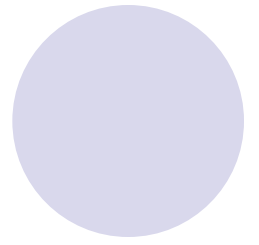
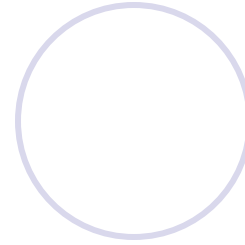
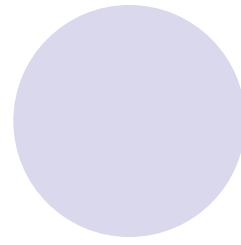
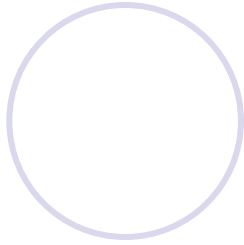


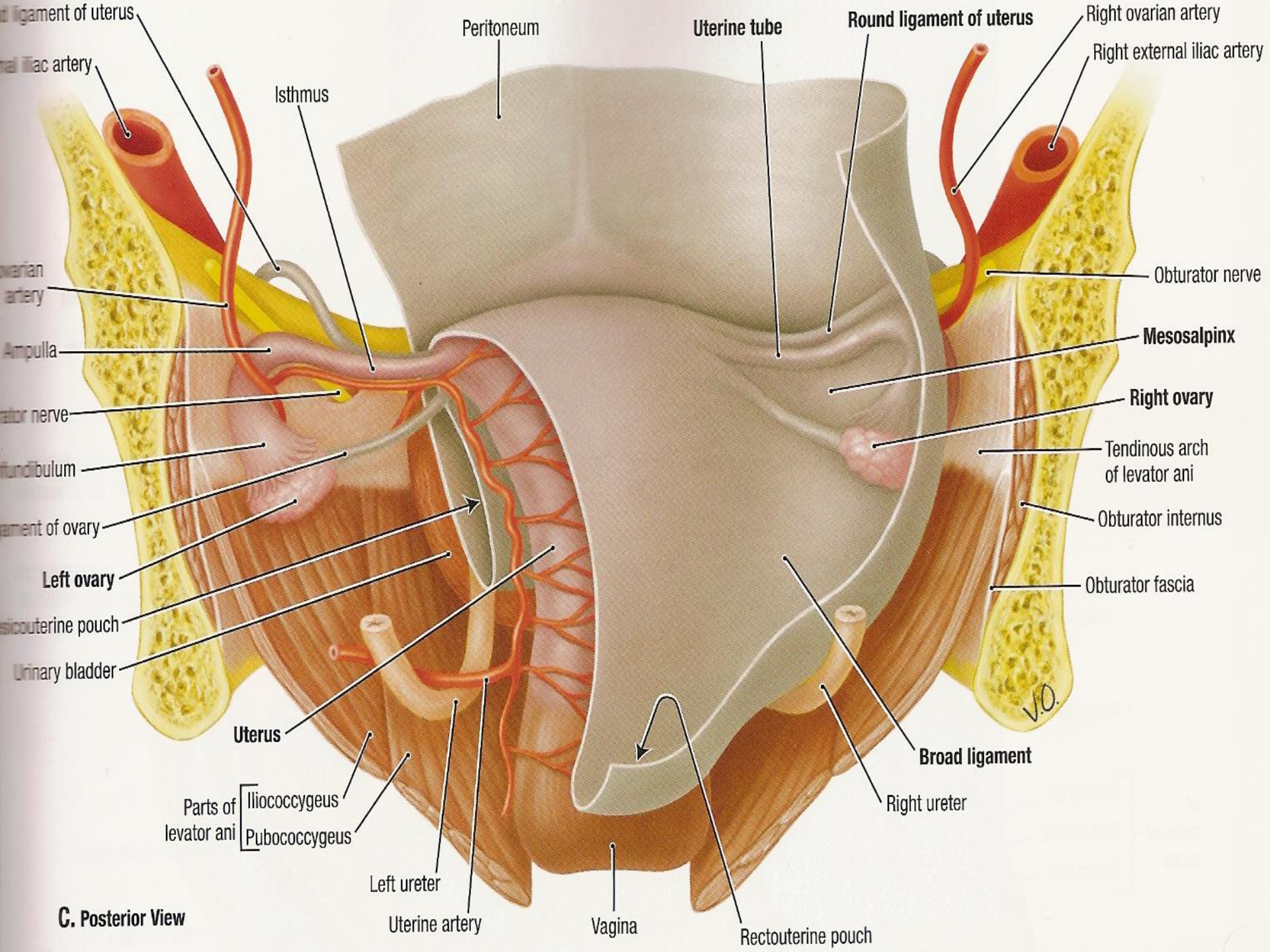
# Female Internal Genital Organs



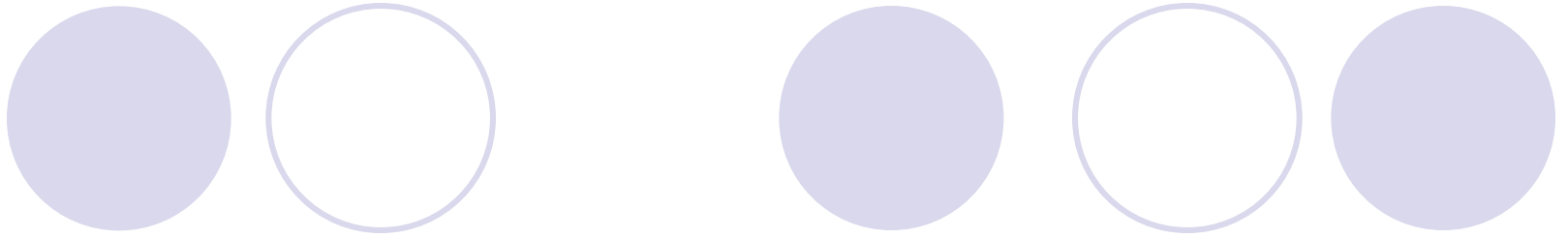
# Ovaries



- A pair of female reproductive organs.
- Is almond-shaped, 3cm long, 1.5cm broad & 1cm thick.
- Each ovary lies in the ovarian fossa on the lat. pelvic wall.



**C. Posterior View**



## The ovarian fossa bounded:

- (a) **Ant**.....obliterated umbilical a.
- (b) **Post**.....upper&int.iliacs a.
- The ovary attached to the post or upper layer of the broad lig. Of uterus.\*&lies below&behind the lat.(ampullary)part of u.tube,on each side of the uterus.

# Position(orientation



- In nulliparous women ....long axis  
...vertical,so that the ovary have an upper pole&lower pole.
- In multiparous women.....long axis...horizontal, so upper pole points lat.&lower pole med.

# External Features



- In young girl.before ovulation starts the ov.have smooth surface & pink colour.
- After puberty ....ovulation starts,the the surface becomes puckered ....scar of successive corpora lutea & colour changes to grey .

