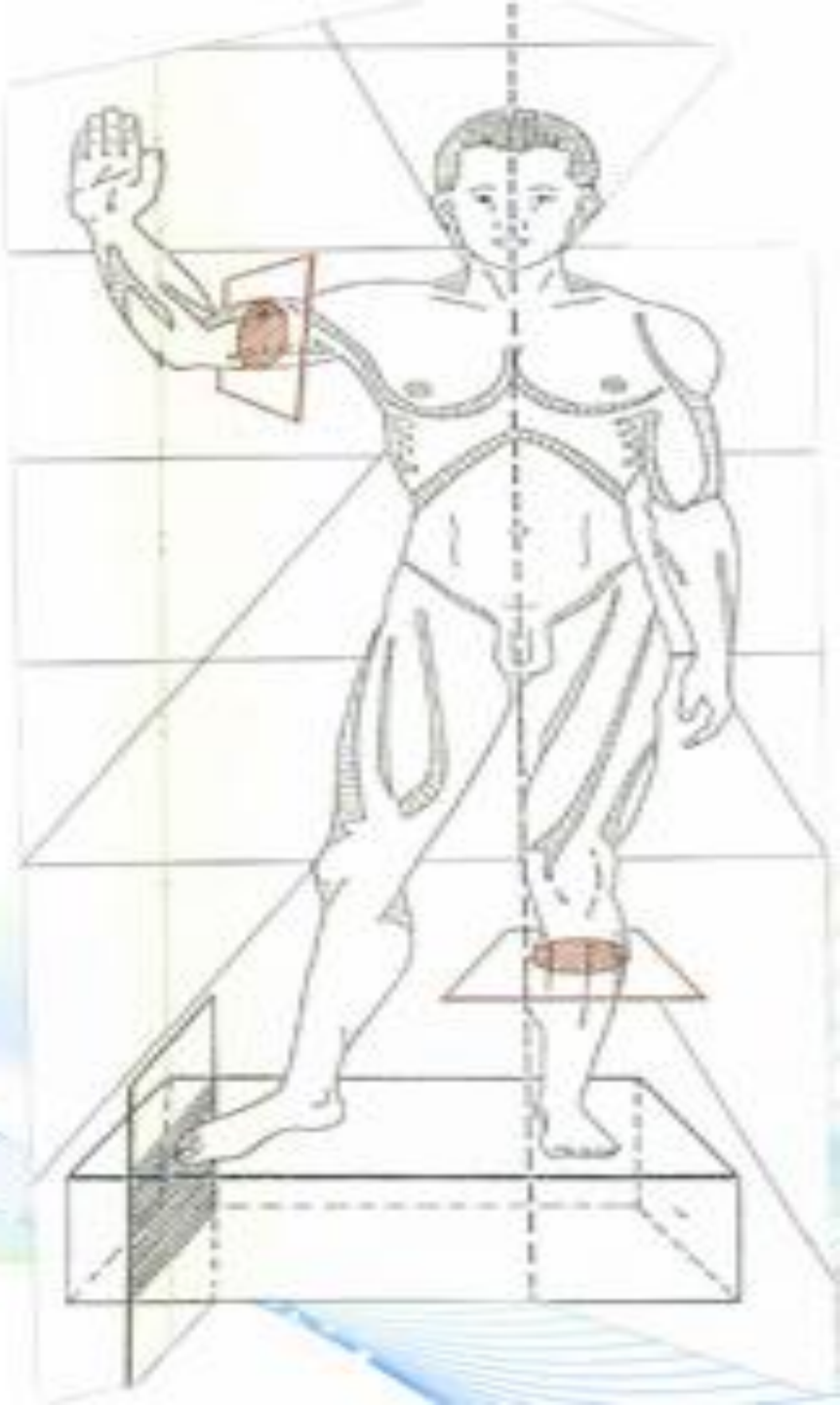
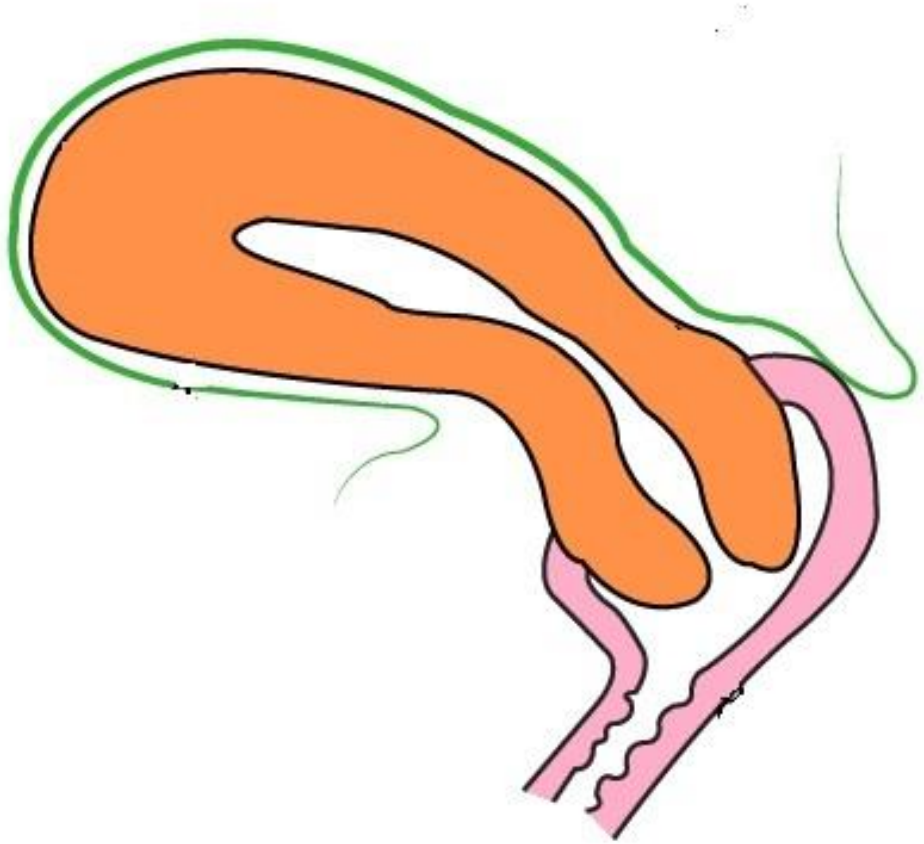
UTERUS



Pr M. D. EL AMRANI Dr BENTALEB Oussama Dr ERRAJI Imane

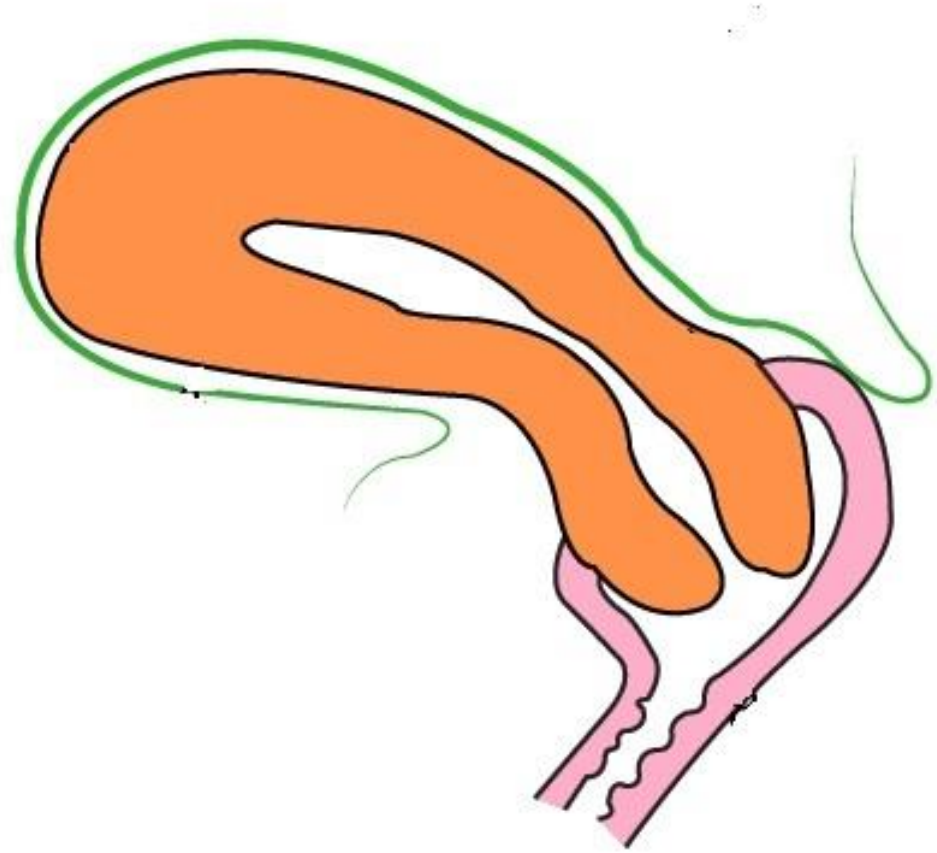
CONTENTS



I. INTRODUCTION

- Thick-walled, muscular and hollow organ in the midline between the bladder and rectum

