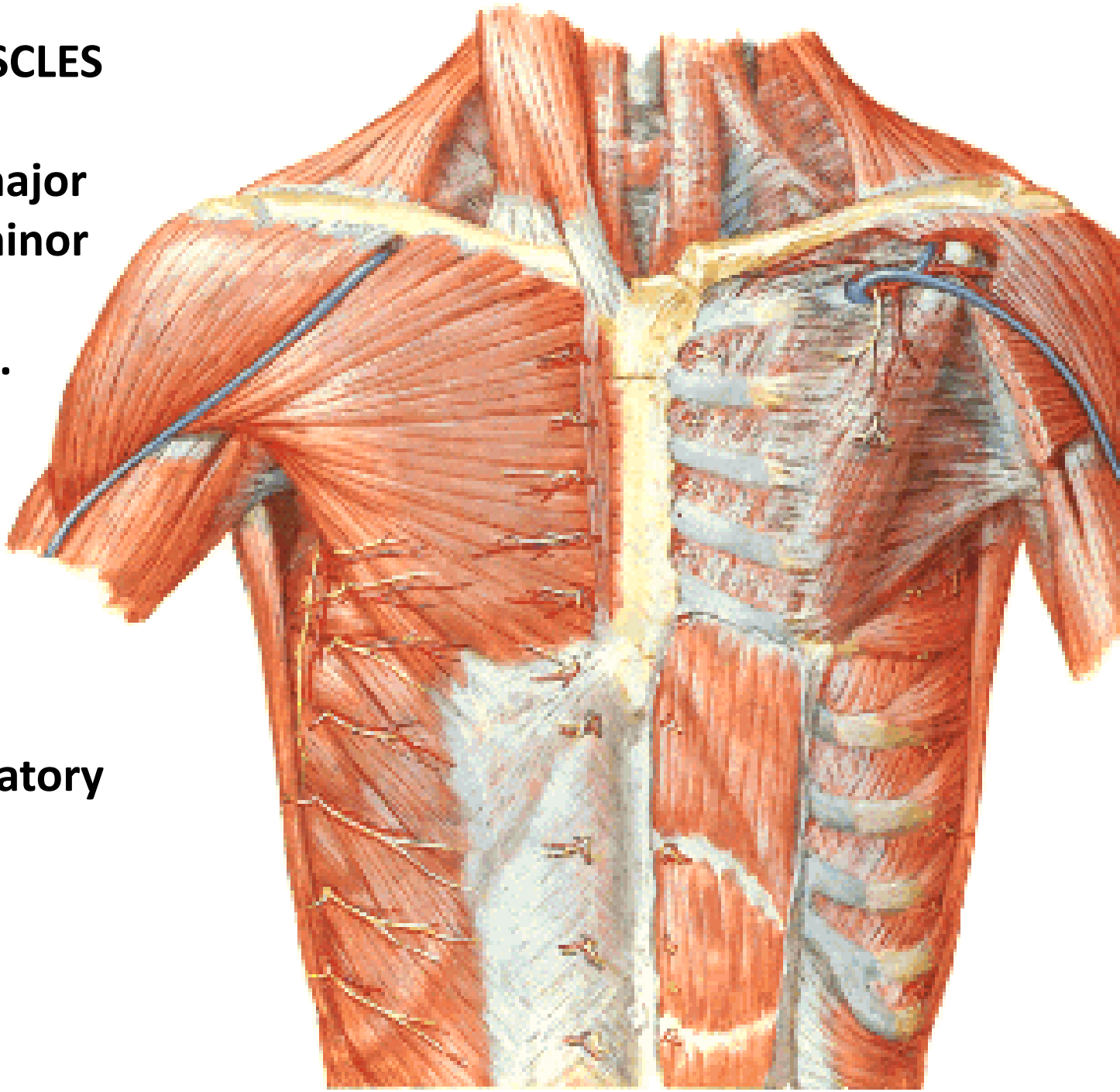
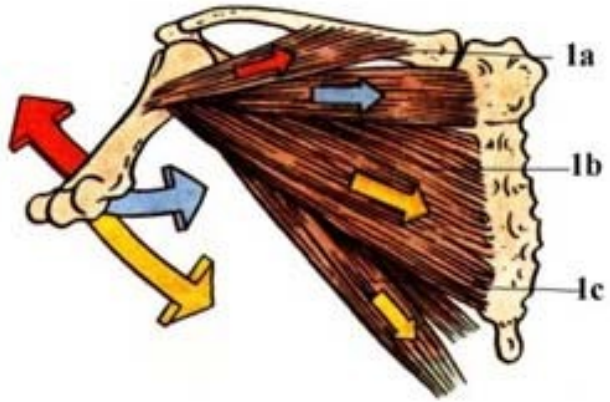
MUSCULI THORACIS

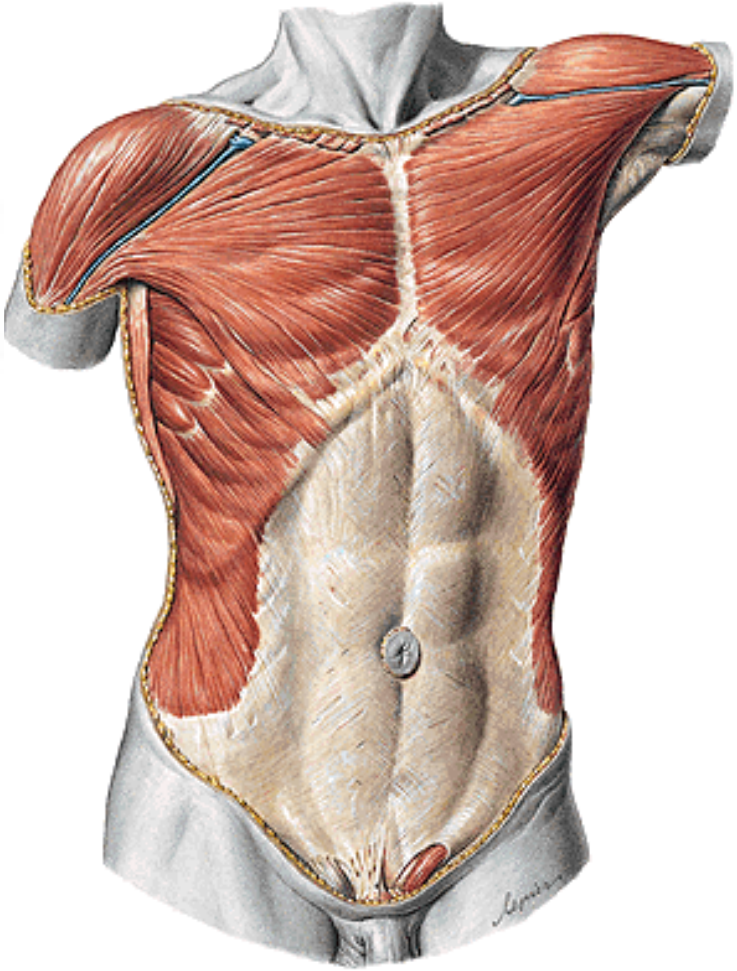
EXTRINSIC MUSCLES

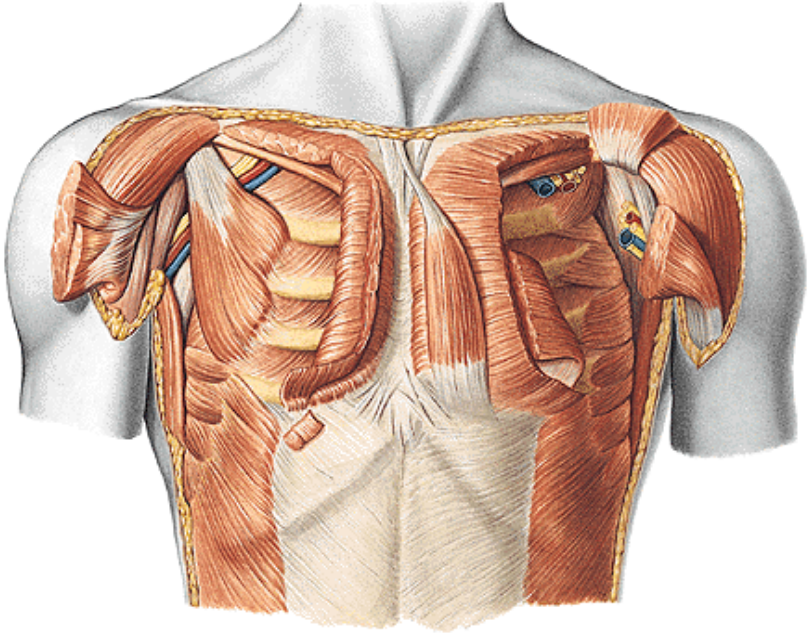
M. pectoralis major
M. pectoralis minor
M. subclavius
M. serratus ant.

Auxiliary respiratory muscles



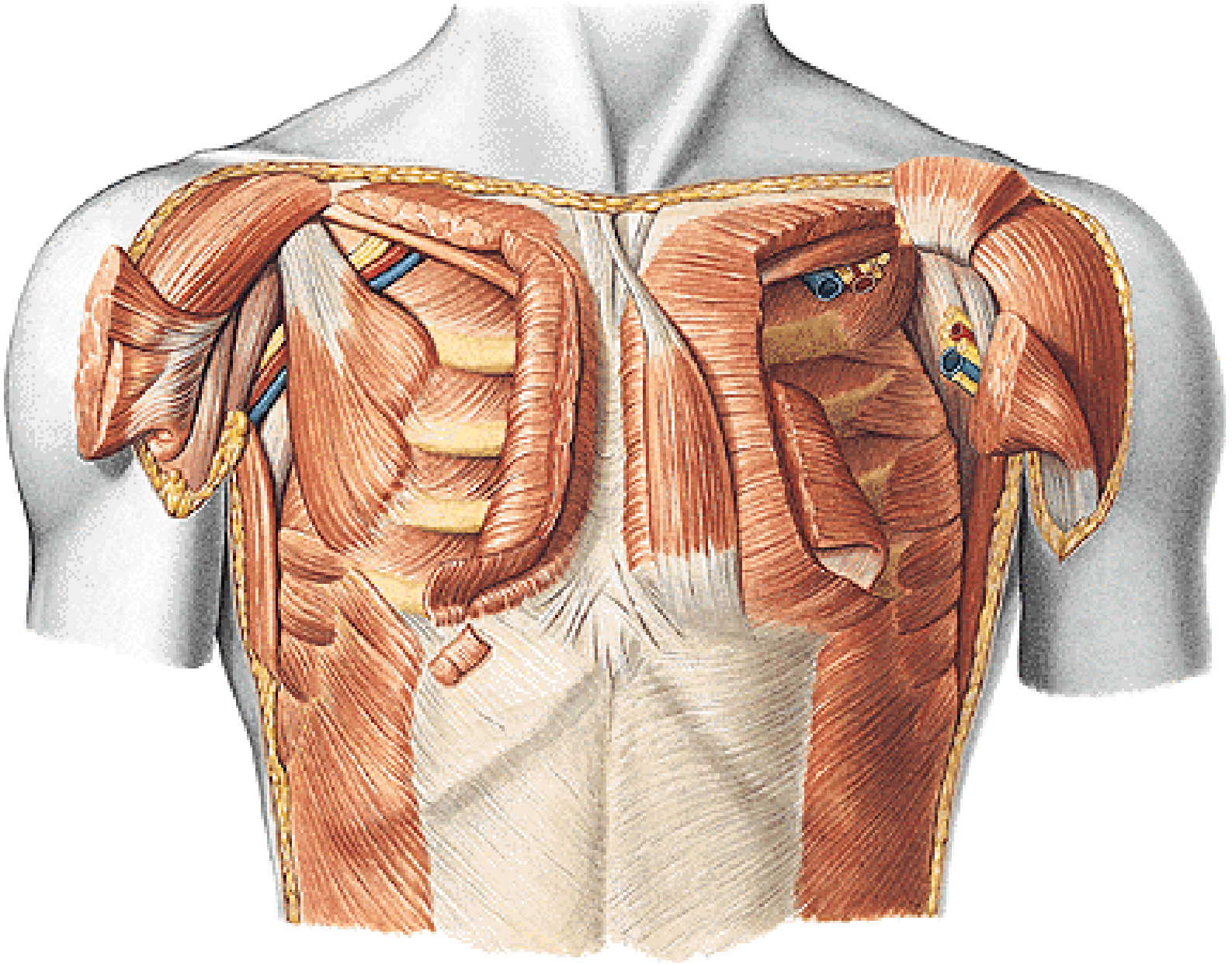

1a
1b
1c





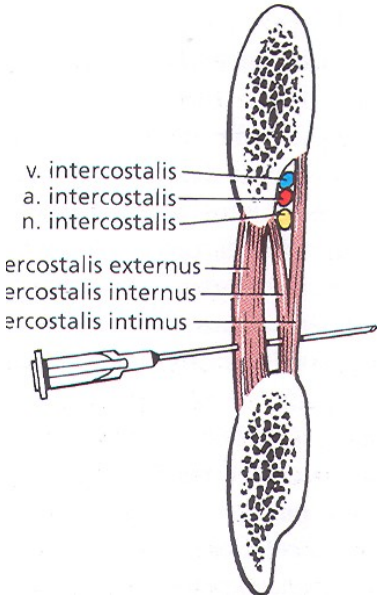

constant tension of
m.pectoralis major
-kyphotic chest-round back-
shoulder outposts

