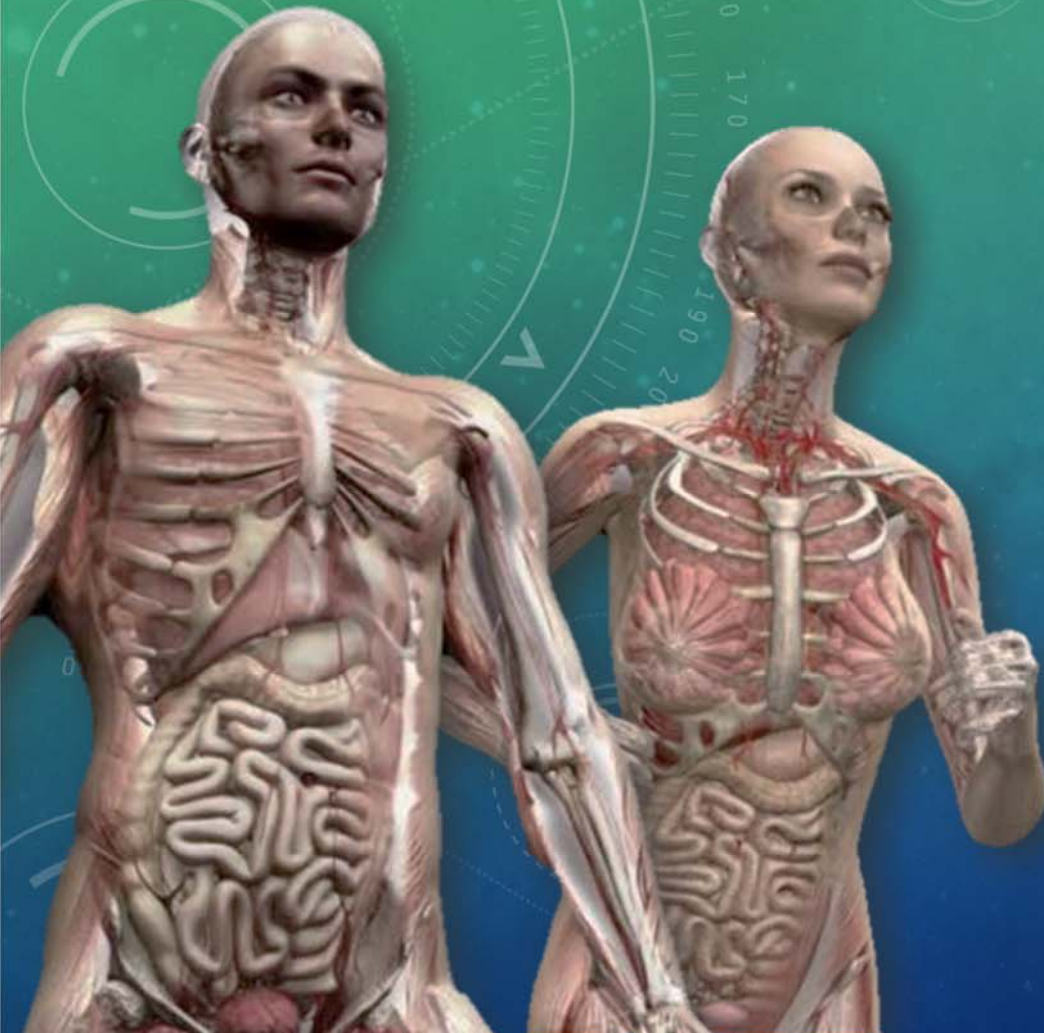


大體老師 無語良師



# 大體解剖學實驗

HUMAN DISSECTION

## POSTERIOR ABDOMINAL VISCERA & WALL

盧家鋒 助理教授

臺北醫學大學醫學系 解剖學暨細胞生物學科

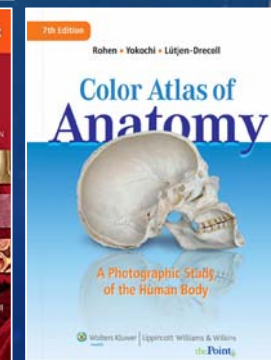
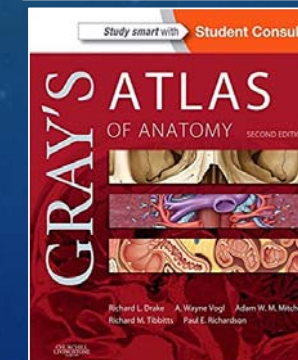
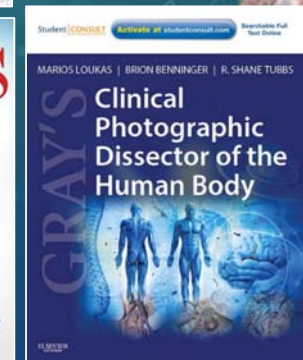
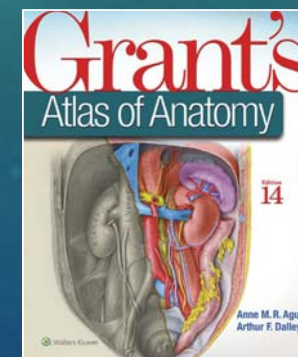
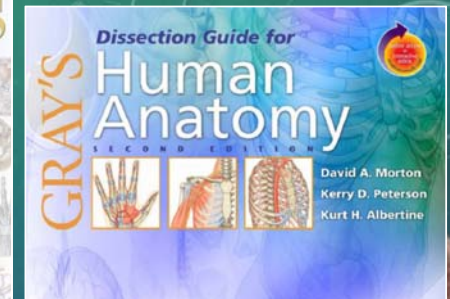
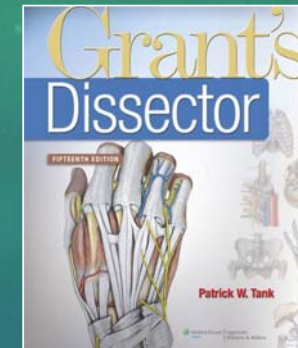
臺北醫學大學醫學院 轉譯影像研究中心

<http://www.ym.edu.tw/~cflu>

# REFERENCES

- **Dissector's guide**
  - [1] Dissection Guide for Gray's Human Anatomy, 2ed, 2006
  - **[2] Grant's Dissector, 15ed, 2012**
- **Photographic Dissector**
  - [3] Gray's Clinical Photographic Dissector of the Human Body, 2013
- **Human Atlas**
  - [4] Gray's Atlas of Anatomy, 2ed, 2014
  - **[5] Grant's Atlas of Anatomy 13ed, 2012**
  - [6] Color Atlas of Anatomy: A Photographic Study of the Human Body, 7ed, 2011
  - [7] Atlas of Human Anatomy, 6ed, 2014

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## ABDOMEN (2/3)

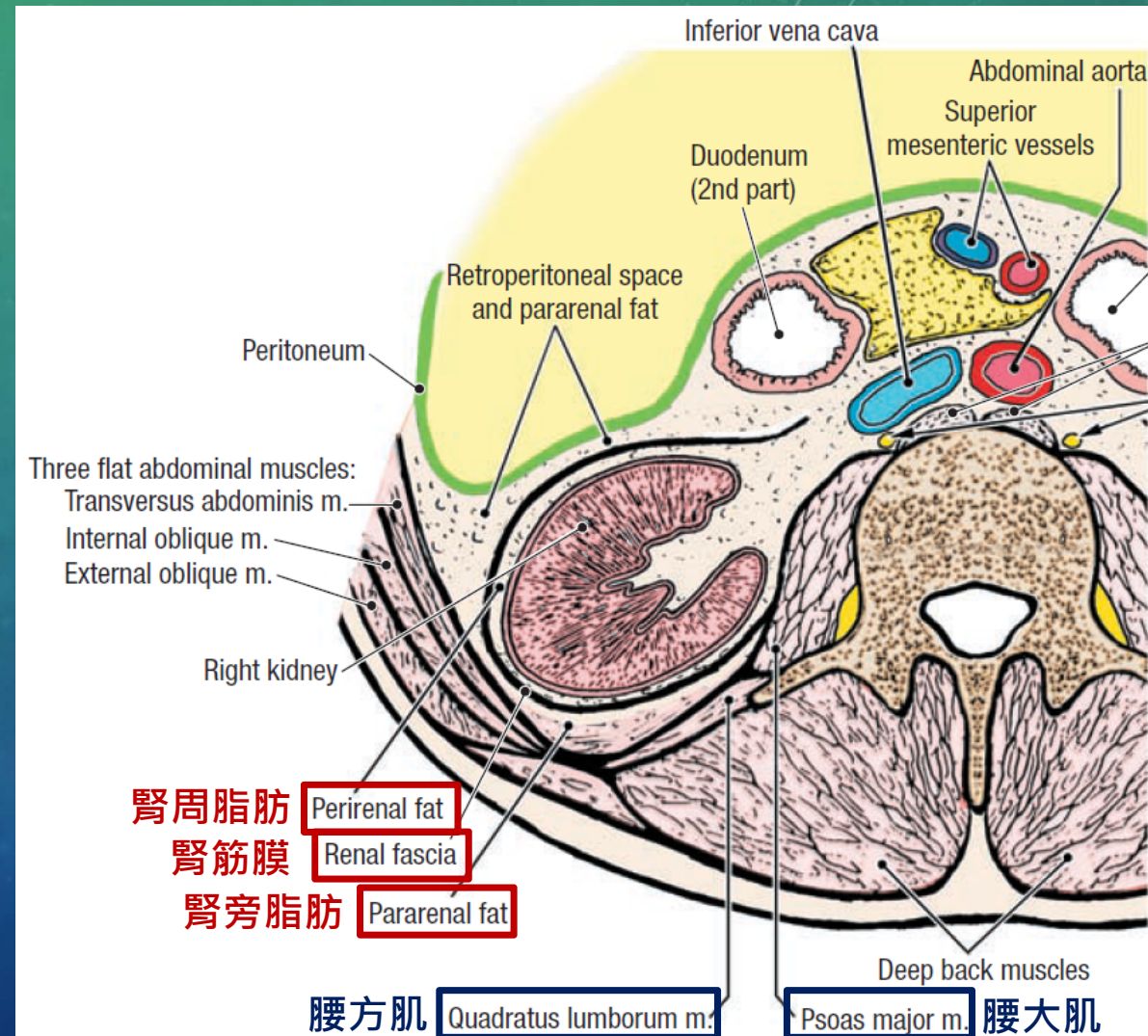
- Posterior Abdominal Viscera
- Posterior Abdominal Wall
- Diaphragm



# POSTERIOR ABDOMINAL VISCERA/ PRIMARY RETROPERITONEAL ORGANS 後腹壁內臟

# KIDNEY DISSECTION

- Use your fingers to tear through the **renal fascia** and separate the kidney from the **perirenal fat**.
- Identify **suprarenal glands**.

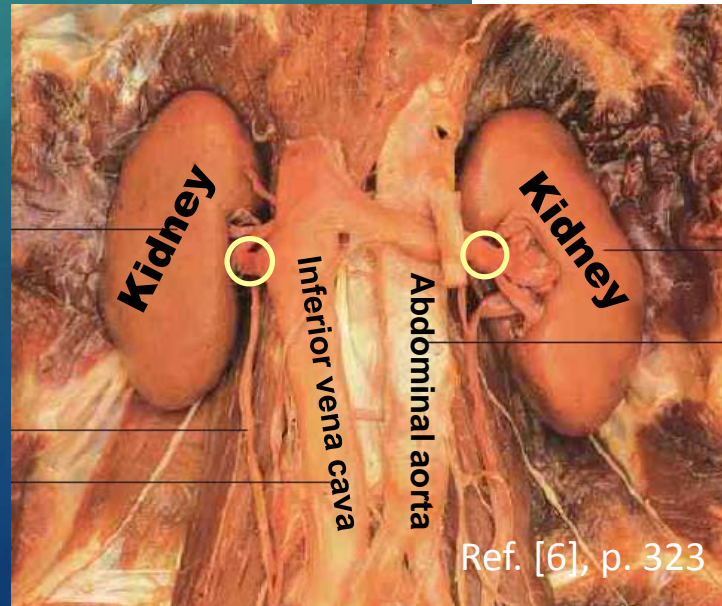
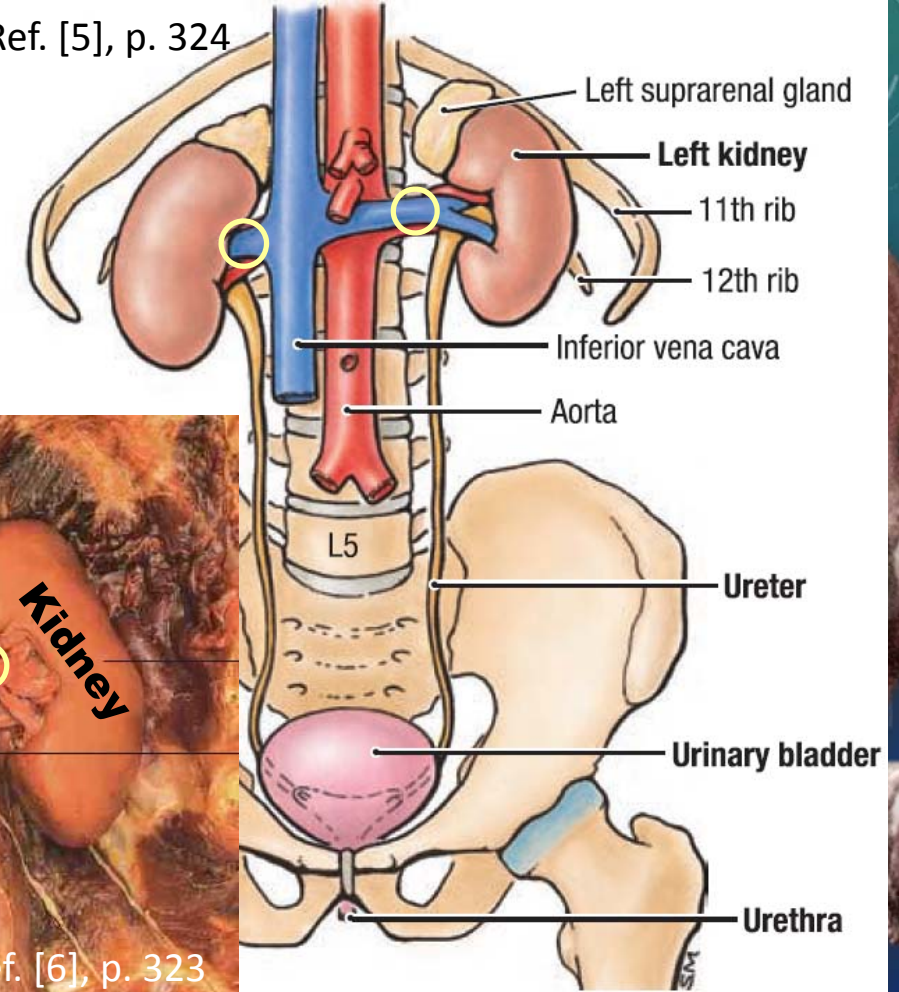


# RENAL VEIN

## LEFT → RIGHT

- Identify the **left renal vein**. Use a probe to trace the left renal vein from the left kidney **across the midline** to the inferior vena cava.
- Observe that it lies **anterior to both renal arteries and the aorta**.

