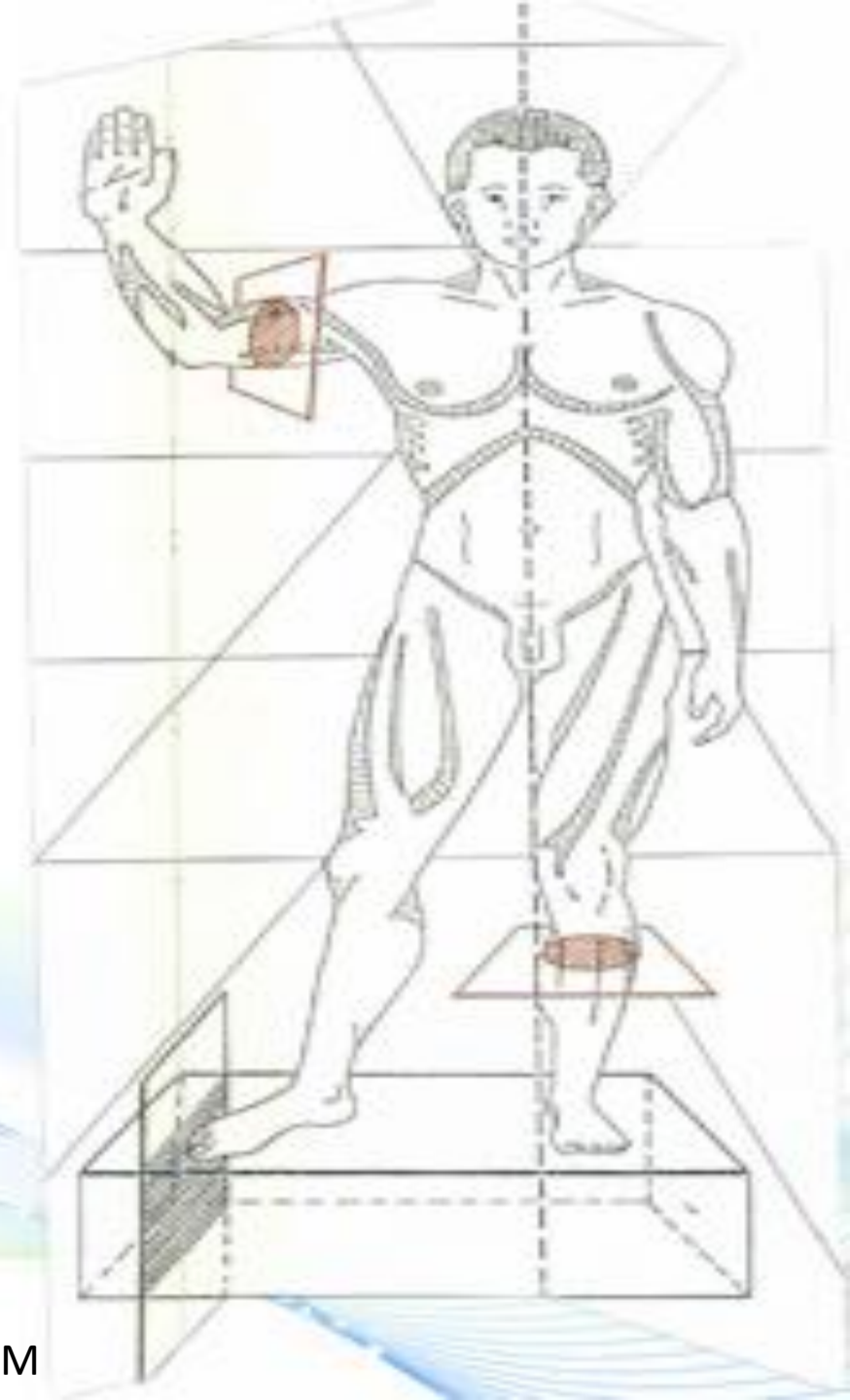


URETERS



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I. INTRODUCTION

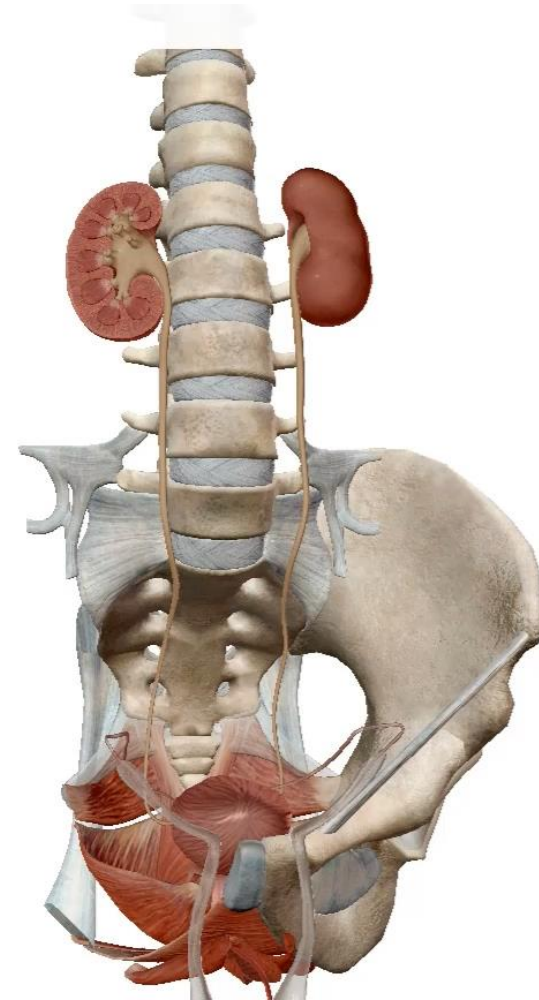
**II. DESCRIPTIVE
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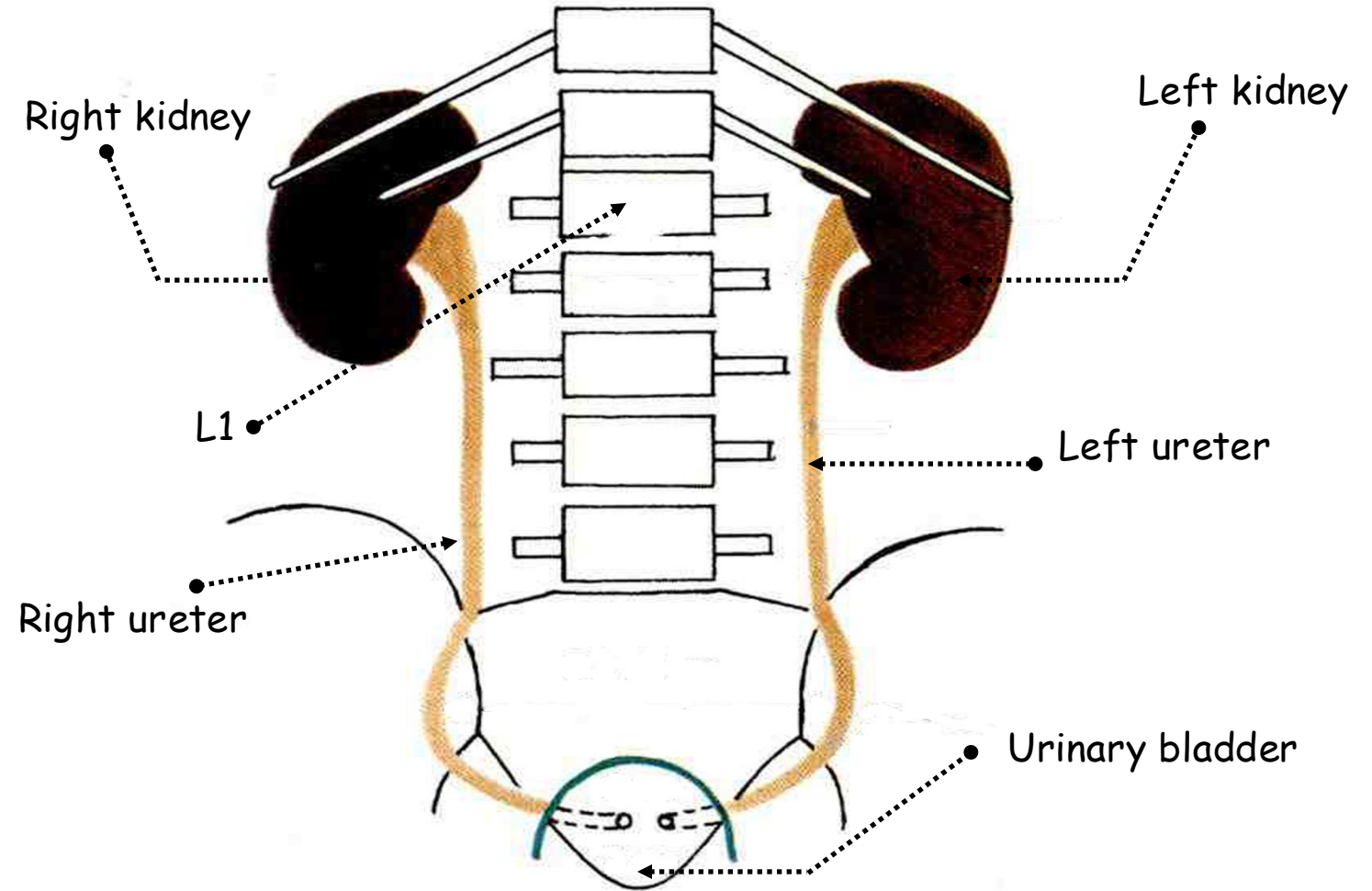
**V. BLOOD SUPPLY, LYMPH
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VI. CONCLUSION