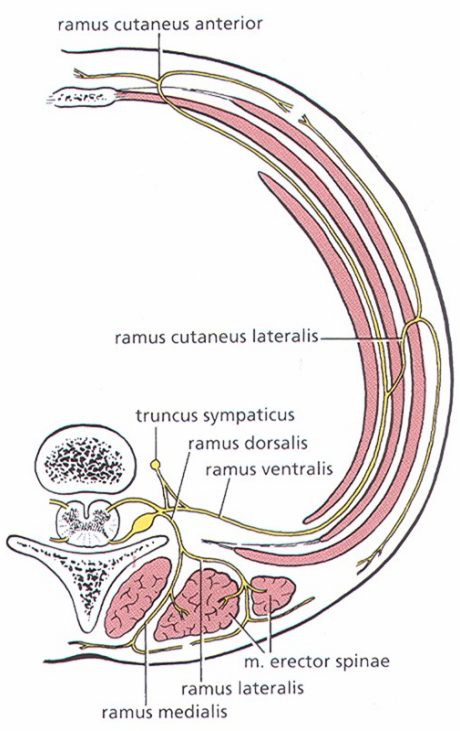
M. sternalis

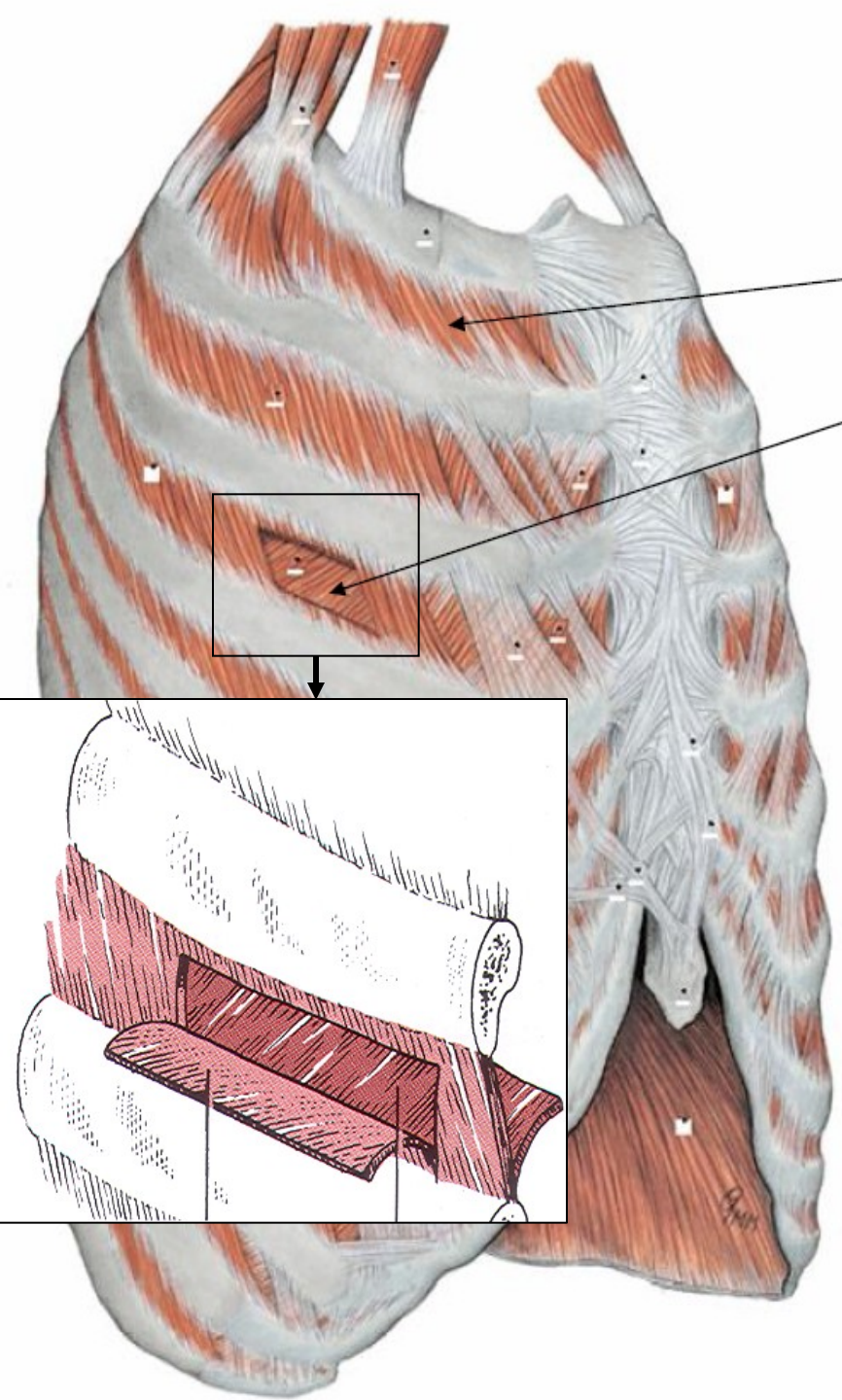


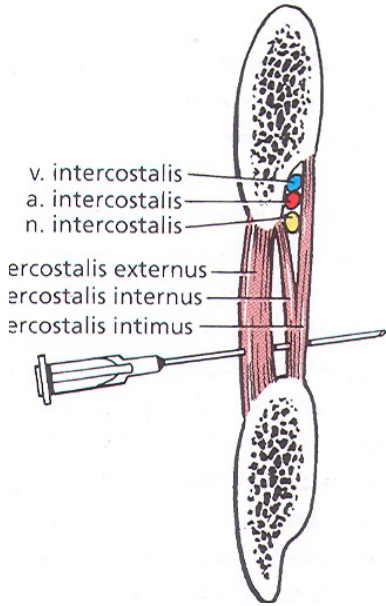
INTRINSIC MUSCLES

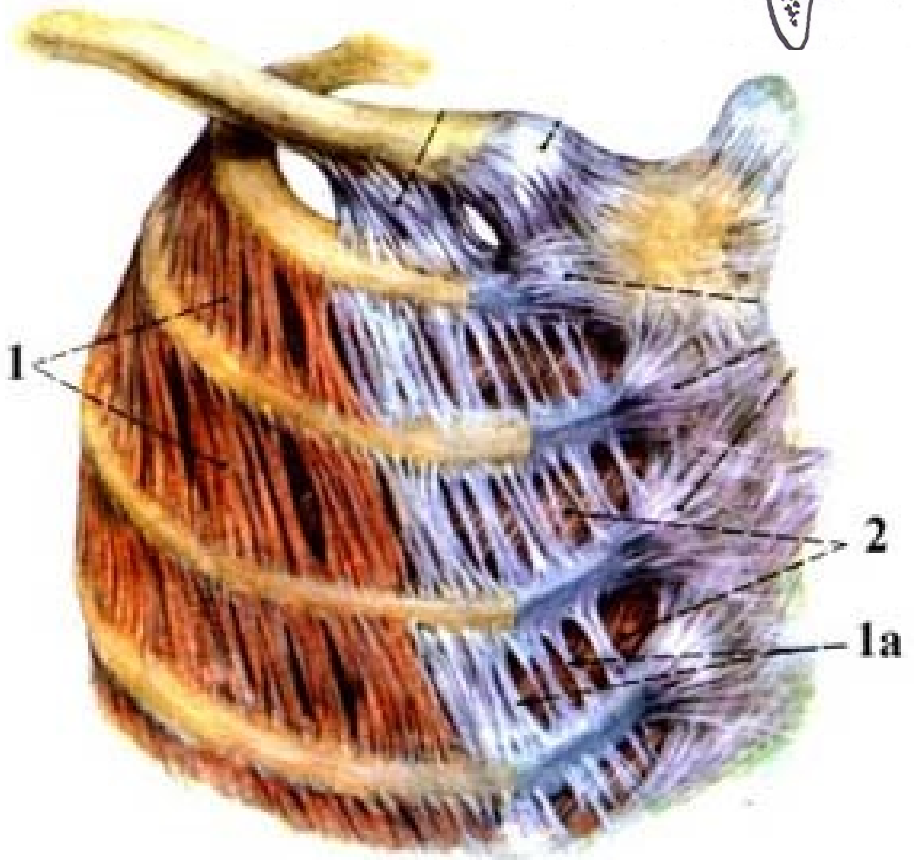
M. intercostales externi
M. intercostales interni
M. intercostales intimi
M. subcostales



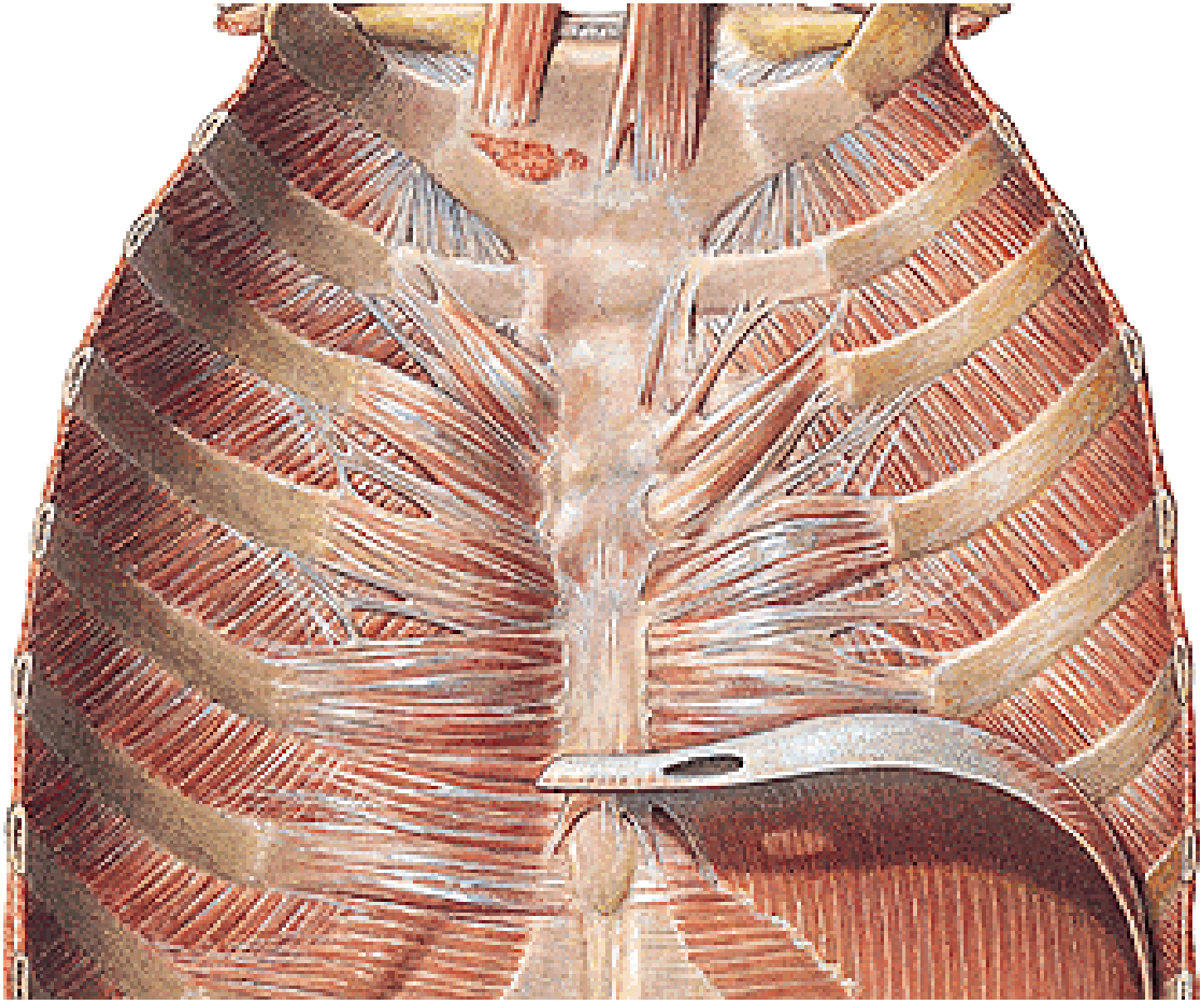



mm. intercostales externi
mm. intercostales interni


v. intercostalis
a. intercostalis
n. intercostalis
ercostalis externus
ercostalis internus
ercostalis intimus