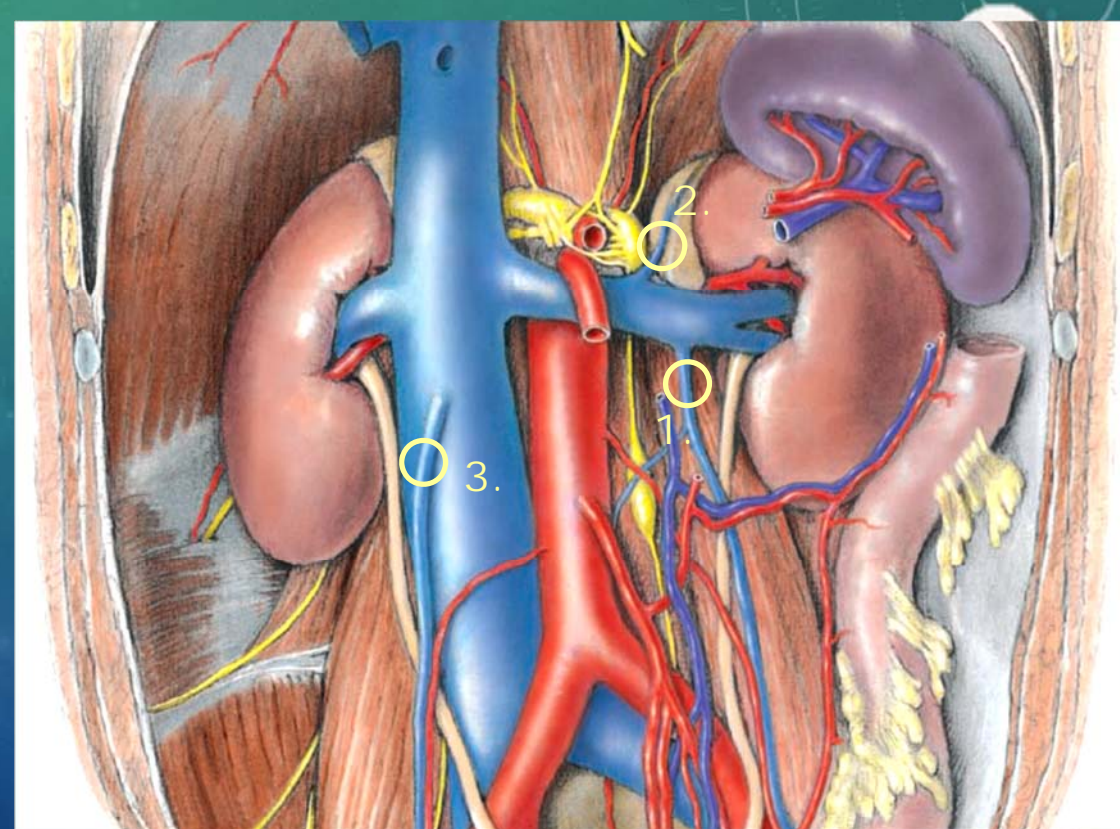
Ref. [5], p. 324



# RENAL VEIN

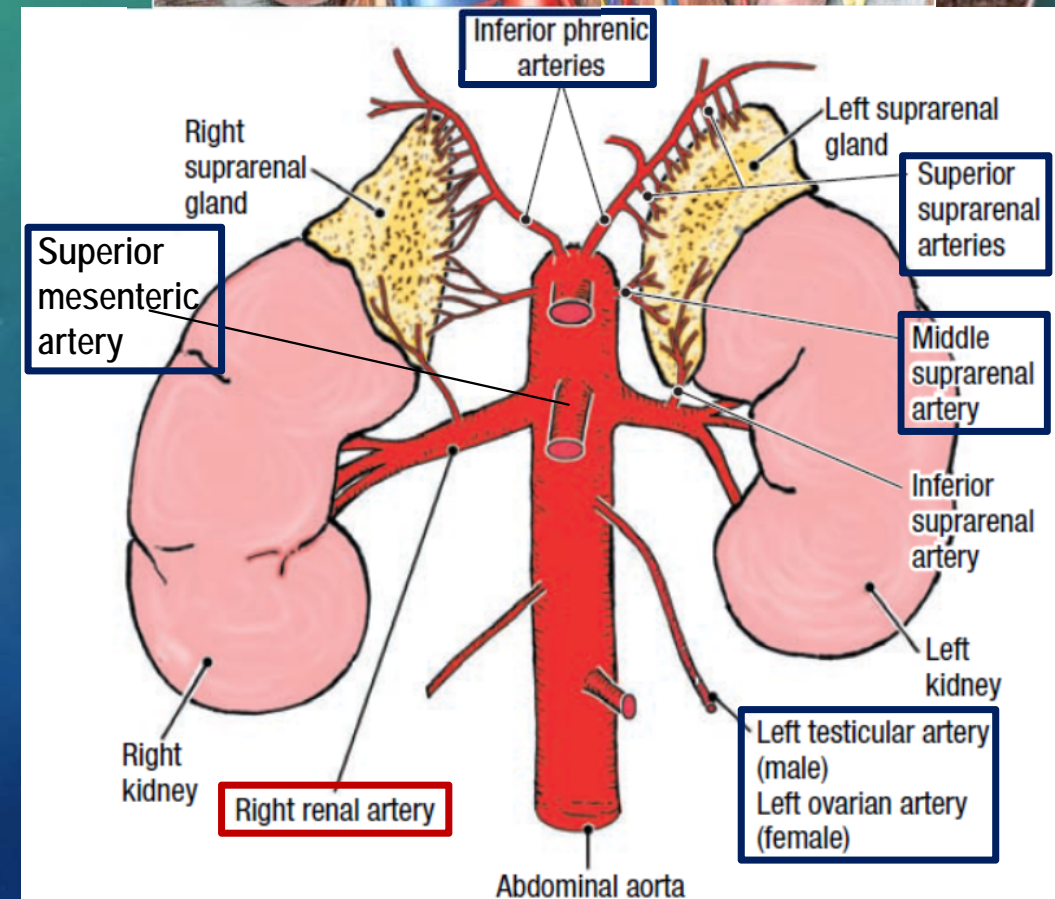
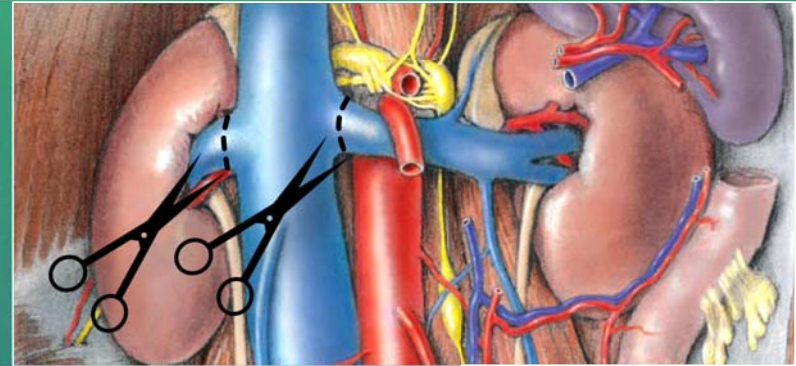
## LEFT VS. RIGHT

- Identify and clean the tributaries of the left renal vein:
  1. Left testicular (or ovarian) vein
  2. Left suprarenal vein
- Clean the relatively short **right renal vein**. Note that it has no tributaries.
  3. Right testicular (or ovarian) vein directly returns to IVC.



# RENAL ARTERIES

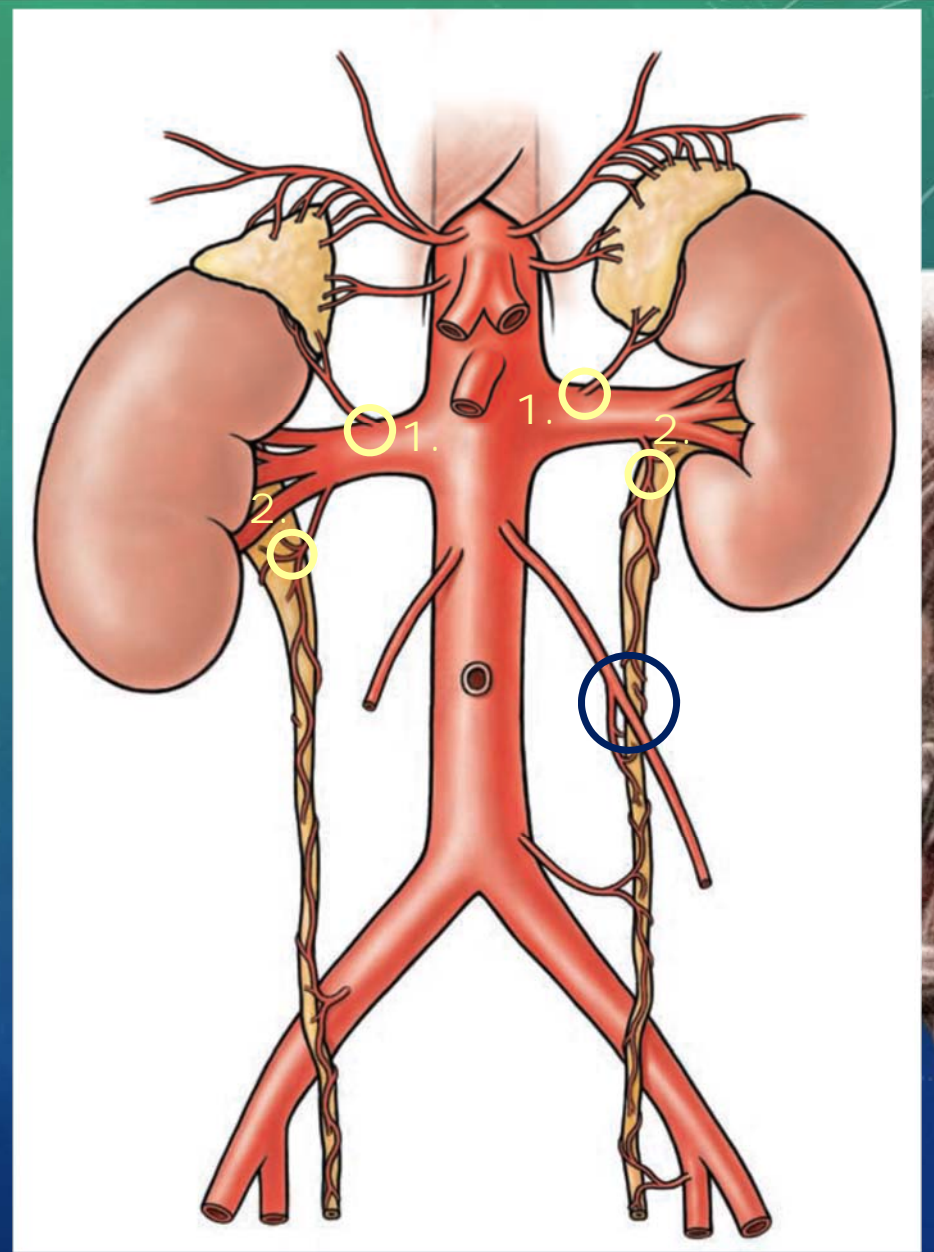
- Use scissors to **cut the renal veins** close to the inferior vena cava and reflect it (black dashed line).
- Identify the **renal artery**, which lies posterior to the renal vein. Follow the renal artery to the hilum of the kidney.
- **Accessory renal arteries** are common.