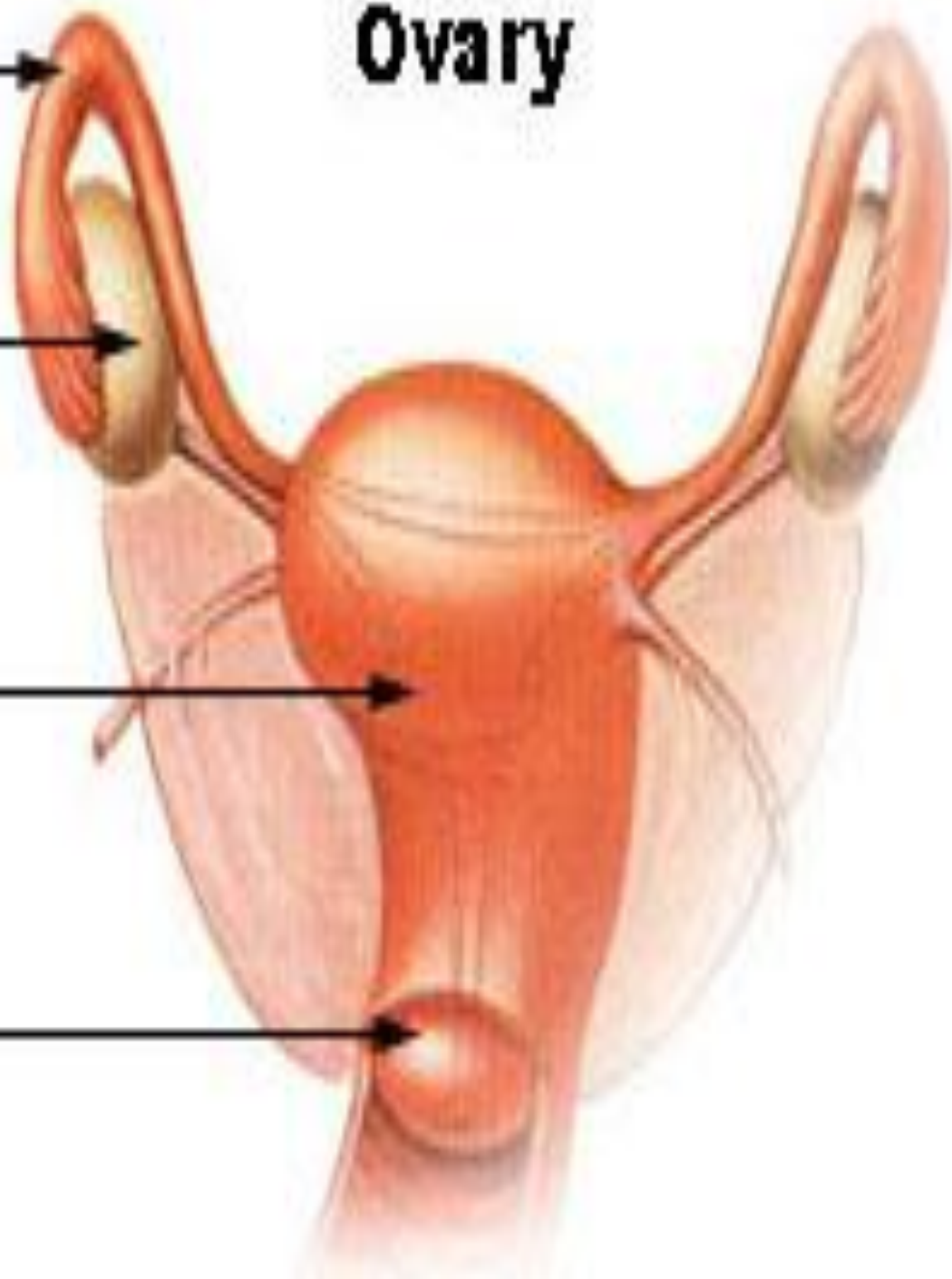
Fallopian tube

**Ovary**

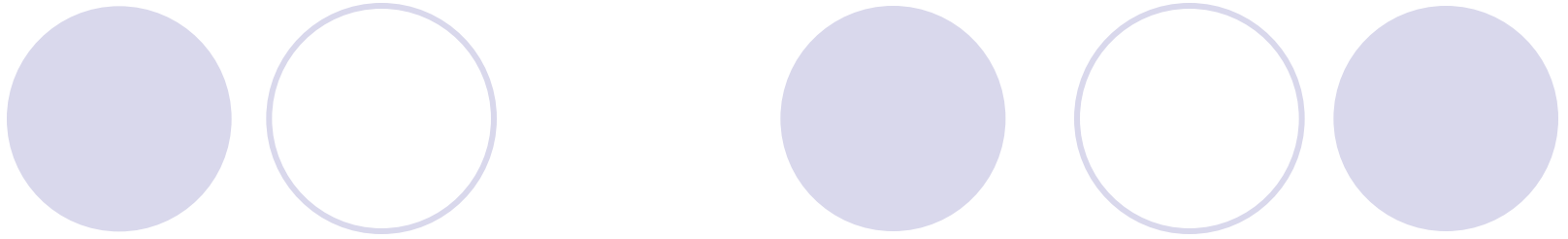
Ovary

Uterus

Cervix



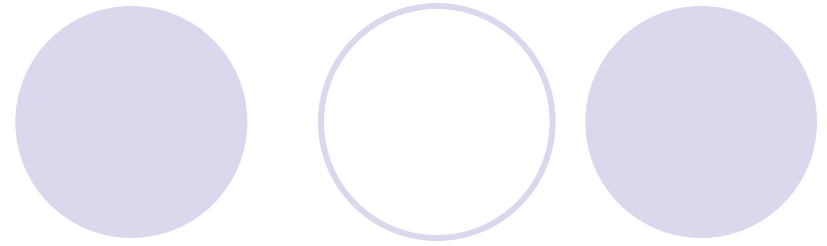




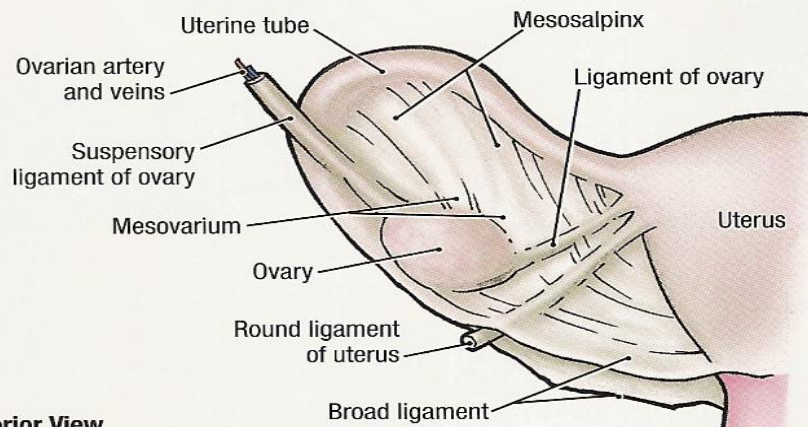
## Each ovary has

- (A) Two pole or extremities, upper or tubal pole & lower or uterine pole.
- (B ) Two borders, the ant. or mesovarian border & post. or free border .
- (C) Two surface. lat. & med.

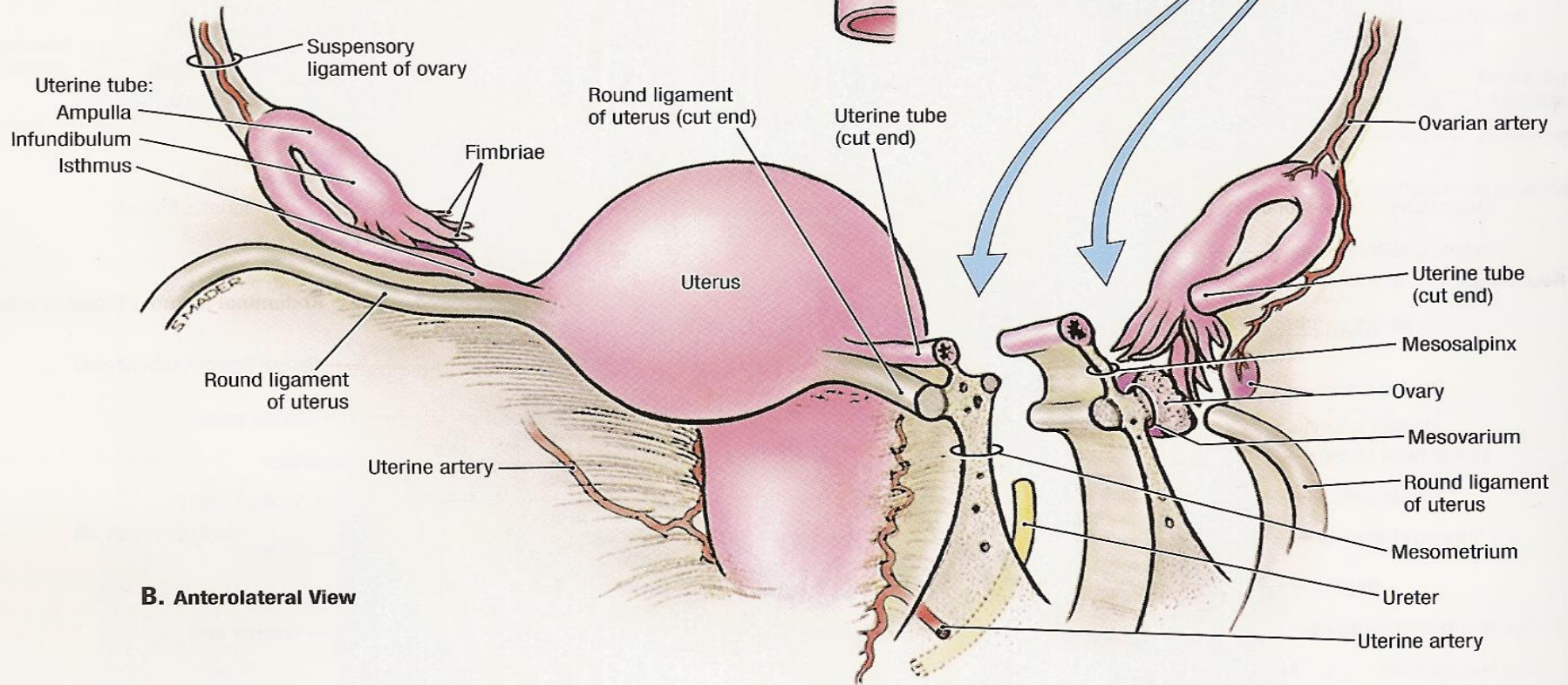
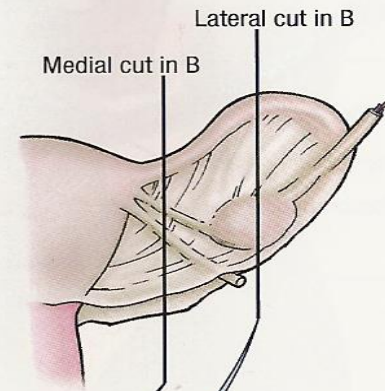
# Relation of ovary



- A) **Peritoneal Relation**
- Is covered entirely with peritoneum except along the mesovarium (ant.) border where the two layers of covering perit. are reflected on to the post. layer of broad lig.
- The meso. trans. the v. & n. to & from the ovary.
- Suspensory lig. of ovary (lat. part, of broad lig. extend. ... infundibulum of tube. & up. pole. of ovary) .... ext. iliac. v. it contains ov. v. & n.