I. INTRODUCTION

- Muscular paired tubes that transport urine from the kidneys to the bladder
- Continuous superiorly with the renal pelvis and inferiorly with the bladder
- At three points along their course the ureters are constricted

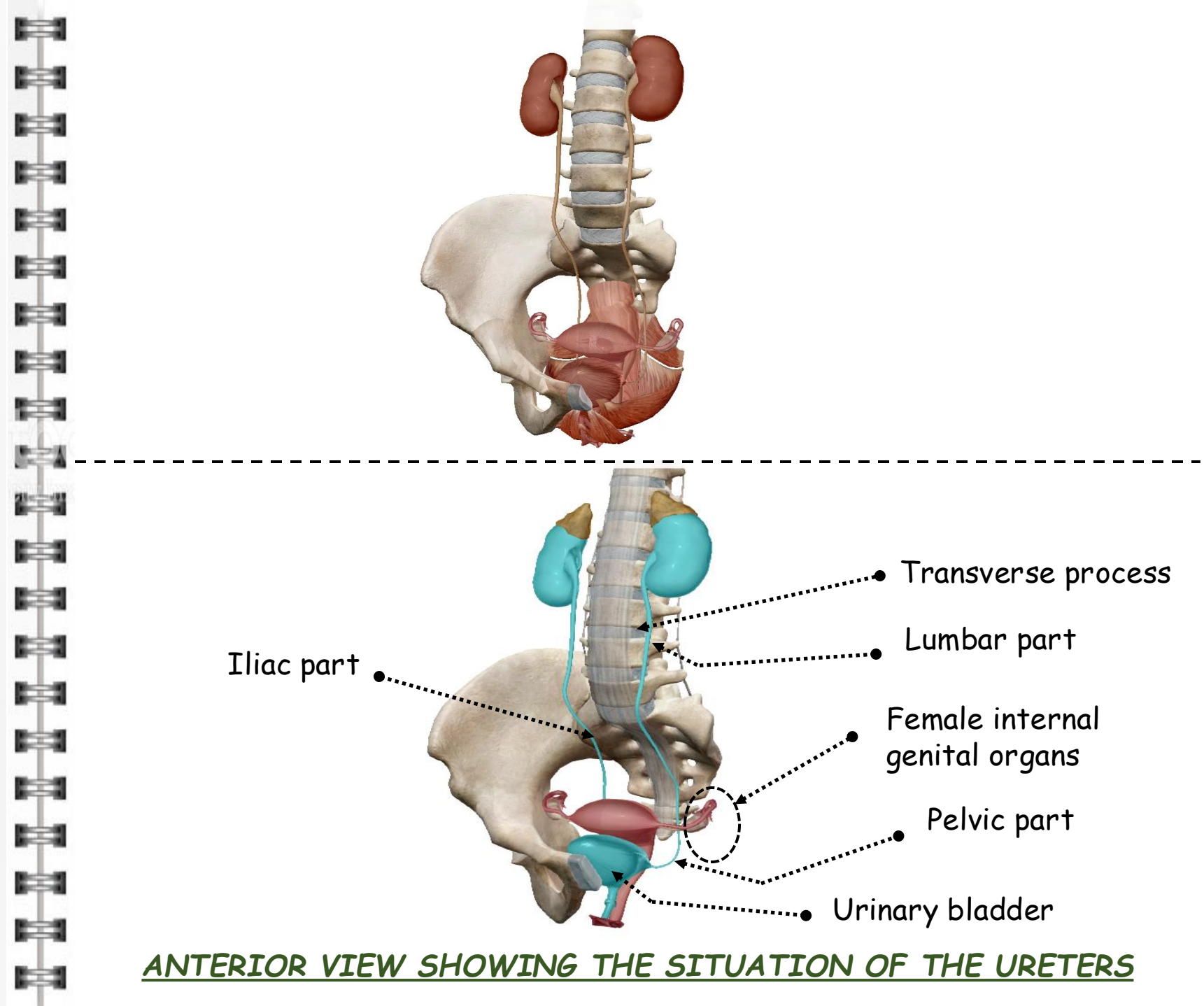


ANTERIOR VIEW SHOWING THE GENERAL ASPECT OF URETERS

II. DESCRIPTIVE ANATOMY

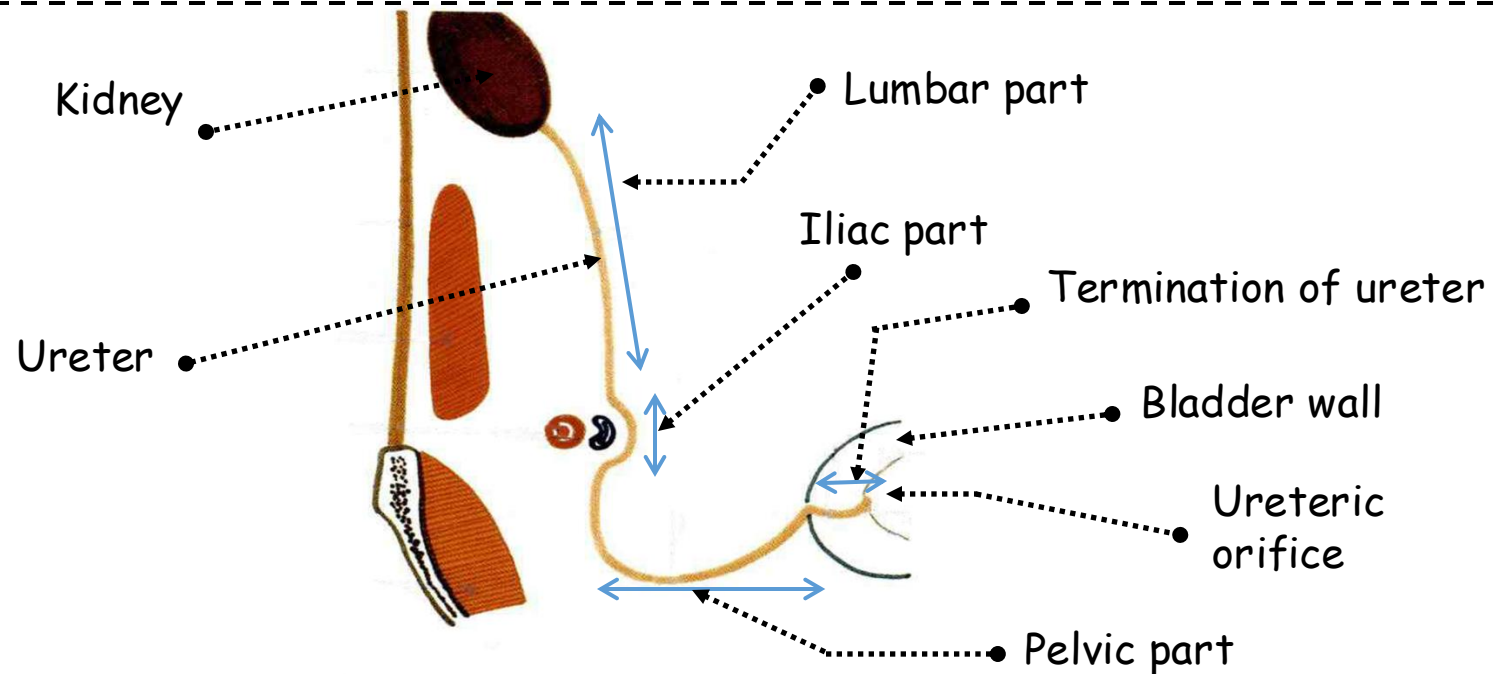
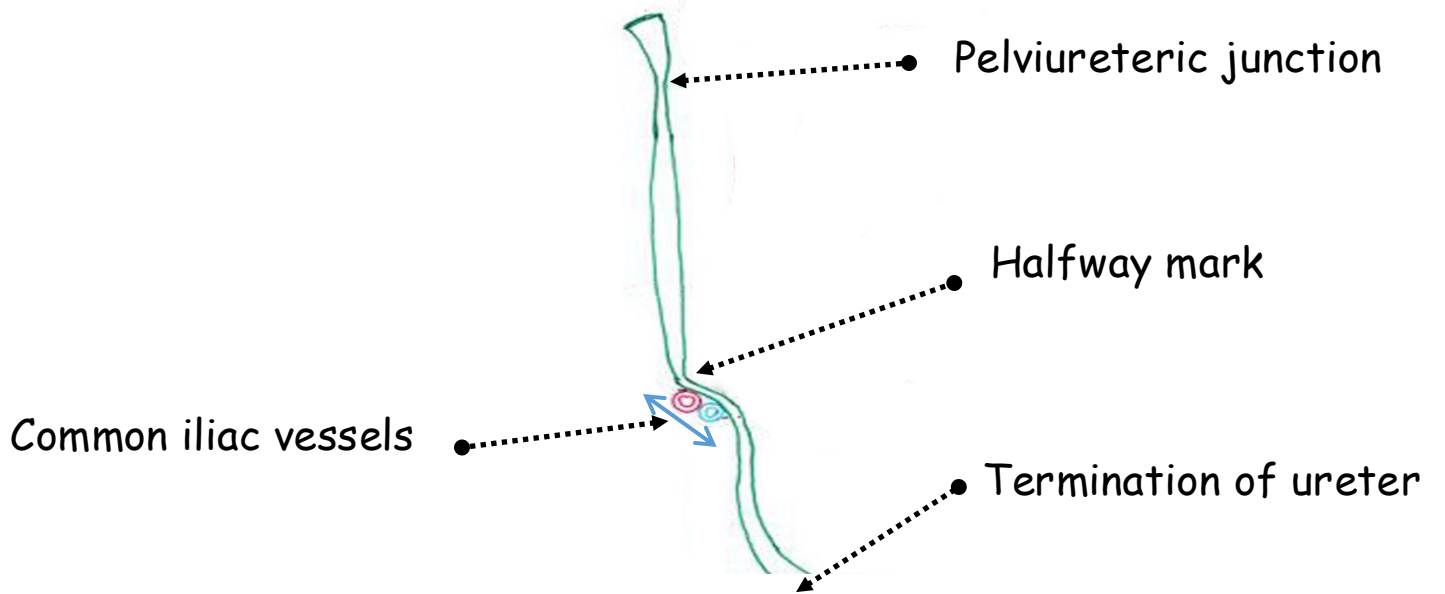
A. SITUATION

- Lax connective tissue of retroperitoneum
- Occupies 3 parts: lumbar, iliac and pelvic:
 - **Lumbar:** lies medial to the tips of the transverse processes of the lumbar vertebrae
 - **Iliac:** passes down on major psoas under cover of the peritoneum
 - **Pelvic:** crosses the pelvic brim at the sacroiliac joint, passes to the ischial spine and thence, foreshortened, to the pubic tubercle