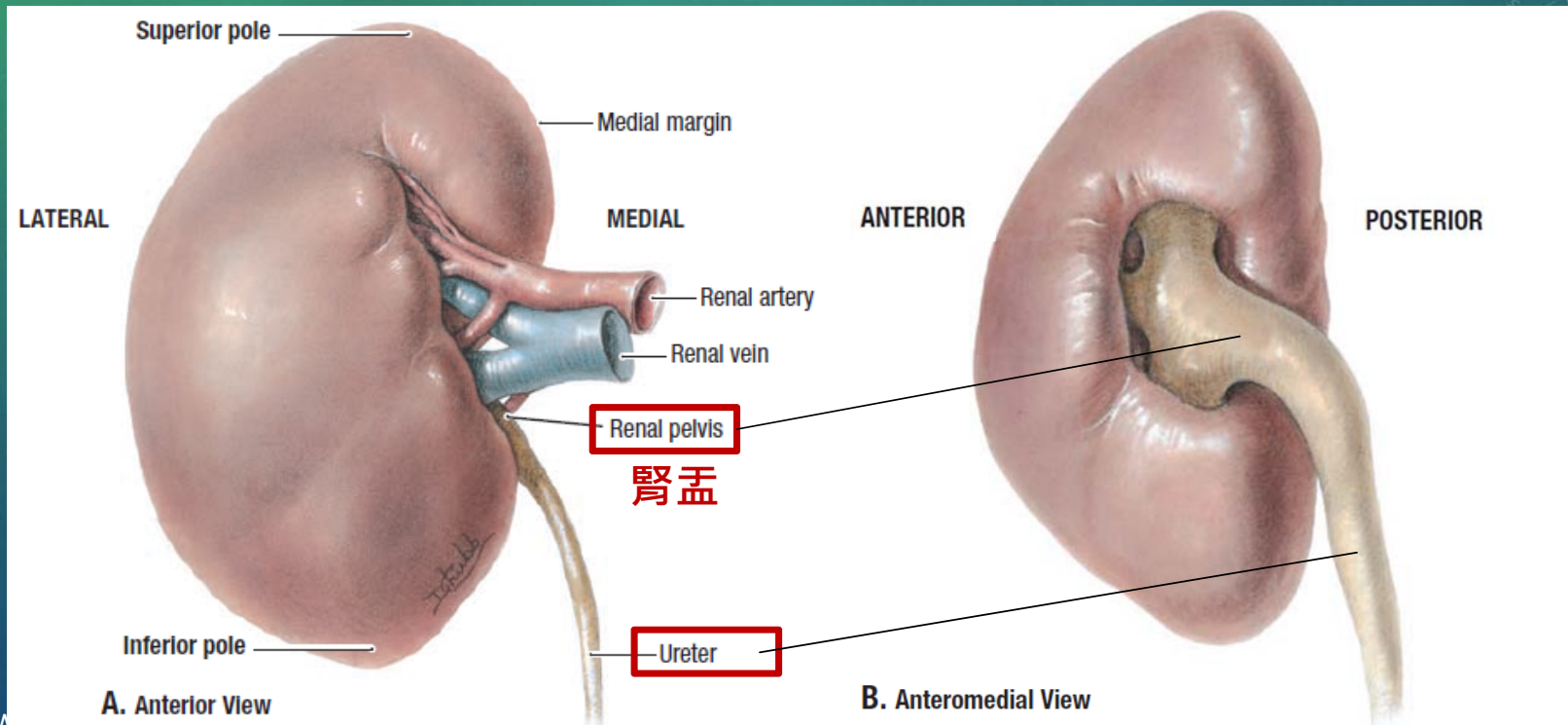
# RENAL ARTERIES

- Identify branches of the renal artery include:
  - Inferior suprarenal artery** – to the suprarenal gland
  - Ureteric branch** – to the ureter



# RENAL PELVIS & URETER

- Using the renal artery as a hinge, turn the left kidney toward the right.

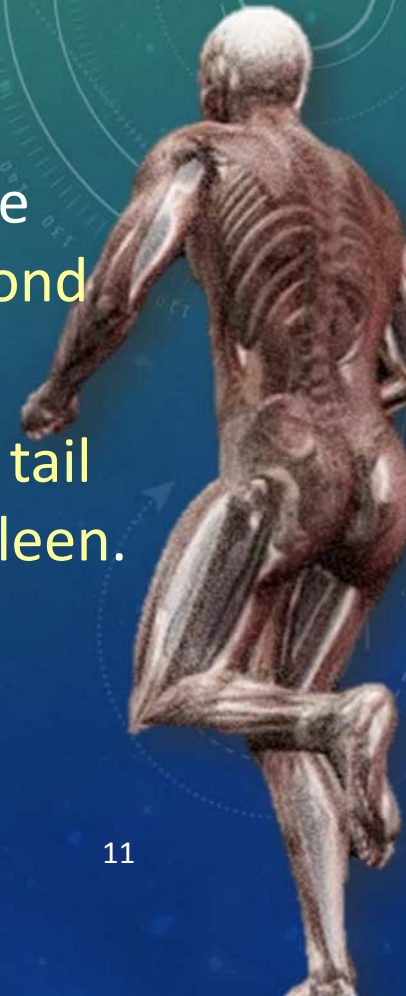


<http://www>

Ref. [5], p. 170

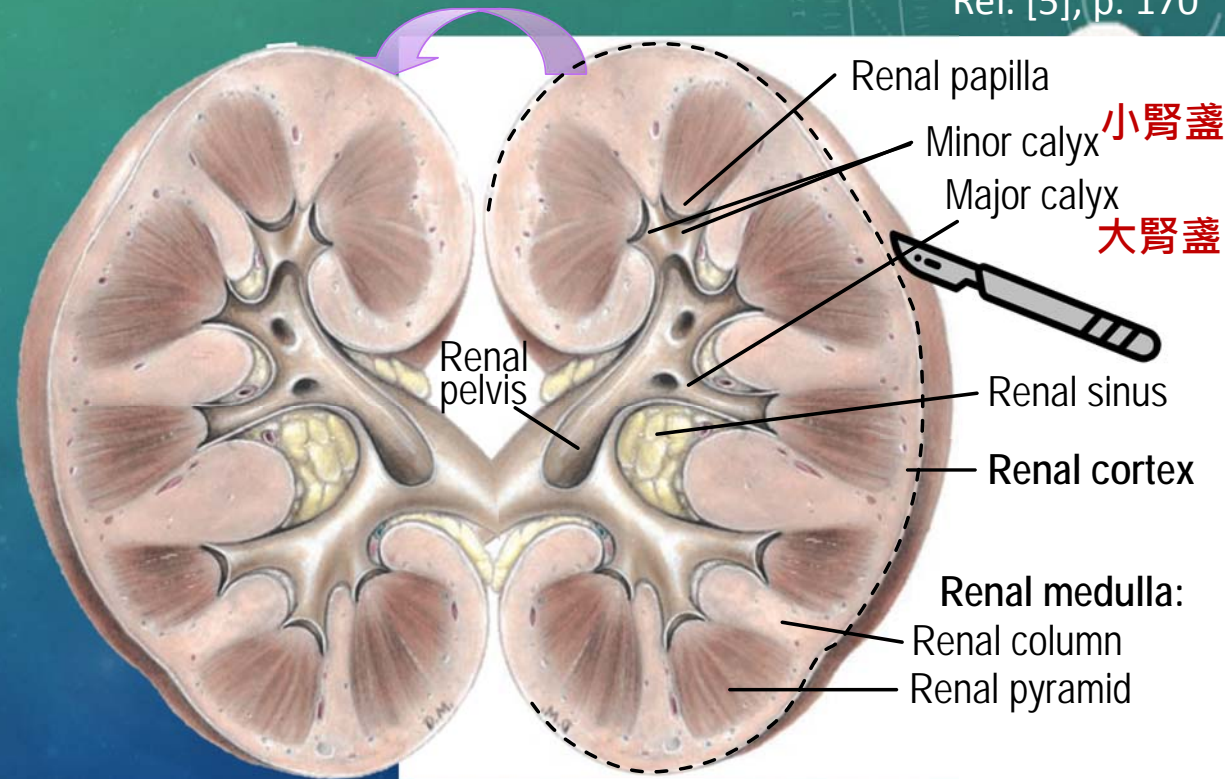
## RELATIONSHIPS OF KIDNEY

- The **suprarenal gland** is superior to the kidney.
- Through the peritoneum, the right kidney is in contact with the **right colic flexure**, the visceral surface of the **liver**, and the **second part of the duodenum**.
- Through the peritoneum, the left kidney is in contact with the **tail of the pancreas**, the **left colic flexure**, the **stomach**, and the **spleen**.
- The hilum of the kidney faces anteromedially and the lateral border faces posterolaterally.



# KIDNEY DISSECTION

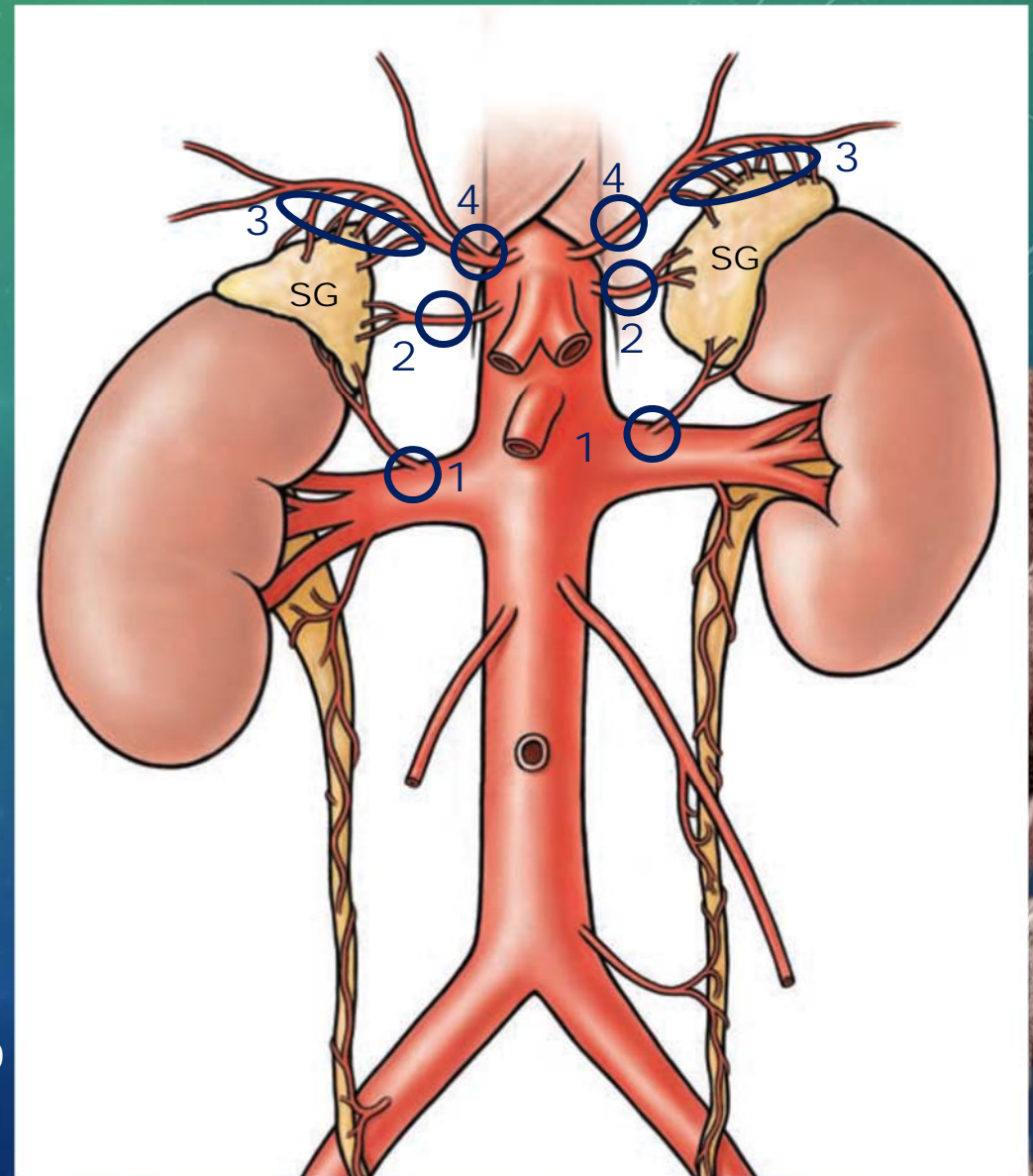
- Divide the left kidney into anterior and posterior halves by **splitting it longitudinally along its lateral border**.
- Open the two halves of the kidney like a book using the renal pelvis as the hinge.
- Identify the labeled structures.