1
2
1a

M. transversus thoracis



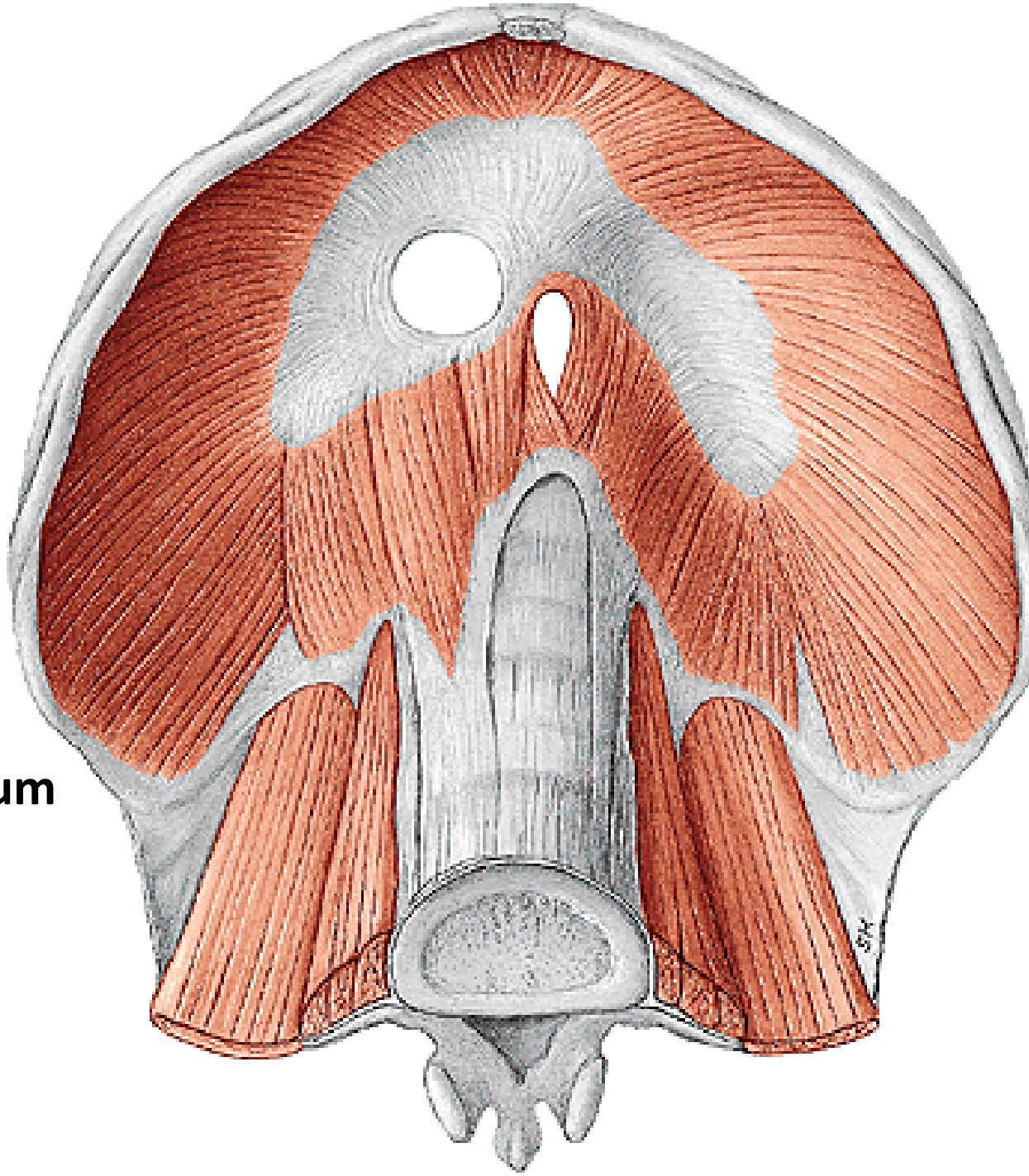
DIAPHRAGM

Centrum tendineum
- foramen VCI

Pars sternalis

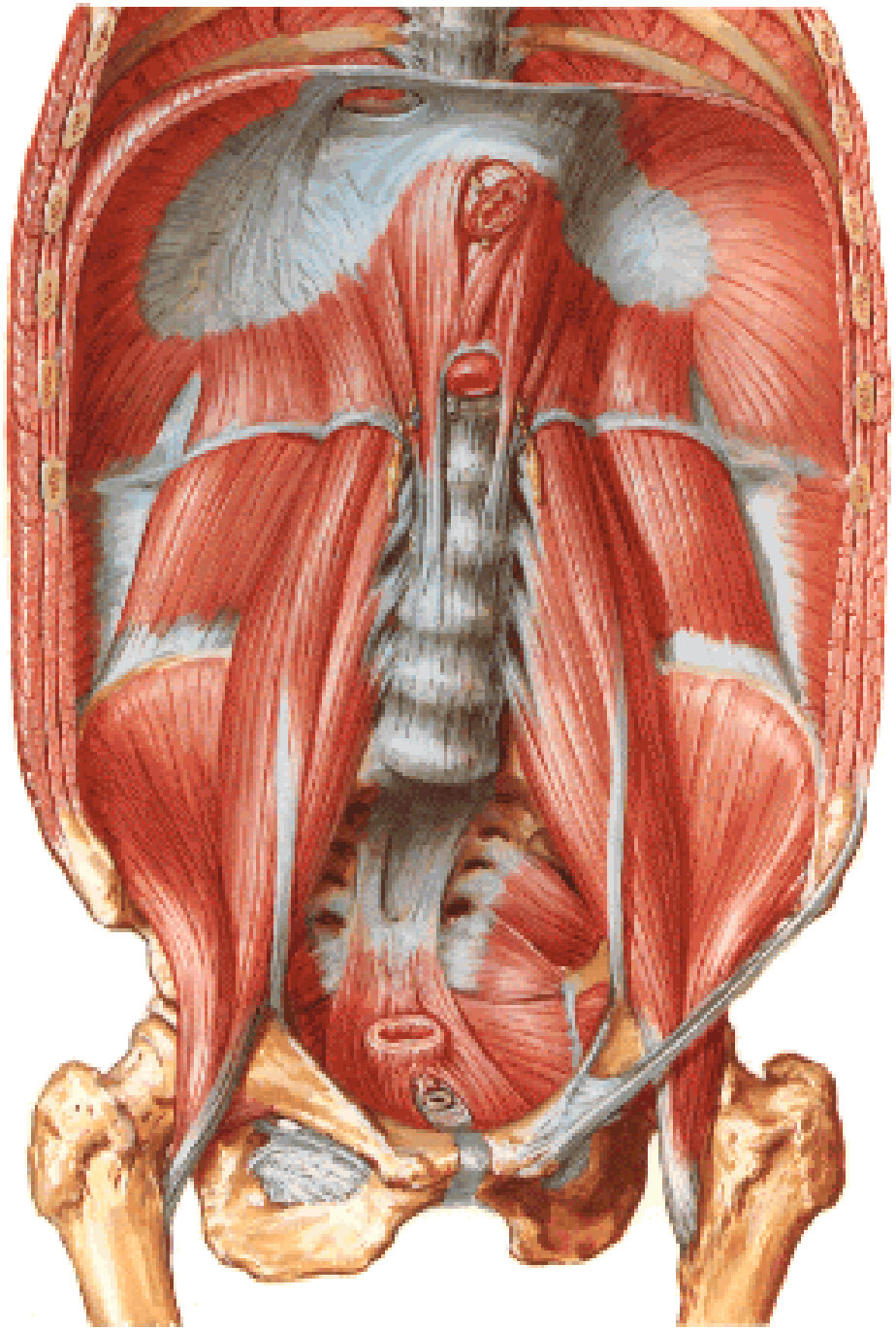
Pars costalis

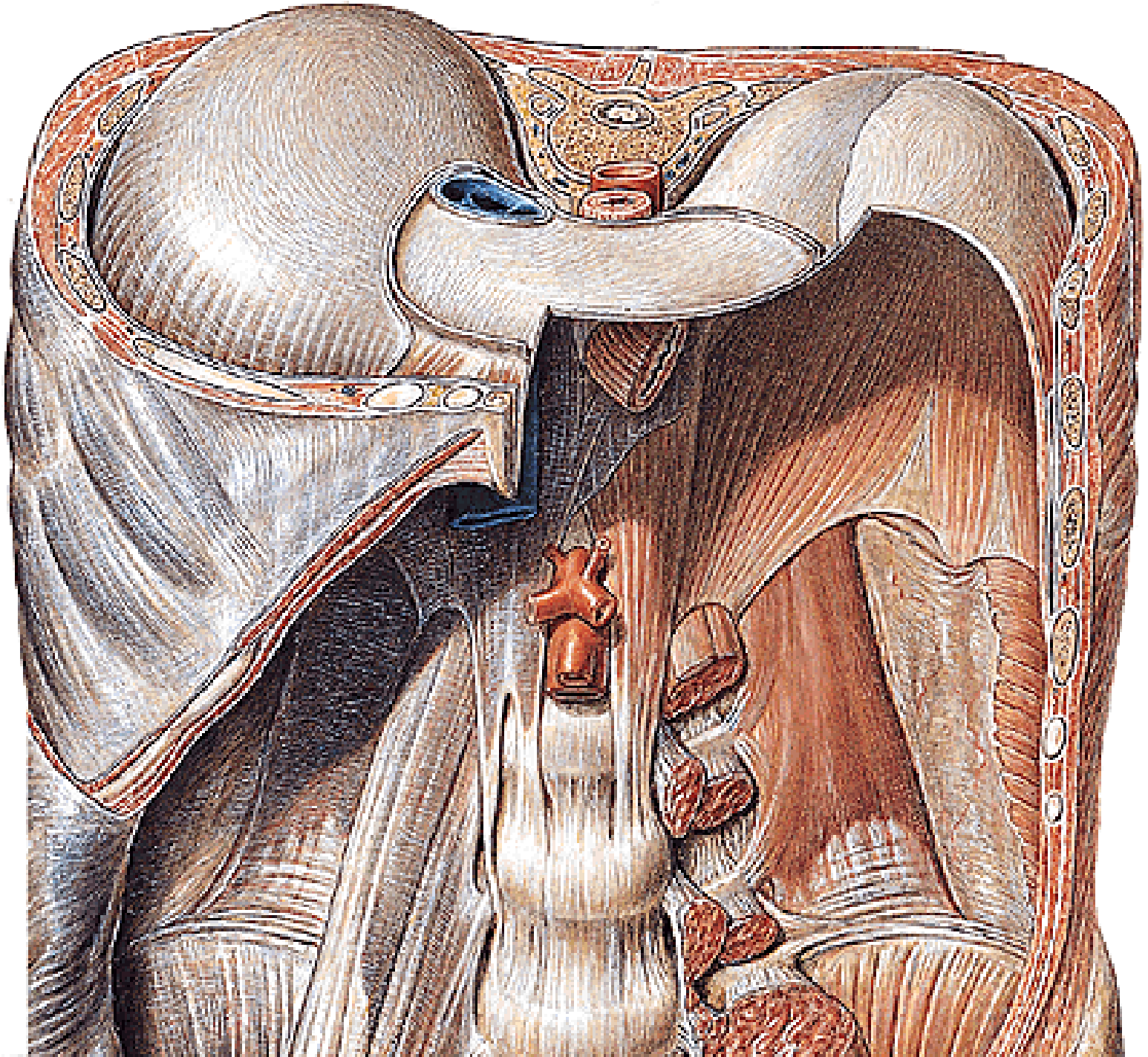
Pars lumbalis
- crus dextrum
- crus sinistrum
- lig. arcuatum medianum
- lig. arcuatum mediale
- lig. arcuatum lat.



Hiatus esophageus

Hiatus aorticus

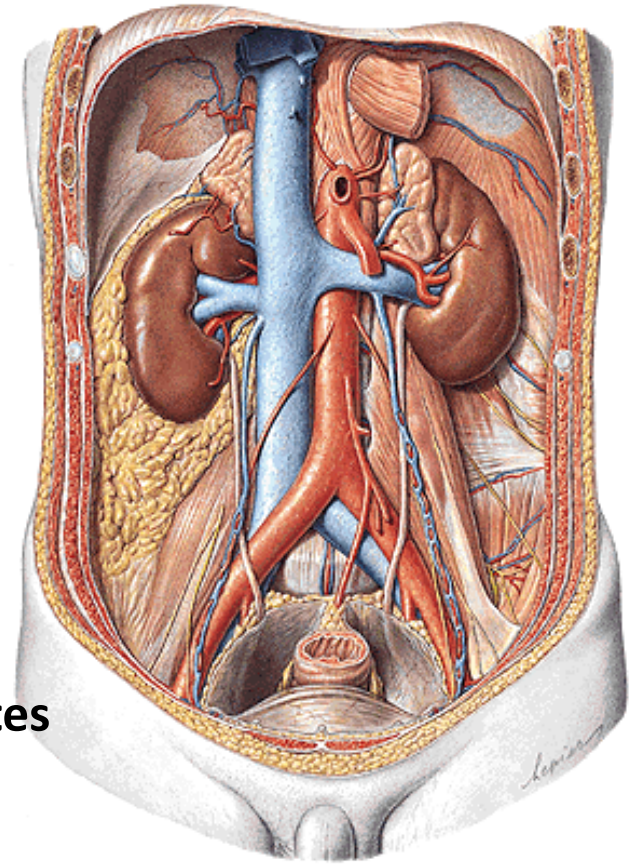




URINARY SYSTEM

Function

- Water management (antidiuretic hormone)
- removing nitrogen residues
- control of blood pressure (renin)
- controlling the formation of erythrocytes (hematopoietic hormone)



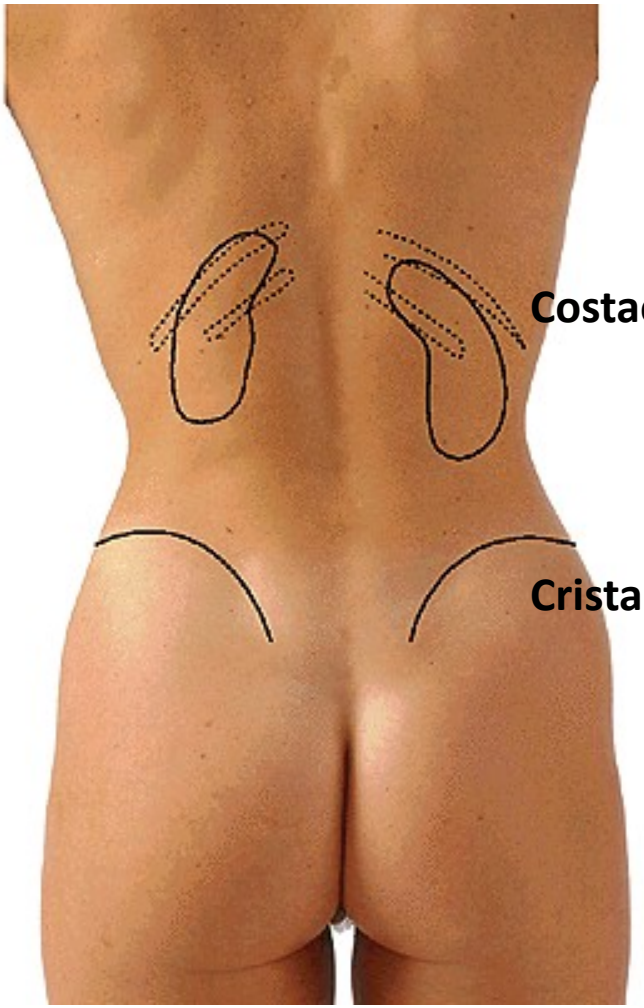
Parts

Kidney (ren)

Efferent urinary tract (hollow system):