**A. Anterior View**



**B. Anterolateral View**

## B.Visceral Relation



- (1) upper or tubal pole: is broader than lower pole ... is related to ut. tube & ext. iliac .v. (the sup. lig. of ovary & ov. fimbri. attached to it.)
- (2) lower or ut. Pole: is narrower ... related to pelvic floor. it is connected by lig. Of. ovary to the lat. angle of uterus.; post. inf. to the ut. tube.

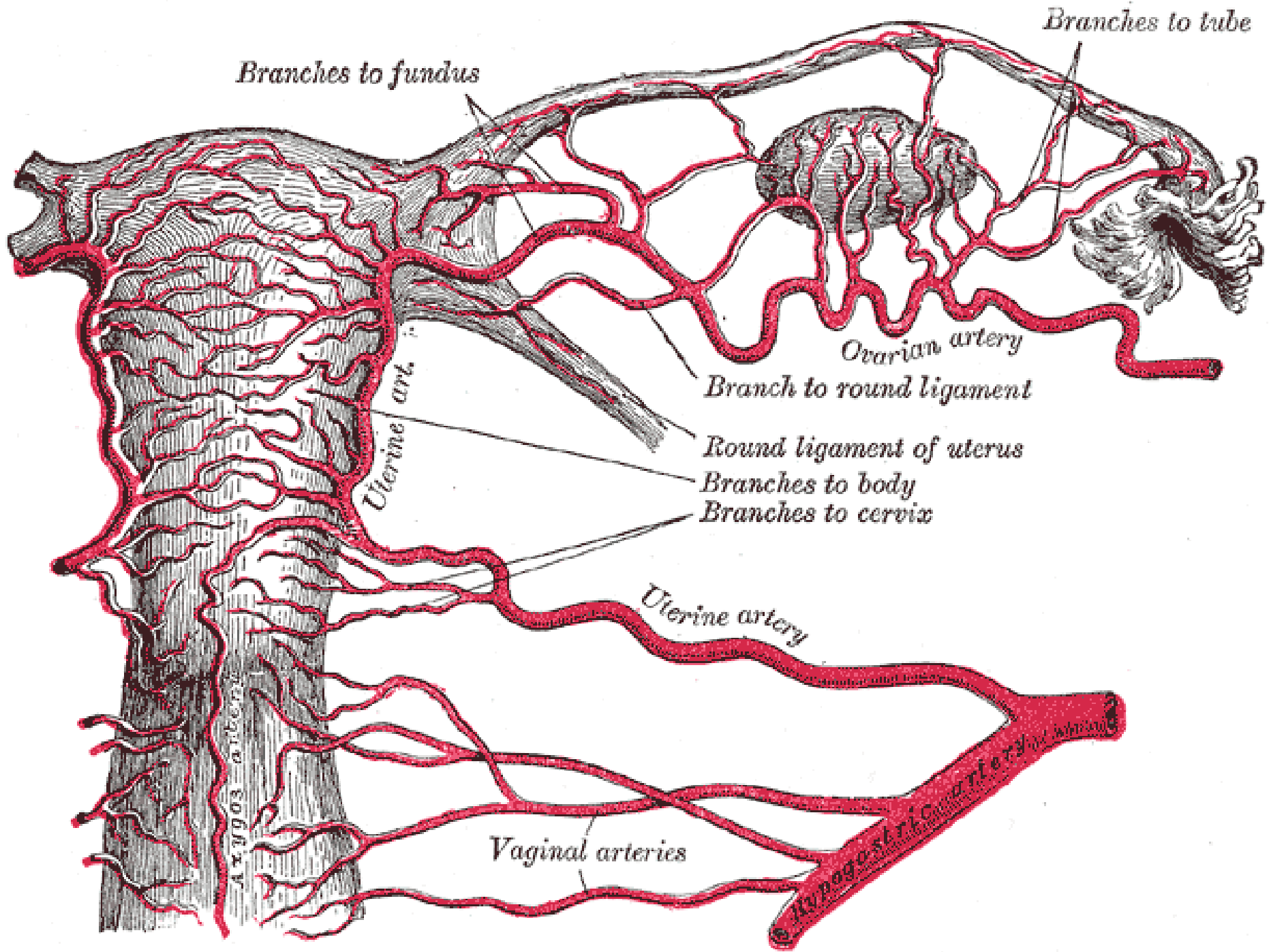


- (3) ant. or mesovarium border: is straight .... is related to uterine tube & obliterated umb. A.
- (4) post. Or free border .it is convex & is related to the uterine tube & uerter.
- (5) lat. surface .it is related to ovarian fossa which is lined by parietal pert.
- (6) medial surface .it is largely covered by the ut. tube.

# Arterial supply



- (1) : ovarian a.....from abdominal aorta  
..level 1<sup>st</sup> v. It descends over the  
post.abdominal wall.&enters the  
suspensory lig.of ovary.it sends branches  
...mesovarium.&con.med ....broad lig.of  
uterus..... Anastomose ....ut.a.
- (2)uterine a. reach the ovary through the  
mesovarium.



*Branches to fundus*

*Branches to tube*

*Uterine art.*

*Ovarian artery*

*Branch to round ligament*

*Round ligament of uterus*

*Branches to body*

*Branches to cervix*

*Uterine artery*

*Axylar artery*

*Vaginal arteries*

*Hypogastric artery*



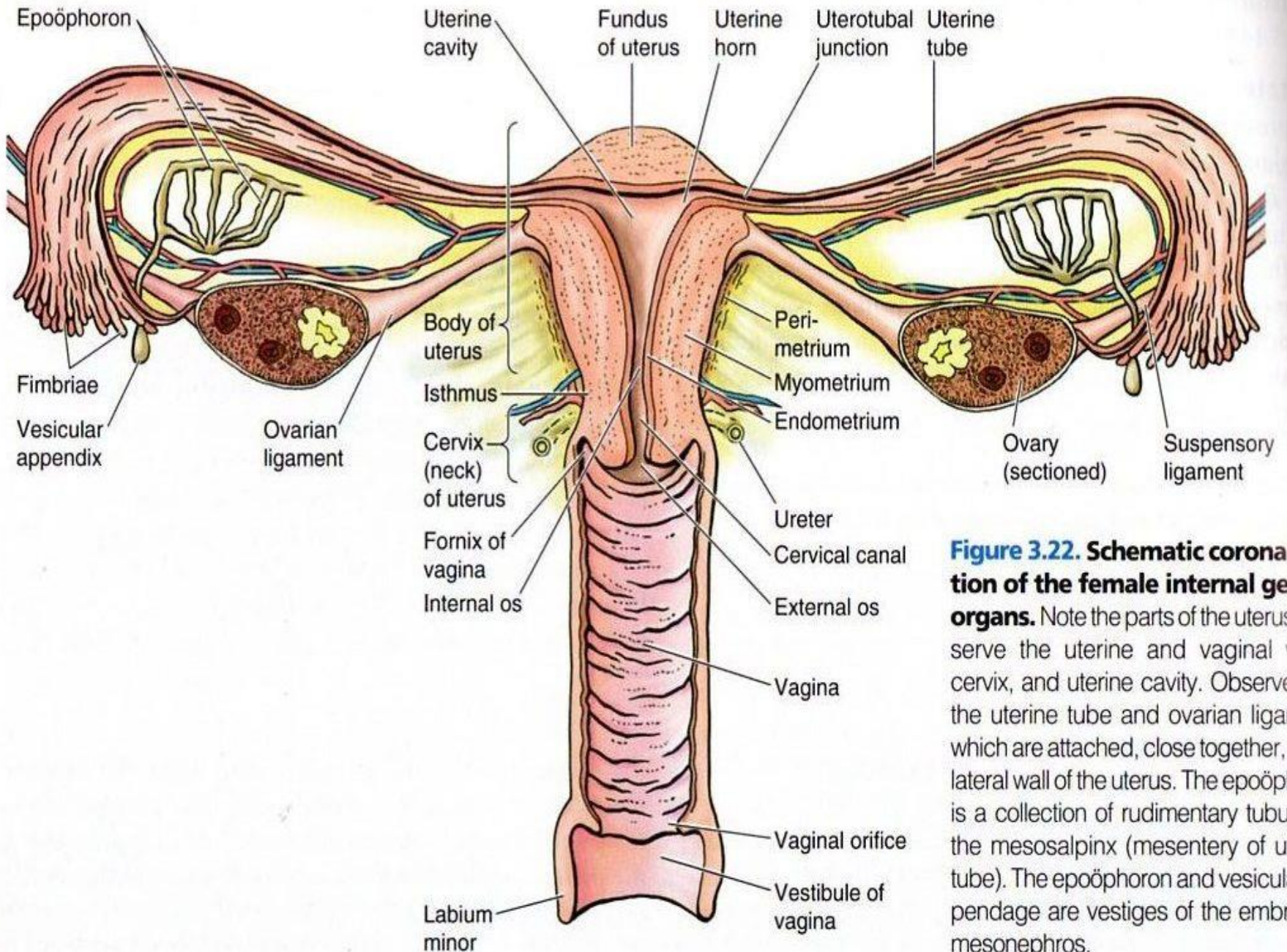
- Venous drainage: the ovarian a. drains into the inf. vena cava on the R side & L. side into L. renal v .
- Lymphatic drainage : the Lymphatics comm. With Lymph. from ut. tube & fundus of the uterus . & follow the ovarian a. & drain into para-aortic nodes at level of 1<sup>st</sup>. V.