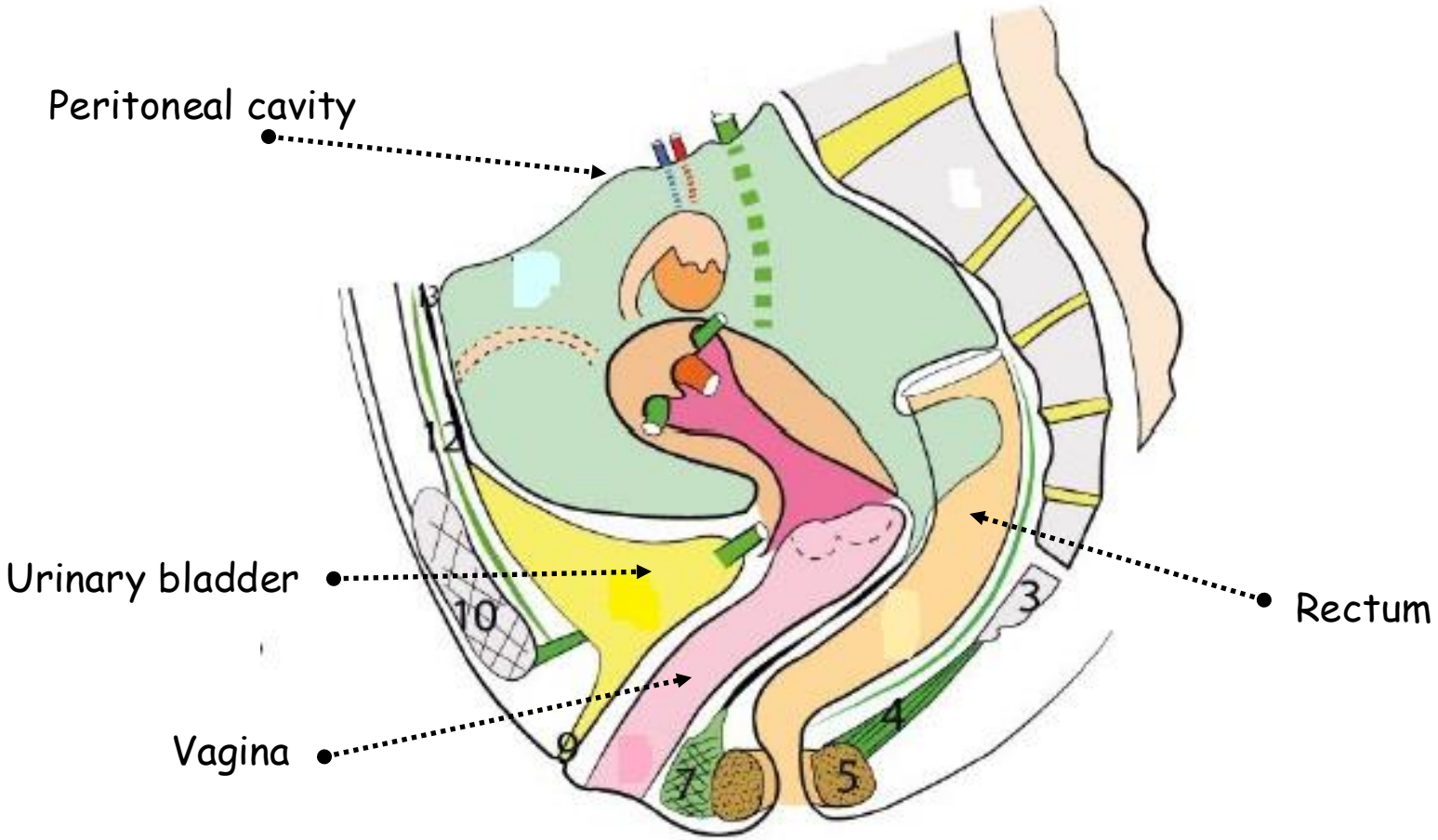
- Provides a nidus for the developing embryo and ensures the labor during childbirth



II. DESCRIPTIVE ANATOMY

A. SITUATION

- Located in the middle part of the pelvis, between:
  - -Front: bladder
  - -Back: rectum
  - -Bottom: vagina and perineum
  - -Top: peritoneal cavity



SAGITTAL SECTION OF THE FEMALE PELVIS MINOR (ACCORDING TO KAMINA)

B. SHAPE

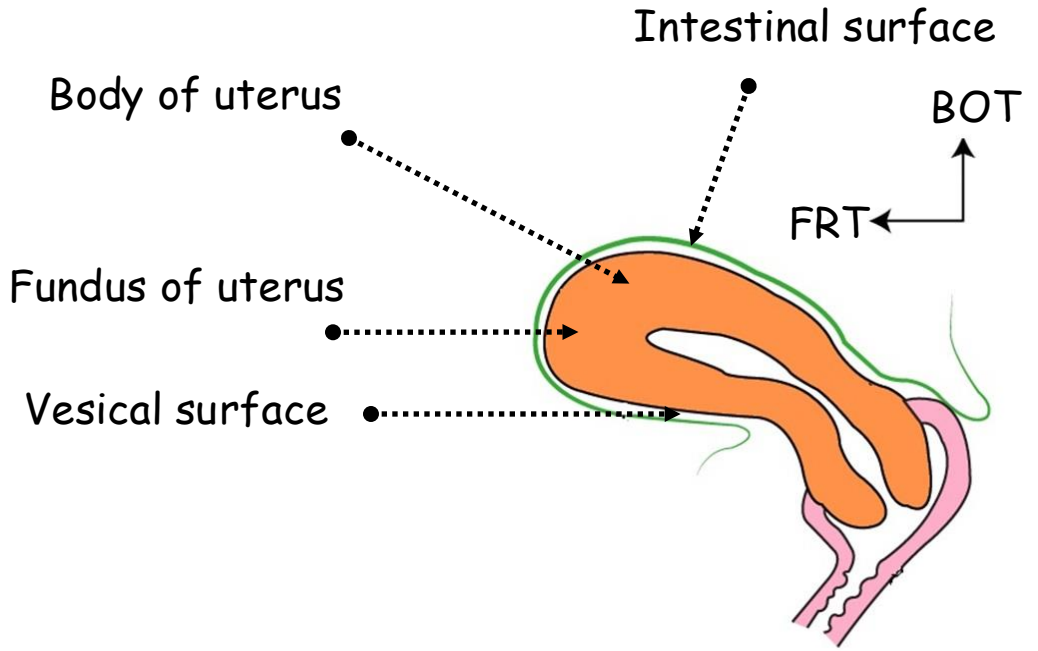
- It is shaped like a flattened pear
- Possesses a fundus, body, isthmus and cervix

1. Fundus:

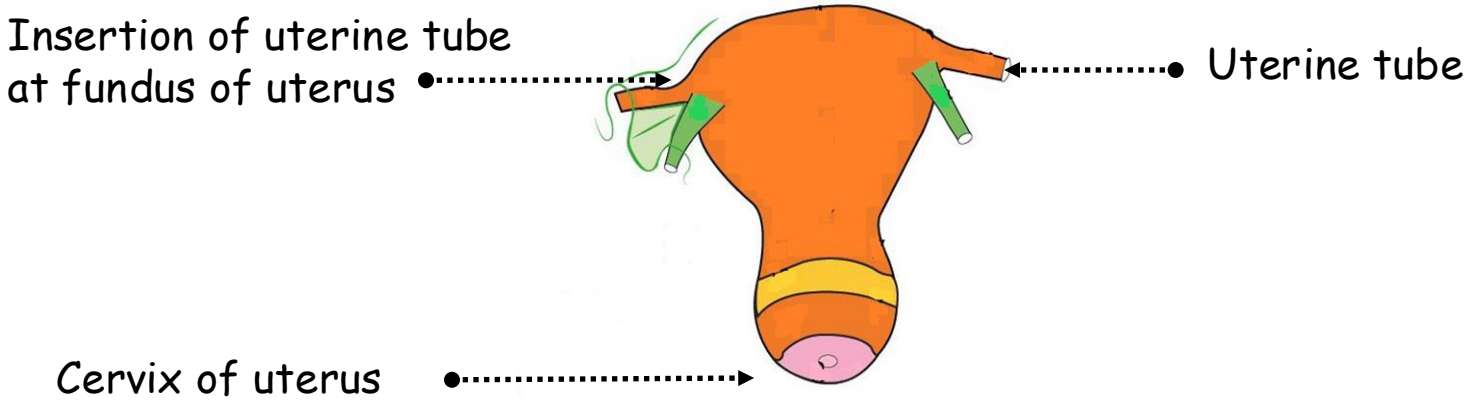
- Part above the entrance of the tubes
- Convex and covered by pelvic peritoneum