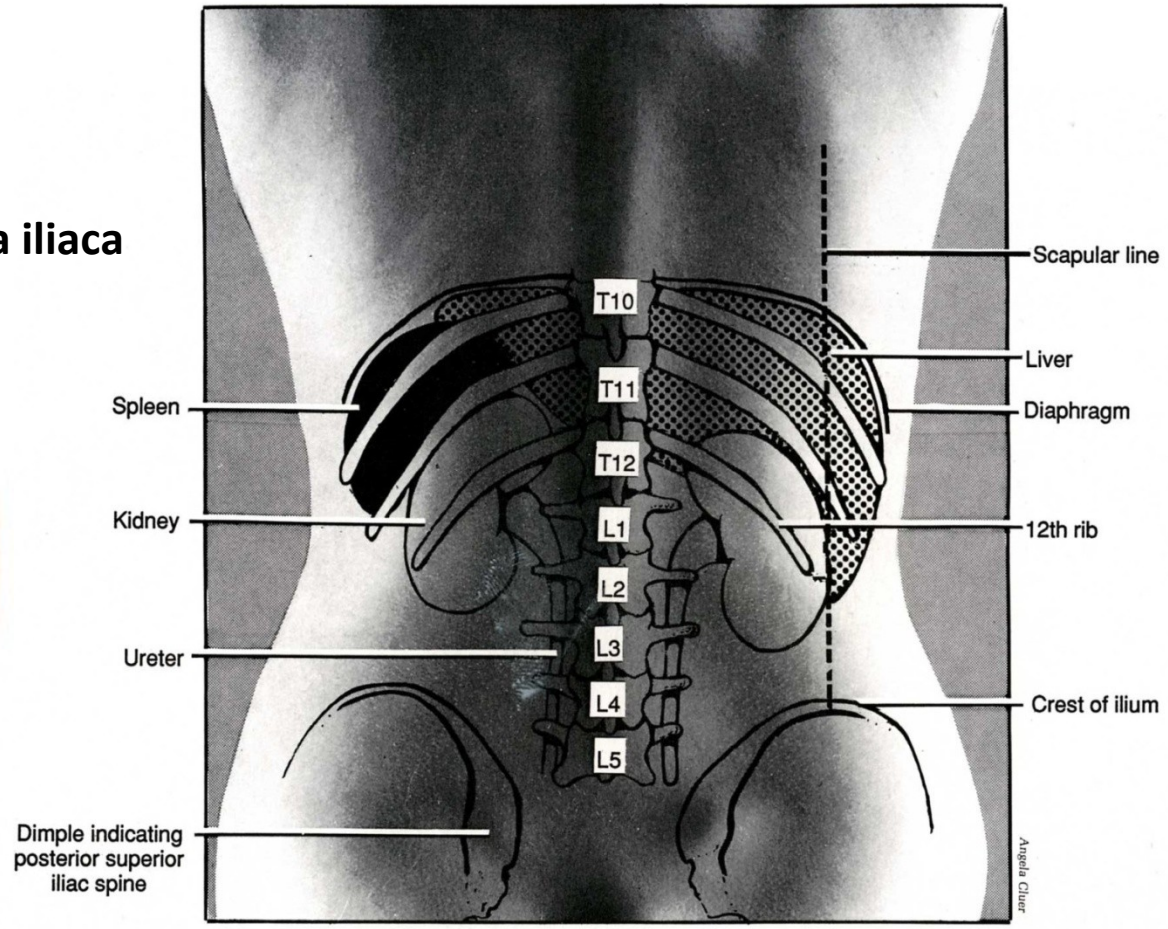
calyces,
renal pelvis,
ureter,
urinary bladder,
urethra

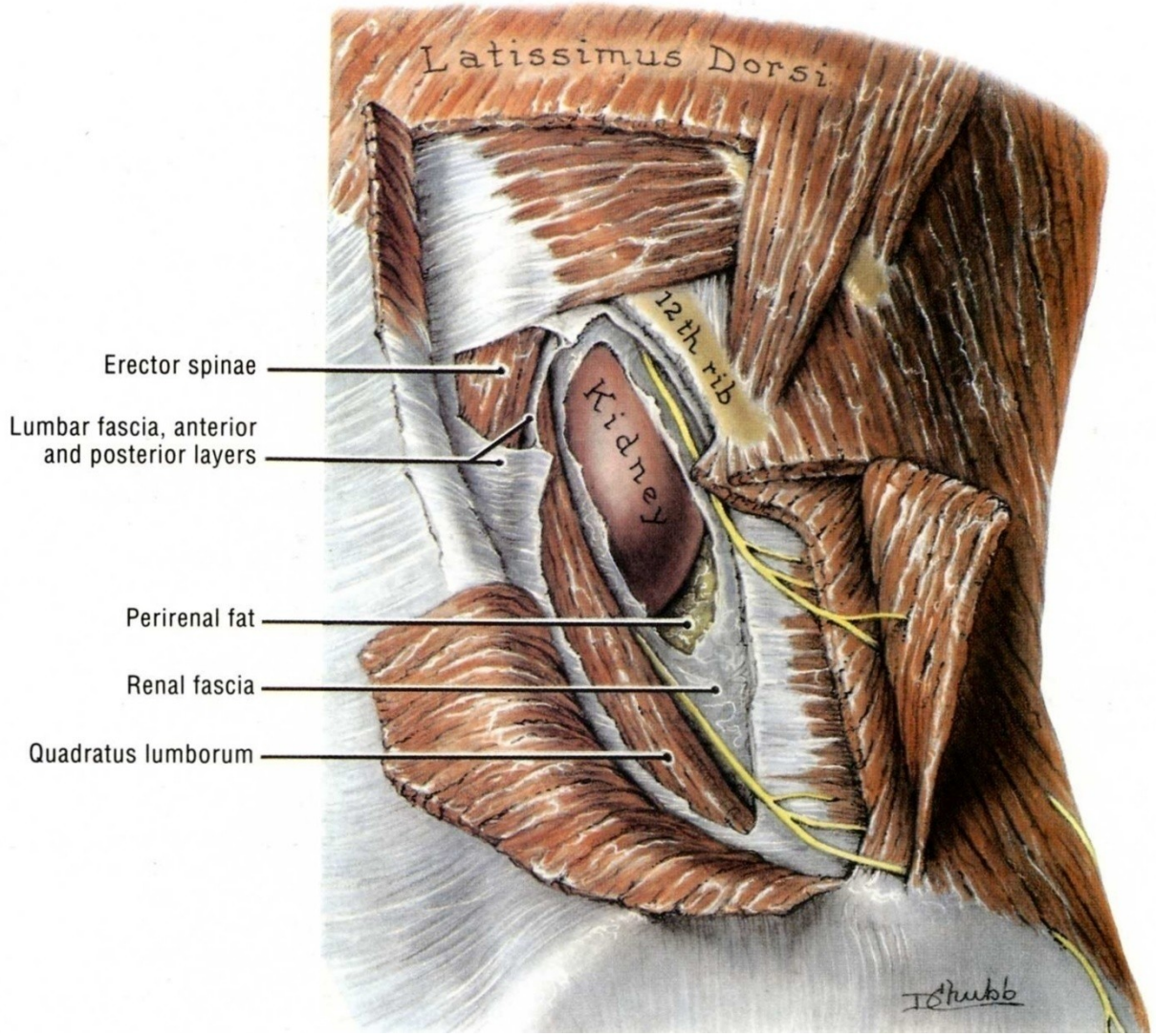
Skeletotopy



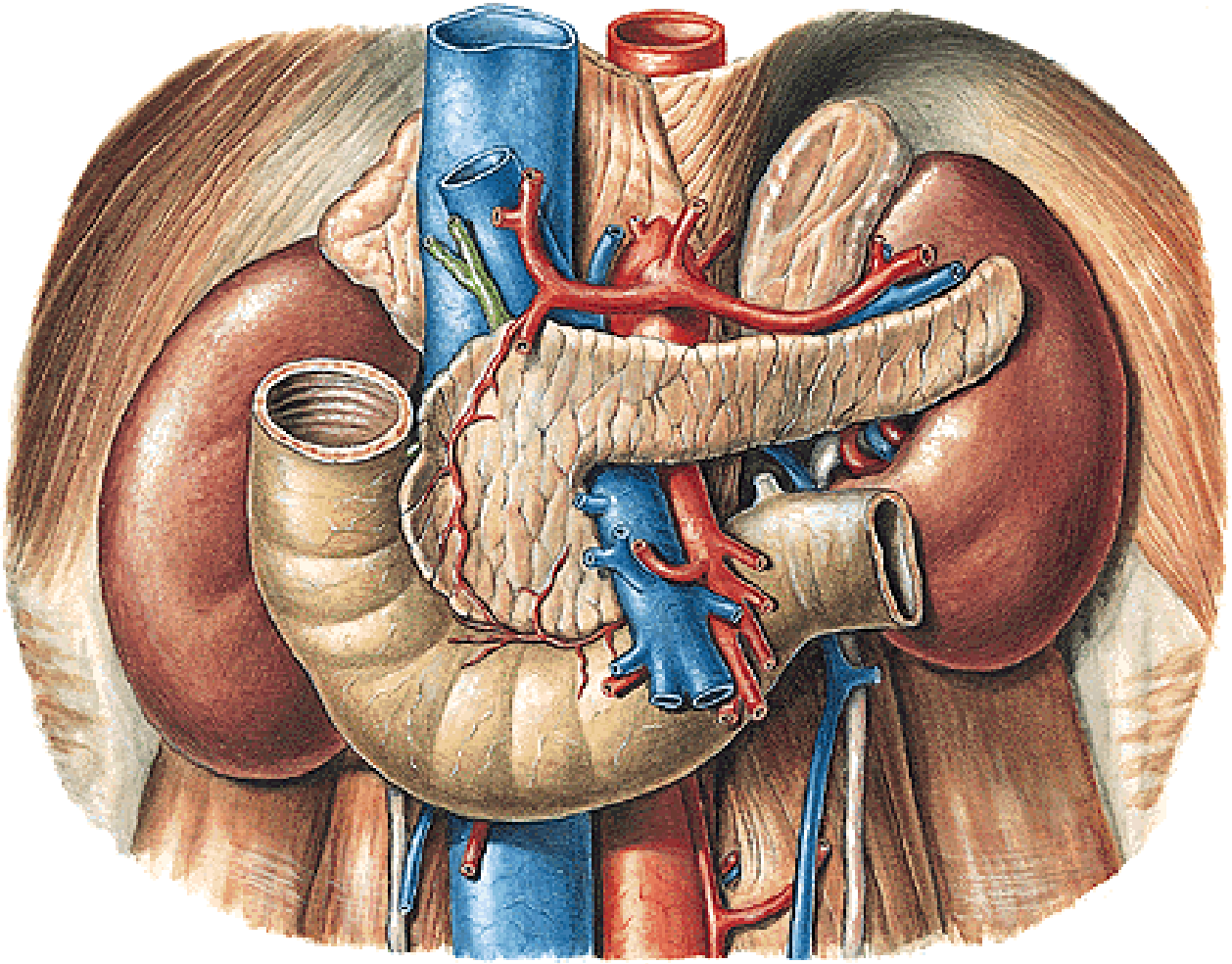
Costae – XI – XII

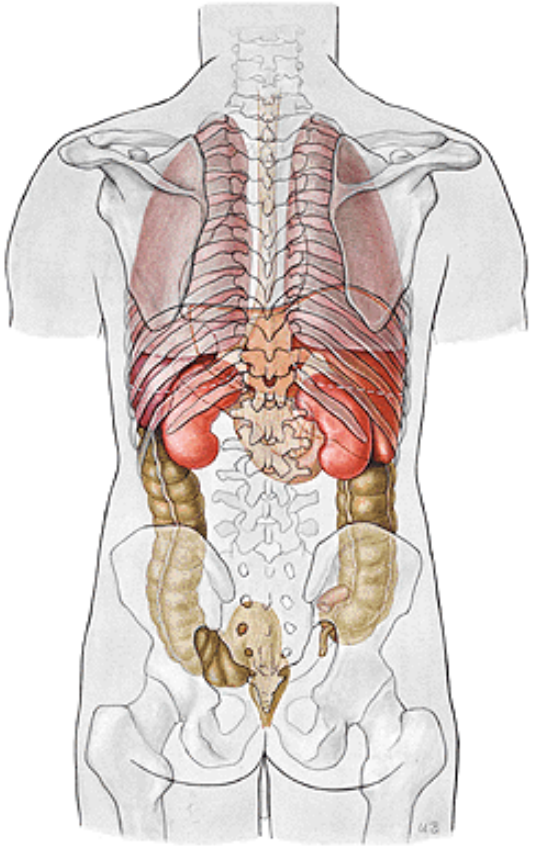
Crista iliaca



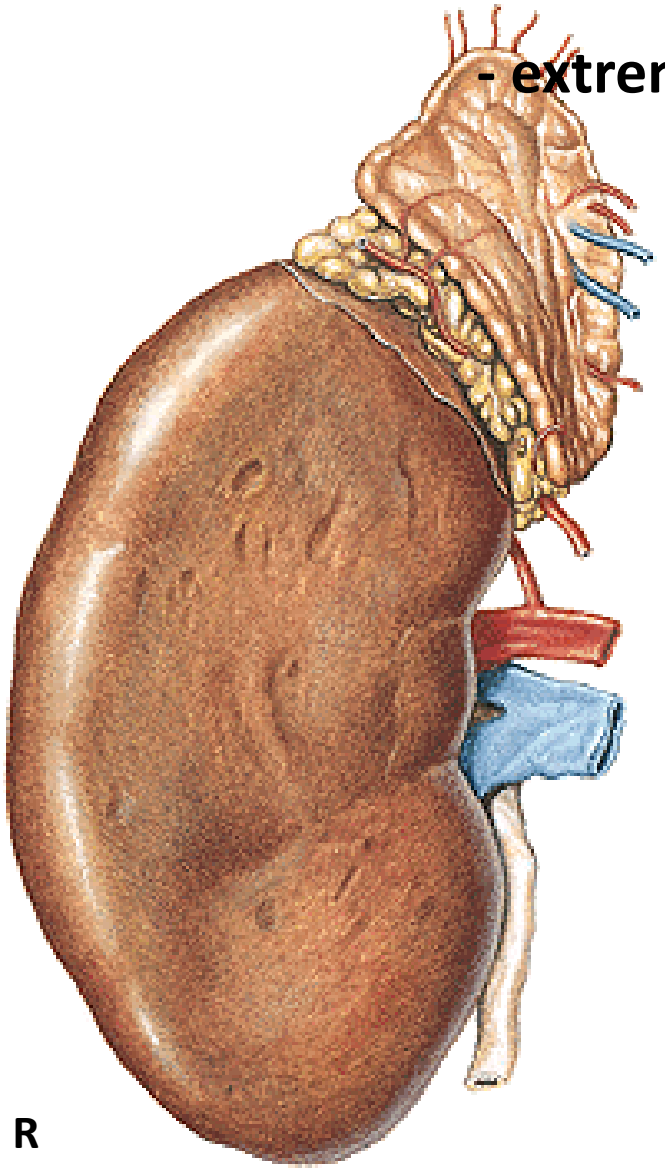

Latissimus Dorsi
12th rib
Kidney
Erector spinae
Lumbar fascia, anterior and posterior layers
Perirenal fat
Renal fascia
Quadratus lumborum