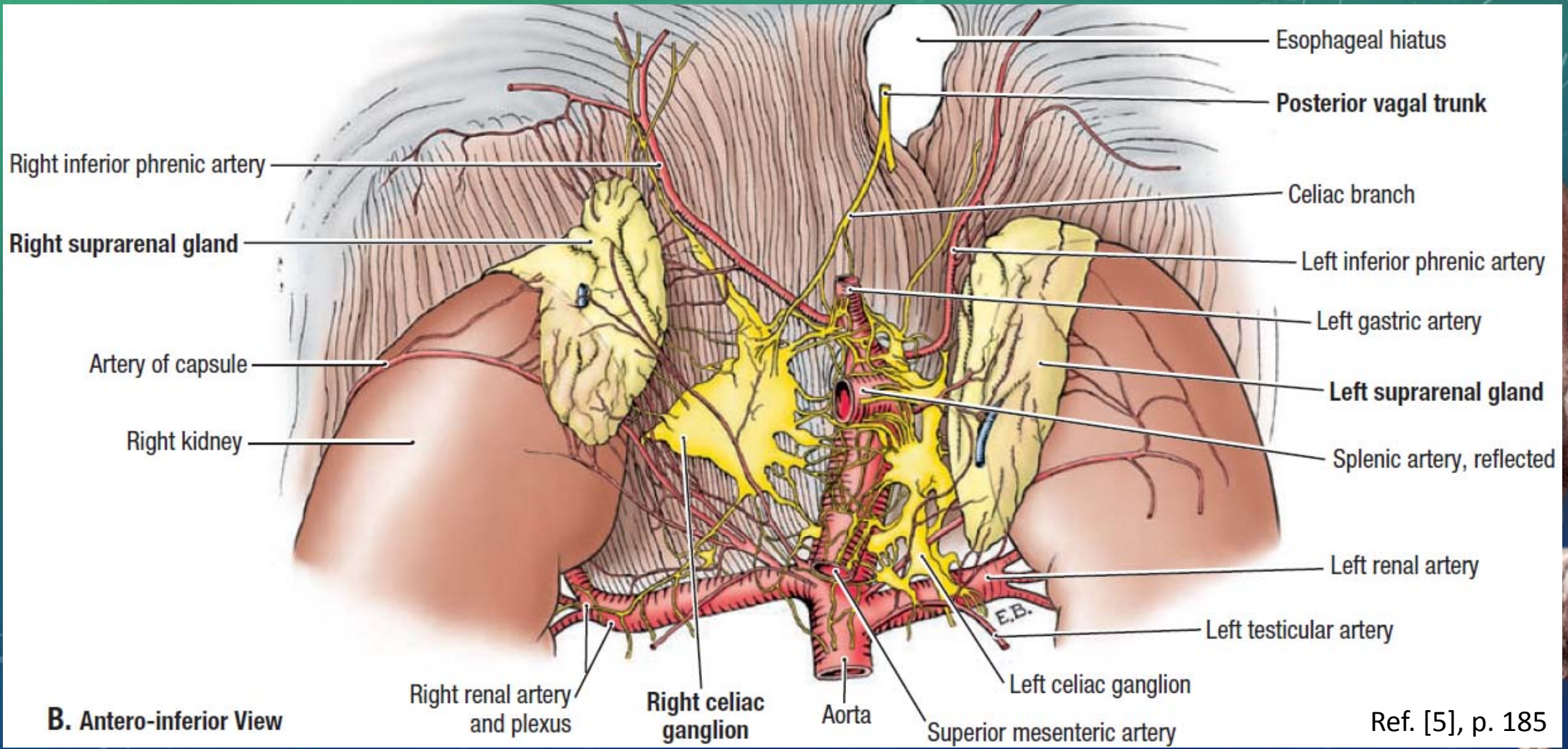
Renal papilla → minor calyx → major calyx → renal pelvis → ureter

# SUPRARENAL GLANDS (SG)

- The suprarenal (adrenal) glands are fragile and may be easily torn!
- Identify arteries:
  - 1. Inferior suprarenal artery** – arises from the renal artery.
  - 2. Middle suprarenal artery** – arises from the aorta near the celiac trunk.
  - 3. Superior suprarenal arteries** – arise from the **4. inferior phrenic artery**.

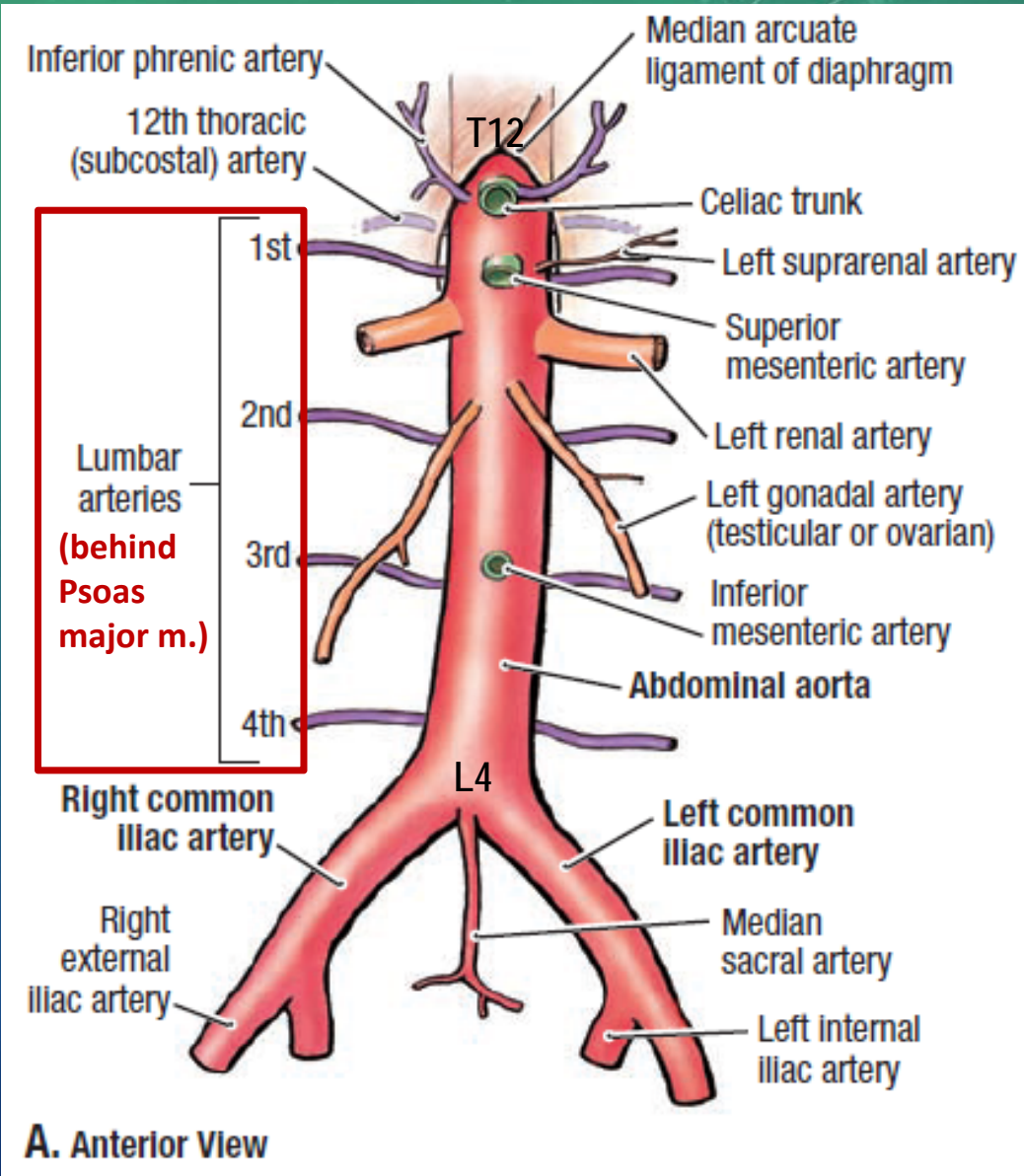


# SUPRARENAL GLANDS & SYMPATHETIC NERVES



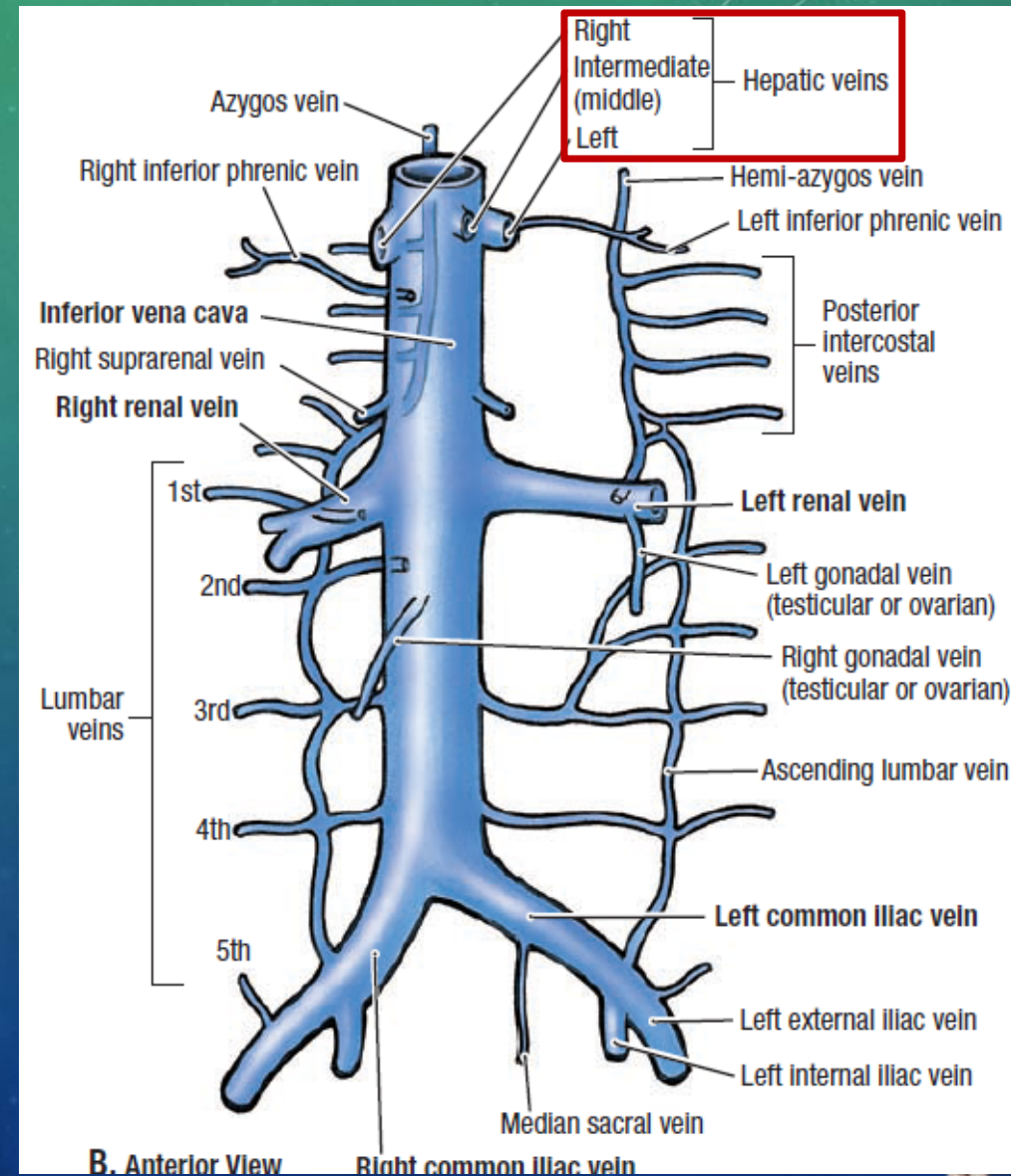
# ABDOMINAL AORTA

- Observe that the abdominal aorta has three types of branches:
  - **Unpaired visceral arteries** – to the gastrointestinal tract (celiac trunk, superior mesenteric artery, inferior mesenteric artery).
  - **Paired visceral arteries** – to the three paired abdominal organs (middle suprarenal arteries, renal arteries, testicular or ovarian arteries).
  - **Paired somatic arteries** – to the abdominal wall (lumbar arteries, inferior phrenic arteries).



# INFERIOR VENA CAVA

- The inferior vena cava does receive venous drainage from the paired abdominal organs (renal vein, suprarenal vein, testicular or ovarian vein) either directly (right side) or indirectly (left side).
- The inferior vena cava receives paired veins from the abdominal wall (lumbar veins, inferior phrenic veins).



