Sereen Draghmeh

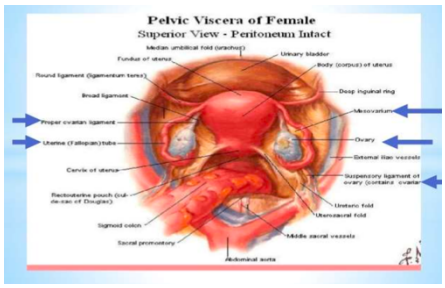
Female genital system part 1

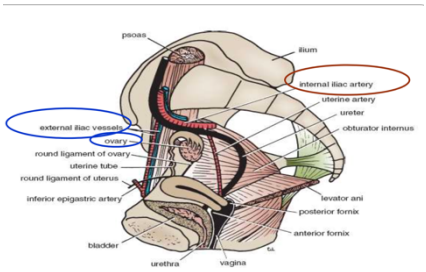
Female Genital Organs

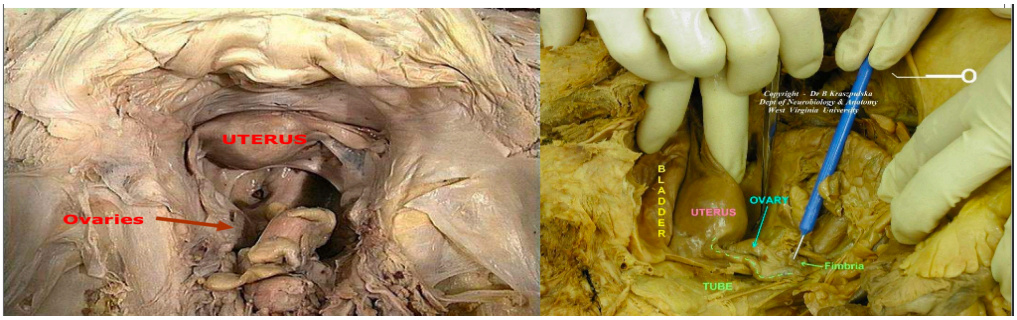
- This includes :
  - Ovaries
  - Fallopian tubes
  - Uterus
  - Vagina
  - External genital organs

Ovaries

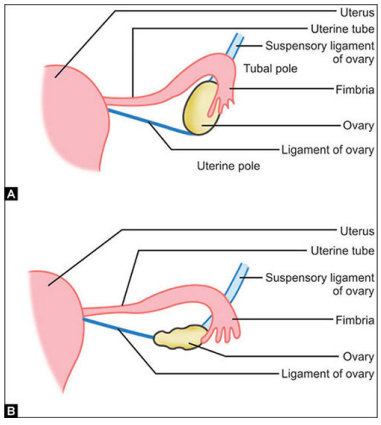
- **Site of the Ovary:** In the ovarian fossa in the lateral wall of the pelvis which is bounded:
  - Anteriorly : External iliac vessels.
  - Posteriorly : internal iliac vessels and ureter



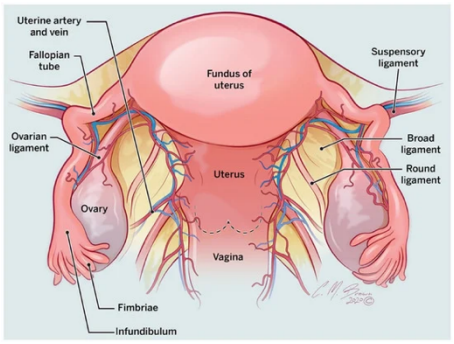




- **Shape** : the ovary is almond-shaped.
- **Orientation :**
  - In the nullipara : long axis is vertical with superior and inferior poles.
  - In multipara : long axis is horizontal, so that the superior pole is directed laterally and the inferior pole is directed medially.