B. DIMENSIONS

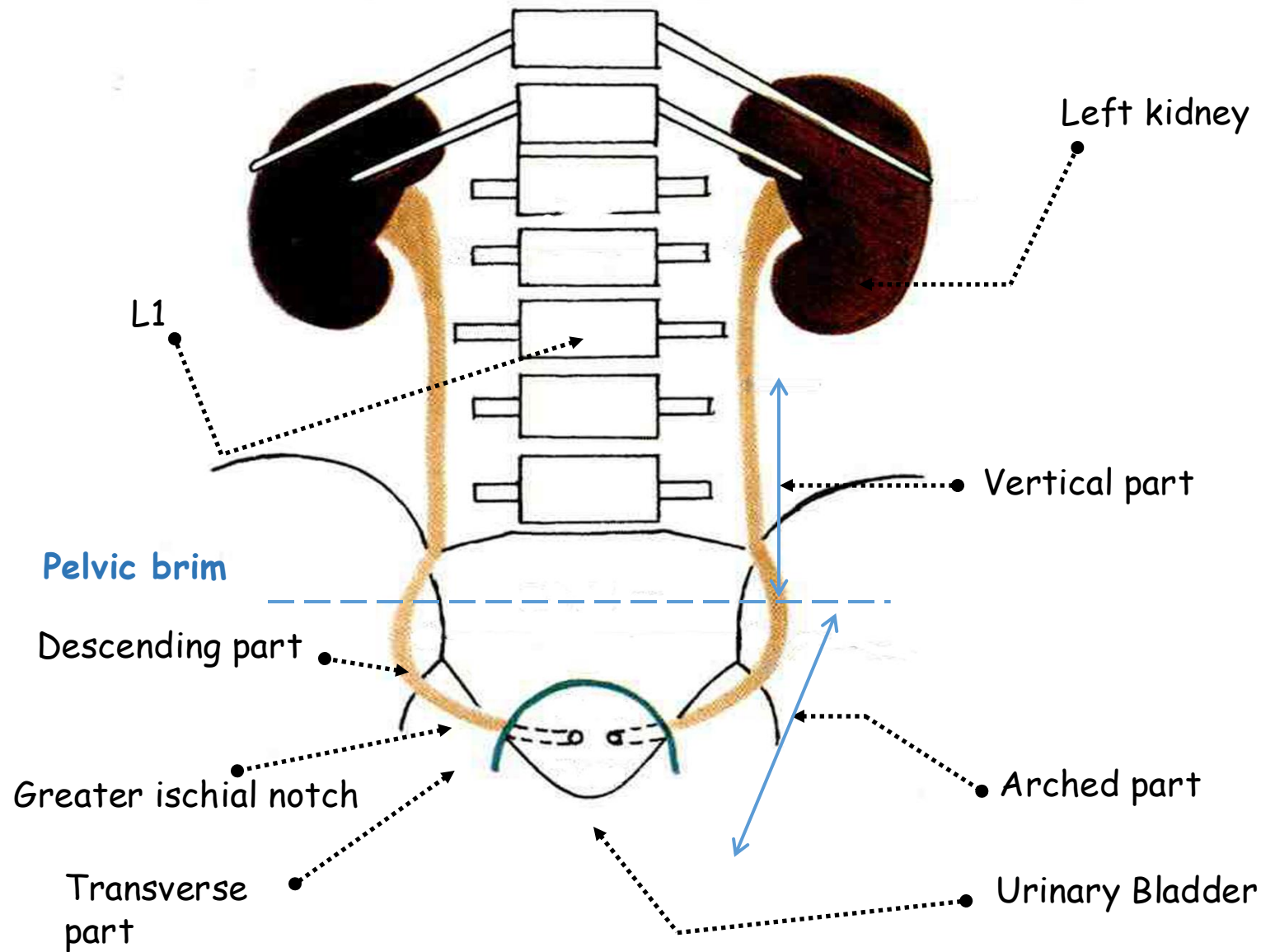
- Diameter: 6 to 10 mm
- Length: 25 to 30 cm
- 4 parts:
 - Lumbar: 12 cm
 - Iliac: 3 cm
 - Pelvic: 14 cm
 - Termination in the bladder mucosa: 1 cm
- 3 points of narrowest calibre:
 - Origin:** the pelviureteric junction
 - The halfway mark:** where it crosses the pelvic brim
 - Its termination:** in the bladder mucosa



ANTERIOR VIEW SHOWING THE PARTS OF URETERS

C. SHAPE

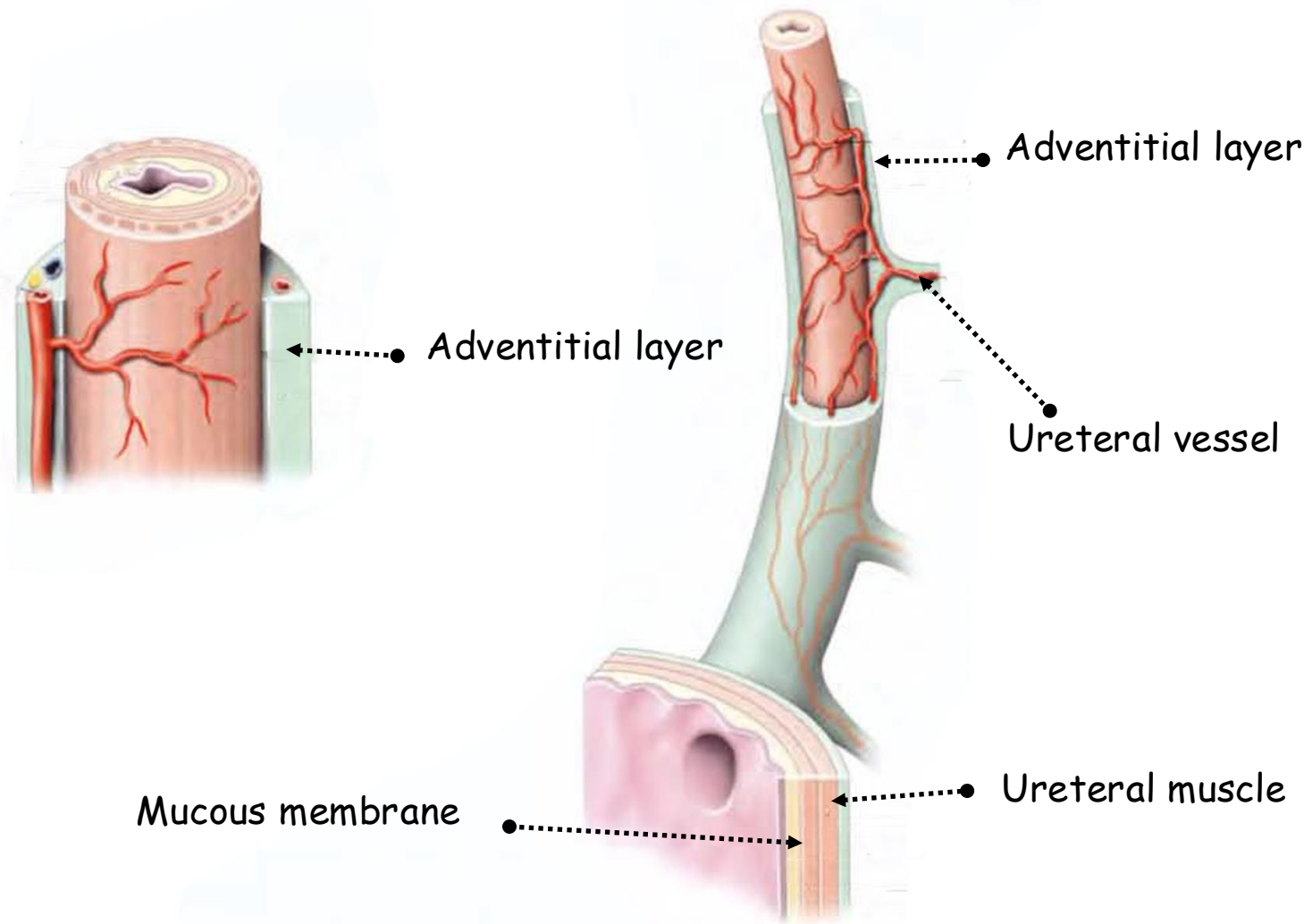
- J-shaped
- 2 parts: vertical and arched:
 1. Vertical part:
 - Lumbar and iliac
 - Length: 15 cm
 - Between L1 vertebra and the pelvic brim
 2. Arched part:
 - Length: 14 cm
 - Subdivided into 2 parts:
 - Descending part: parietal, descending against the pelvic wall until the greater ischial notch
 - Transverse part: passes forwards in the midline to the posterior wall of the bladder