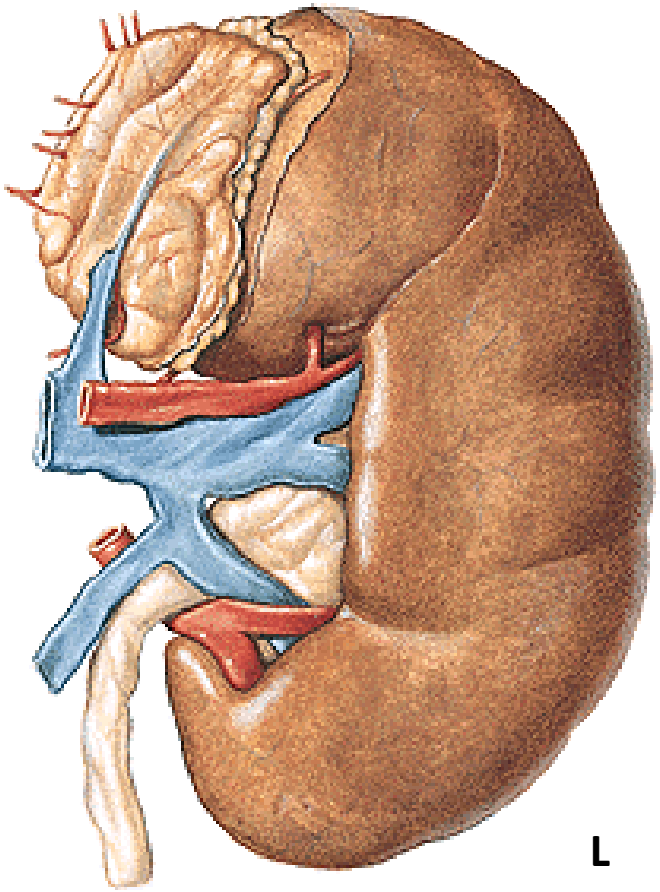
Position against other retroperitoneal organs





REN, NEPHROS - facies anterior et posterior
- margo lateralis et medialis - hilum renale
- sinus renalis
- extremitas superior et inferior

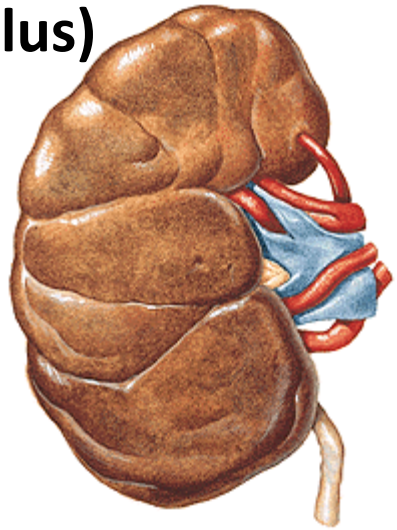


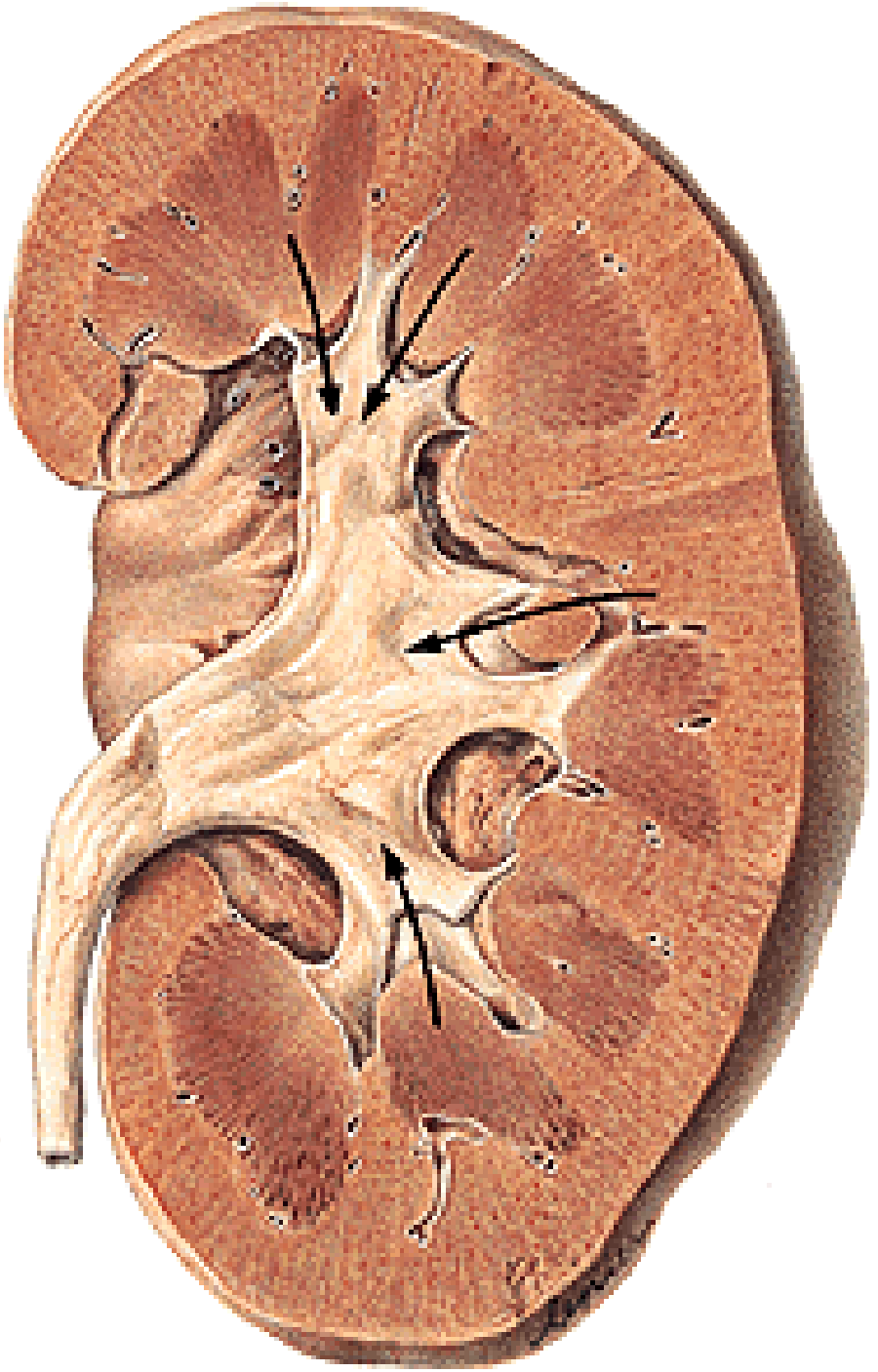


R

L

Capsula fibrosa
Sinus renalis
Cortex renalis
Medulla renalis
– 6-20 pyramides renales
Columnae renales
Pars radiata corticis
Papilla renalis
Ductus papillares
Foramina papillaria
Area cribrosa
Lobus renalis (Renculus)
Renculi-marking (renculization)



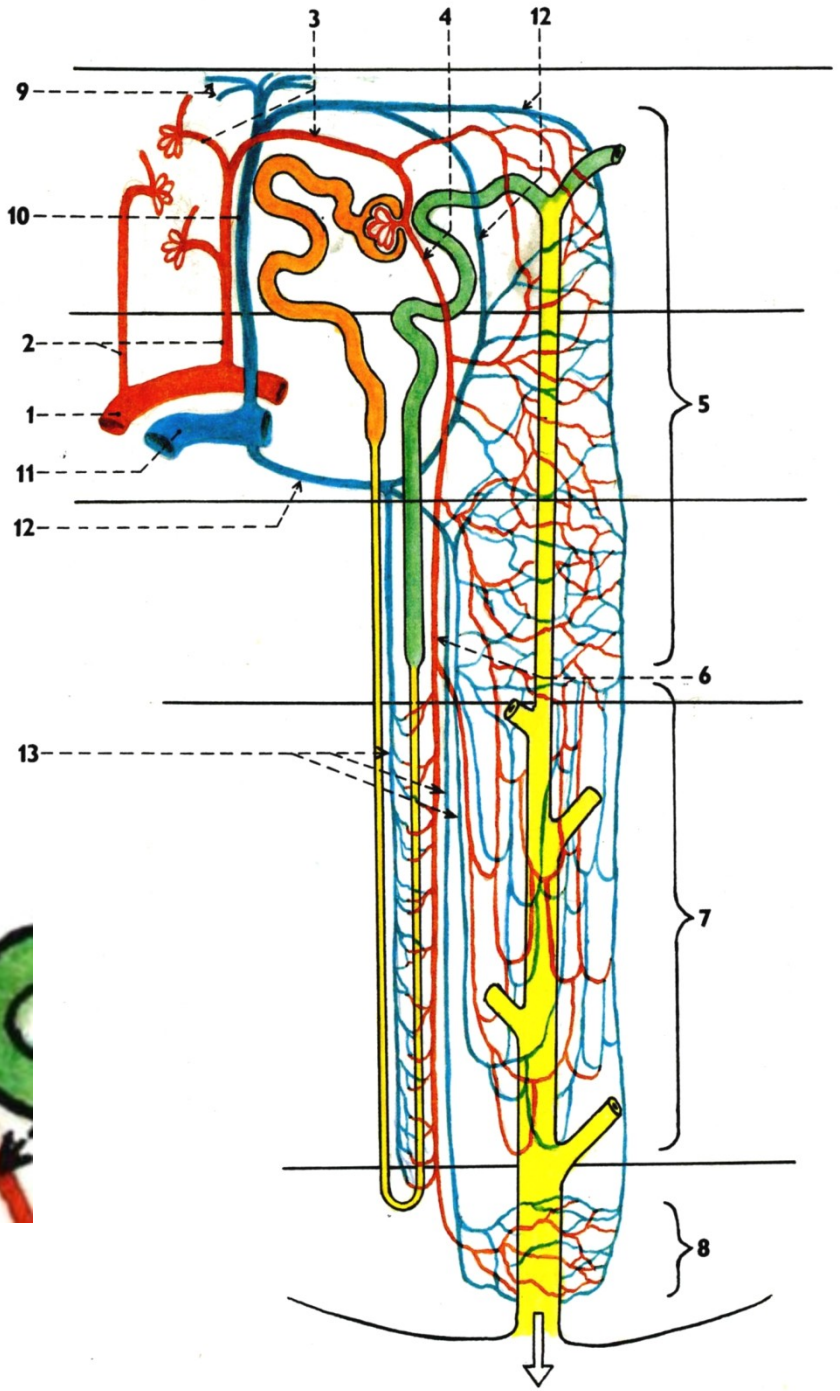


NEPHRON

- Corpusculum renale (Malpighi)
  - Glomerulum
  - Capsula glomeruli (Bowman)
- Tubulus proximalis
- Henle's loop
- Tubulus distalis