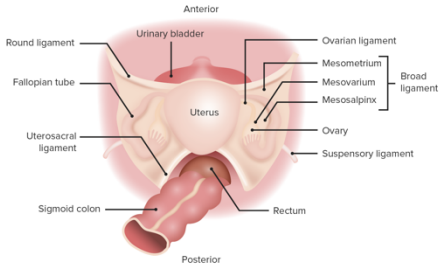
- **Description** : In nullipara, the ovary has :
  - **Two ends :** superior (tubal) end and inferior (uterine) end.



A. Ends of the Ovary :

- **Superior (tubal) end :**
  - is related to the ovarian fimbria of the uterine tube and is attached to side wall of the pelvis by the ovarian suspensory ligament.
- **Inferior (uterine) end :**
  - it is connected to superior aspect of the uterotubal junction by the round ligament of the ovary which runs within the broad ligament

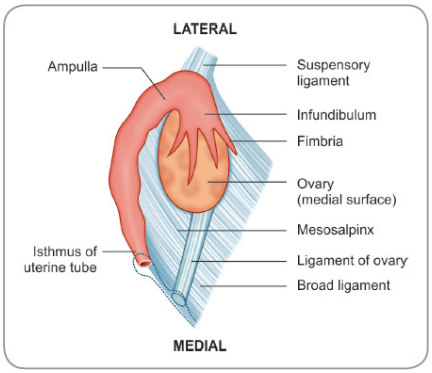
- **Two borders** : anterior (mesovarian) border and posterior (free) border.



B. Borders of the Ovary :

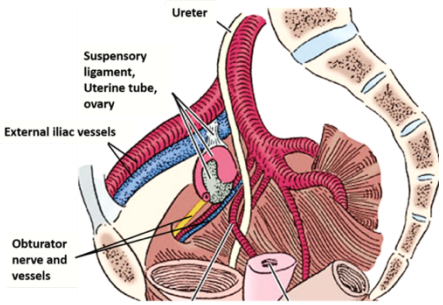
- **Anterior (mesovarian) border :**
  - presents the hilum of the ovary and is attached to the posterior layer of the broad ligament by a short peritoneal fold called the mesovarium.
- **Posterior (free) border :**
  - is related to the lateral curved end of the uterine tube.

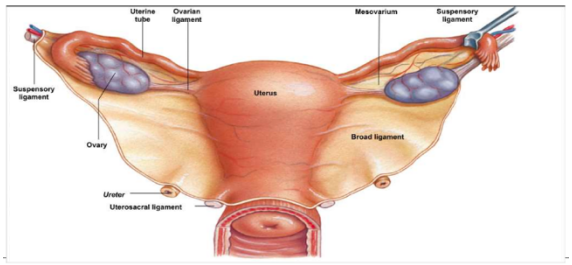
- **Two surfaces** : lateral and medial.



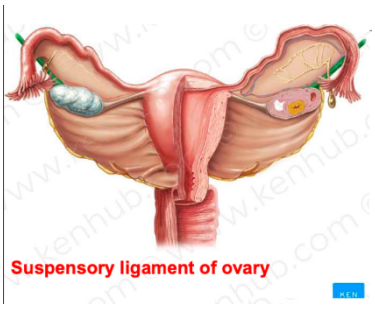
C. Surfaces of the Ovary:

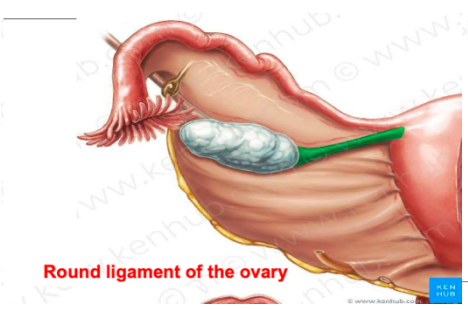
- **Lateral surface:**
  - is related to the parietal peritoneum of the ovarian fossa which separates the ovary from obturator nerve and vessels.
- **Medial surface:**
  - is related to the uterine tube.
  - **N.B:** Uterine tube has triple relation to the ovary : the tube is related to the tubal end, the posterior border and medial surface of the ovary.