ANTERIOR VIEW SHOWING THE SHAPE OF URETERS

III. STRUCTURE

- The ureter is a tube of smooth muscle lined internally by mucous membrane
- The muscle often appears histologically to be arranged as a middle circular layer with inner and outer longitudinal layers
- The lax mucous membrane is lined by transitional epithelium; there is no muscularis mucosae
- The outer adventitial layer receives the incoming blood vessels



TRANSVERSE SECTION SHOWING THE STRUCTURE OF URETERS

IV. ANATOMICAL RELATIONS

A. LUMBAR AND ILIAC PARTS

1. Back:

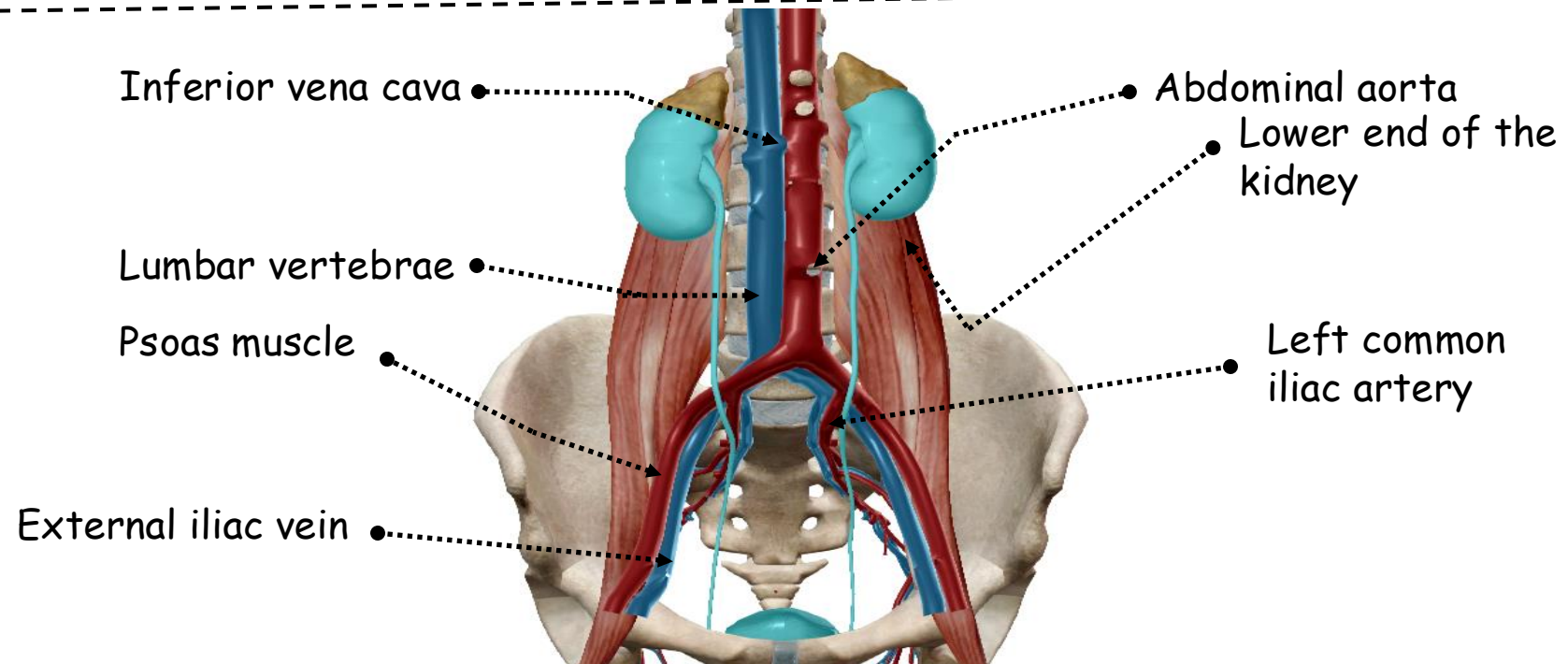
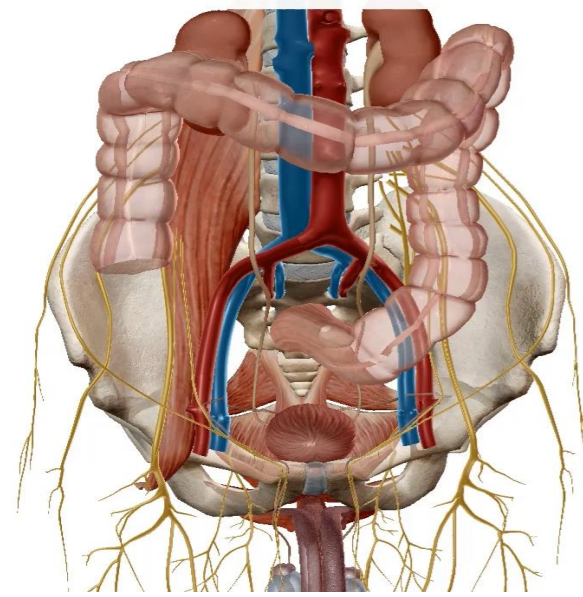
- Transverse processes of lumbar vertebrae
- Psoas muscle and iliac fascia
- Lumbar plexus
- Crosses in front **the genitofemoral nerve**