Tubulus colligens
Ductus papillaris
Foramen papillare

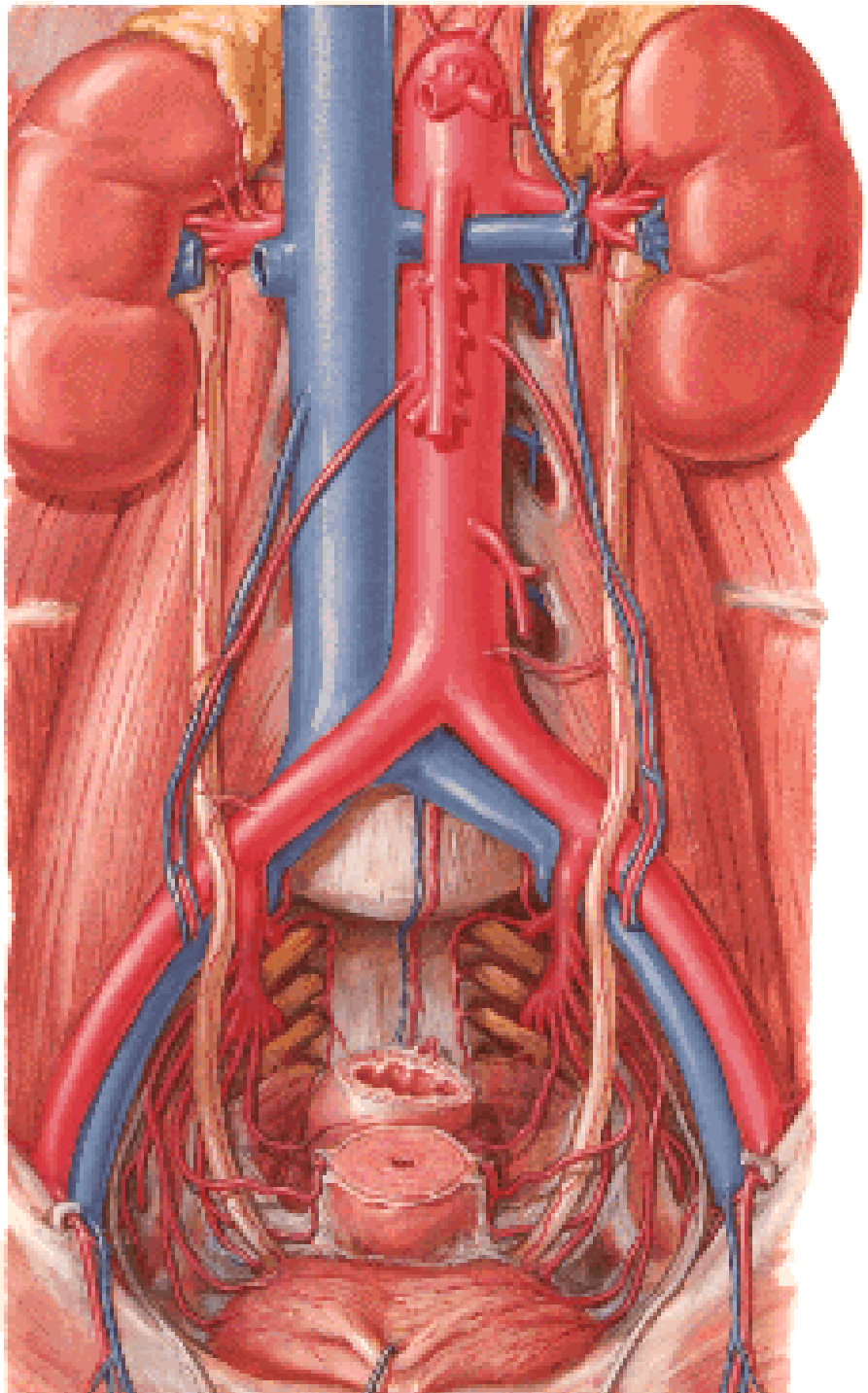
200 µm



A. renalis

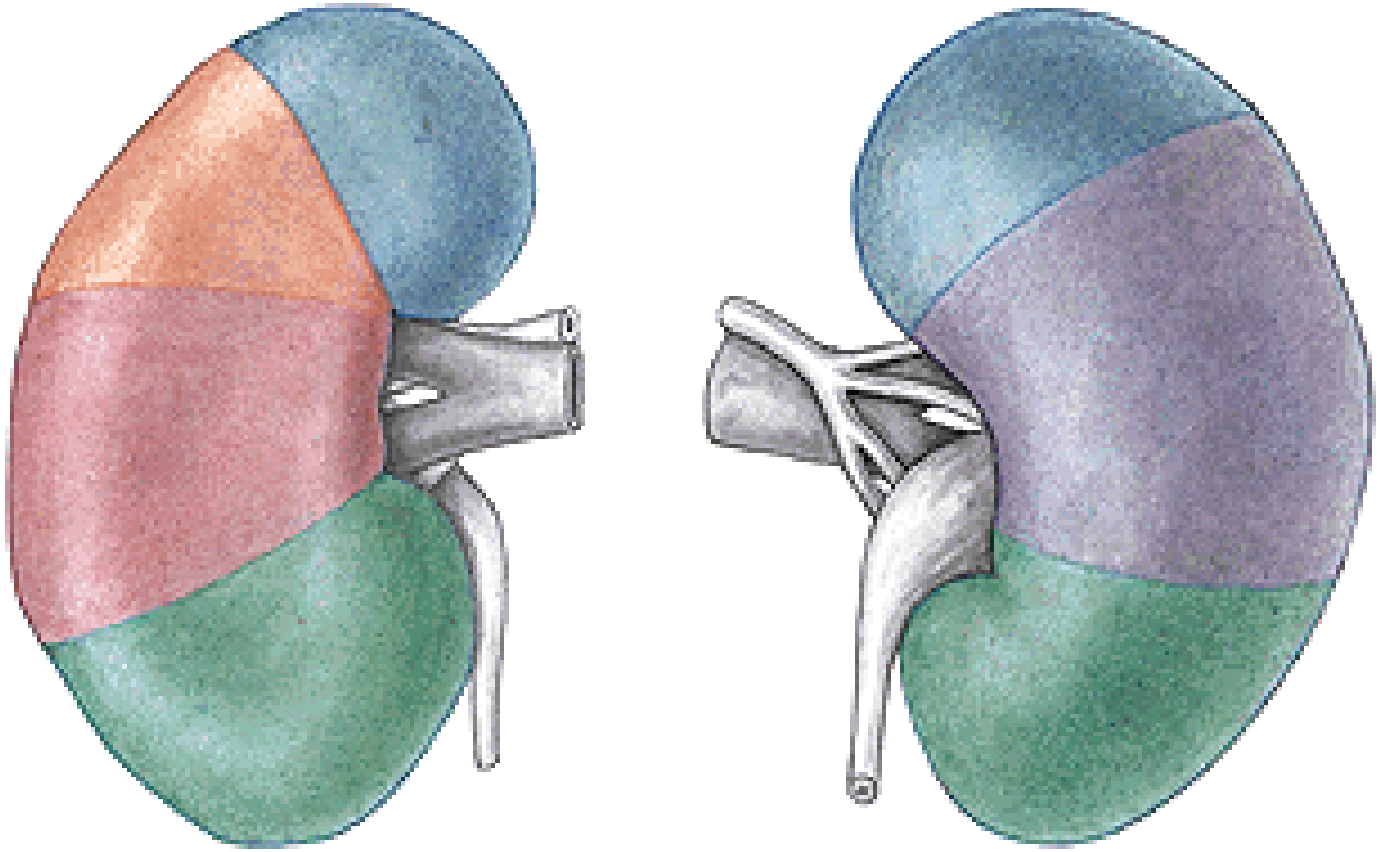
- r. anterior – 4 rr. praepelvici
- r. posterior – r. retropelvicus

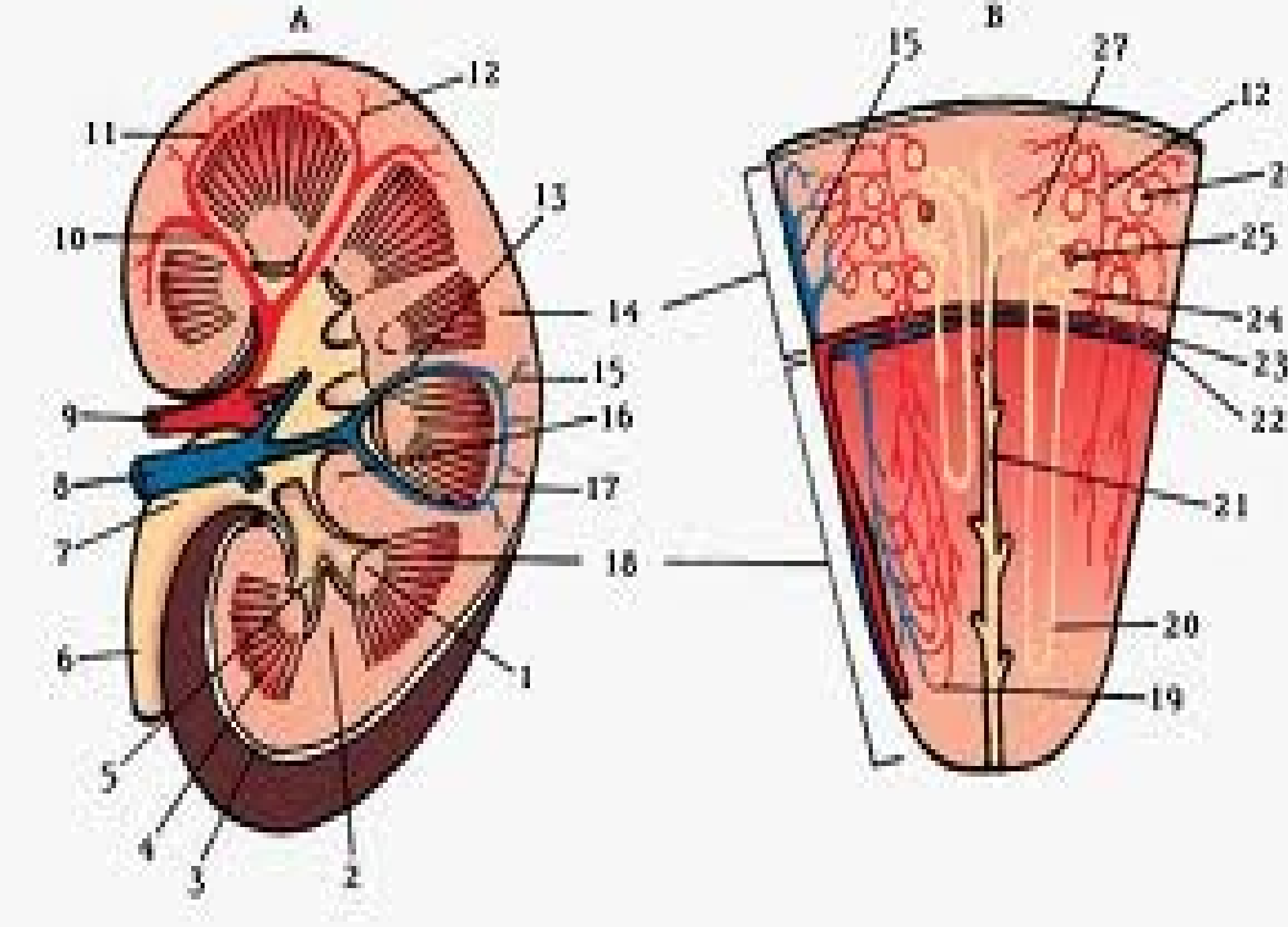
- aa. lobares – aa. interlobares



Segmenta renalia – s. superius

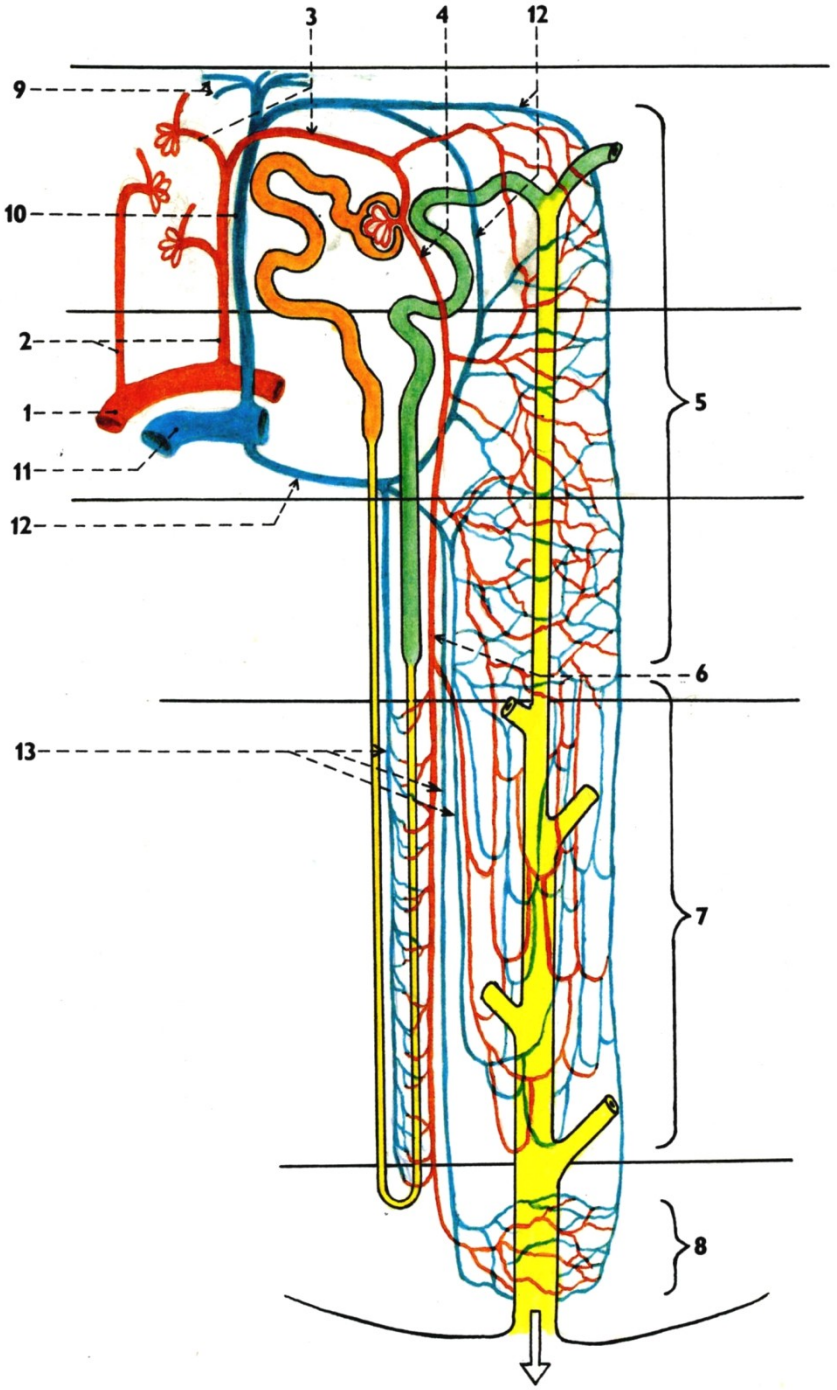
- **s. anterius superius**
- **s. anterius inferius**
- **s. inferius**
- **s. posterius**