2. Body:

- Tapers downwards from the fundus and is flattened anteroposteriorly
- Each upper angle (cornu), at the junction of fundus and body, receives the uterine tubes
- The intestinal surface of the body faces upwards with coils of intestine lying upon it
- The vesical surface rests on the bladder



SAGITTAL VIEW OF THE UTERUS



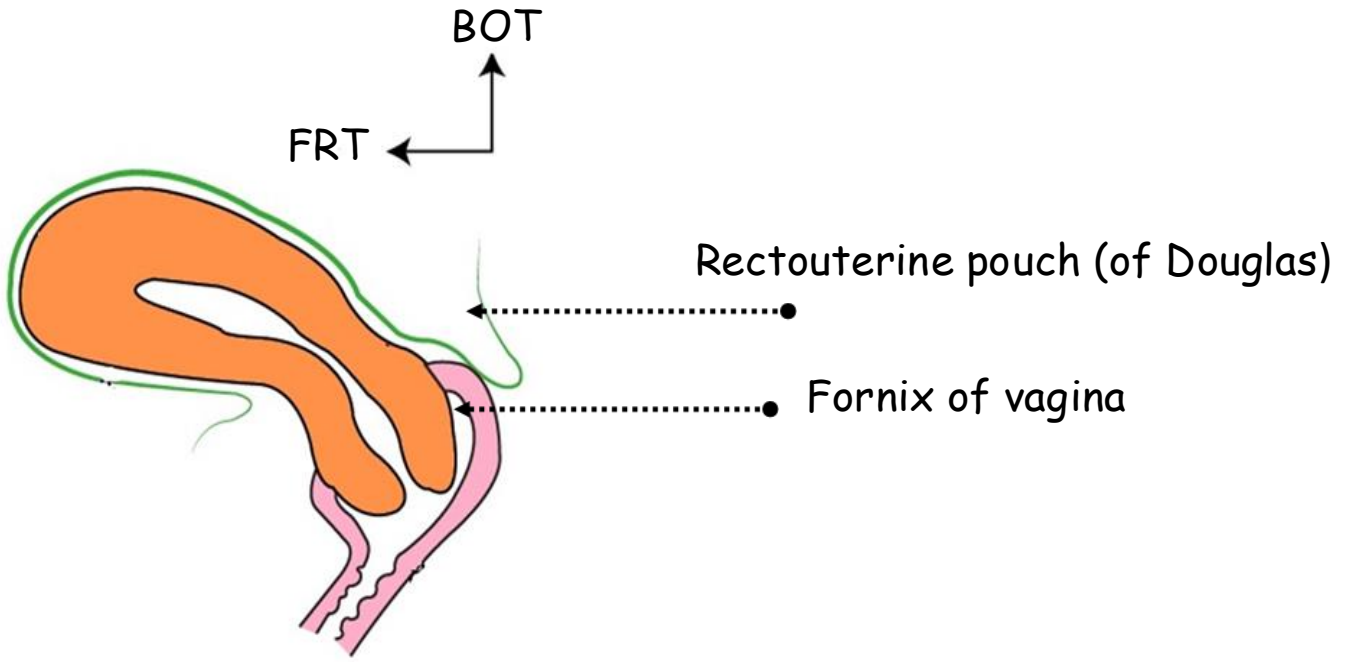
ANTERIOR VIEW OF THE UTERUS

3. Cervix:

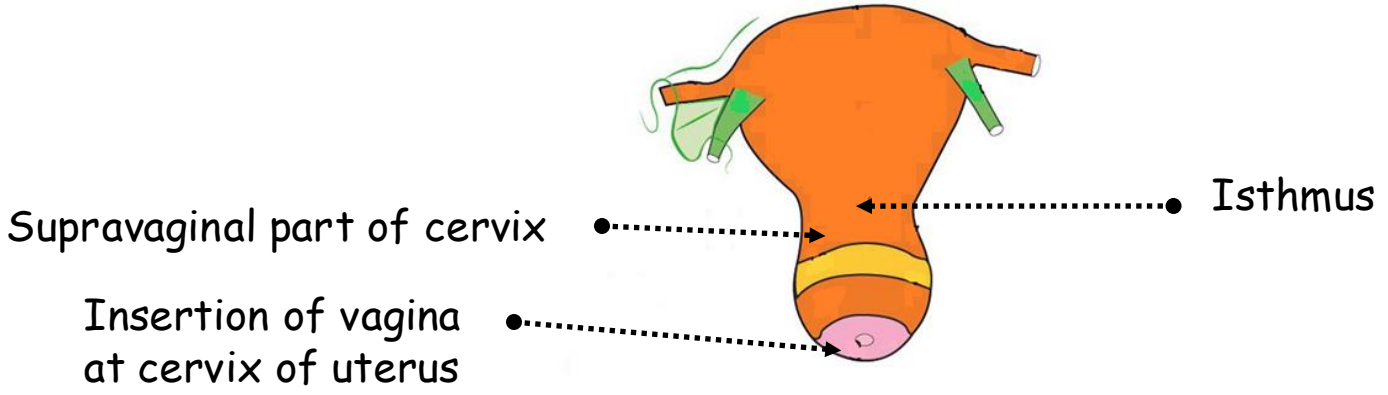
- Tapers below the body and its lower end is clasped by the vault of the vagina
- It thus has vaginal (lower) and supravaginal (upper) parts
- The deep sulcus which surrounds the protruding cervix is the fornix of the vagina
- Its intestinal surface is covered by peritoneum forming the rectouterine pouch (of Douglas)
- Its vesical surface has no peritoneal covering

4. Isthmus:

- Lowest half centimetre of the body which becomes continuous with the cervix



SAGITTAL VIEW OF THE UTERUS



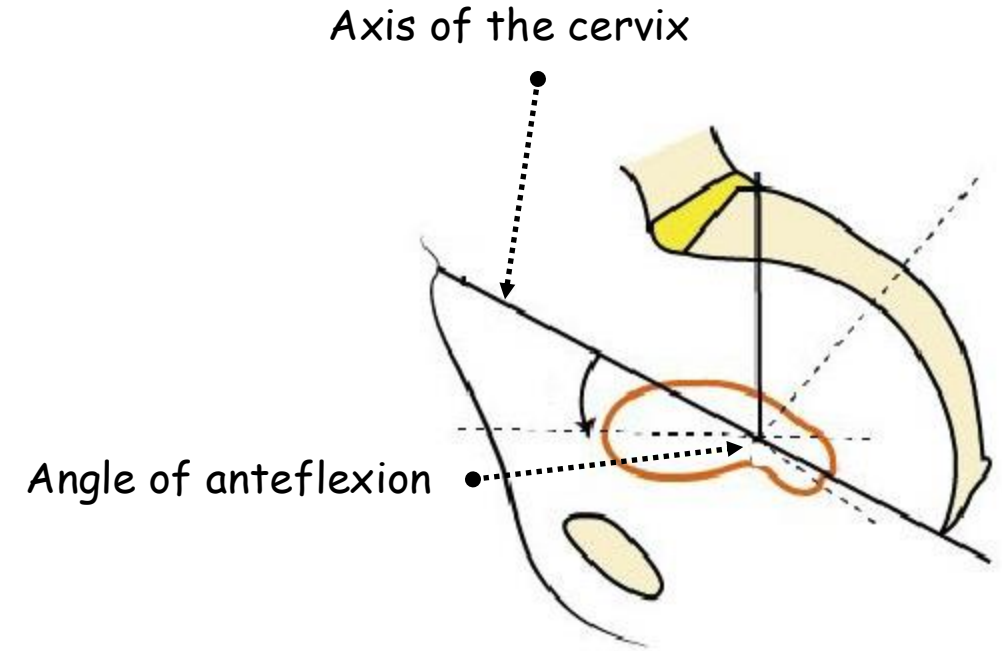
ANTERIOR VIEW OF THE UTERUS

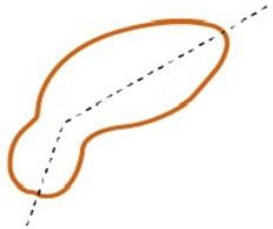
C. ORIENTATION

- The normal position of the uterus is one of anteversion and slight anteflexion
- The fundus and upper part of the body are bent forward in relation to the long axis ofthe cervix (angle of anteflexion)
- The whole organ, thus, flexed leans forward from the vagina (angle of anteversion)