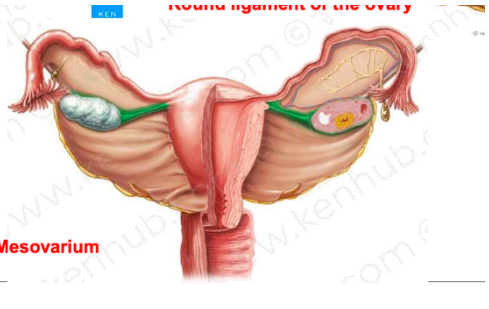




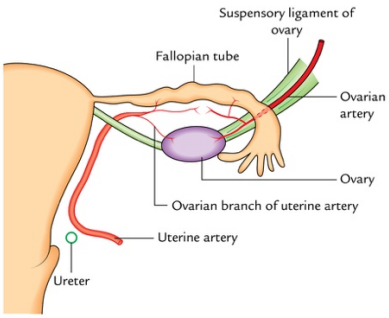
- **Ligaments of the ovary**
  - **1.Round ligament of the ovary :**
    - extends between the uterine end of the ovary and uterotubal junction.
  - **2.Mesovarium :**
    - is a short peritoneal fold between the anterior border of the ovary and posterior layer of the broad ligament.
  - **3.Suspensory ligament of the ovary :**
    - is a short peritoneal fold between the superior end of the ovary and side wall of the pelvis (it is a part of the broad ligament).
    - It conducts vessel ,nerves and lymphatics to and from the ovary

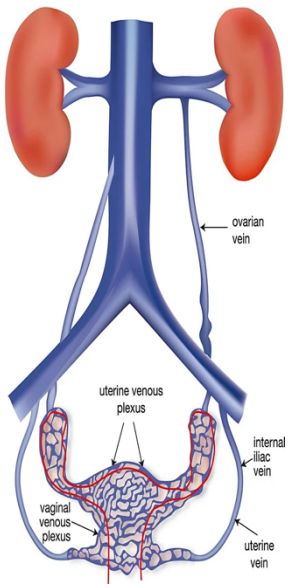






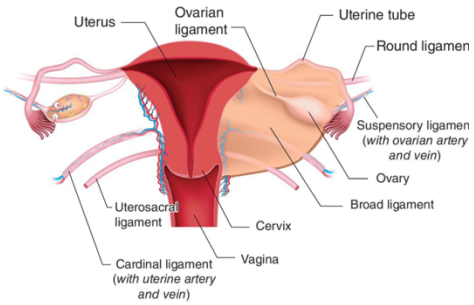
- **Arterial Blood Supply:**
  - By the ovarian artery .
  - The ovarian artery arises from the abdominal part of the aorta at the level L2.
  - The artery passes through the suspensory ligament of the ovary, then through the mesovarium to enter the hilum of the ovary at its attached border.
  - Distribution :
    - it supplies the ovary, lateral part of uterine tube and anastomoses with the uterine artery within the broad ligament.





- **Venous Drainage:**
  - The veins emerge at the hilum of the ovary as a pampiniform plexus which gives rise to the ovarian vein.
  - The right ovarian vein → I.V.C.
  - The left → left renal vein.

- **Lymphatic Drainage** : to lateral aortic lymph nodes,
- **Nerve Supply** : by autonomic nerves along the ovarian artery. They are derived from coeliac and aortic nerve plexuses. They are sensory and vasomotor.