# Nerve supply



- The ovarian plexus ,derived from the renal,aortic &hypogastric plexus ,acomp. Ovarian v. containe both symp.&parasymp
- Symp.( T10,11)are afferent for(pain)as well as efferent(vasomotor)
- Parasymp.(S2,3.4)are vasodilator.



**Figure 3.22. Schematic coronal section of the female internal genital organs.** Note the parts of the uterus. Observe the uterine and vaginal walls, cervix, and uterine cavity. Observe also the uterine tube and ovarian ligament, which are attached, close together, to the lateral wall of the uterus. The epoöphoron is a collection of rudimentary tubules in the mesosalpinx (mesentery of uterine tube). The epoöphoron and vesicular appendage are vestiges of the embryonic mesonephros.

# Uterus

Is a hollow, thick-walled, muscular organ situated deeply in the pelvic cavity between the bladder and rectum. Into its upper part the uterine tubes open, one on either side, while below, its cavity communicates with that of the vagina .

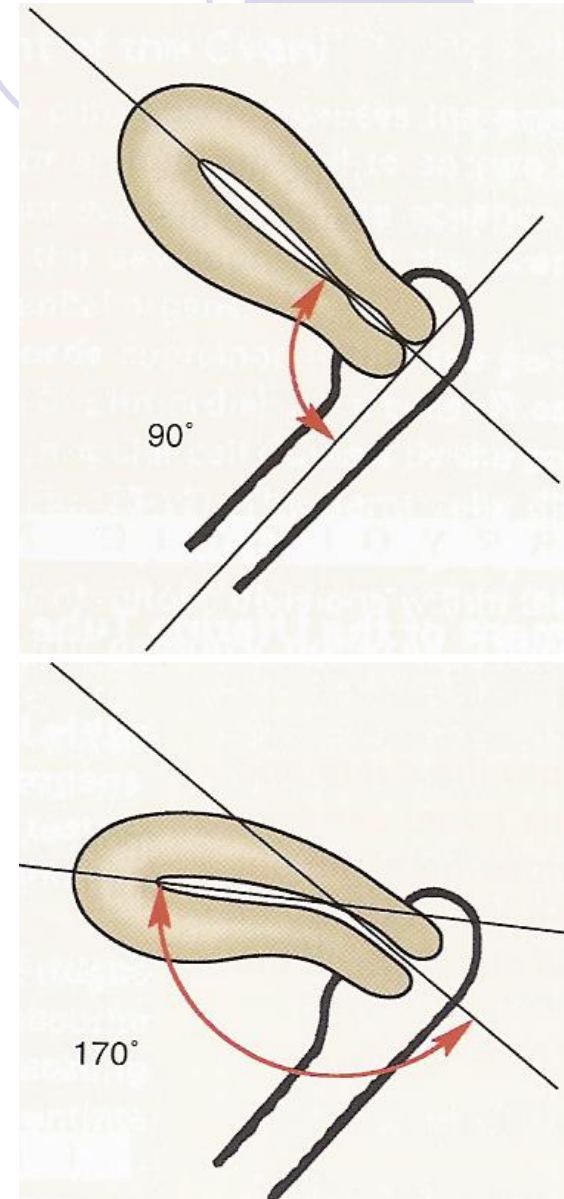


The uterus is flattened antero-posteriorly and is pyriform in shape, with the apex directed downward and backward

\* The uterus measures about 7.5 cm. in length, 5 cm. in breadth, at its upper part, and nearly 2.5 cm. in thickness; it weighs from 30 to 40 gm.

# NORMAL POSITION AND ANGULATION

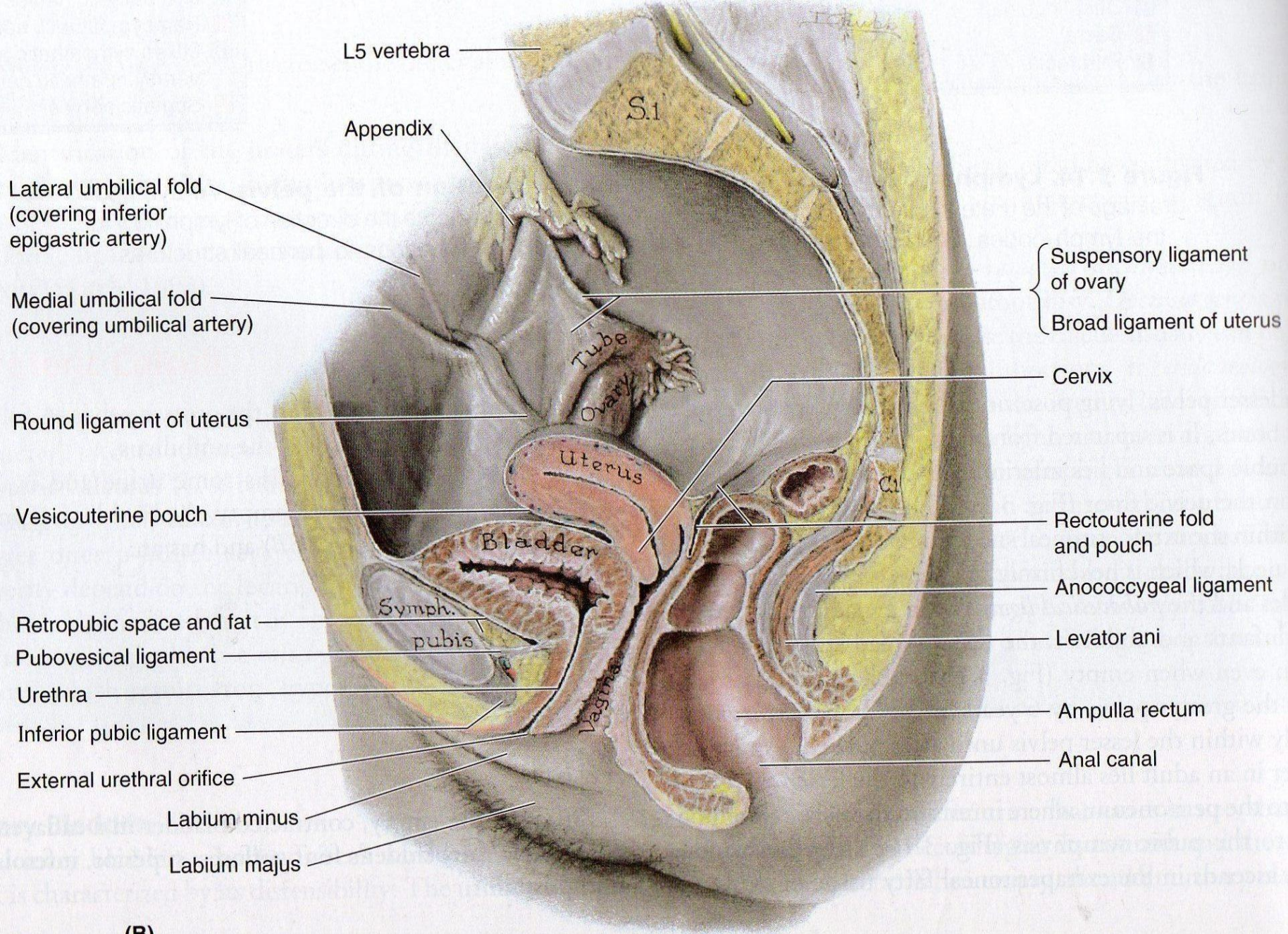
- Normally the uterus is anteverted and ante flexed.
- Forward angulations between the cervix and vagina called of ante version (about 90 degrees)
- Slight forward angulations between the body and cervix is called angle of ante flexion (170 degrees)



# *Gross Features*

- The uterus is divided into :
- A- Body of uterus (upper 2/3) has:
  - (a) Fundus
  - (b) 2 Surfaces, anterior or vesical and post. or intestinal.
  - (c) 2 Lat borders.
- B- Cervix of uterus (lower 1/3) .

- **FUNDUS** : convex like adome .it covered with peritoneum and is directed forwards when the bladder is empty.
- **ANT.SURFACE** : is flat and related to urinary bladder. It is covered with peritoneum and forms the post. (super.) wall of the vesicoutrine pouch.
- **POST. SURFACE** : is convex and related to terminal coils and sigmoid colon. It is covered with peritoneum and forms the ant.wall of the recto uterine pouch(douglas pouch).
- **LAT .BORDER** : is rounded and convex ,it provides attachment to the broad lig. Of uterus. Which extends to the lateral pelvic wall . uterine artery ascends along the lateral border of uterus between the two layers of the broad lig.