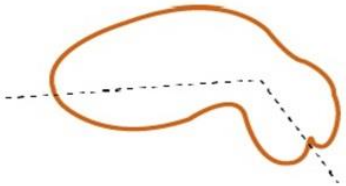
D. DIMENSIONS

- In the virginal state:
  - -Length: 8 cm
  - -Thickness: 3 cm
  - -Width: 5 cm





Retroflexion of uterus



Excessive anteflexion

OVERVIEW OF THE ORIENTATION OF UTERUS

III. STRUCTURE

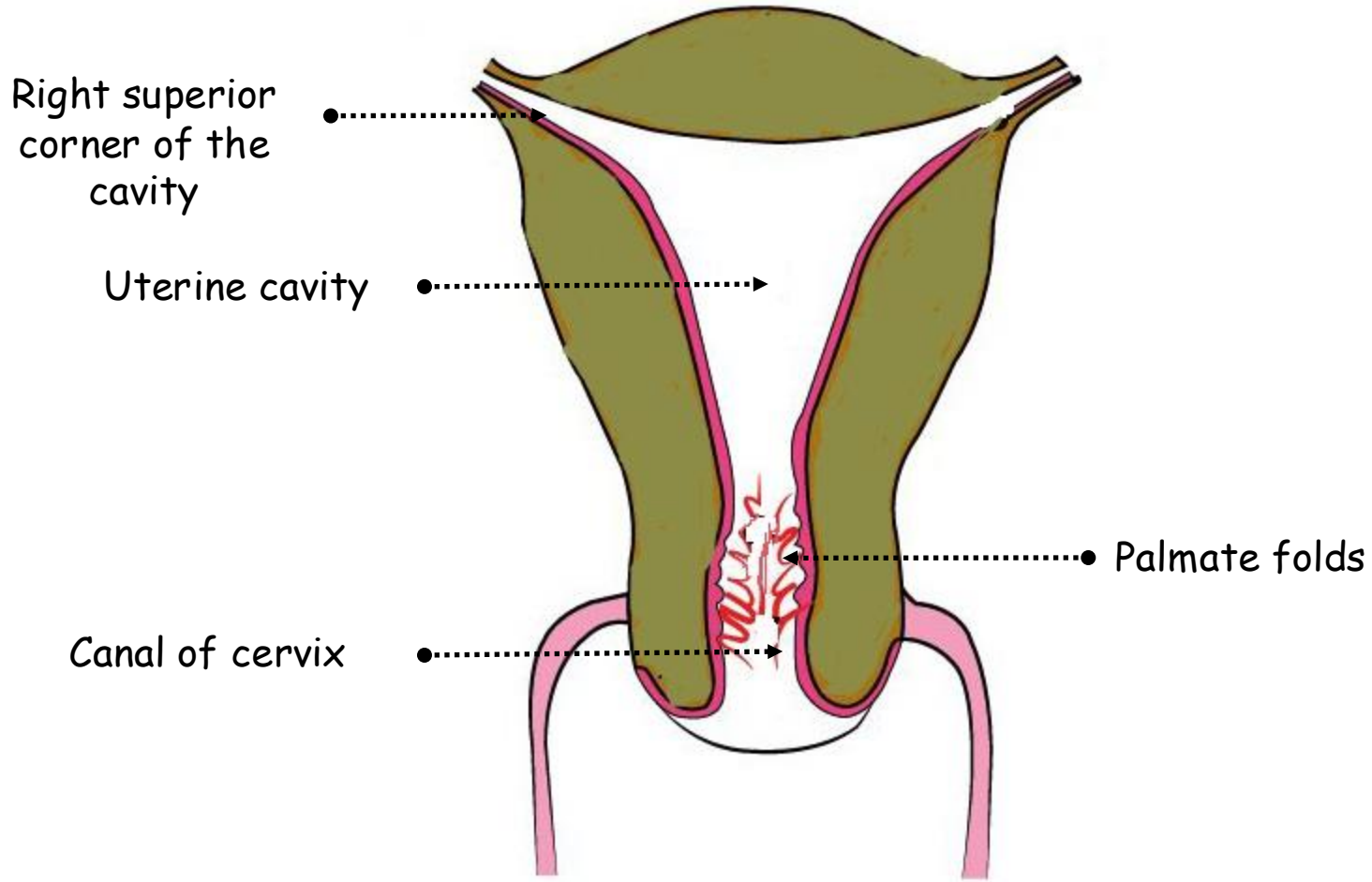
A. UTERINE CAVITY

1. Cavity of the body:

- The cavity of the body of the uterus is a narrow slit, when viewed laterally, and is shaped like an inverted triangle, when viewed anteriorly
- Each of the superior corners of the cavity is continuous with the lumen of a uterine tube
- The inferior corner is continuous with the central canal of the cervix

2. Canal of the cervix:

- Continuous with the cavity of the body at what is commonly called the internal os
- The lower opening into the vagina is the external os; circular in the nulliparous but usually a transverse slit after childbirth



SCHEMATIC CORONAL SECTION OF UTERUS

B. UTERINE WALL

1. Myometrium:

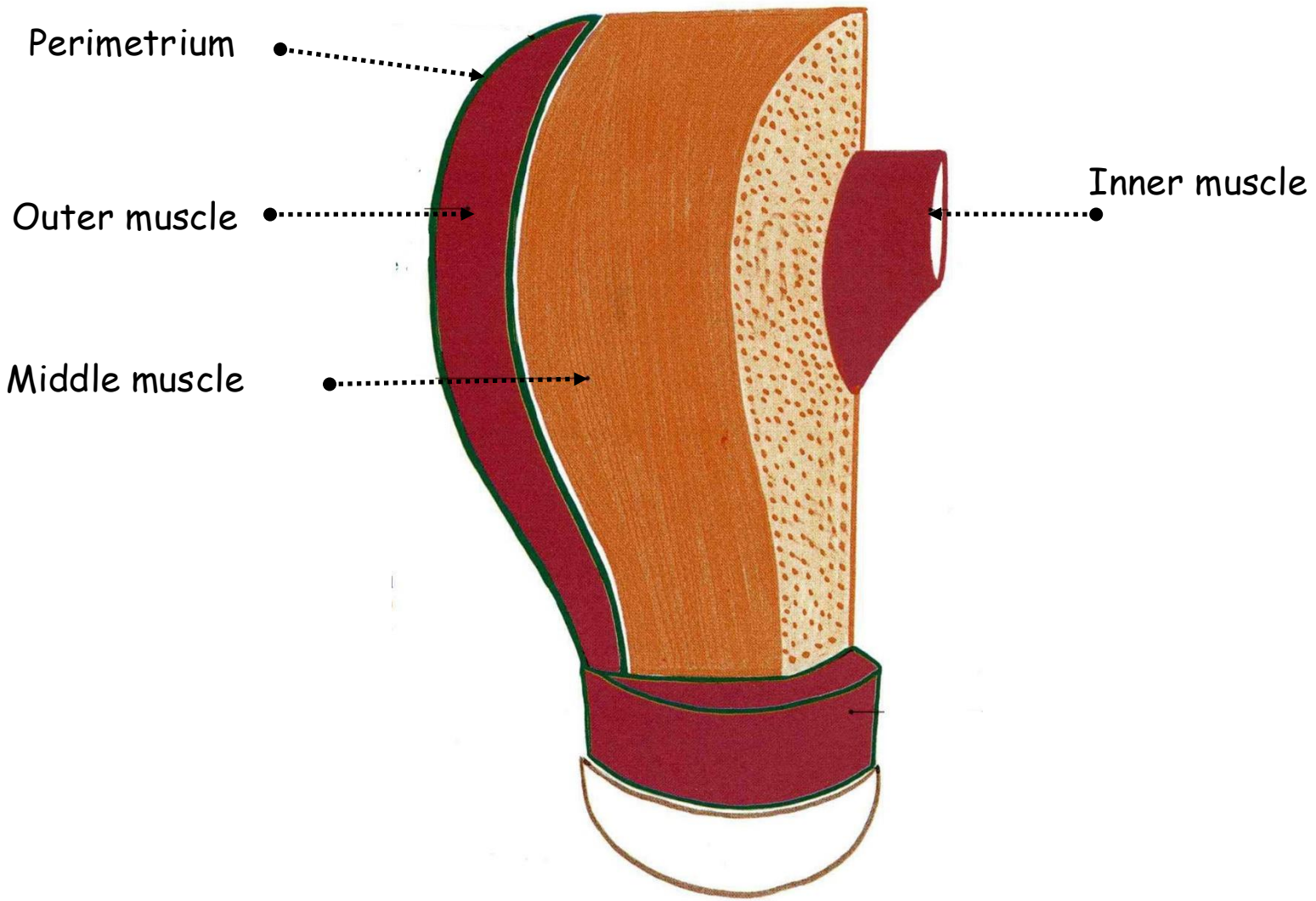
- The bulk of the uterus is smooth muscle
- Three layers but are ill-defined
- The outer muscle fibres tend to be longitudinal and expulsive in function
- Those more deeply placed are circular and act as sphincters round the larger blood vessels, the openings of the uterine tubes and the internal os