Uterine Tubes

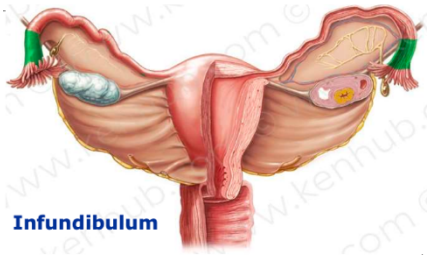
Features

- Location:
  - It lies in the medial 4/5 of the upper free border of the broad ligament.
- Length:
  - is about 10 cm.
- **Communications**:
  - **Laterally**, the tube pierces the upper layer of the broad ligament to open into the peritoneal cavity near the ovary (it is the abdominal ostium).
  - **Medially**, it opens into the superior angle of the uterine cavity

Parts of the Tube:

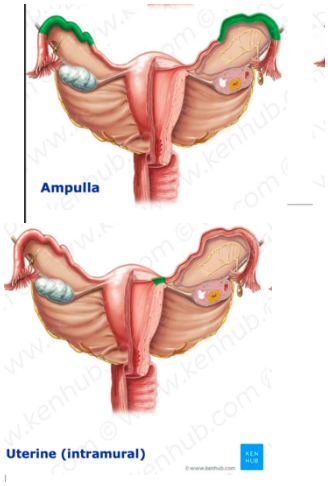
- From lateral to medial, it has four parts;

1. Infundibulum :

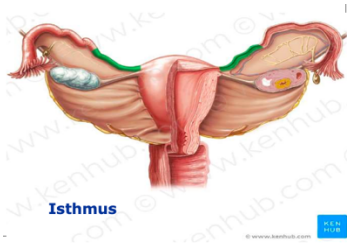


- It is the funnel-shaped lateral part of the tube which is closely related to the ovary.
- It is about 2 cm long.
- Its bottom presents the abdominal ostium which is 3 mm in diameter.
- Its margins have 20-30 irregular processes called fimbriae which spread over the surface of the ovary.
- During ovulation, the fimbriae trap the oocyte into the uterine tube.

2. Ampulla :



- It is the **widest** (4 mm in diameter) and longest part of the tube (about 5 cm long).
- It is thin-walled and tortuous.
- It is the site of fertilization.

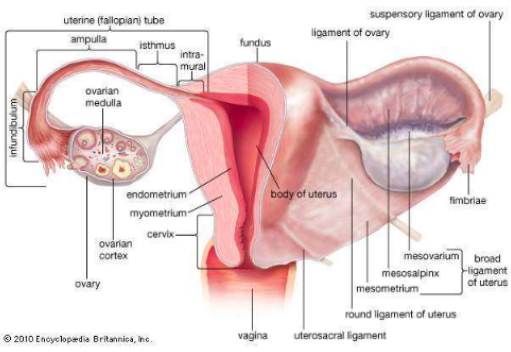


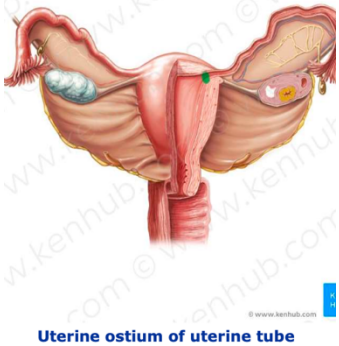
3. Isthmus:

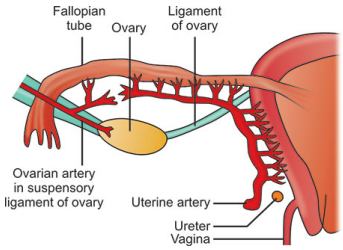
- It is **narrow** (2 mm) , short (2 cm) and thick-walled.

4. Uterine (intramural) part :

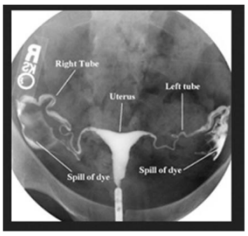
- It is the **short** segment (1 cm) that passes through the wall of the uterus.
- It is the **narrowest** part of the whole tube (1 mm in diameter).
- It opens in the uterine cavity through the uterine ostium