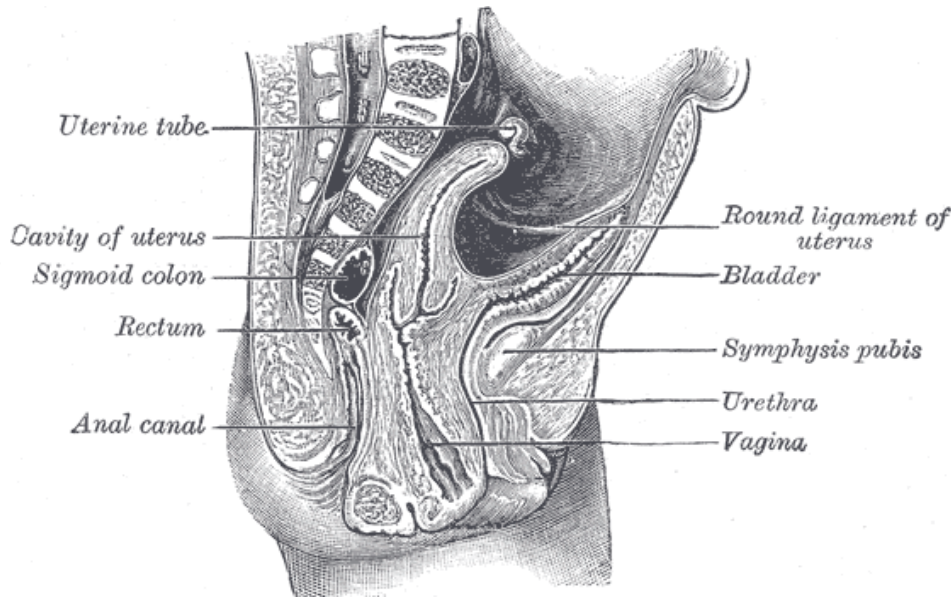
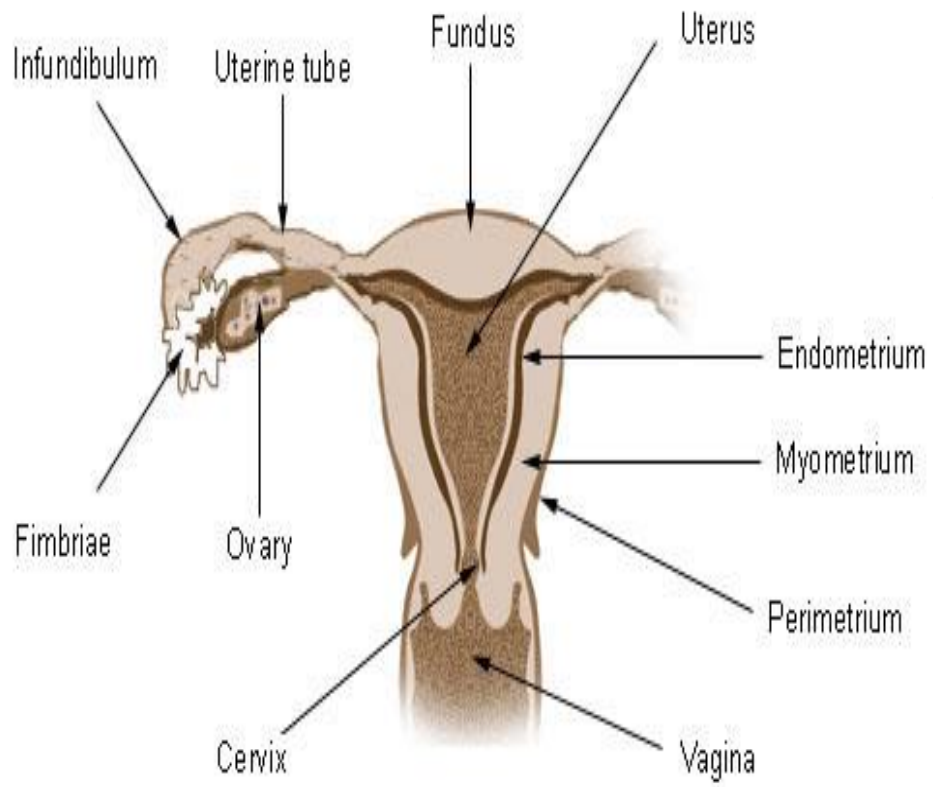


(B)



- THE CAVITY OF THE BODY OF UTERUS: is a mere slit in sagittal section because uterus is compressed anteroposteriorly
- Coronal section is ▲ shape ,with internal os at the inferior angle and uterine openings at the superolateral angle .

**Uterus and Uterine tubes**



# cervix of uterus

- Is the lower cylindrical part of the uterus which is less mobile than the body.
- About 2.5cm long, and is slightly wider in the middle than at either end.
- The lower part of cervix projects into the anterior wall of the vagina, which divides it into.

A- superavaginal part of cervix : is related

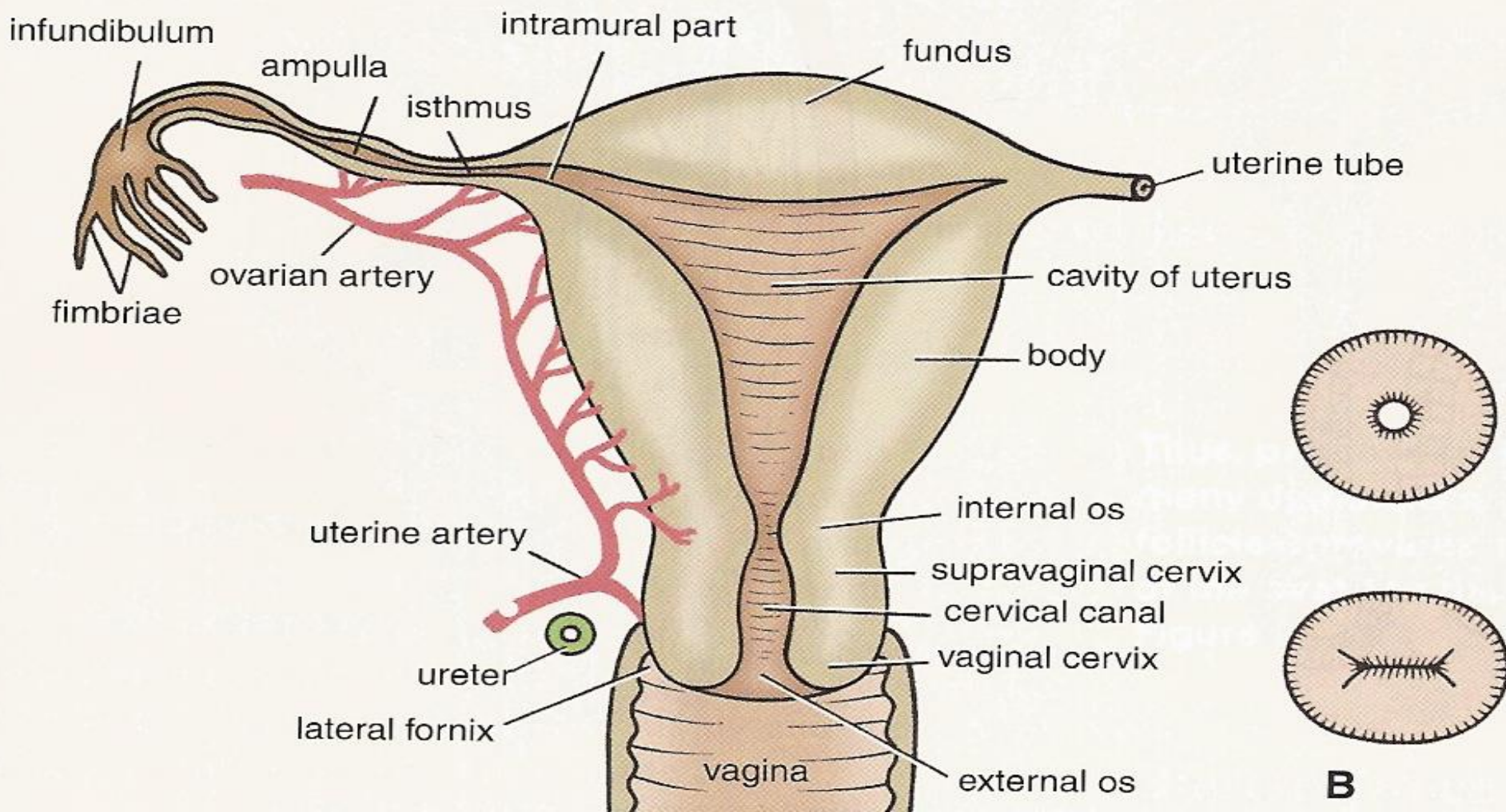
- a) **anteriorly** to bladder.
- b) **posteriorly** to rectouterine pouch with intestinal coils and rectum.
- c) **on the each site** to ureter and uterine artery embedded in parametrium.

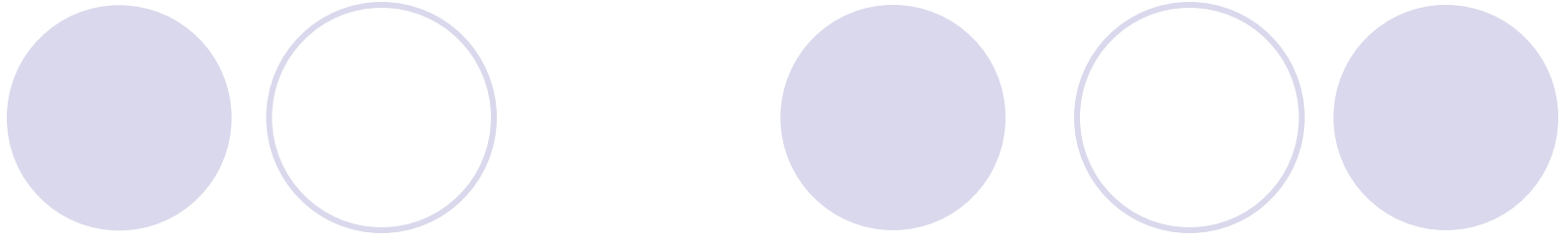
B- Vaginal part of cervix : projects into the ant. Wall of vagina forming the vaginal fornices.