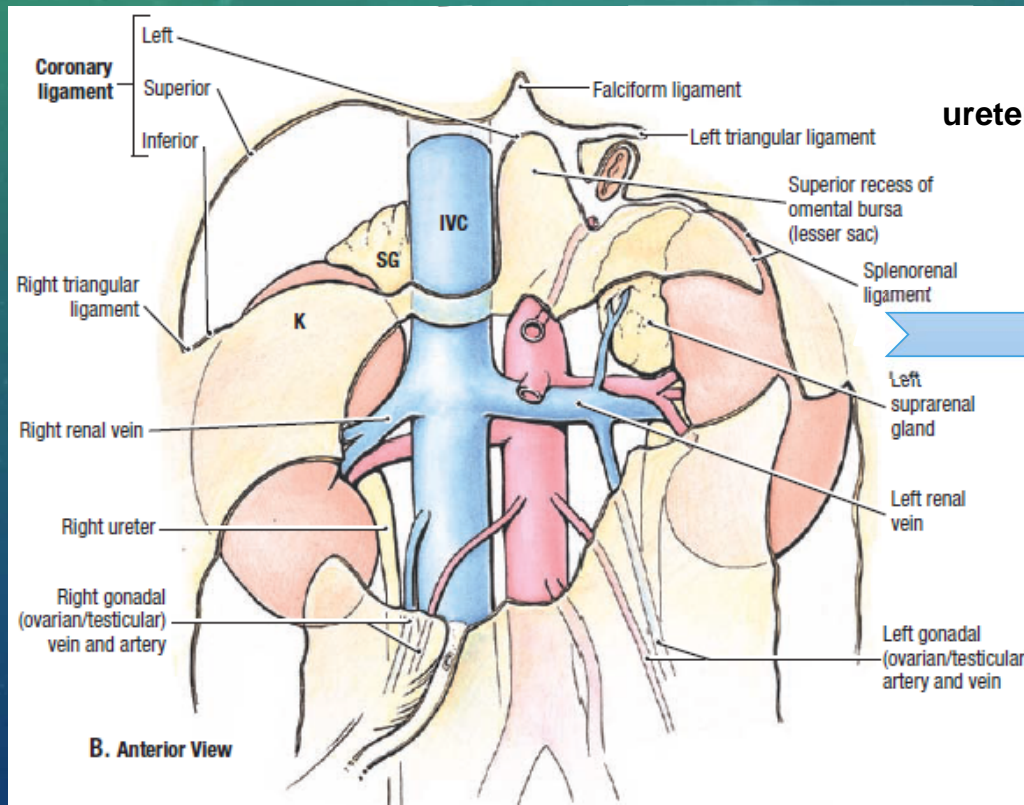


# POSTERIOR ABDOMINAL WALL

## 後腹壁

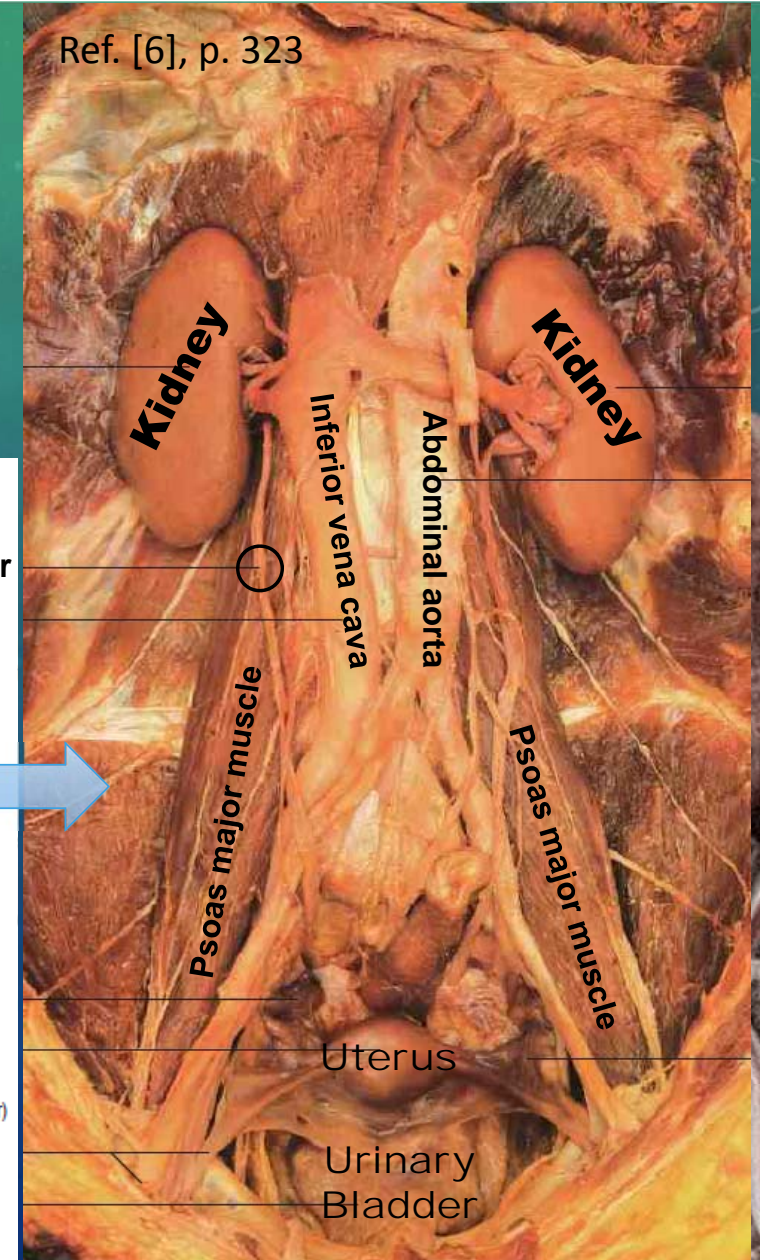
# REMOVE PARIETAL PERITONEUM

- Remove any remaining parietal peritoneum from the posterior abdominal wall.



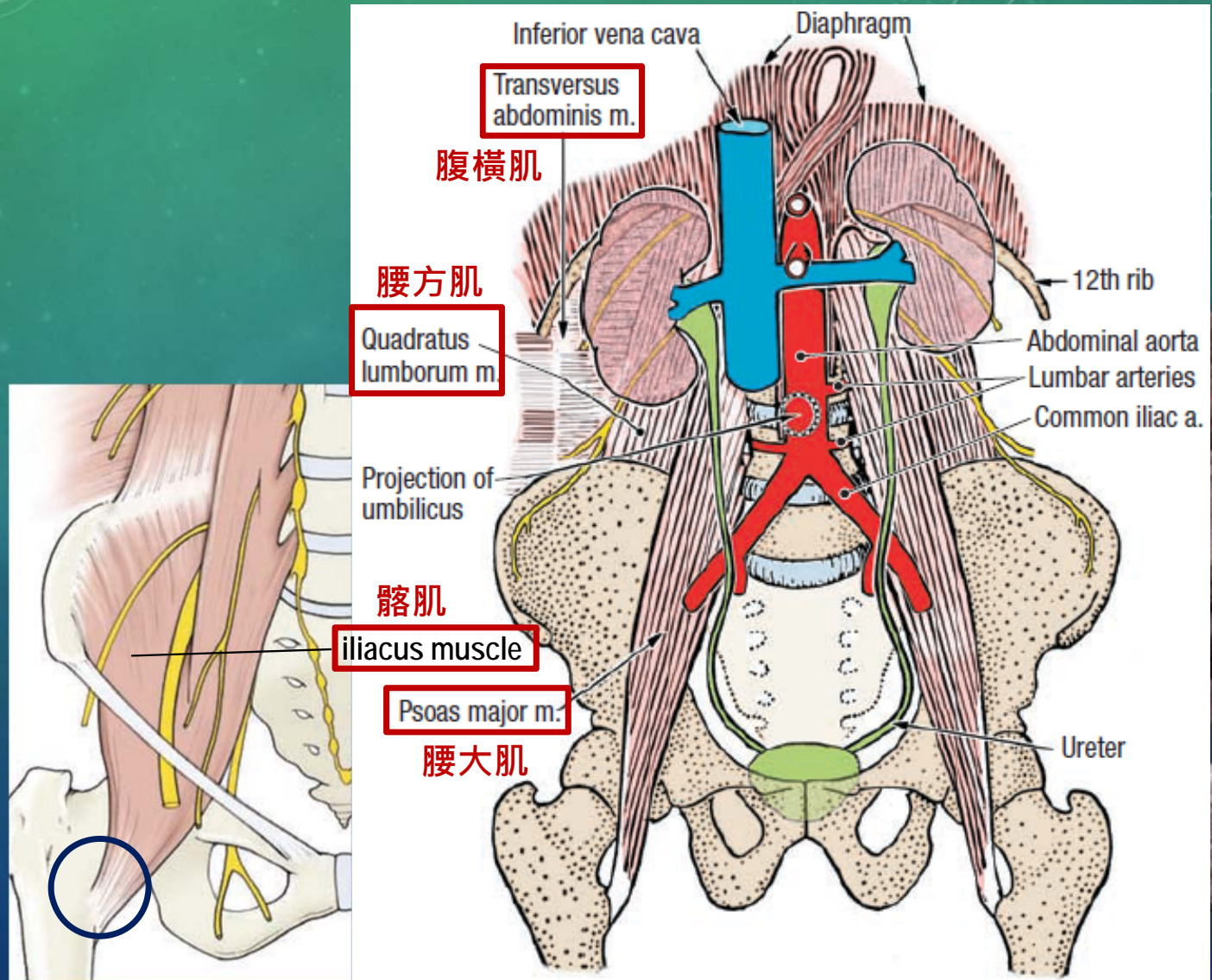
Ref. [5], p. 166

Ref. [6], p. 323



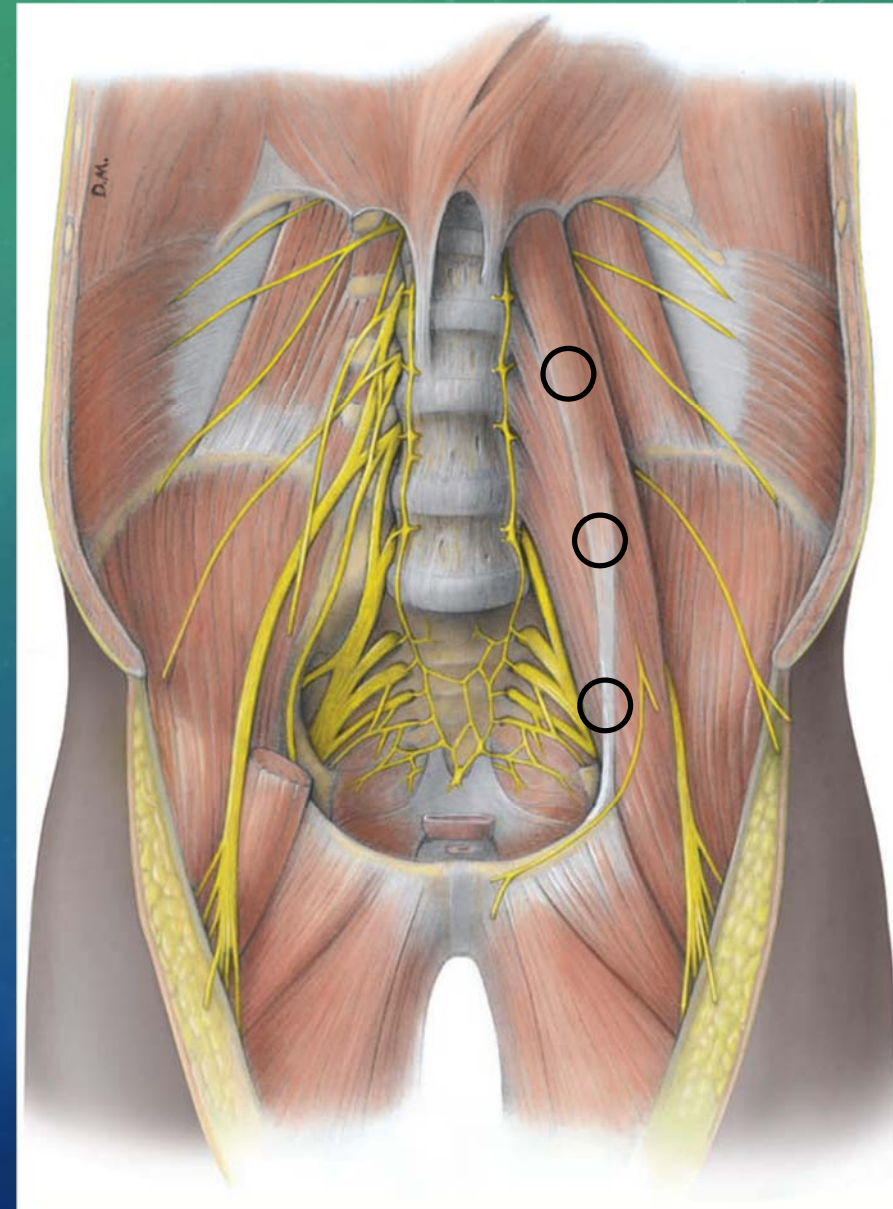
# MUSCLES

- Identify....
  - Psoas major muscle
  - Quadratus lumborum muscle
  - Transversus abdominis muscle
  - Iliacus muscle



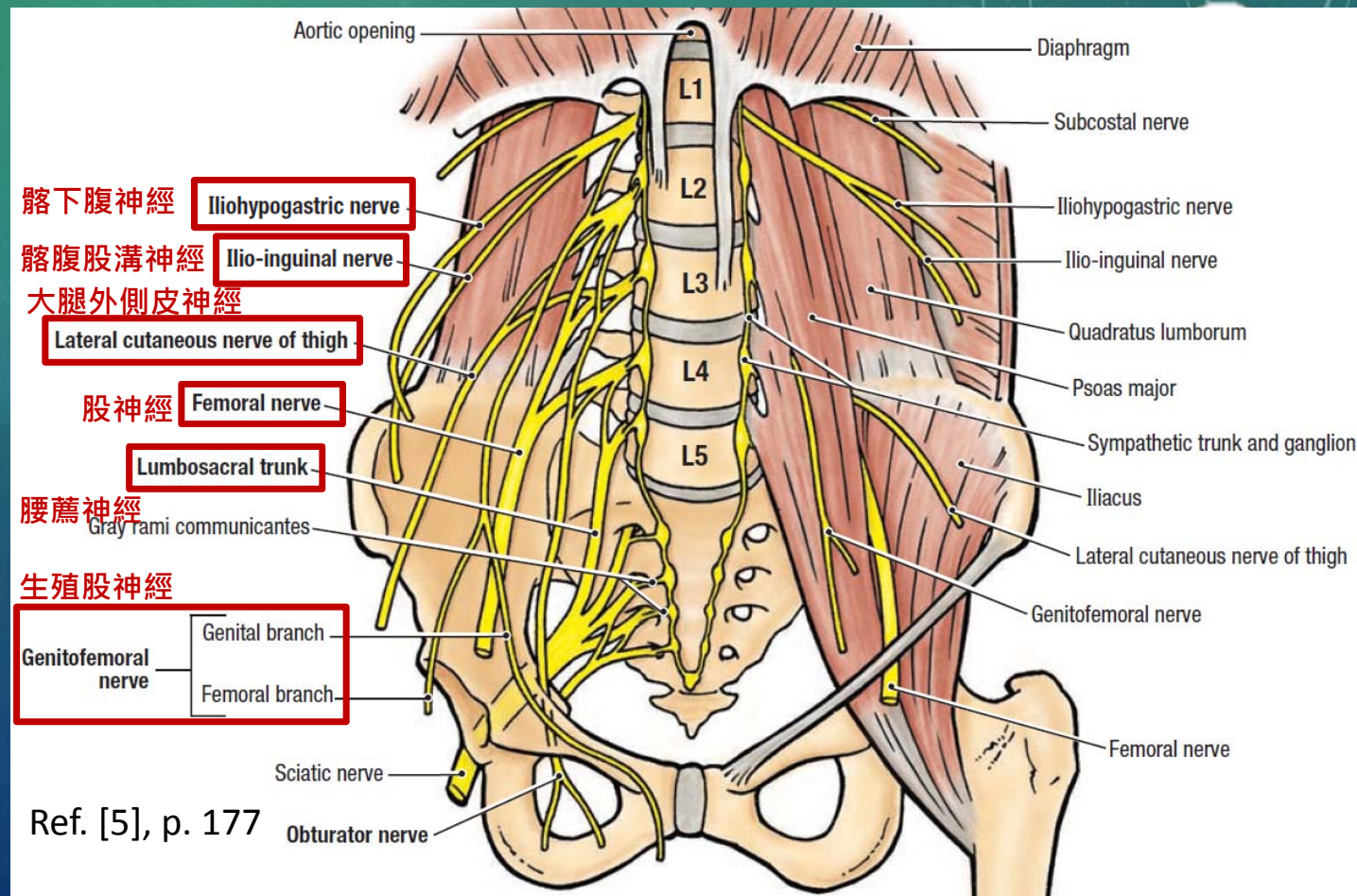
# PSOAS MINOR MUSCLE

- The psoas minor muscle is absent in approximately 40% of cases and may be present on only one side of the cadaver.
- The psoas minor muscle has a long flat tendon that passes down the anterior surface of the psoas major muscle.
- Its distal attachment is on the iliopubic eminence and arcuate line of the ilium.