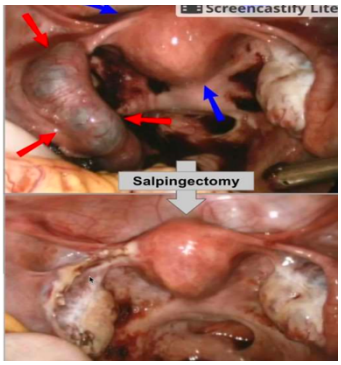


- **Blood Supply :**
  - Medial 2/3 by uterine vessels.
  - Lateral 1/3 by ovarian vessels
- **Nerve Supply :**
  - Medial 2/3 by uterine nerve plexus.
  - Lateral 1/3 by ovarian nerve plexus
  - Sympathetic and parasympathetic nerves from the inferior hypogastric plexuses.
- **Functions of the Tube :**
  - 1. They carry the oocyte from the ovaries and sperms from the uterus to the ampulla which is the site of fertilization.
  - 2. The uterine tube conveys the dividing zygote to the uterine cavity.
- **Applied Anatomy :**
  - 1. Blockage of the tubes (due to infection) is the main cause of sterility in women.
  - 2. The tube is the most common site for ectopic pregnancy. It usually ruptures with hemorrhage into the abdominal cavity.
  - 3. The abdominal ostium of the uterine tube communicates the female genital tract directly with the peritoneal cavity. Infections in the uterus and tubes may result in peritonitis.
  - 4. Ligation of the uterine tubes is one method of birth control.



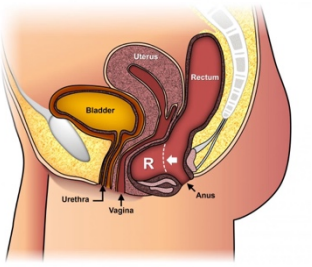
Hysterosalpingography

Tubal Ectopic pregnancy



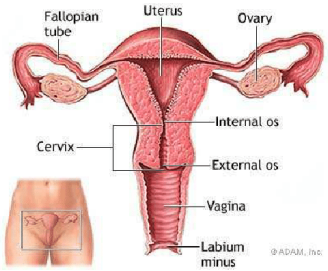
UTERUS

- The uterus is a hollow thick-walled, pear-shaped muscular organ situated in the lesser pelvis between the urinary bladder and rectum.
  It is piriform in shape.

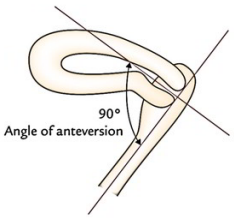


Communications :

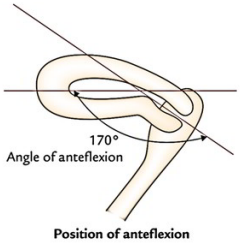
- **Superolateral angles** : the uterus receives the uterine tubes.
- **Inferiorly** : it opens into the vagina at external os.



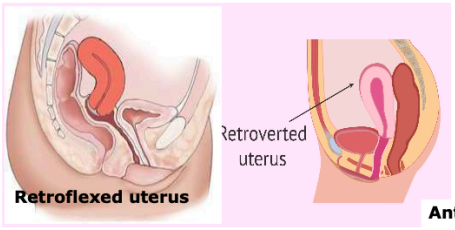
- **Normal Position of the Uterus** :
  - Normally, the uterus is anteverted, anteflexed.
    - Angle of **anteversion** : it is the angle between long axis of the cervix and long axis of the **vagina**. It is about 90°
    - Angle of **anteflexion** : it is the angle between long axis of the body of the uterus and long axis of the **cervix**. It is about 170°