## Cervical cannal

- is fusiform in shape ,being flattened from before back wards
- It communicates above with uterine cavity through the internal os and below with vaginal cavity through the external os.
- The mucosal folds in the ant. And post. Walls of cannal resemble the branches of atree (**arbor vita uteri**).
- The body is demarcated from the cervix by the **ISTHMUS** of the uterus ,a relatively constricted segment ,1cm long.

- In nulliparous women the external os is small and circular, while in multiparous the external os is bounded by the ant. and post. Lips, both are in contact with post. Wall of vagina.





- The wall of the body of uterus: consists of three coats or layers
- A- Perimetrium: outer serous coat consists of periton. Supported by thin layer of con. T.
- B- Myometrium: the middle coat of smooth m. becomes greatly distended during pregnancy. the main branches of the b.v.&n. are located in this coat.
- C- Endometrium: inner mucous coat. is actively involved in the m. cycle .
- The m. t. in the cervix is markedly less than the body of uterus so it composed mainly of collagen & small amount of s.m. & elastin.

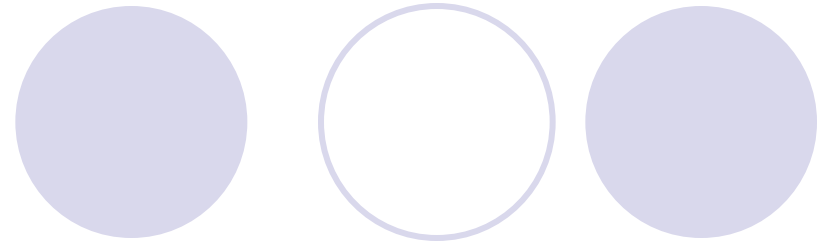
# Ligament of uterus

- A- Peritoneal lig`s:
- These are mere peritoneal folds which do not provide any support to the uterus.
- (1) **Ant. Lig**: Consist of uterovesical fold of peritonum.
- (2) **Post.Lig**: Consist of rectovaginal fold of peritonum.
- (3) **Two broad Lig.**

# Broad Ligaments

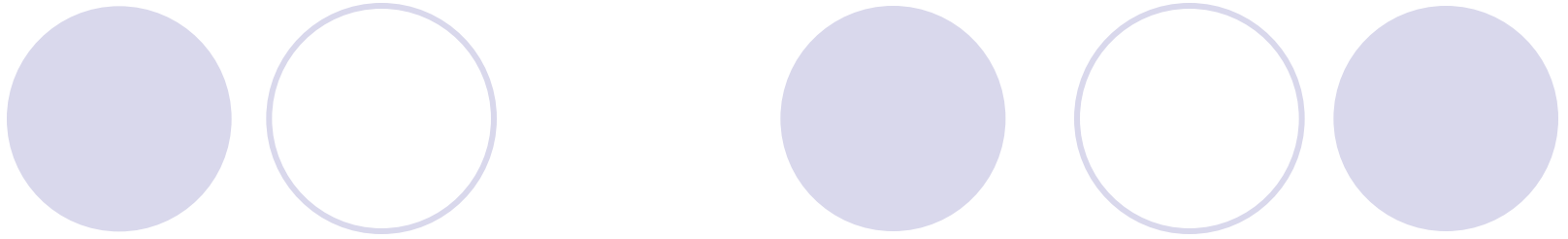
- Are two broad folds of peritoneum which suspend the uterus to the lat.pelvic wall.
- When the bladder full ,lig. Has ant. and post. surfaces and free upper border ,the other 3 borders (inf.,medial,and lat.)are attached to pelvic floor, uterus and lat. Pelvic wall.

- **Divided into:**
- (a) mesosalpinx.
- (b) mesometrium.



- (c) infundibulo pelvic lig.
- (d) mesovarium.
- **Broad lig. Contain the following :**
- 1. ut. tube.
- 2. two lig, (a). round lig. of uterus. (b) lig. of ovary.
- 3. two v. (a) uterine v. (b) ovarian v.
- 4. two n. (a) uterovaginal plexus. (b) ovarian plexus.



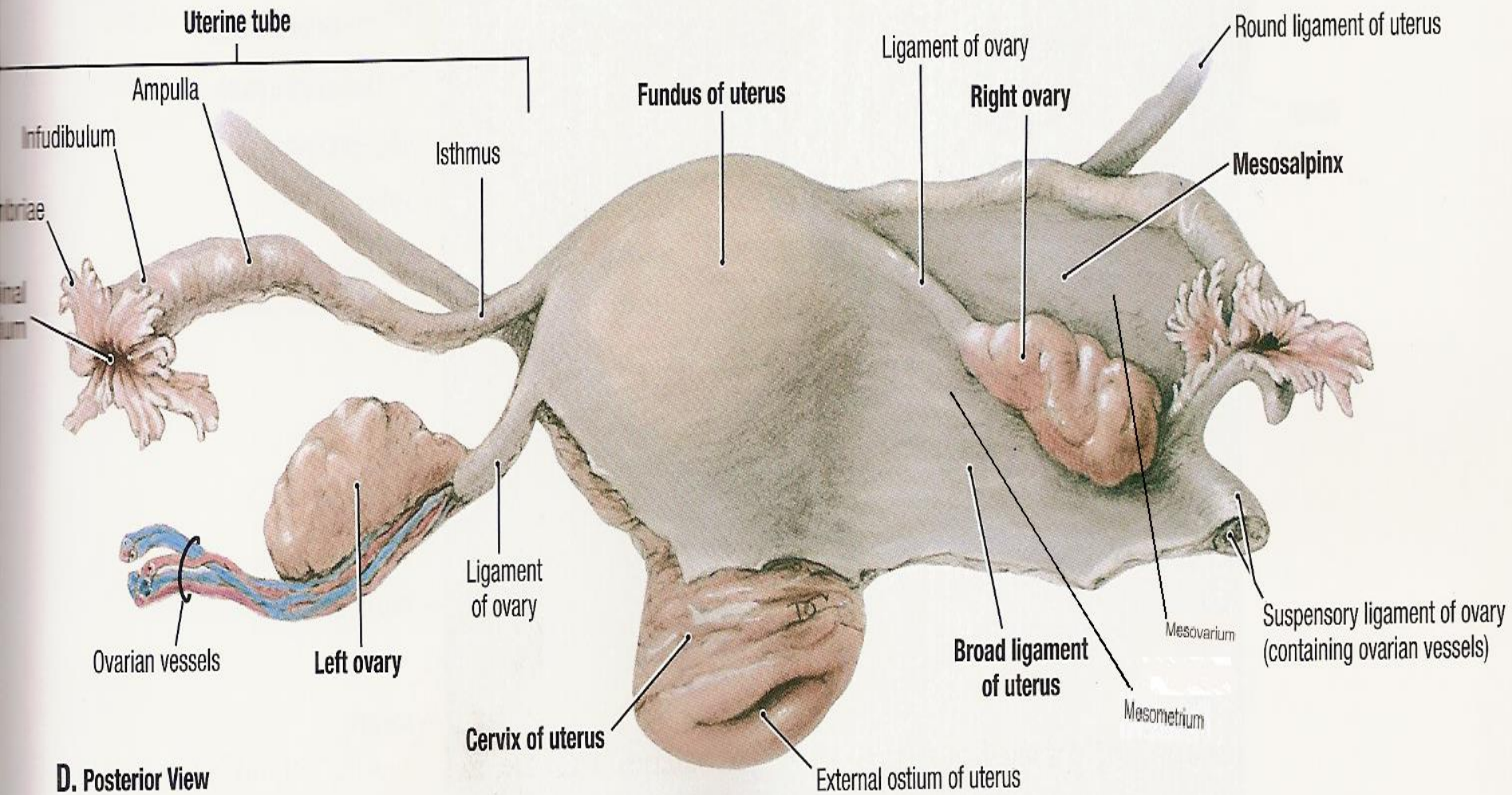


- 5. Two miscellaneous structures; (a) lymphatics and lymph nodes. (b) fibroareolar tissue or parametrium.
- 6. two embryological remnants.  
.(a) epoophoron and the duct of epoophoron (Gartners). (b) paroophoron.
- (B) **fibromuscular lig** :
- (a) round lig. of uterus.
- (b) transverse cervical lig`s
- (c) uterosacral lig`s



## Round lig. Of uterus

- Are two flattened bands between 10 and 12 cm, in length, situated between the layers of the broad ligament in front of and below the uterine tubes.
- This ligament is directed forward, upward, and lateralward over the external iliac vessels.
- It then passes through the abdominal inguinal ring and along the inguinal canal to the labium majus, in which it becomes lost.
- This lig. Keeps the fundus pulled forwards & maintains the angle of anteversion against the backward pull of the uterosacral lig.s.