2. Endometrium:

- Lining of columnar epithelium forming the endometrial glands
- Just inside the external os the epithelium changes to the stratified squamous variety of the vagina

3. Perimetrium:

- Peritoneum



SCHEMATIC VIEW SHOWING THE STRUCTURE OF UTERINE WALL

IV. SUPPORTS

A. BODY

1. Round ligament:

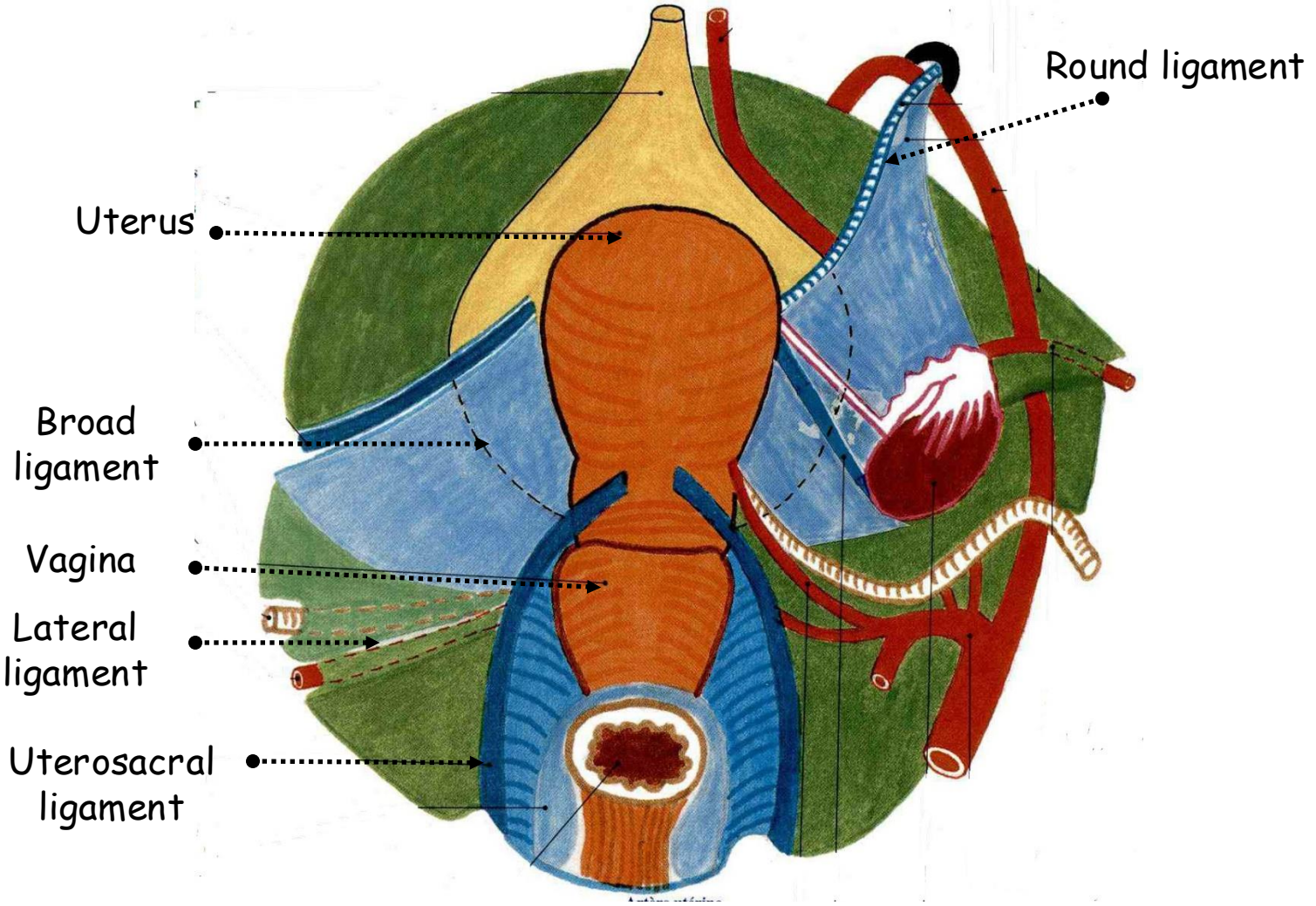
- Extends from the junction of the uterus and tube to the fibrofatty tissue of the labium majus of the vulva

2. Uterosacral ligament:

- Extends backwards from the cervix below the peritoneum to the fascia over piriformis

3. Broad ligament:

- Lax double fold of peritoneum lying lateral to the uterus
- Its medial edge is attached to the side wall of the uterus and its lateral edge is attached to the side wall of the pelvis



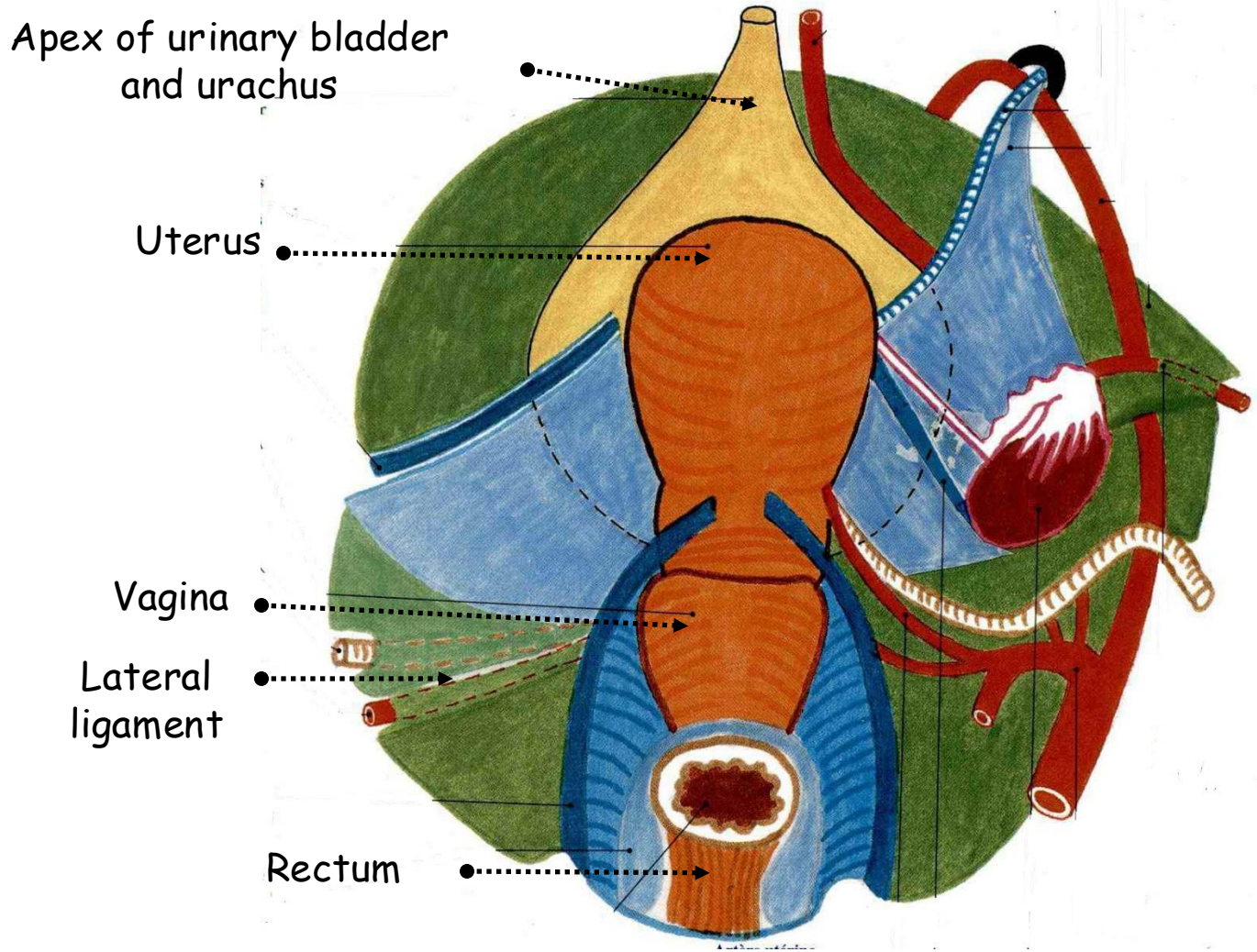
POSTERIOR VIEW OF THE FEMALE INTERNAL GENITAL ORGANS

4. Lateral ligament:

- Consists of thickenings of connective tissue in the base of each broad ligament, extending from the cervix and vaginal fornix laterally to the side wall of the pelvis