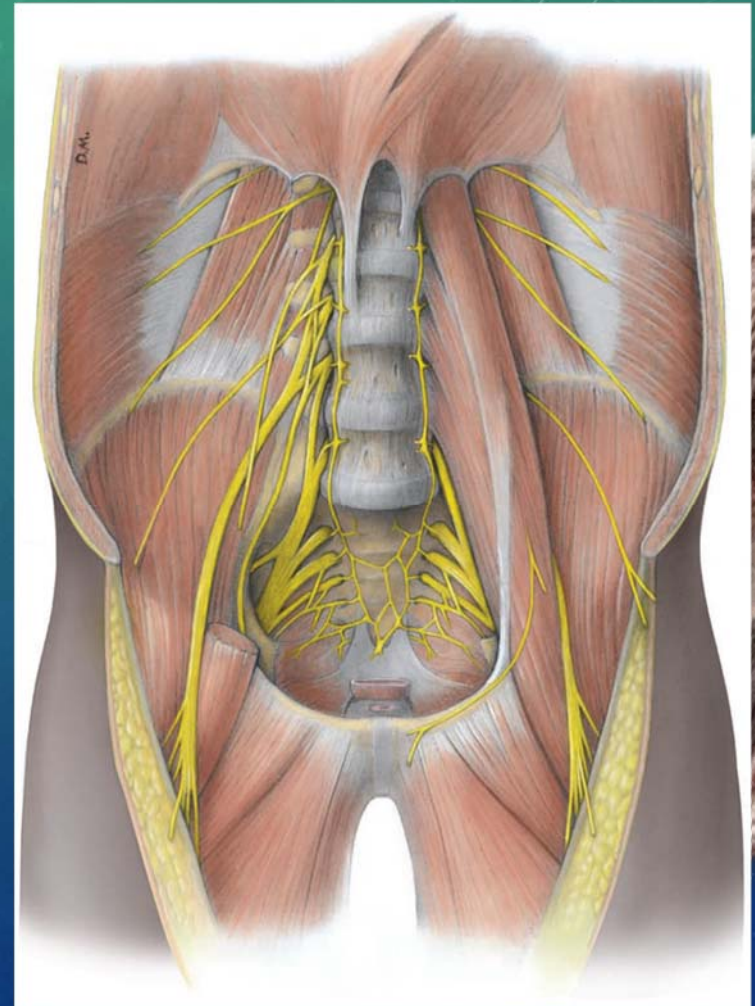
# LUMBAR PLEXUS

- The lumbar plexus (L1 to L4) is formed within the psoas major muscle
- Its branches can be seen as they emerge from the lateral border of this muscle.



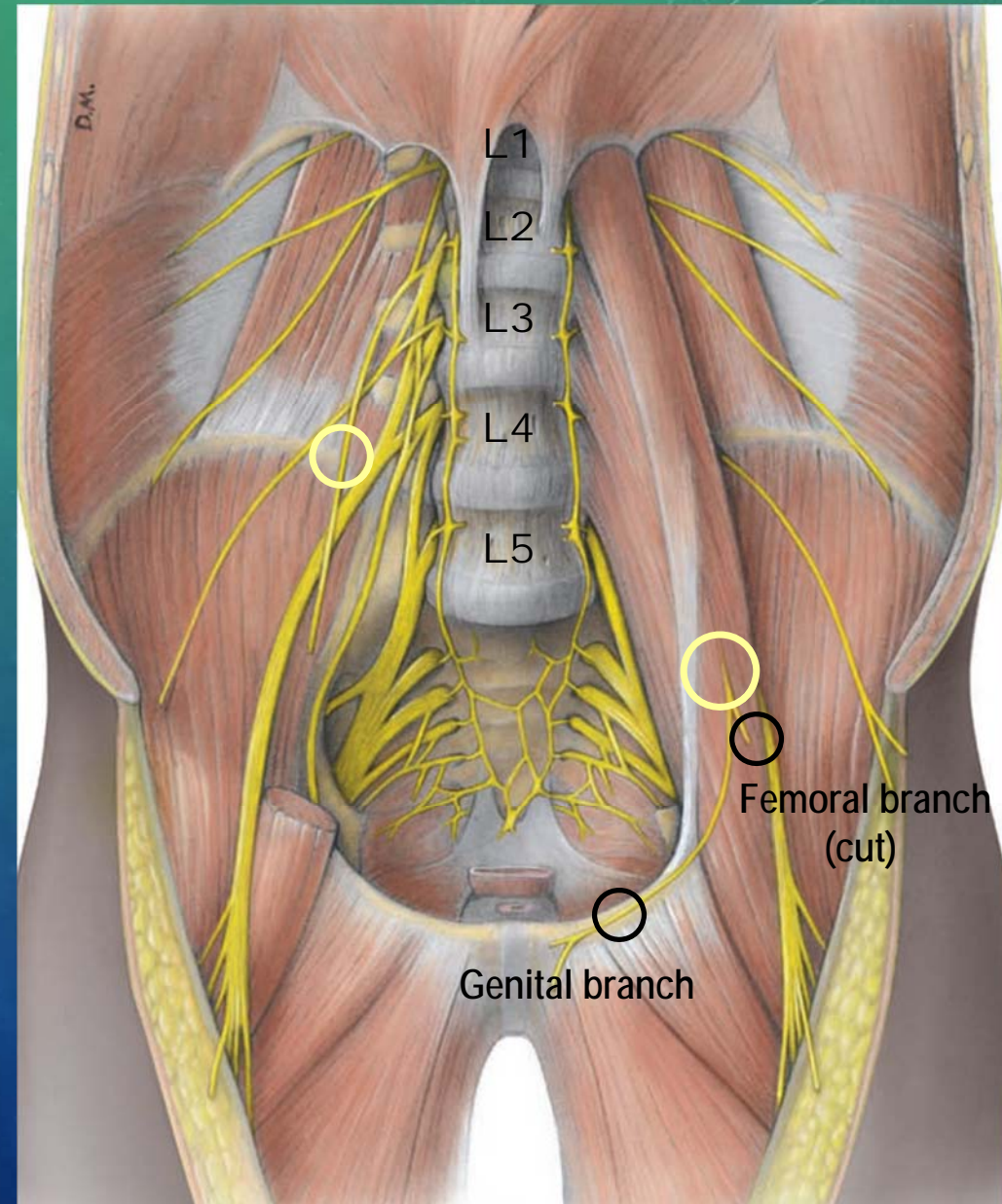
# DISSECTION GUIDE

- Dissect the lumbar plexus on the **left side** only.
- Follow each nerve proximally into the psoas major muscle, removing the muscle piece by piece (一束一束肌纖維小心撕開找).
- Use the peripheral relationships of the nerves (their **region of distribution** or a **point of exit from the abdominal cavity**) for positive identification.



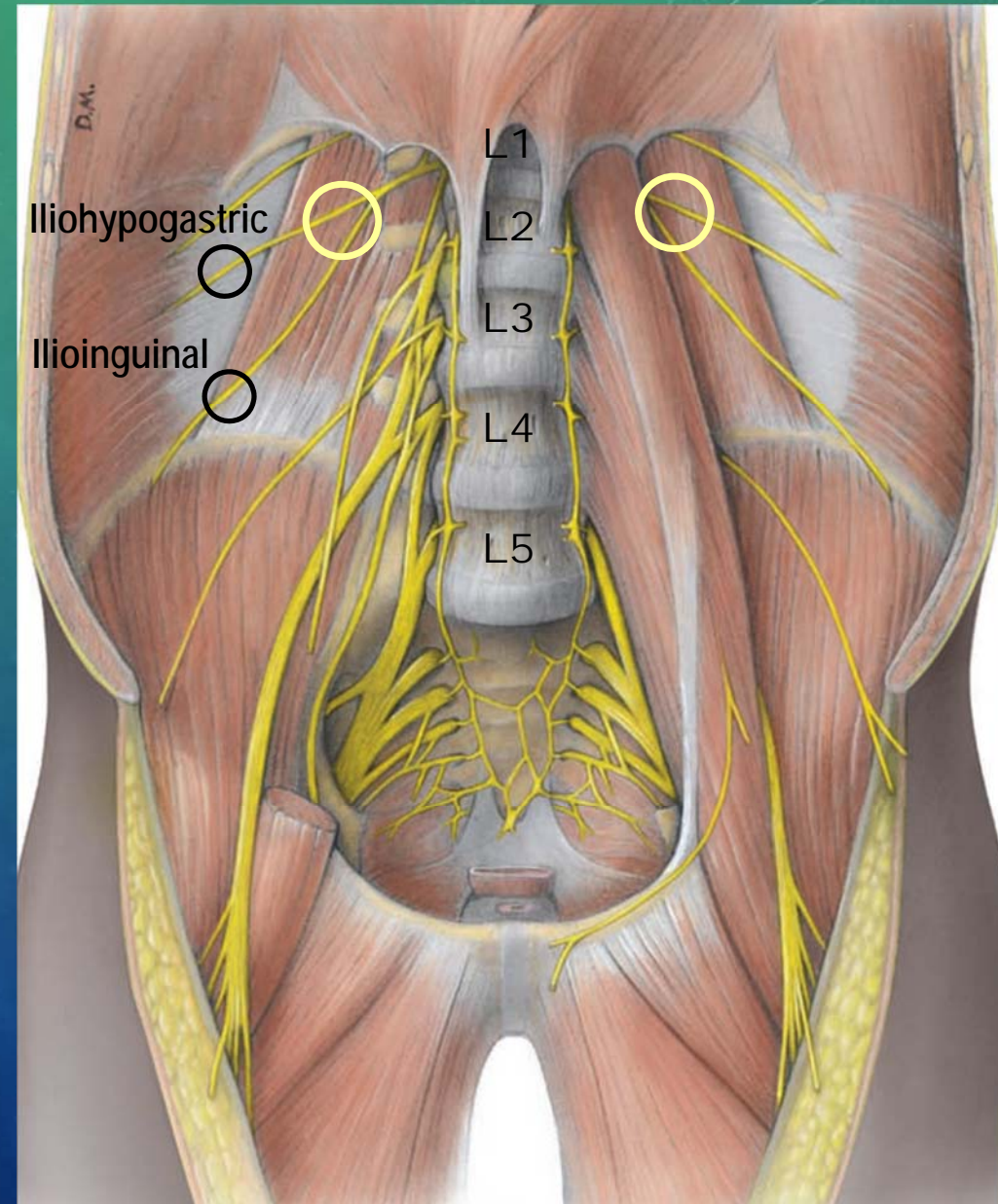
# GENITOFEMORAL NERVE

- It is found on the anterior surface of the psoas major muscle.
- **Genital branch** – passes through the deep inguinal ring and down the inguinal canal.
- **Femoral branch** – passes under the inguinal ligament on the anterior surface of the external iliac artery.



# ILIOHYPOGASTRIC AND ILIOINGUINAL NERVES

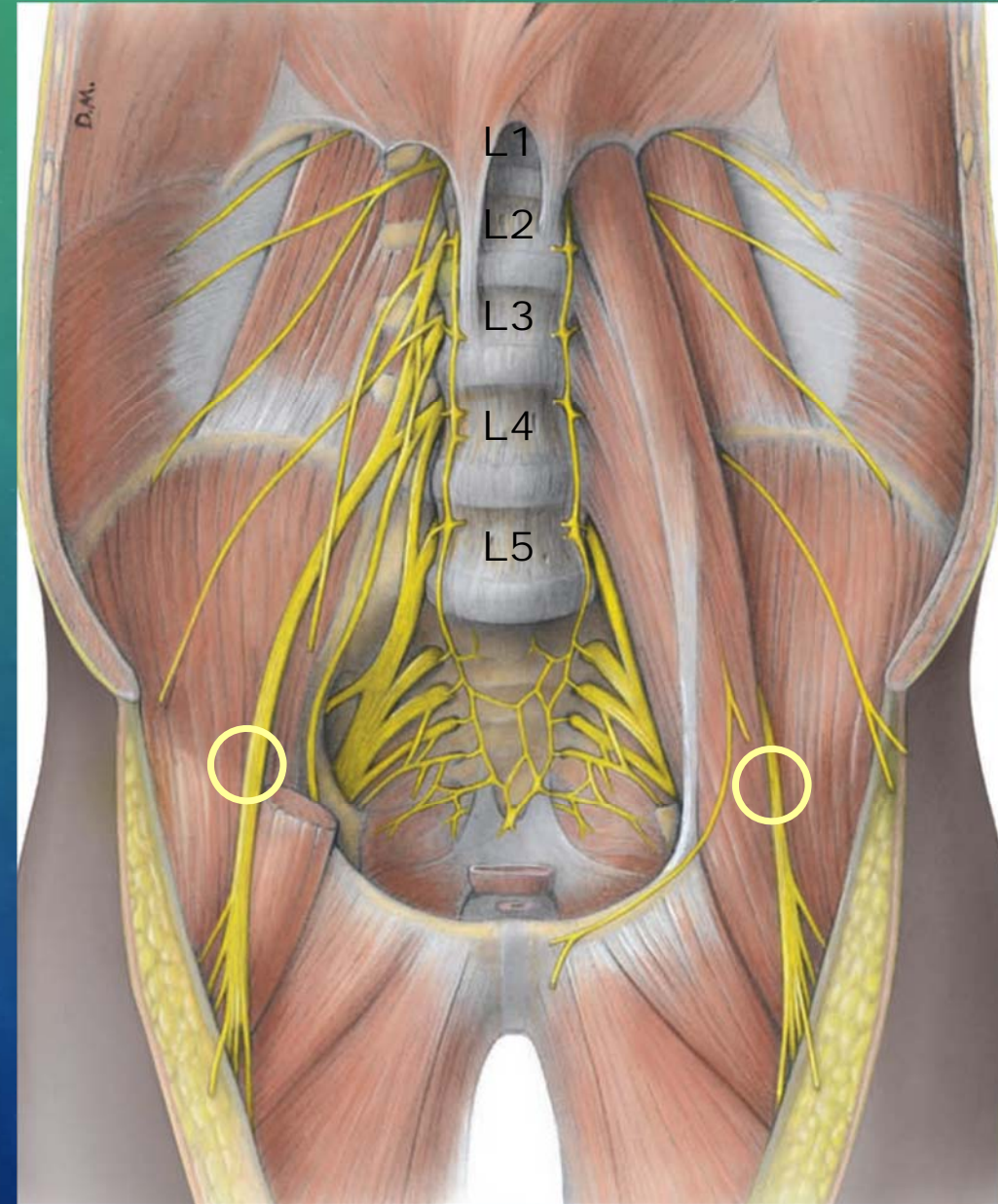
- They descend steeply across the anterior surface of the quadratus lumborum muscle.
- To positively identify the ilioinguinal nerve, follow it to the superficial inguinal ring.