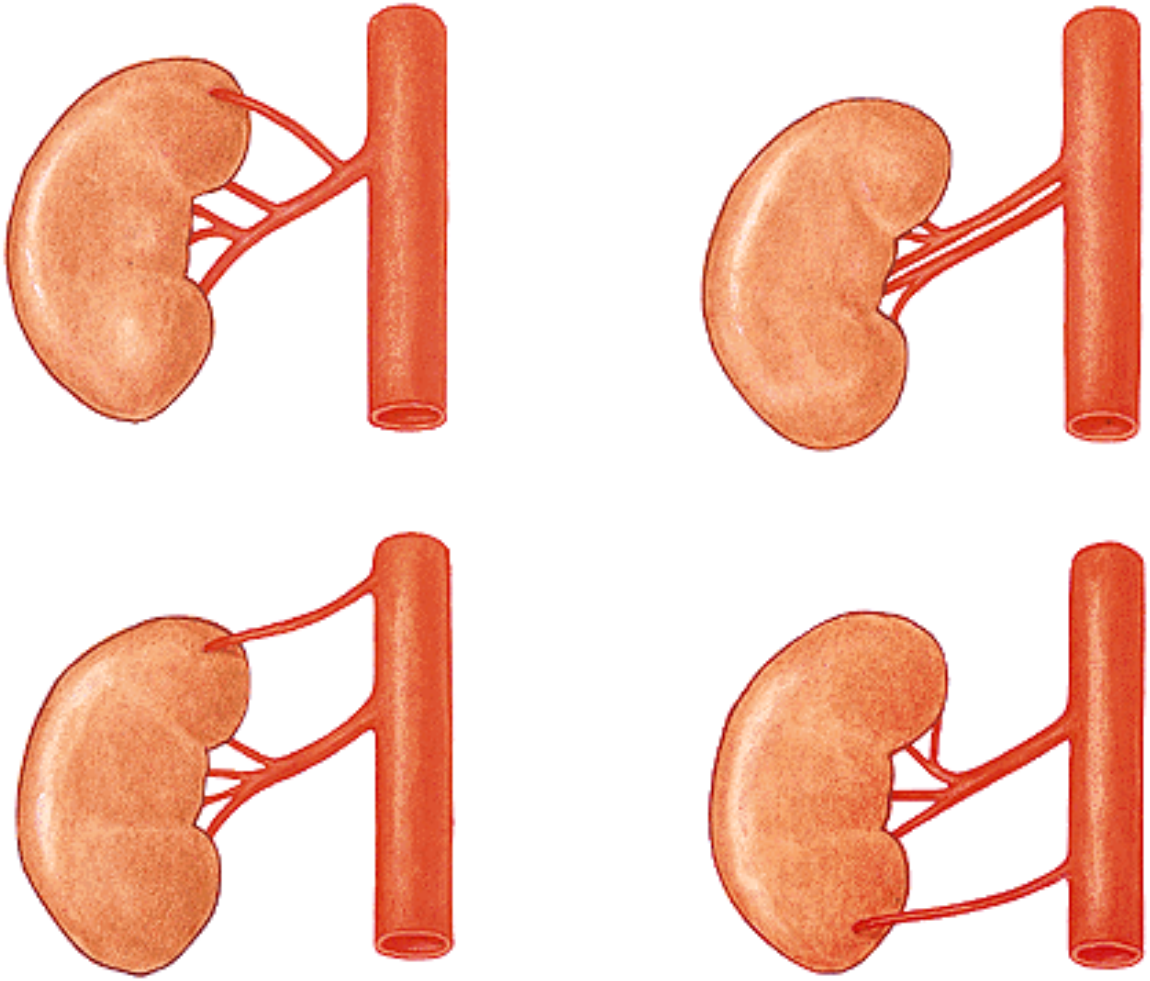

A
B
12
11
13
10
14
15
9
16
8
17
7
18
6
1
5
4
3
2
15
27
12
25
24
23
22
21
20
19

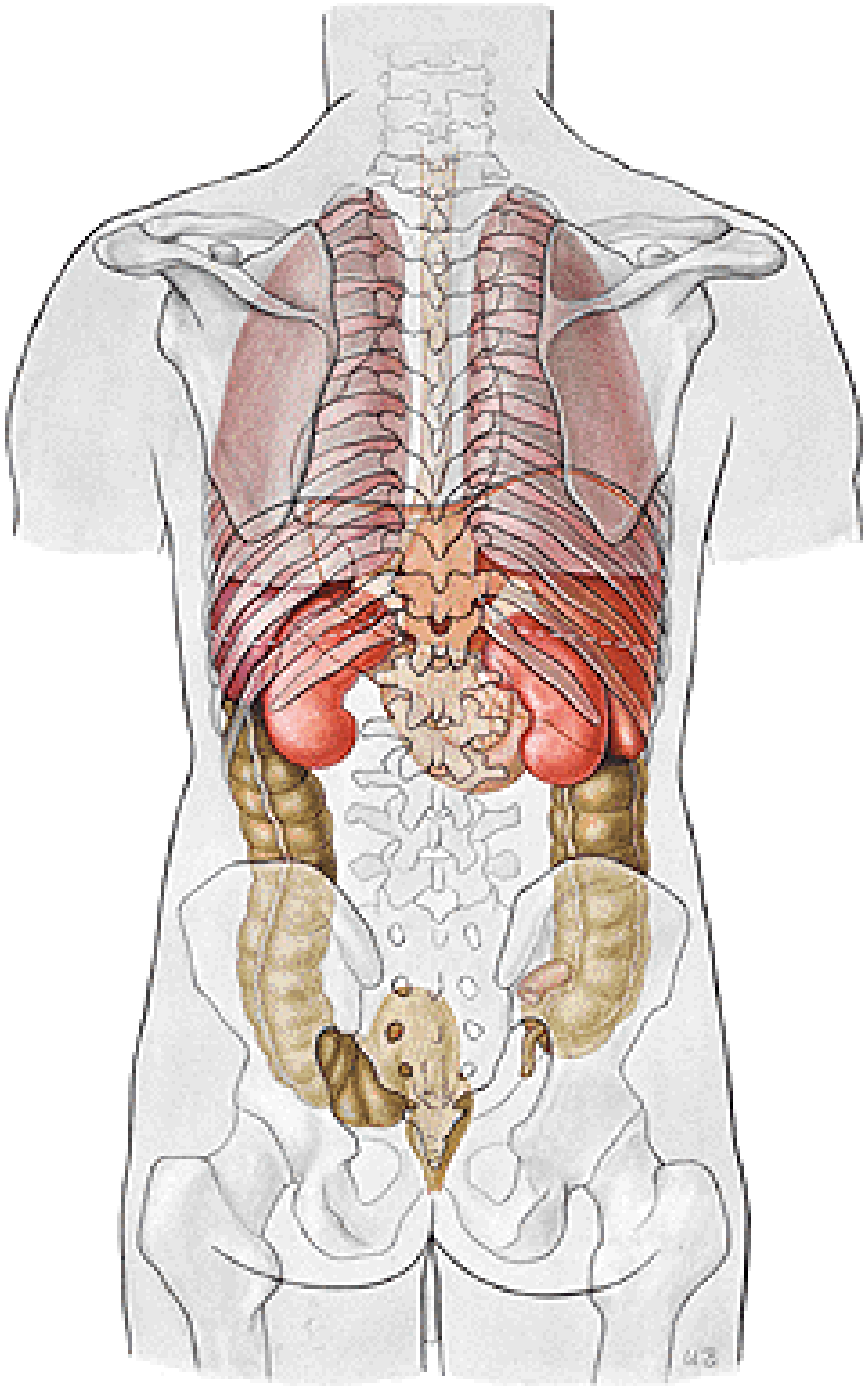
Aa. interlobares:

1. A. arcuata
2. A. interlobularis
3. Vas afferens
4. Vas efferens
5. Peritubular capillary plexus
6. Arteriola recta
7. Capillary plexus in the medulla
8. Capillary plexus around papillary duct
9. Venulae stellatae
10. V. interlobularis
11. V. arcuata
12. Vein from the peritubular plexus
13. Venulae rectae