2. Laterally:

- Lower end of the kidney
- Colon

3. Medially:

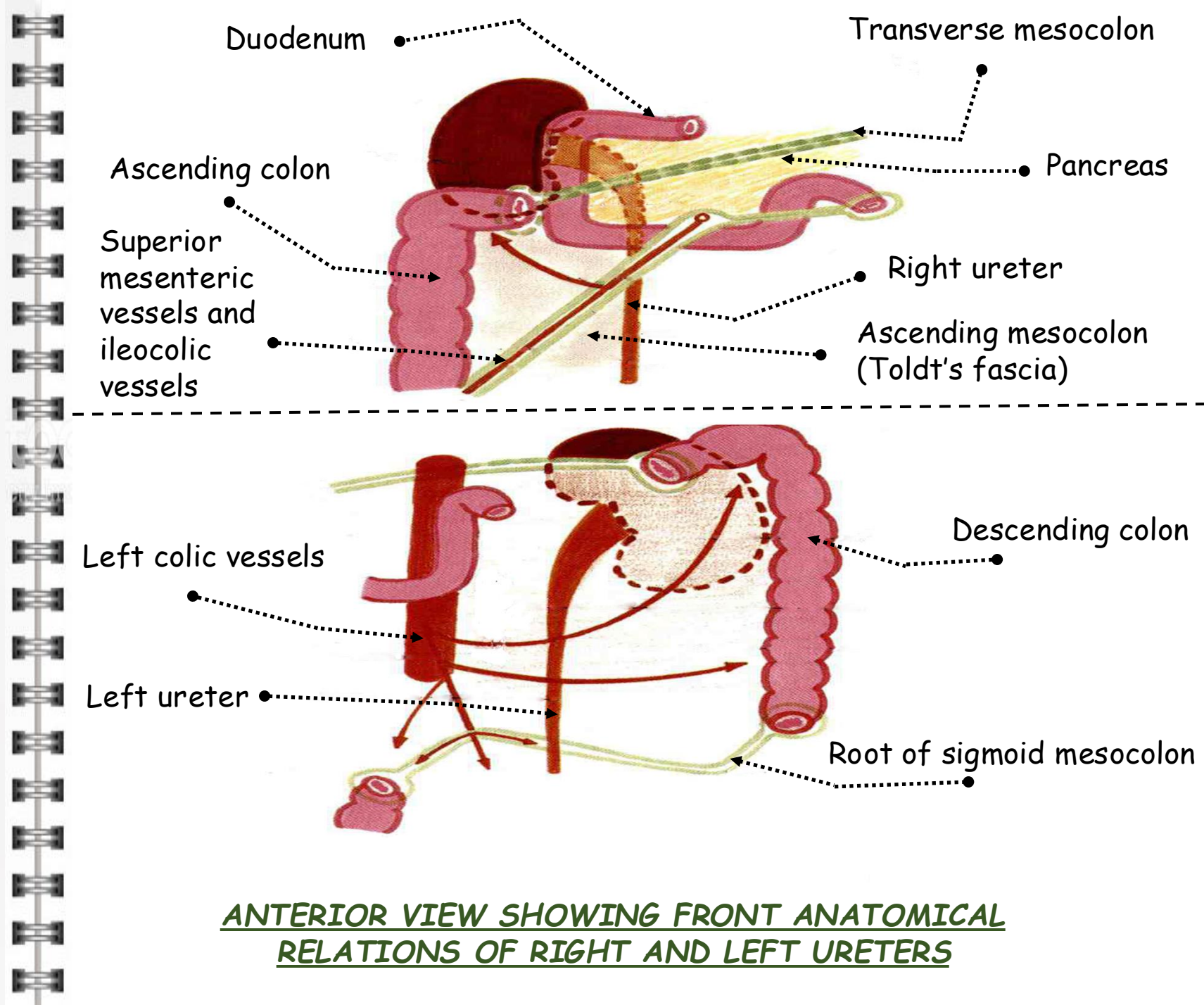
- **On the right:** inferior vena cava and right common iliac vessels, crosses **in front the external iliac vessels**
- **On the left:** abdominal aorta



ANTERIOR VIEW SHOWING THE ANATOMICAL RELATIONS OF THE URETERS

4. Front:

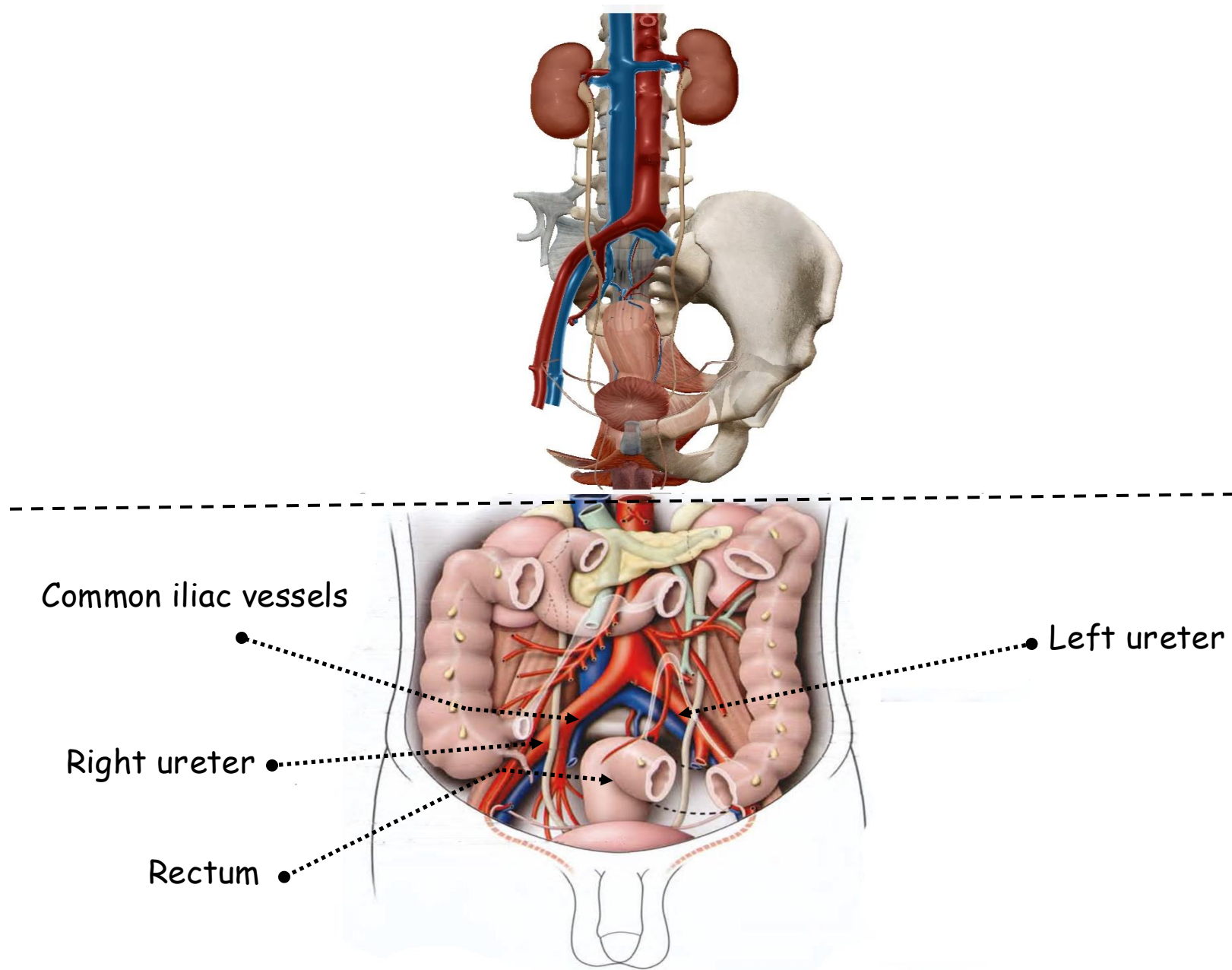
- Gonadal vessels
- Posterior parietal peritoneum
- **On the right:**
 - Duodenum and pancreas, their fascia (of Treitz) and superior mesenteric vessels
 - Ascending colon, mesocolon (Toldt's fascia) and right colic vessels
 - Root of mesentery and ileocolic vessels
- **On the left:**
 - Descending colon and mesocolon, inferior mesenteric artery and left colic vessels
 - Sigmoid colon and mesocolon and sigmoid vessels