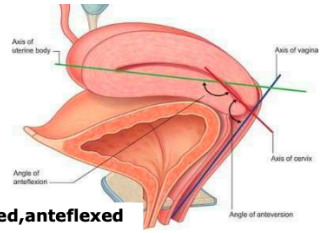


Position of anteversion



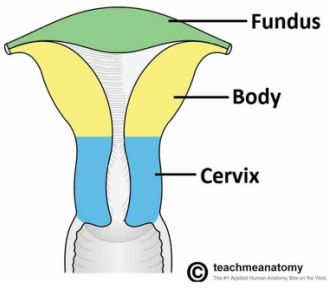
Position of anteflexion

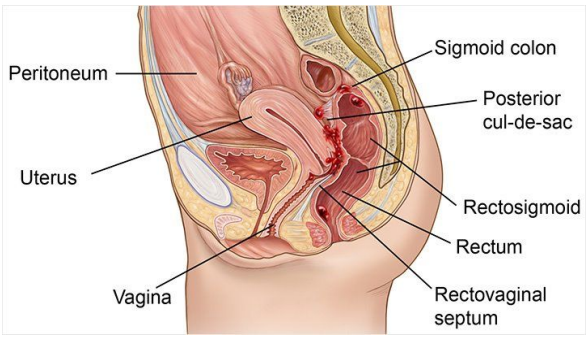




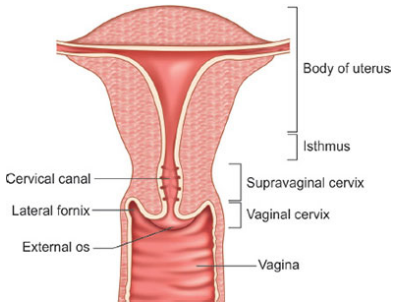
Anteverted,anteflexed

- **Description of the Uterus :**
  - The external surface of the uterus presents a transverse constriction called the **isthmus** which divides the uterus into a large upper part called the body and a smaller lower part called the cervix
  - **A. Body of the Uterus :**
    - It forms upper 2/3 of uterus. It is two inches long,
    - It has a fundus, two surfaces (anterior and posterior) and two lateral borders :
      - **1- Fundus:**
        - It is that part of the body above the entry of the uterine tubes.
        - It is completely covered by peritoneum.
        - It is related to coils of small intestine and sigmoid colon
      - **2- Anterior (vesical) Surface :**
        - Is covered by peritoneum down to the level of internal os * Is related to the urinary bladder, with uterovesical pouch in between.



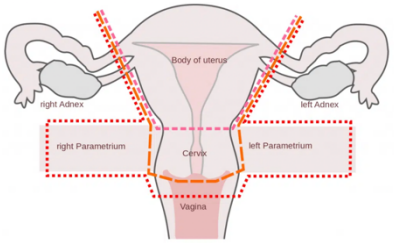


- **3- Posterior (intestinal) Surface :**
  - Is covered by the peritoneum which is continued down onto the cervix and posterior vaginal fornix.
  - Is related to sigmoid colon and coils of small intestine.
- **4- The lateral borders :**
  - Each receives the uterine tube at its upper end.
  - **Anteroinferior** to the uterotubal junction it is attached to **round ligament of uterus**
  - **Posterosuperior** to the uterotubal junction, it is attached to the **round ligament of the ovary .**
  - The uterine tube and the two ligaments are all running in the broad ligament which stretches from the lateral border to the lateral pelvic wall.

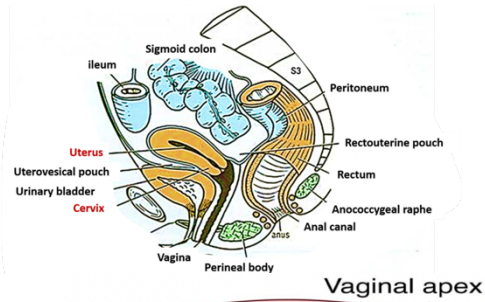


B- Cervix of the Uterus :

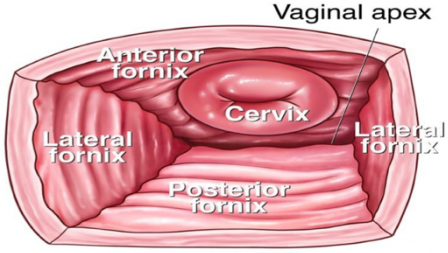
- It forms the lower 1/3 of the uterus. It is one inch long.
- Cervix protrudes into the upper part of the vagina, thus the cervix has supravaginal and vaginal parts :