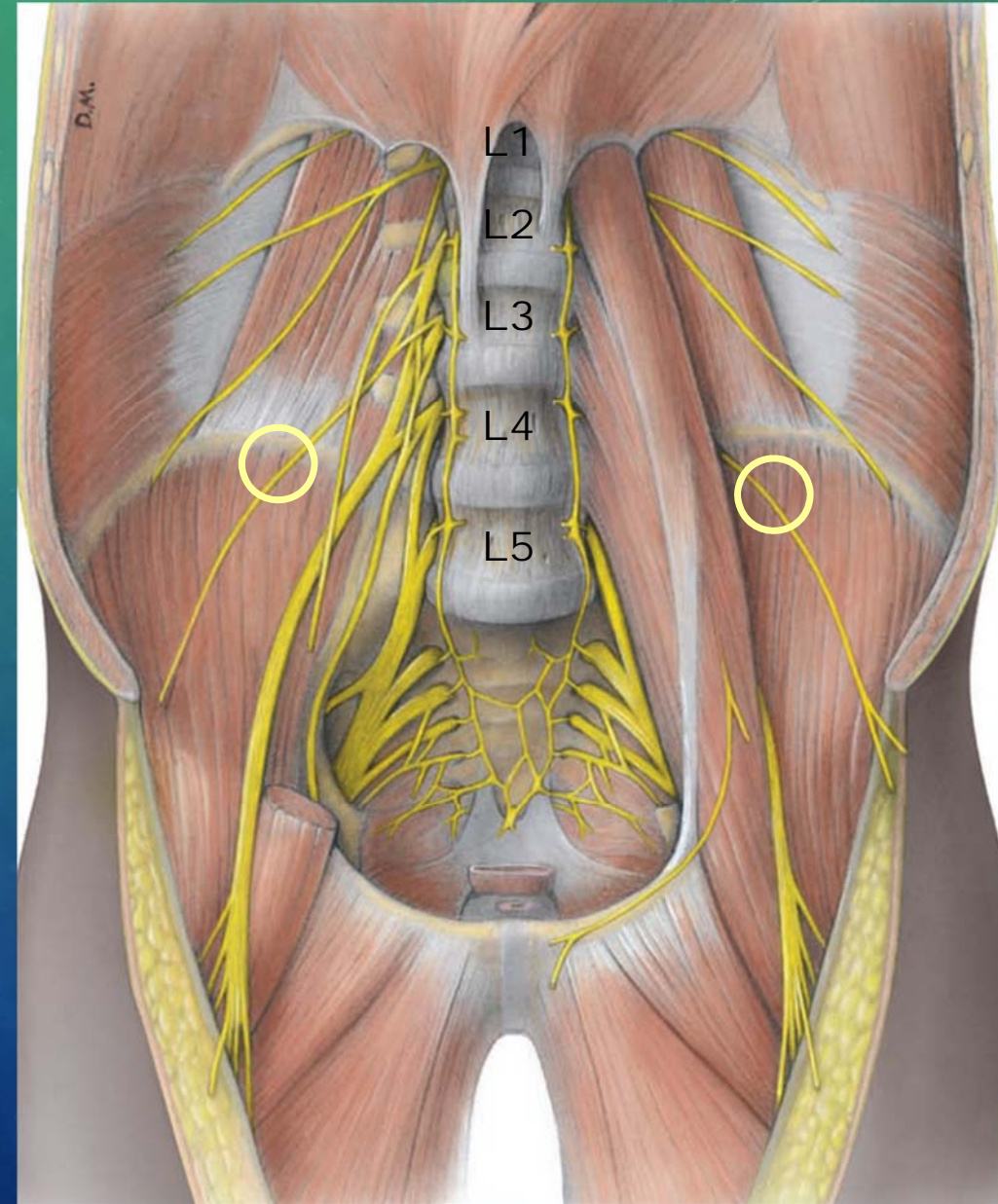
# FEMORAL NERVE

- It lies on the lateral side of the psoas major muscle in the groove between the psoas major and iliacus muscles.
- The femoral nerve passes deep to the inguinal ligament and provides motor and sensory branches to the anterior thigh.



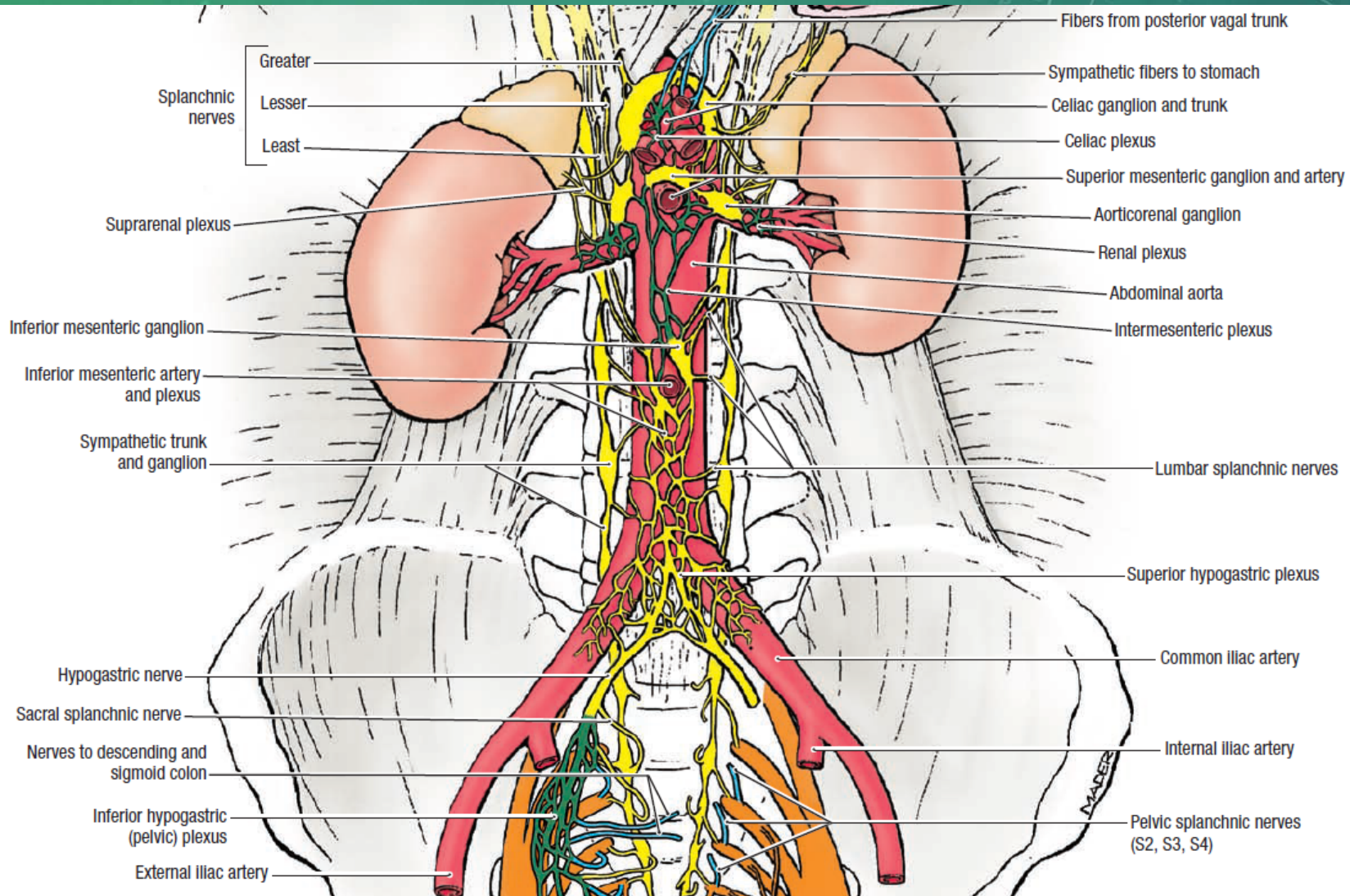
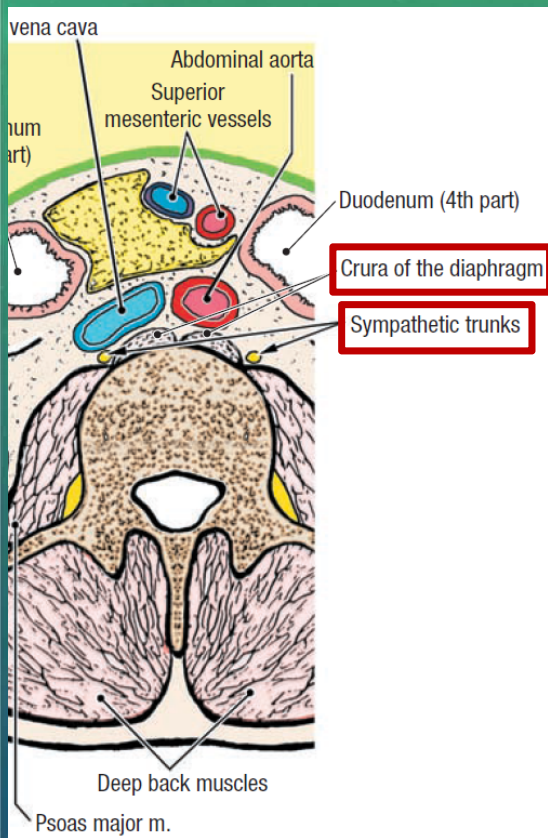
# LATERAL CUTANEOUS NERVE OF THIGH

- It passes deep to the inguinal ligament near the anterior superior iliac spine.
- The lateral cutaneous nerve of the thigh supplies the skin on the lateral aspect of the thigh.



# SYMPATHETIC TRUNK

Ref. [5], p. 180



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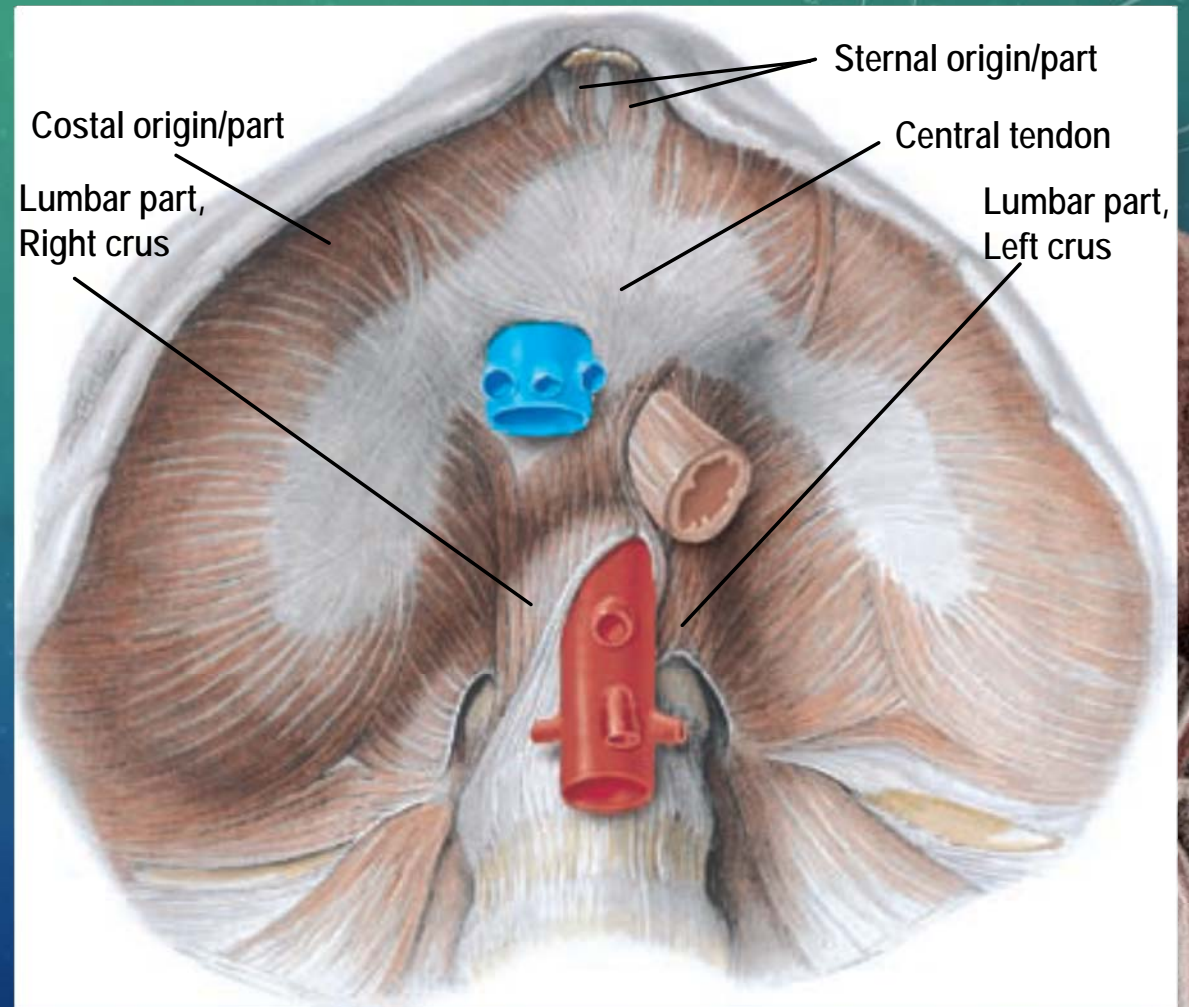
# DIAPHRAGM