B. CERVIX

- The most fixed part of the uterus is the cervix
- Attached to the back of the bladder and to the vaginal fornix
- Include pelvic diaphragm, condensations of pelvic fascia and peritoneal attachments
- Indirect supports include the pubovaginalis part of levator ani and the perineal body with its inserted muscles



POSTERIOR VIEW OF THE FEMALE INTERNAL GENITAL ORGANS

V. ANATOMICAL RELATIONS

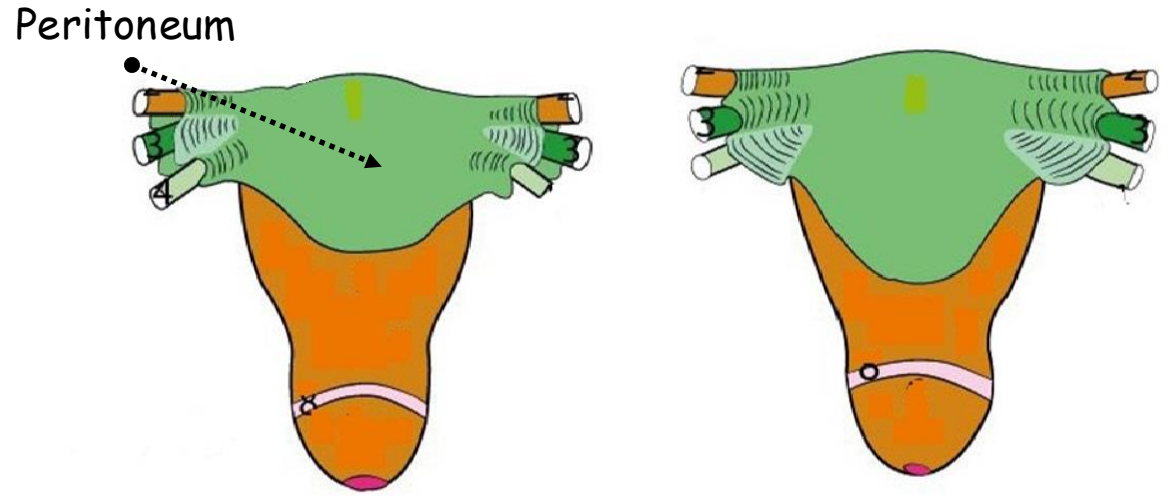
A. SUPRAVAGINAL PART

1. Peritoneal relations:

- The fundus possesses a serous coat of pelvic peritoneum which continues downwards over the front and back of the body
- The intestinal surface is covered by peritoneum that continues from the body on to the upper part of the fornix, forming the anterior wall of the rectouterine pouch (of Douglas)
- The vesical surface has no peritoneal covering, being deep to the vesicouterine pouch and attached to the bladder above the trigone by rather dense connective tissue
- Laterally, it forms the broad ligament

Anterior view

Posterior view



Limit of peritoneum at the middle part of the body

Limit of peritoneum slightly above the isthmus

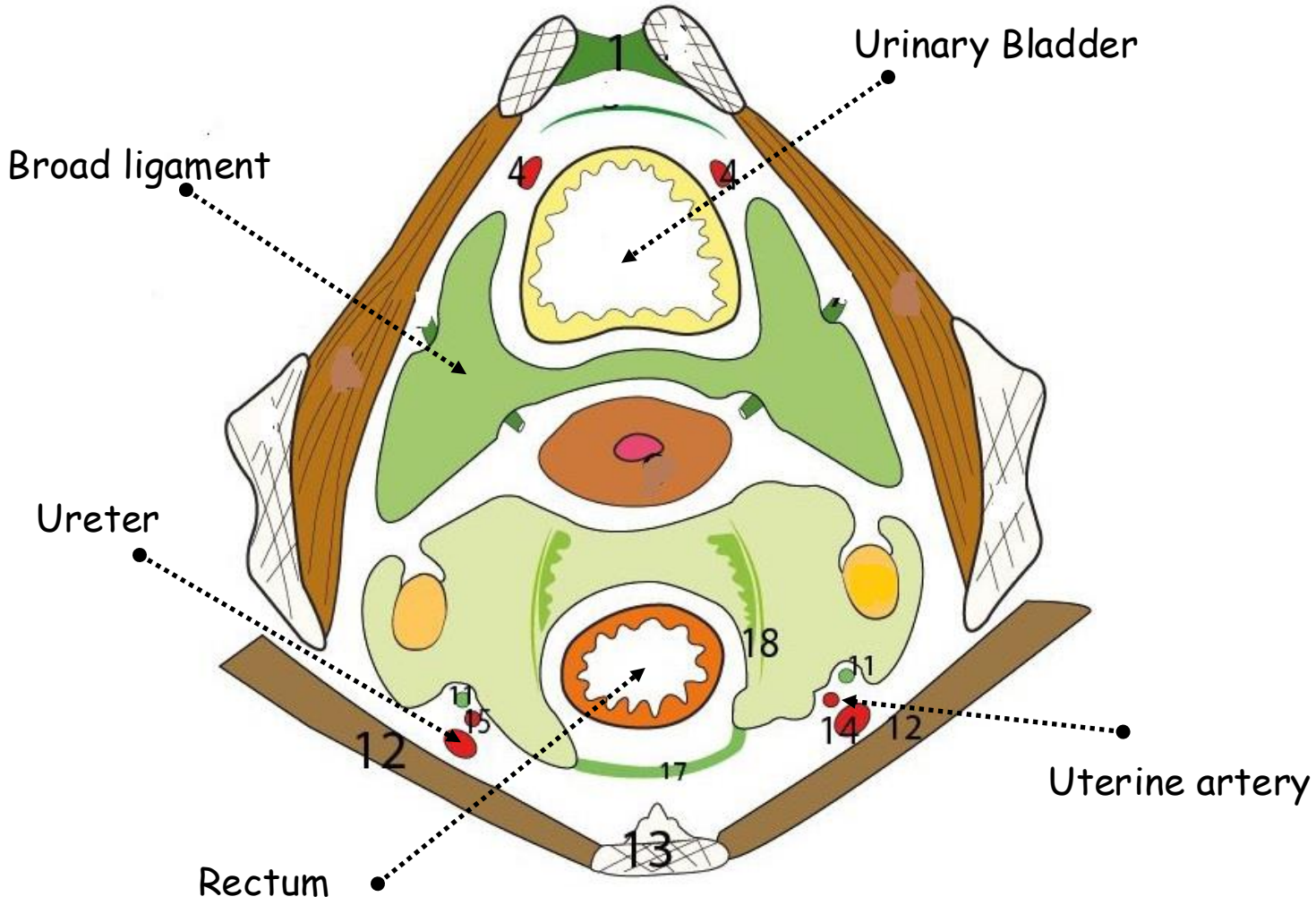
LIMITS OF PERITONEUM ON UTERUS

2. Visceral relations:

- Through the lateral ligament: about 1-2 cm from the fornix of cervix, the ureter, uterine artery and inferior hypogastric plexus lie on the upper surface of this tissue and the cervical branch of the uterine artery passes through it
- Front: urinary bladder
- Back: ampulla of rectum
- Top: intestinal coils and greater omentum

B. VAGINAL PART

- **Laterally**: the lower surface of the lateral ligament and some extraperitoneal tissue (pelvic fascia) condensed in certain places to form named ligaments
- **Front**: posterior face of urinary bladder
- **Back**: anterior face of the rectum