# Age and Reproductive changes

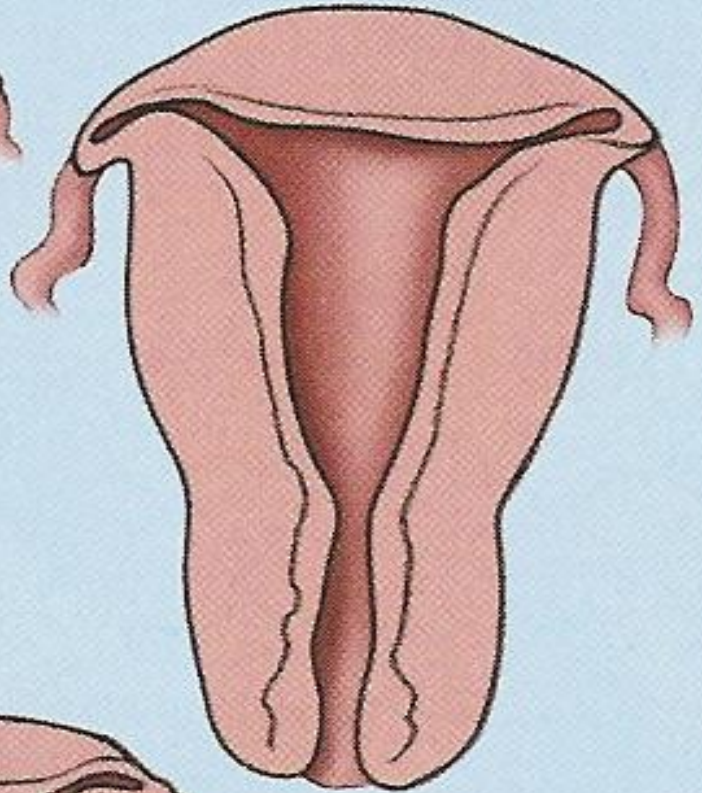
- In fetal life; the cervix is large than the body which projects a little above the pelvic brim.
- At puberty the uterus enlarges and descends to adult position.
- During menstruation is slightly enlarged and becomes more vascular. The arbor vitae uteri also appear.
- During pregnancy is becomes more enlarged ,due to hypertrophy of the fibers and partly hyperplasia.
- In old age uterus

Newborn

4 year-old

Puberty

Nulliparous\* adult

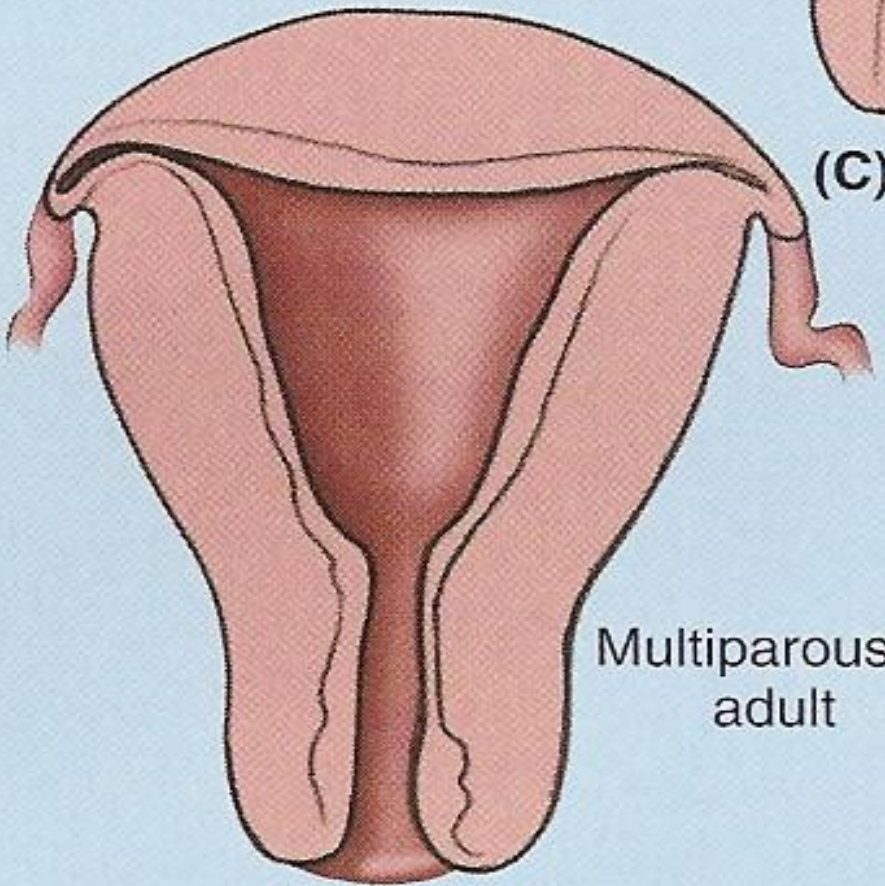


(A) 2:1

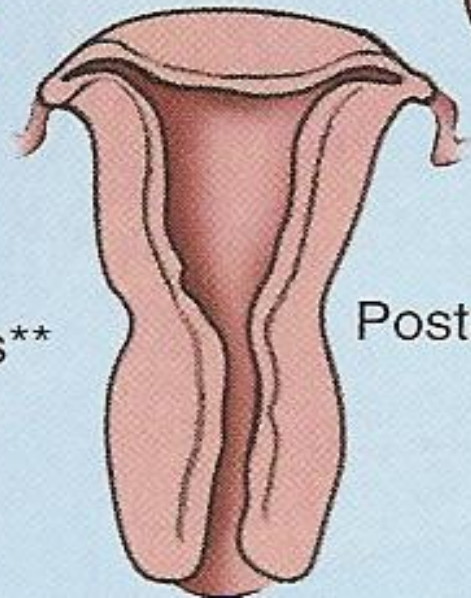
(B) 1:1

(C) 2:1

(D) 2:1



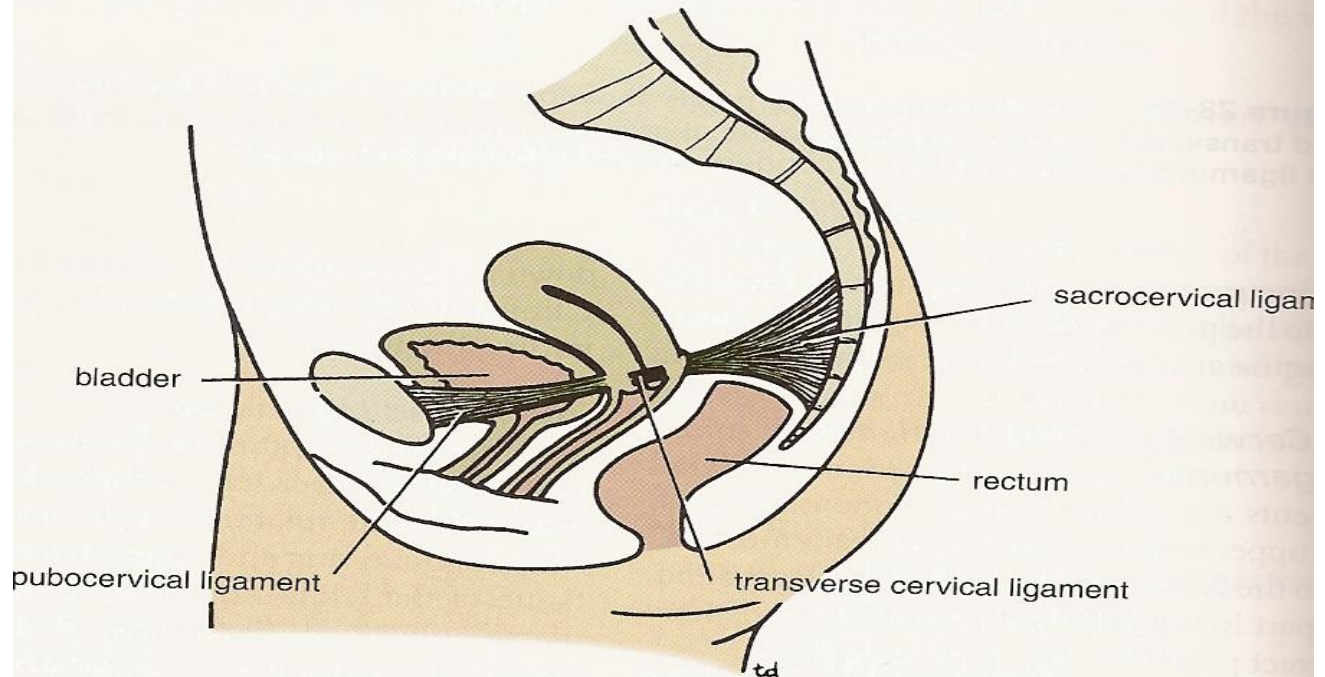
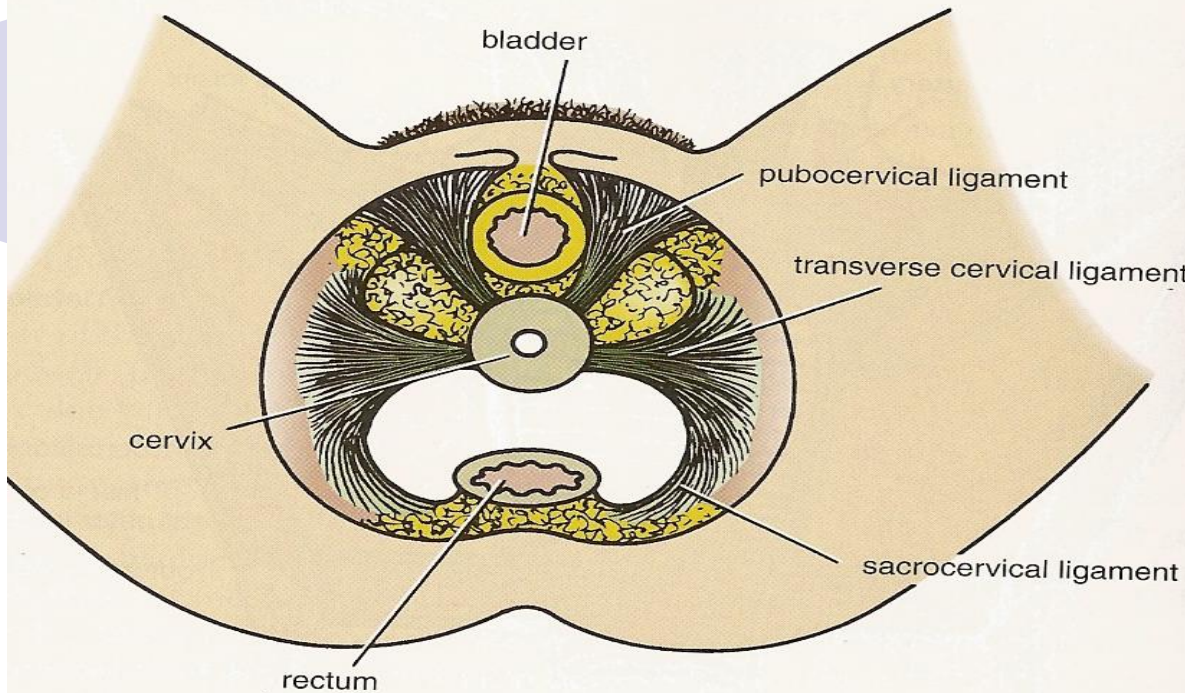
Multiparous\*\*  
adult