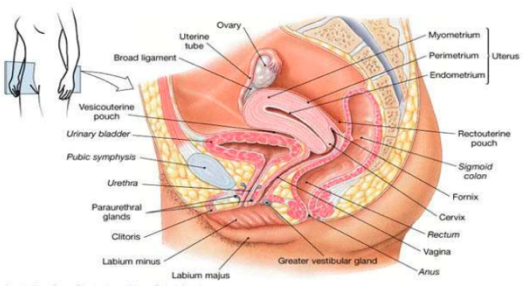


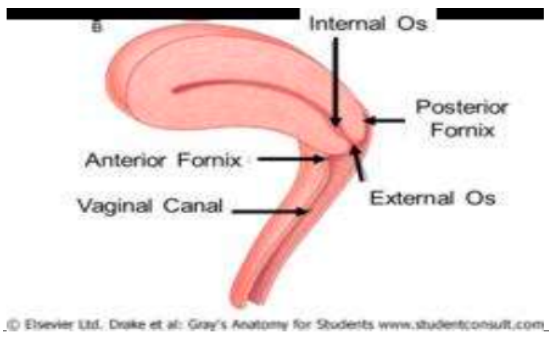
- **1- The Supravaginal part of the cervix :**
  - **Anteriorly** :
    - it is not covered by peritoneum.
    - It is related to urinary bladder with a cellular connective tissue in between called parametrium.
  - **On each side** :
    - it is related to parametrium, in which the uterine artery crosses the ureter 2 cm from the supravaginal cervix.
  - **Posteriorly** :
    - is covered by peritoneum and related to the rectum with Douglas pouch in between.



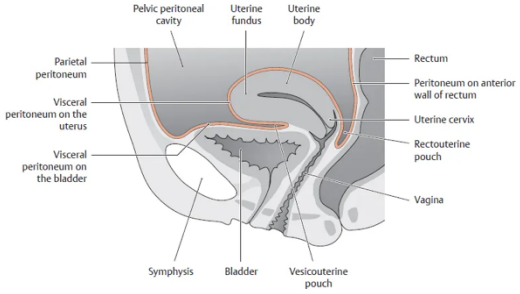
- **2- Vaginal part of the cervix :**
  - It projects into upper part of the vagina, dividing that part of vagina into four vaginal fornices
  - The posterior vaginal fornix is the **deepest** and the only one **covered by peritoneum.**



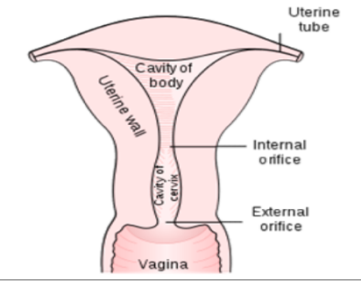




- **Peritoneal Covering of the Uterus** :
  - The posterior surface and fundus of body of uterus are covered by peritoneum
  - The peritoneium descends to cover its anterior surface down to the level of internal os, where it is reflected on to the bladder.
  - The supravaginal cervix is covered by peritoneum only posteriorly.
  - The front and sides of The supravaginal cervix are **bare** of peritoneum and related to cellular connective tissue, the parametrium.



- **Uterine Cavity :**
  - **A.Cavity of the Body :**
    - in coronal section is triangular, with its base between the openings of the uterine tubes and its apex is the internal os leading to the cervical canal .
  - **B. The cervical canal:**
    - Is fusiform, broad at its mid-level.
    - It communicates with the cavity of the body at the **internal os** and with the vagina by the **external os.**



- **Anatomical significance of the internal os :**
  - It corresponds to the isthmus of the uterus.
  - It is the site of junction between uterine cavity and cervical canal.
  - It is the level of the angle of anteflexion.
  - It is the level at which the peritoneum is reflected anteriorly on to the bladder