B. PELVIC PART

1. In men:

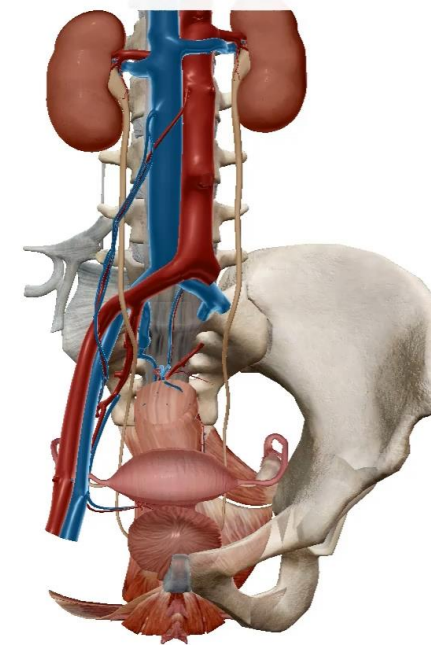
- **Back:** internal iliac vessels and their branches and obturator nerve
- **Medially:** pararectal fossae and rectum under the pelvic peritoneum
- **Front:** bladder and ductus deferens



ANTERIOR VIEW SHOWING FRONT ANATOMICAL RELATIONS OF URETERS (FROM KAMINA)

2. In women:

- **Laterally:** obturator nerve
- **Medially:** pararectal fossae and rectum under the pelvic peritoneum
- **Front:** internal iliac vessels and their branches, broad ligament and uterine artery at its **posteromedial border**, it crosses back **the sub-ligamentary part** of the uterine artery



Ureter

Common iliac vessels

Broad ligament

Uterine artery

SAGITTAL SECTION OF PELVIS IN WOMEN (FROM KAMINA)

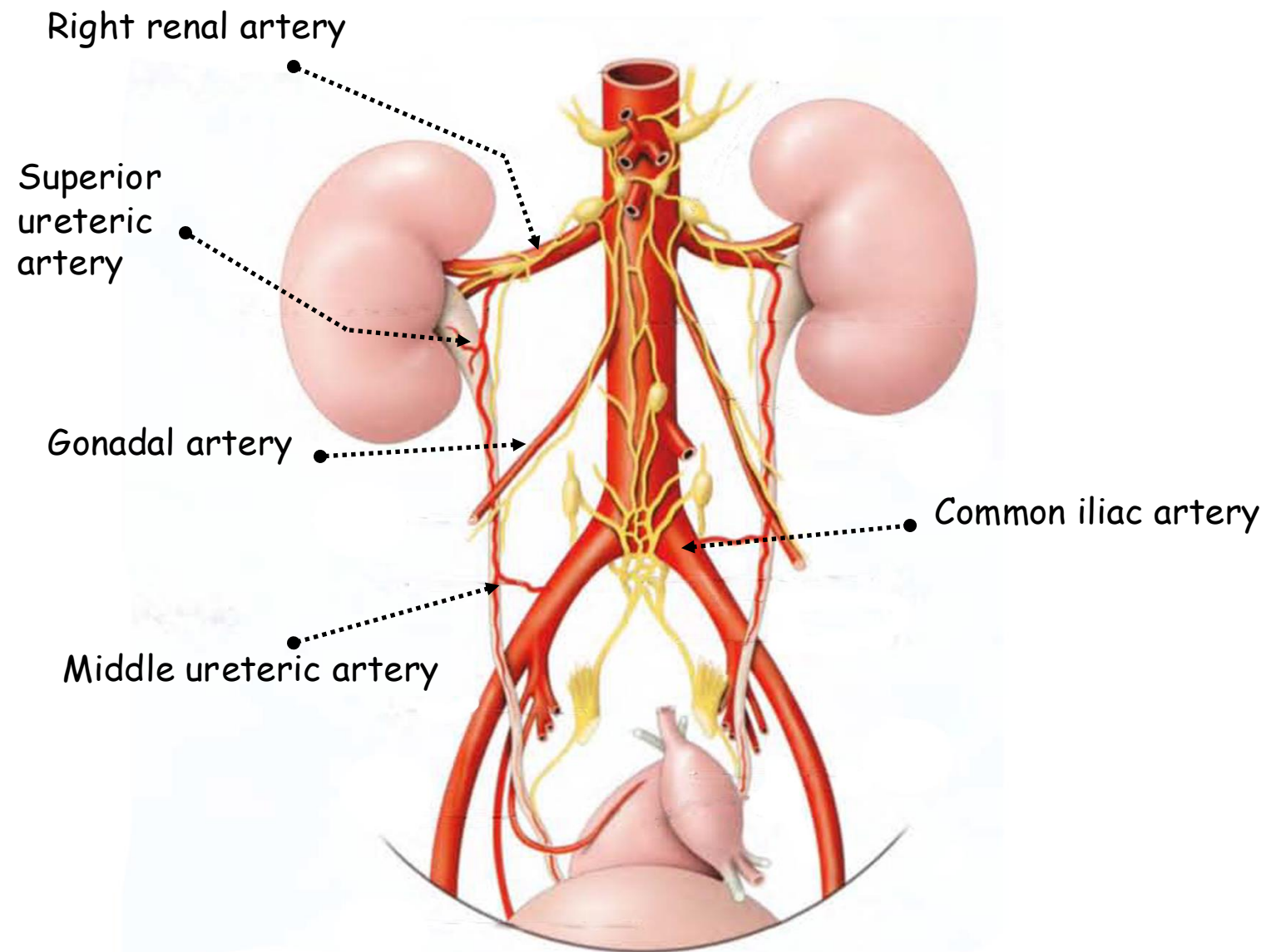
V. BLOOD SUPPLY, LYMPH DRAINAGE AND NERVE SUPPLY

A. ARTERIES

- **Upper end:** ureteric branch of the renal artery
- **Lower end:** branches from the inferior and superior vesical and middle rectal (and gonadal) arteries
- **Middle part:** branches from the gonadal artery, and, in many cases, by branches from the common iliac as well
- **Anastomosis in the adventitia of the ureter**