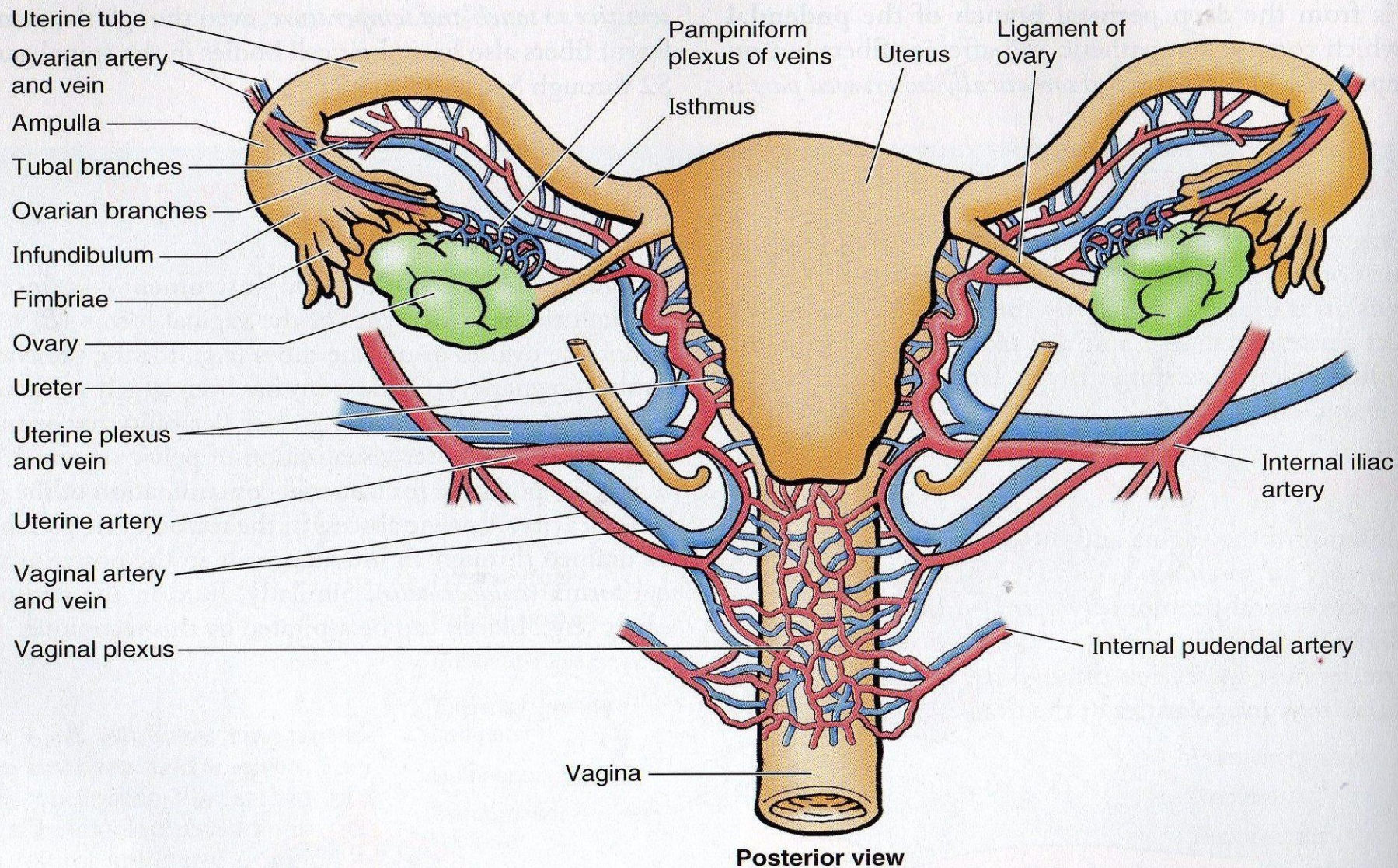


Postmenopausal

# Supports of Uterus

- A- Muscular or active:
- (1) pelvic diaphragm.
- (2) perineal body.
- (3) urogenital diaphragm.
- B- Fibromuscular or mechanical:
- (1) pubocervical lig (connect the cervix to post. Sur. Of pubis)
- (2) Transverse cervical lig. (lat. Cervical lig., Mackenrodt's lig. cardinal lig. extend from the cervix & lat. parts of the fornix of the vagina to the lat. Wall. of **the pelvis**.)
- (3) Uterosacral lig (pass sup. & slightly post. from the sides of the cervix to the middle of the sacrum..)





**Figure 3.25. Blood supply and venous drainage of the uterus, vagina, and ovaries.** The broad ligament of the uterus is removed to show the ovarian artery from the aorta and the uterine artery from the internal iliac artery supplying the ovary, uterine tube, and uterus. Observe also the anastomosing tubal and ovarian branches within the broad ligament (removed). Examine the pampiniform plexus and ovarian vein and the uterine plexus and vein.



# Arterial supply

- (1) chiefly by two uterine a.
- (2) partly by the ovarian a .
- Uterine a. is branch from the ant. division. of int. iliac a.
- 1<sup>st</sup> it runs medially towards the cervix , crossing the ureter above the lat. For nix of vagina & 2cm lat. to cervix . then the a. ascends along the side of the uterus, with tortuous course.
- L finally it runs lat. to the hilus of the ovary & anast. with the ovarian a.
- It supp. (1) uterus..... helicine a. (2) vagina..... ant. & post. azygosa. (3) medial 2/3 ut. tube. (4) ovary. (5) uerter. (6) contents of broad lig.

# Lymphatic drainage

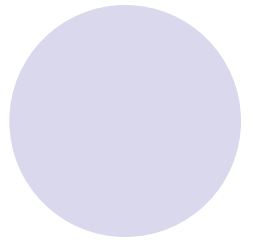
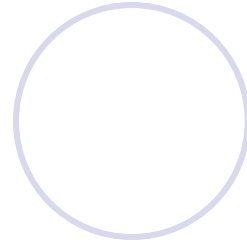
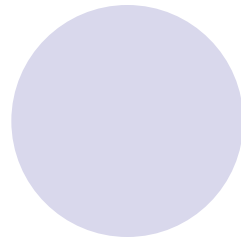
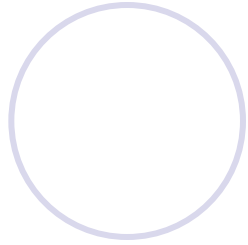
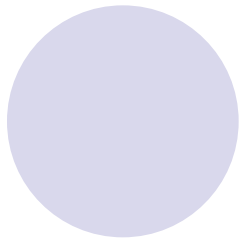


- Begin as 3 intercomm. Networks. Namely endo. Myom. Subperit.
- These plexuses drain into lymph. on the side of the uterus.
- Upper lymph.....(fundus&upper part of the body pass to...aortic nodes.&partly....tosup.ing nodes)
- Lower lymph...(cervix to...exter.,inter.ilic&sacral nodes)
- Middle lymph.....(lower part of the body pass to....exter.ilic nodes.



# Nerve Supply

- By both sympathetic & parasympathetic through the inf. hypogastric & ovarian plexuses.
- Symp. (T12, L1)..... uterine cont. & vasocons.
- Parasymp (S2, 3, 4)..... uterine inhibi. & vasodil.



THANK YOU