ANATOMICAL RELATIONS OF UTERUS ON A HORIZONTAL SECTION

VI. BLOOD SUPPLY; LYMPH DRAINAGE AND NERVE SUPPLY

A. ARTERIES

1. Uterine artery:

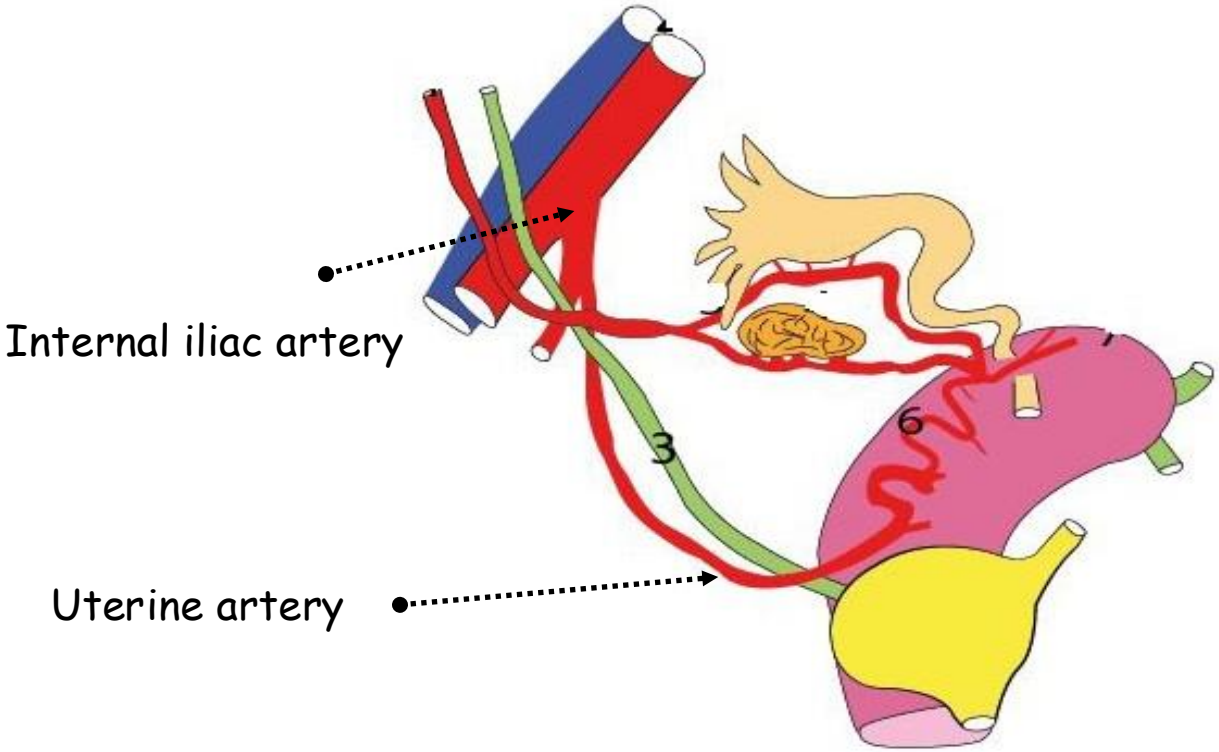
- Arises from **the internal iliac artery**
- Length : **15 cm**
- **3 parts:**

-Retro-ligamentary: passes medially across the pelvic floor

-Sub-ligamentary: in the base of the broad ligament, above and in front of the ureter, reach **the side of the supravaginal part** of the cervix

-Intra-ligamentary (broad ligament): turns upwards between the layers of the broad ligament to run alongside the uterus as far as the entrance of the tube

- In its course it freely gives off branches which penetrate the uterine walls and branches for the cervix and the vagina



OVERVIEW OF UTERINE ARTERY

- Anastomoses end on with the tubal branch of the ovarian artery

2. **Ovarian artery:**

- Arises from the abdominal aorta at L2 and ends at the tubal extremity of the ovary, giving 2 branches:

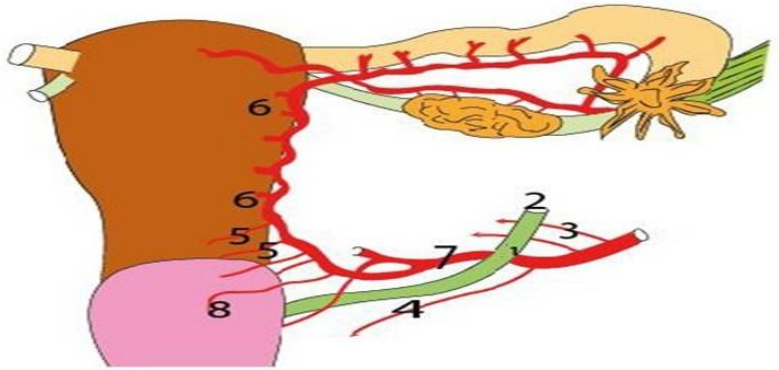
-Tubal branch: anastomoses with the uerine artery

-Ovarian branch: anastomoses with the ovarian branch of the uterine artery

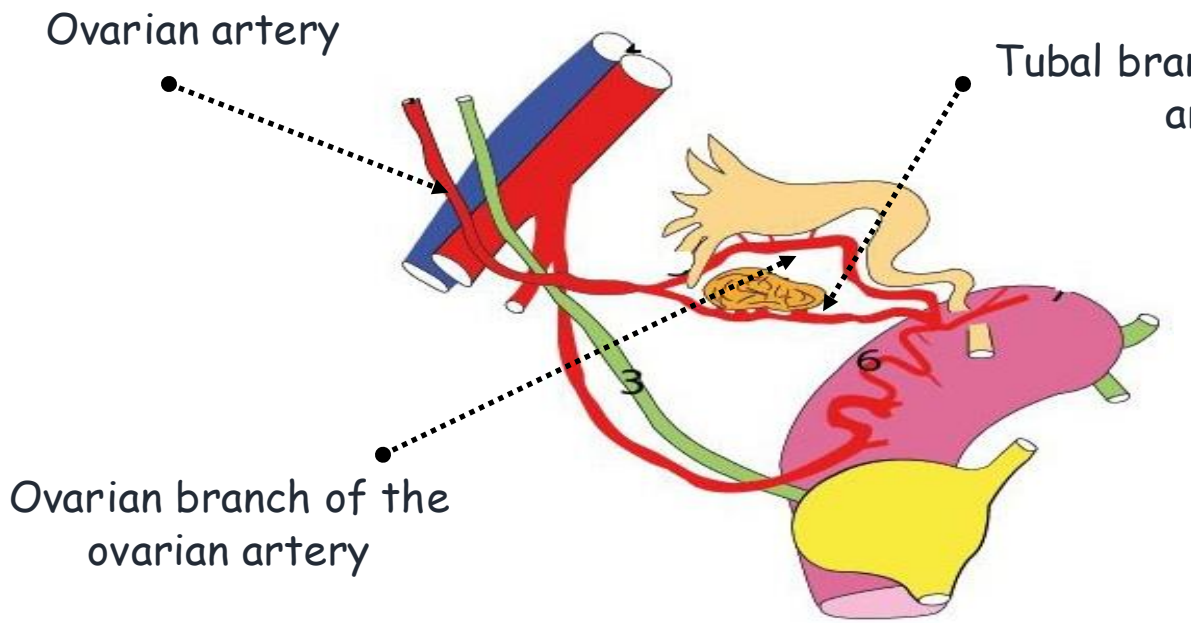
3. **Round ligament artery:**

- Provided from the inferior epigastric artery

1.Branches for the ureter
2.Ureter
3.Branches for the bladder
4. Branches for the vagina
5.Branches for the cervix
6.Branches for the body
7.Uterine artery
8.Vaginal azygos artery