## 橫膈膜

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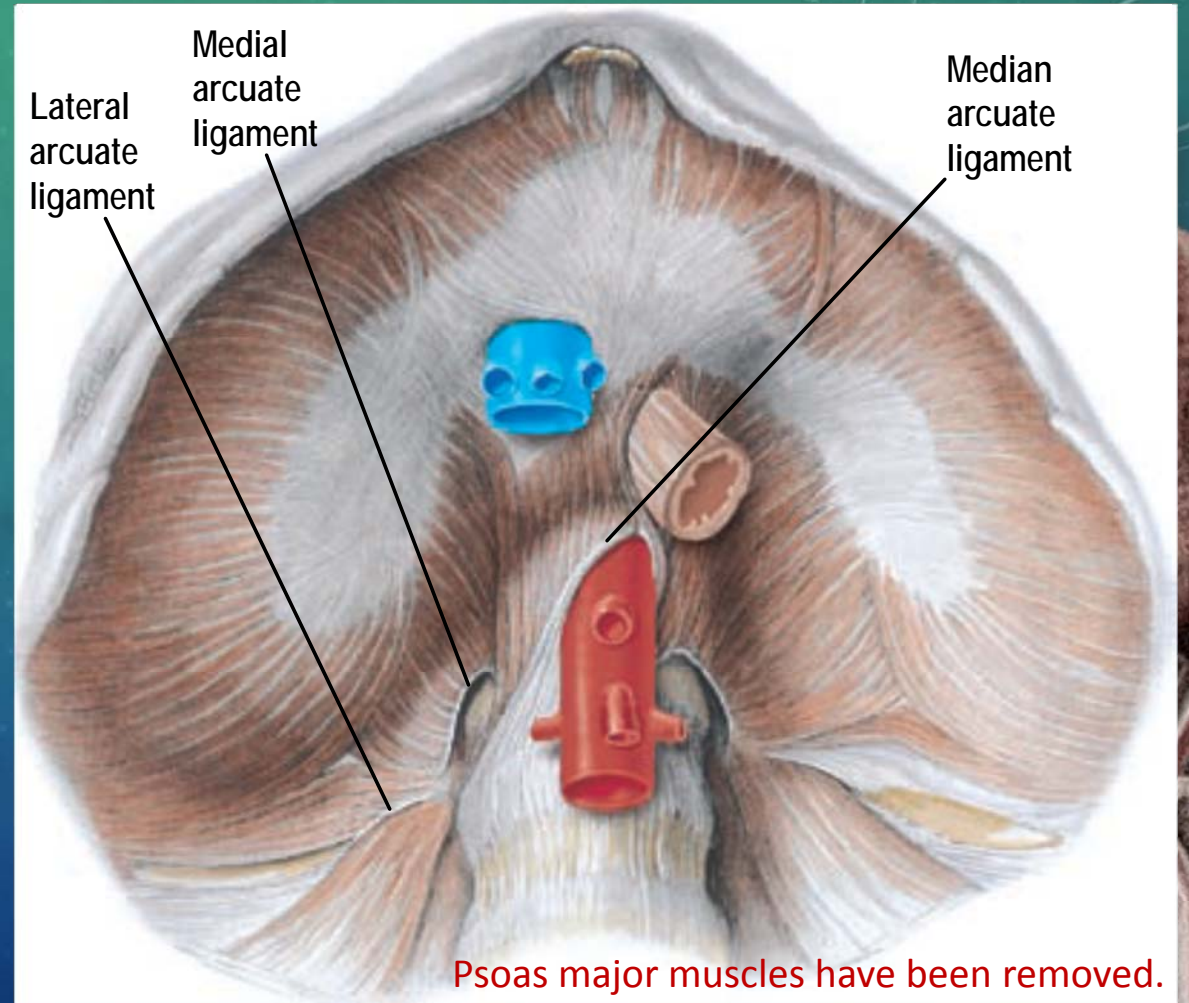
# DIAPHRAGM

- Identify
  - **Central tendon** – the aponeurotic center of the diaphragm (distal attachment of its muscle part).
  - **Sternal part**
  - **Costal part**
  - **Lumbar part**



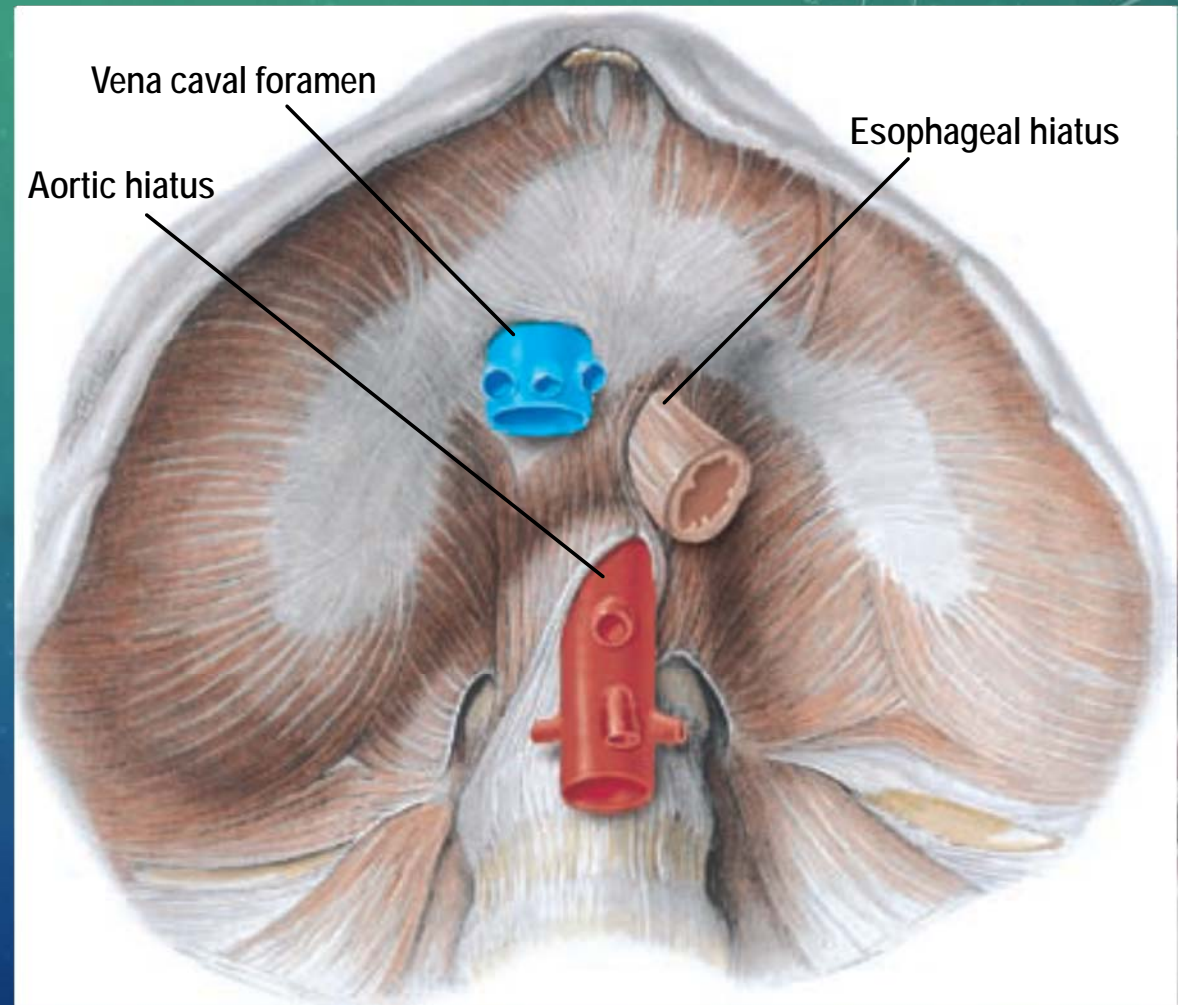
# DIAPHRAGM

- Identify arcuate ligaments 弓狀韌帶
  - **Lateral arcuate ligament** – bridges the anterior surface of the quadratus lumborum muscle.
  - **Medial arcuate ligament** – bridges the anterior surface of the psoas major muscle.
  - **Median arcuate ligament** – (unpaired) bridges the anterior surface of the aorta at the aortic hiatus.



# DIAPHRAGM

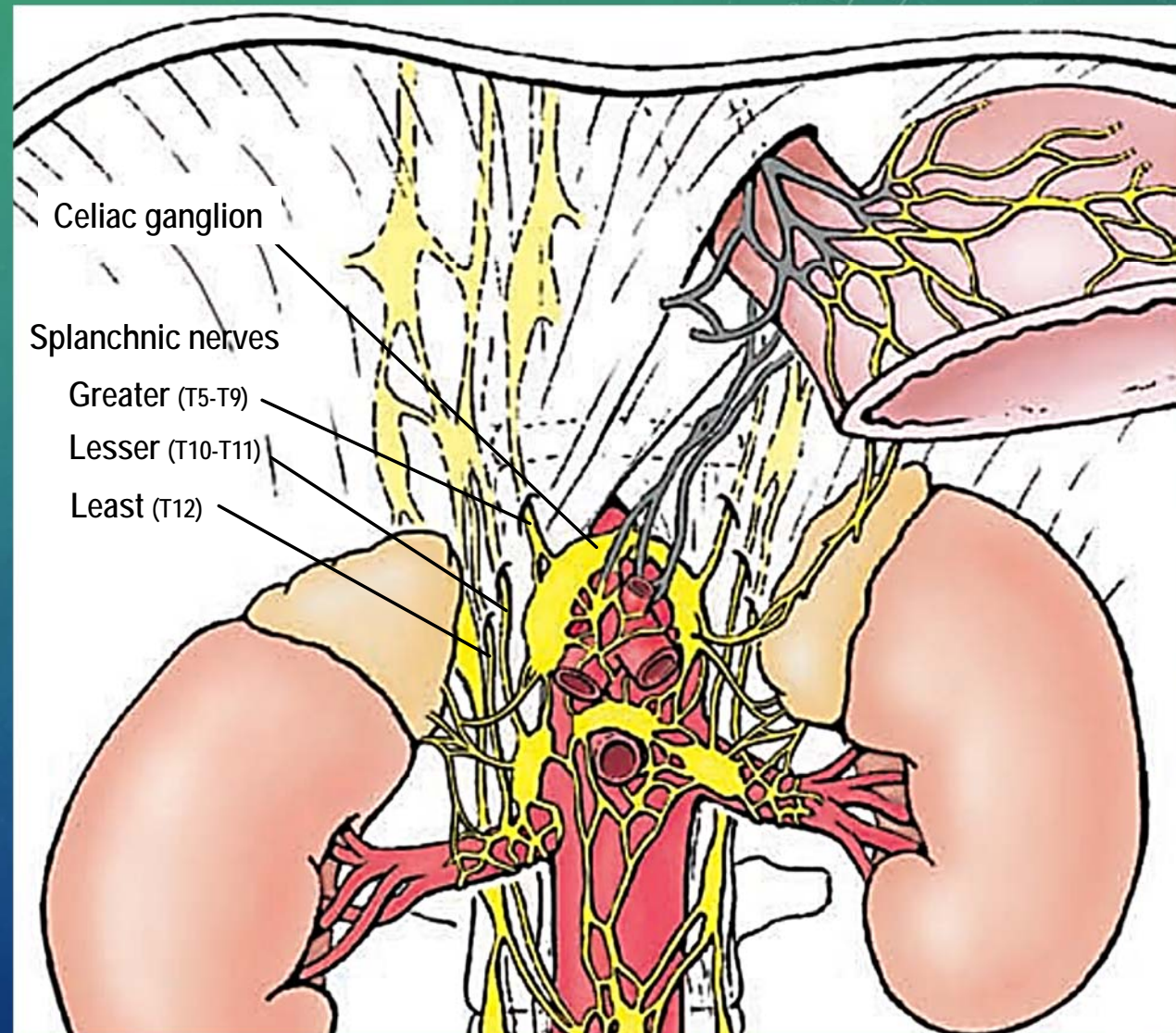
- Identify three large openings
  - **Vena caval foramen** – passes through the central tendon (vertebral level T8).
  - **Esophageal hiatus** – passes through the right crus (vertebral level T10).
  - **Aortic hiatus** – passes behind the diaphragm (vertebral level T12).



# SPLANCHNIC NERVE

## 內臟神經

- Identify the **greater splanchnic nerve** in the thorax and follow it to the superior surface of the diaphragm.
- Note that the greater splanchnic nerve penetrates the crus to enter the abdominal cavity.
- Identify the **celiac ganglion**.





# THE END

[ALVIN4016@TMU.EDU.TW](mailto:ALVIN4016@TMU.EDU.TW) (TMU EXT. 3273)

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