B. VEINS

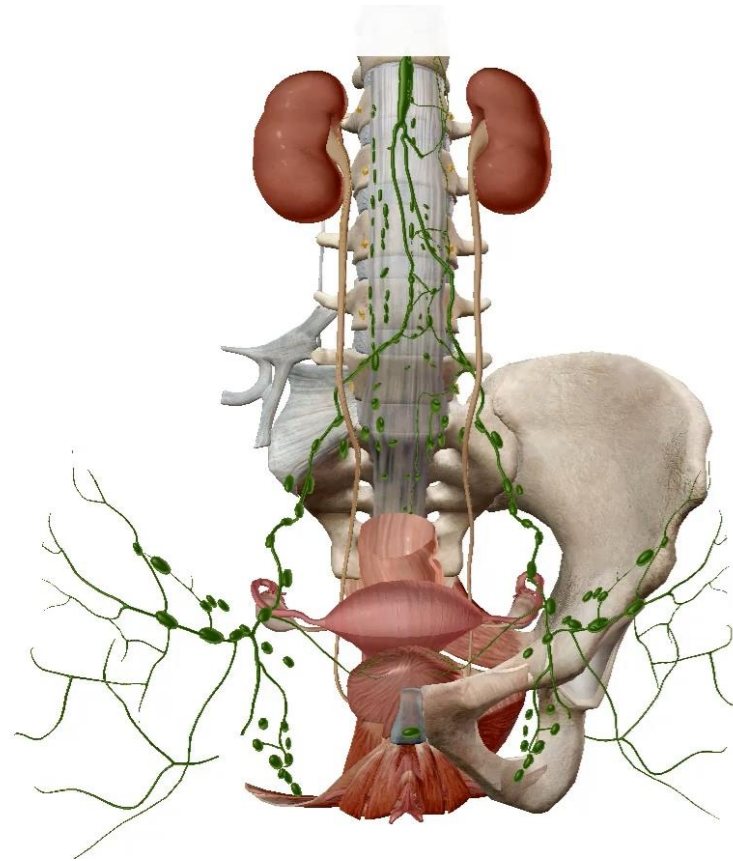
- Renal, gonadal and internal iliac veins



ANTERIOR VIEW SHOWING THE ARTERIES OF URETERS

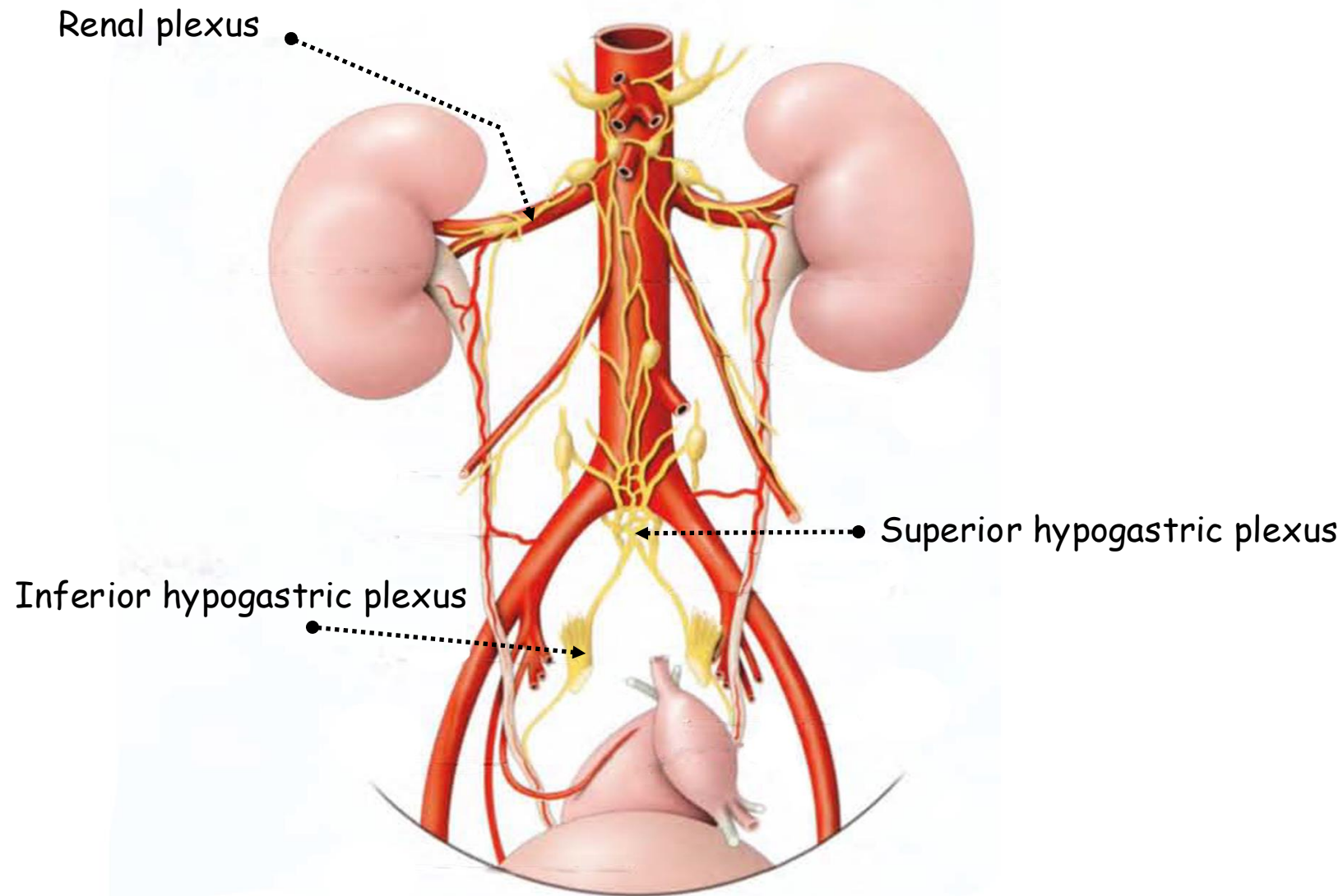
C. LYMPH DRAINAGE

- **Lumbar and iliac parts:** to para-aortic nodes
- **Pelvic part:** to internal iliac nodes



D. NERVES

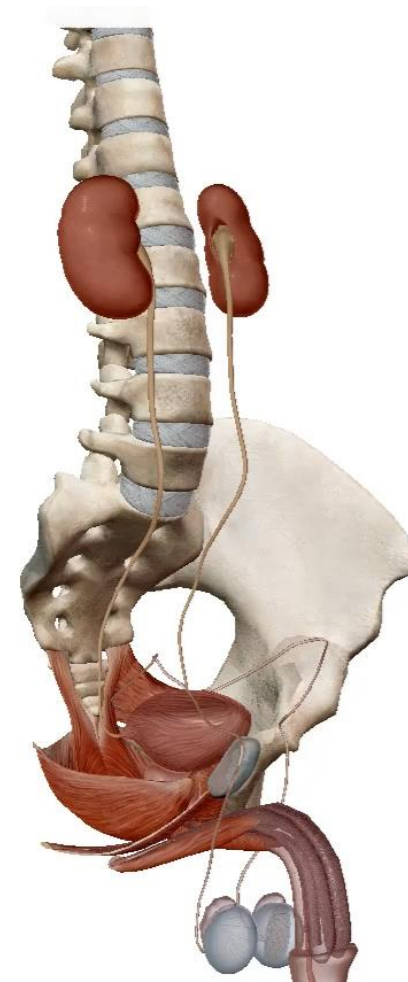
- **Sympathetic:** sympathetic fibres from T11-L2 segments of the cord via the coeliac and hypogastric plexuses
- **Parasympathetic:** parasympathetic fibres from the pelvic splanchnic nerves



ANTERIOR VIEW SHOWING THE NERVE SUPPLY OF URETERS

VI. CONCLUSION

- Excretory system of urine
- Travels the entire abdominal cavity: lumbar, iliac and pelvic parts
- Vesical part
- Several peritoneal, visceral and vascular relations
- 3 floors anastomosed blood supply
- Unclear nerve supply





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