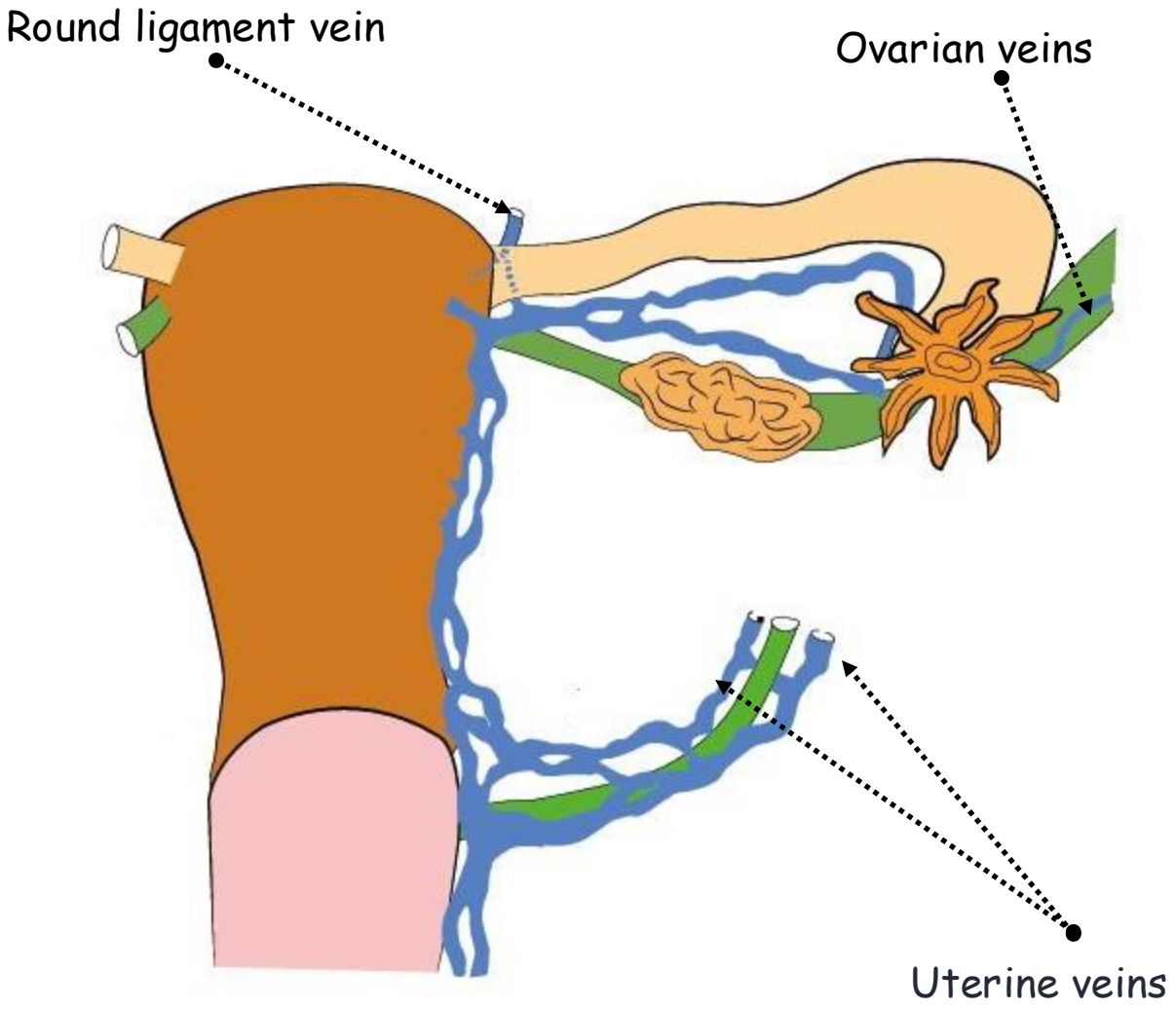
OVERVIEW OF THE BRANCHES OF UTERINE ARTERY



OVERVIEW OF THE ARETRIES OF UTERUS

B. VEINS

- The veins of the uterus course below the artery at the lower edge of the broad ligament where they form a wide plexus across the pelvic floor
- This communicates with the vesical and rectal plexuses and drains to the internal iliac veins
- The tubal veins join the ovarian veins



POSTERIOR VIEW OF THE VEINS OF UTERUS

C. LYMPH DRAINAGE

1. Fundus and body:

- The body and fundus of the uterus normally drain mainly to external iliac nodes
- Possible for lymph to reach the inguinal nodes via the round ligament and the inguinal canal
- Scanty lymphatic drainage along the tube and ovarian vessels to aortic nodes

2. Cervix:

- Drains to external and internal iliac nodes
- Also to sacral nodes via the uterosacral ligaments

BOT

LFT

1.Aortic nodes (scanty)

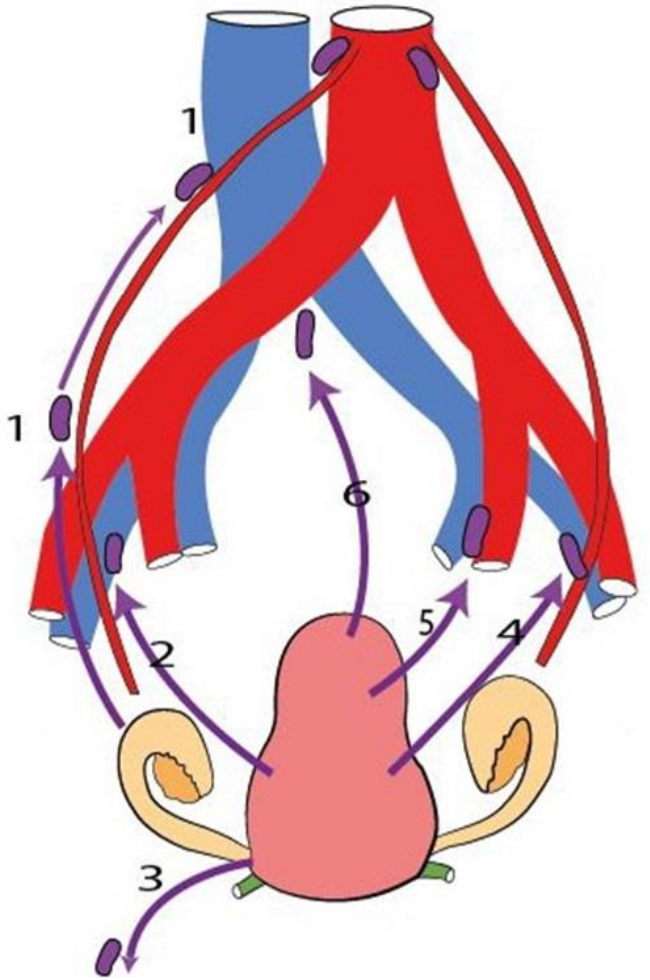
2.External iliac nodes (main)

3. Inguinal nodes

4. External iliac nodes

5. Internal iliac nodes

6. Sacral nodes



OVERVIEW OF LYMPH DRAINAGE OF UTERUS

D. NERVES

- The nerves of the uterus are branches from the inferior hypogastric plexus (T10-L1)
- Muscle is so sensitive to hormonal influences
- Insensitive to cutting and burning

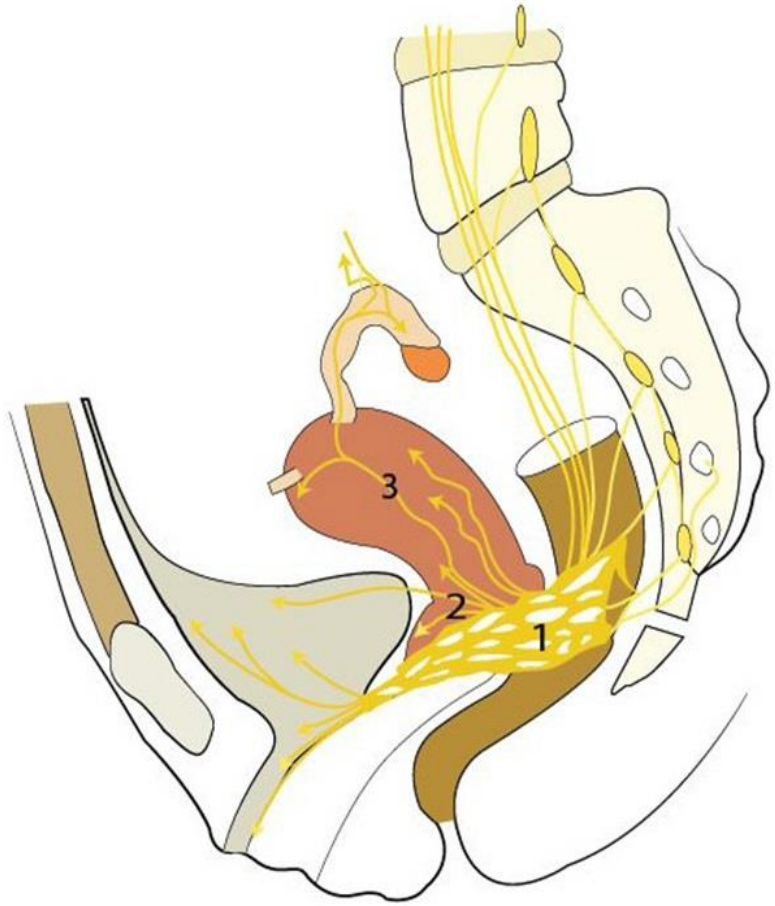
BOT

FRT

1.Inferior hypogastric plexus

2. Nerves for the cervix

3. Nerves for the body



SAGITTAL VIEW OF PELVIS MINOR SHOWING THE NERVE SUPPLY OF UTERUS

VII. SURGICAL APPROACH

- **Total hysterectomy:** removal of body and cervix
- **Subtotal hysterectomy:** removal of body without cervix
- Danger: ureter

VIII. CONCLUSION

- Hollow muscular organ
- Occupies the middle part of the pelvis
- Major role in reproduction
- Several peritoneal and visceral relations
- Rich blood supply
- Lymph drainage is ensured mainly by the external iliac nodes
- Neurohormonal mediated motricity

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