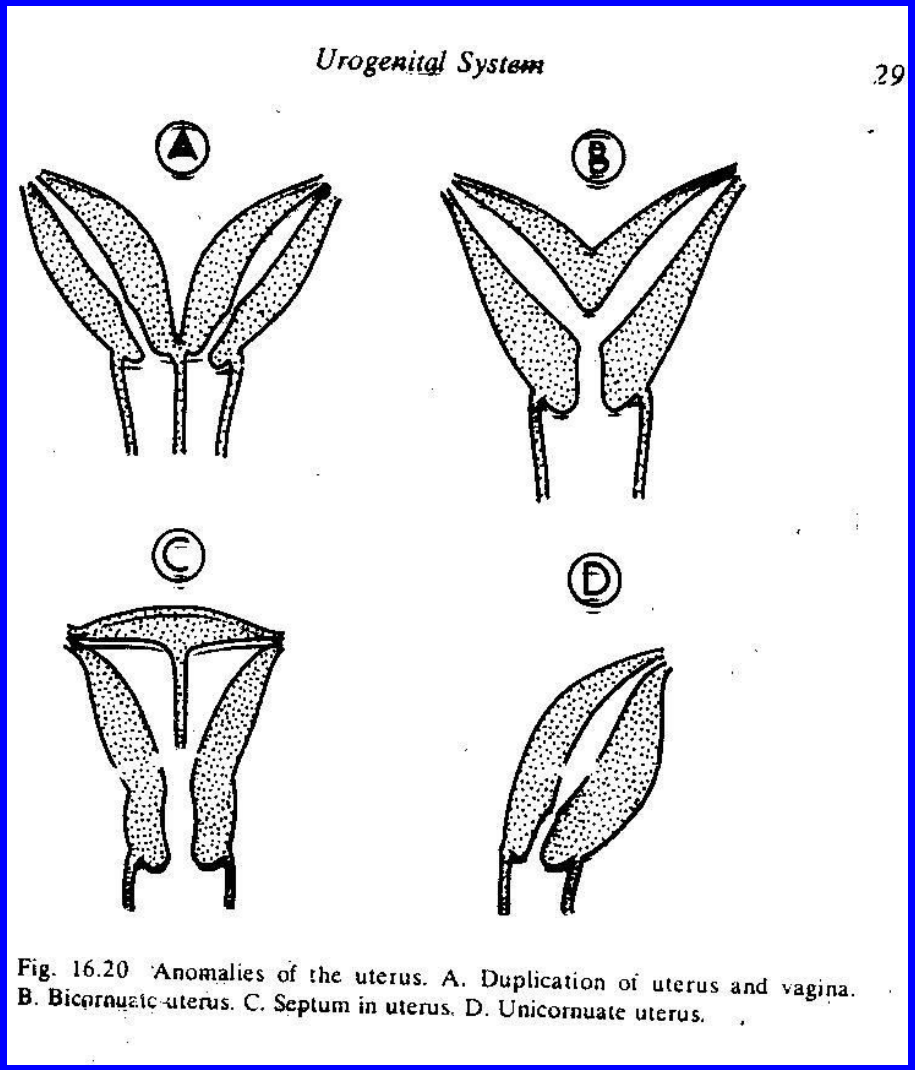

Fig. 16.20 Anomalies of the uterus. A. Duplication of uterus and vagina. B. Bicornuate uterus. C. Septum in uterus. D. Unicornuate uterus.

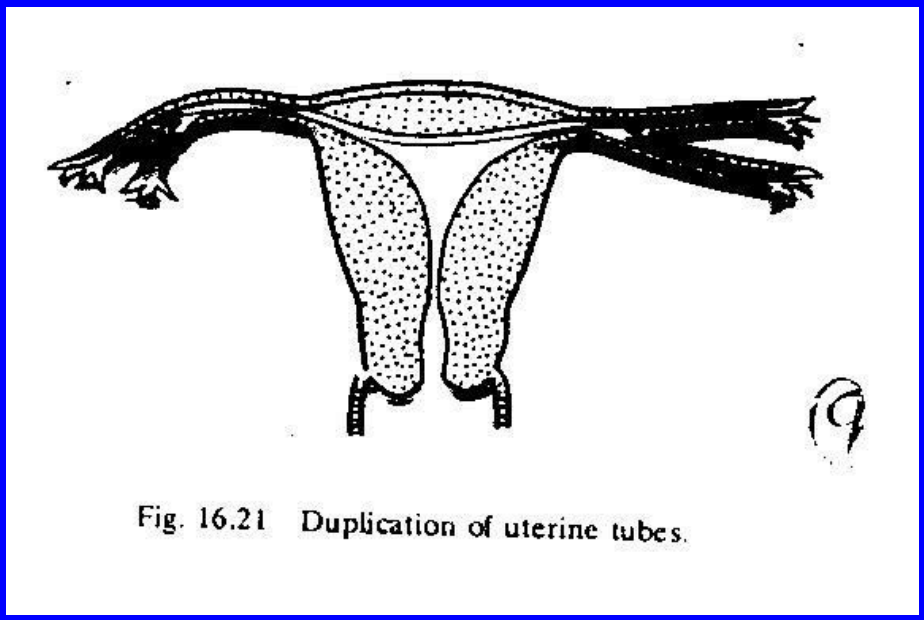

Fig. 16.21 Duplication of uterine tubes.