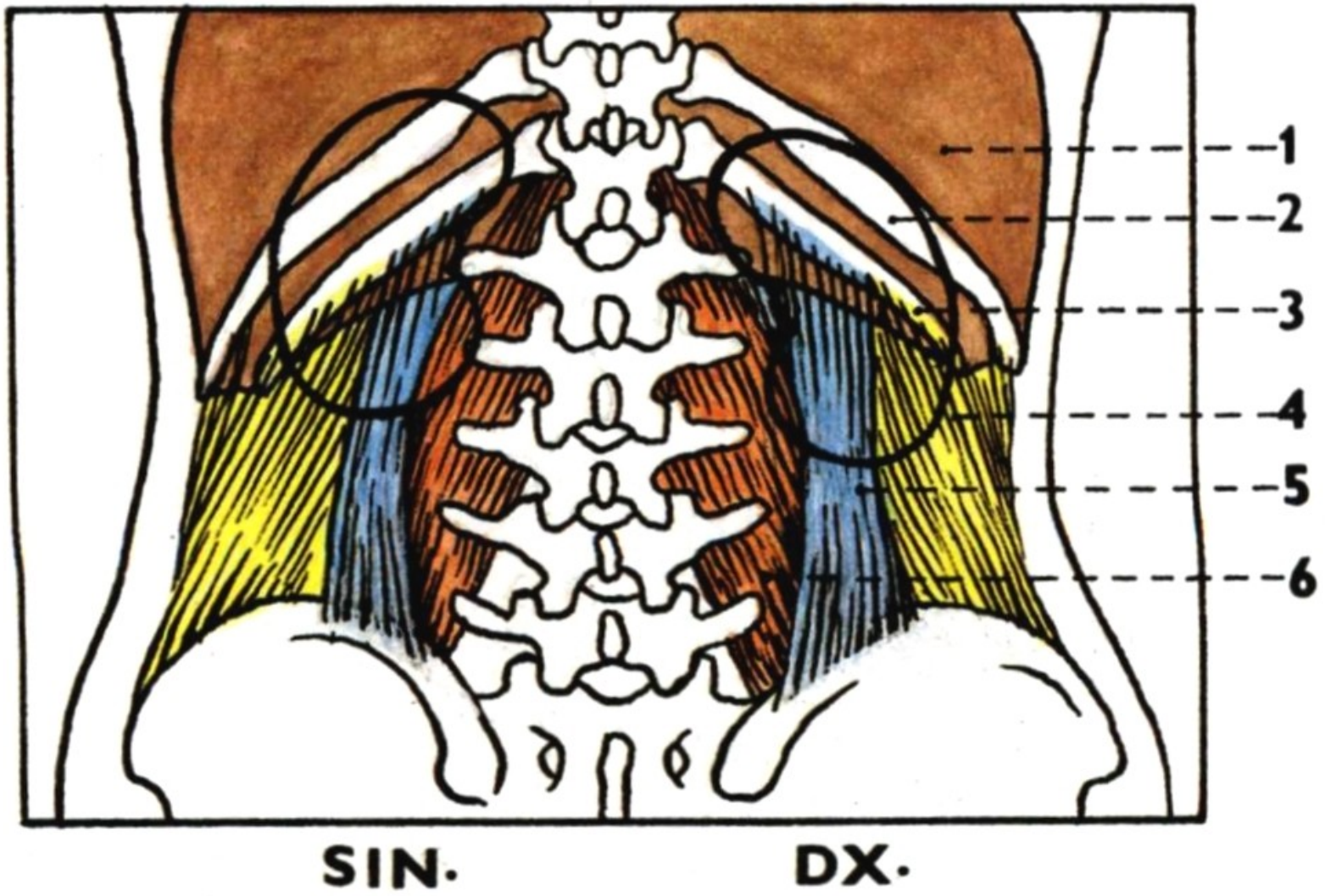


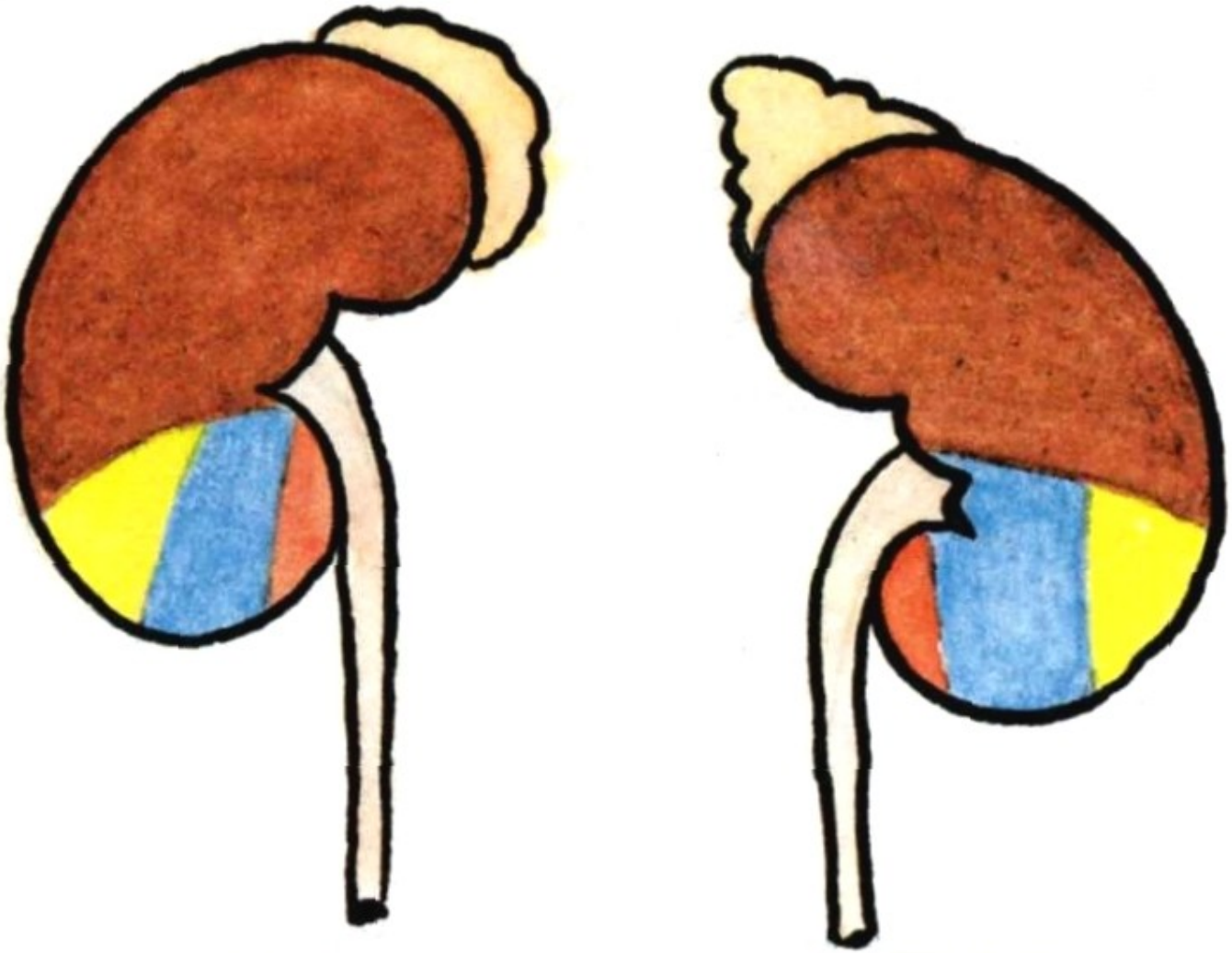
Aa. renales accessoriae



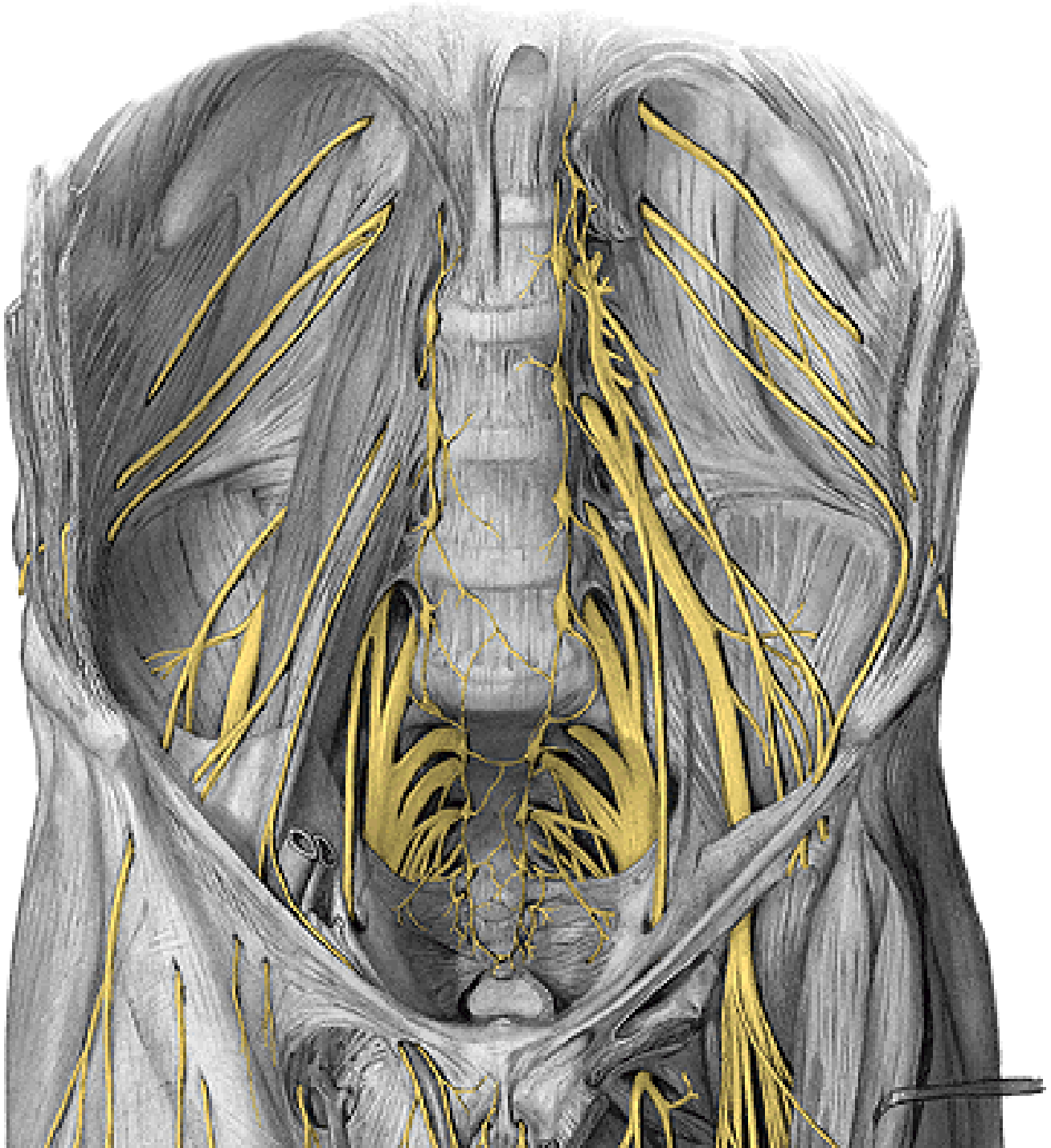


1. Diaphragma
2. 11th rib
3. 12th rib
4. M. transversus abdominis
5. M. quadratus lumborum
6. M. psoas major

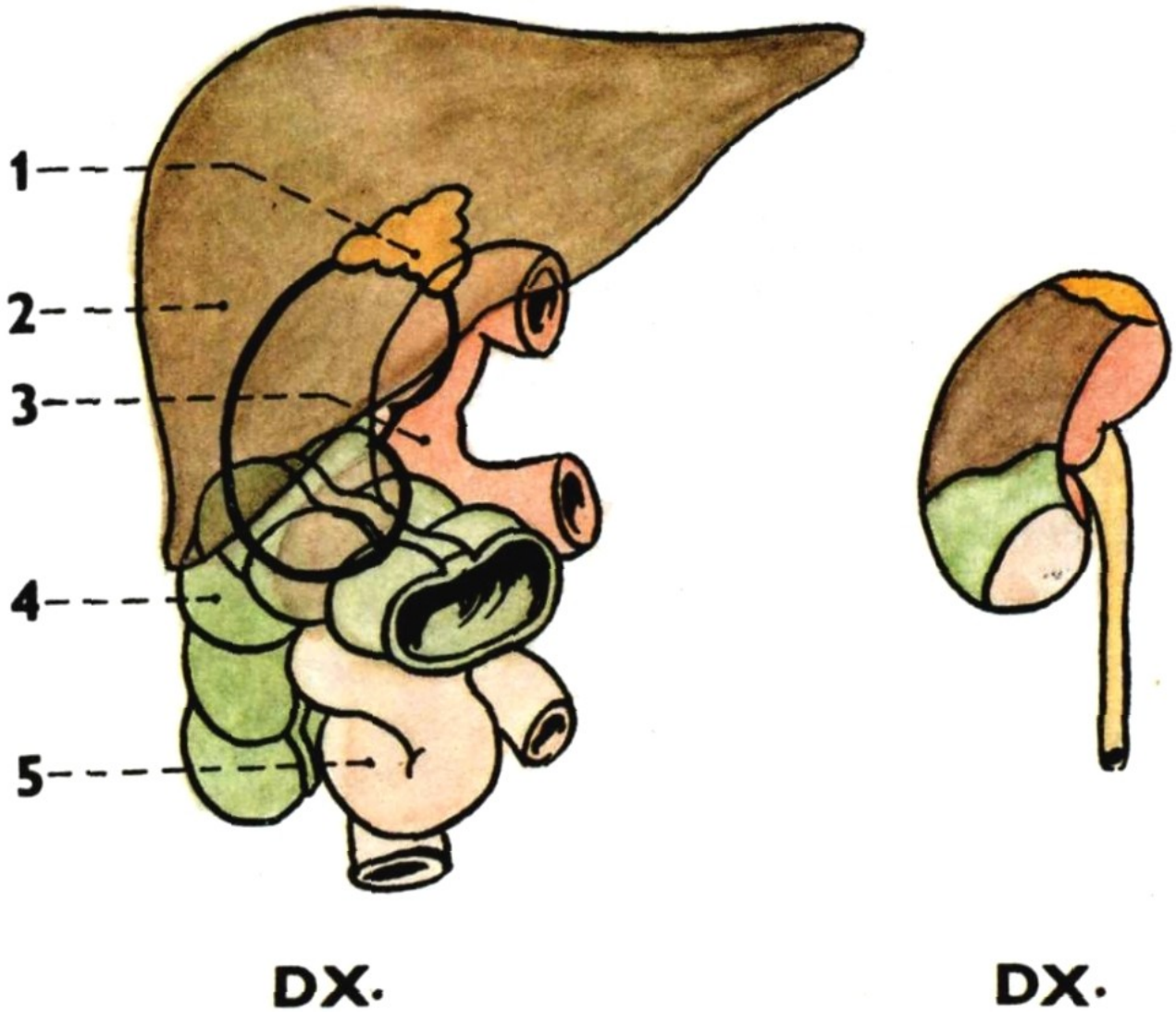



SIN.
DX.

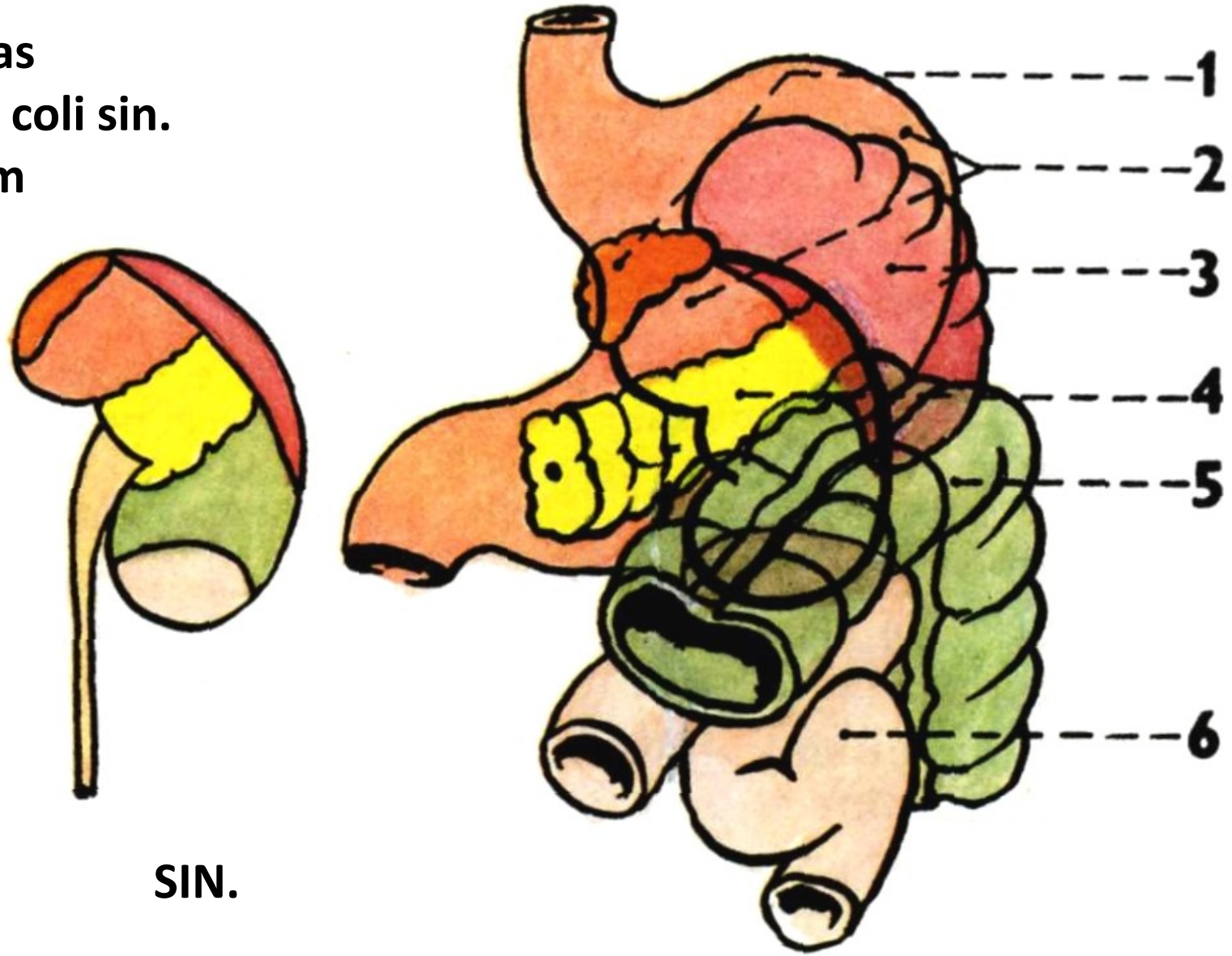
N. subcostalis
N. iliohypogastricus
N. ilioinguinalis



1. Gl. suprarenalis dx.
2. Liver
3. Duodenum
4. Flexura coli dx.
5. Jejunum

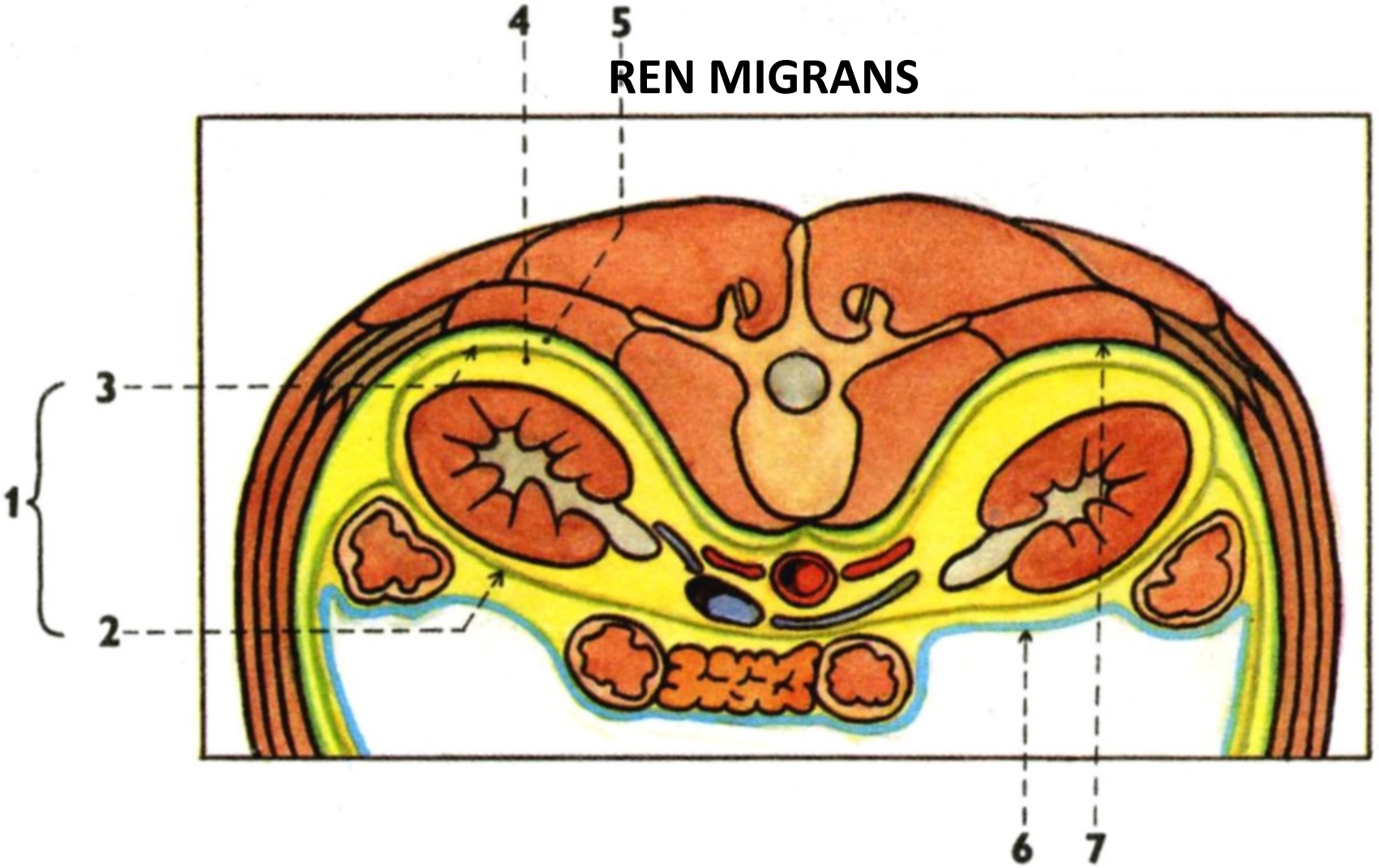


1. Gl. suprarenalis sin.
2. Stomach
3. Spleen
4. Pancreas
5. Flexura coli sin.
6. Jejunum

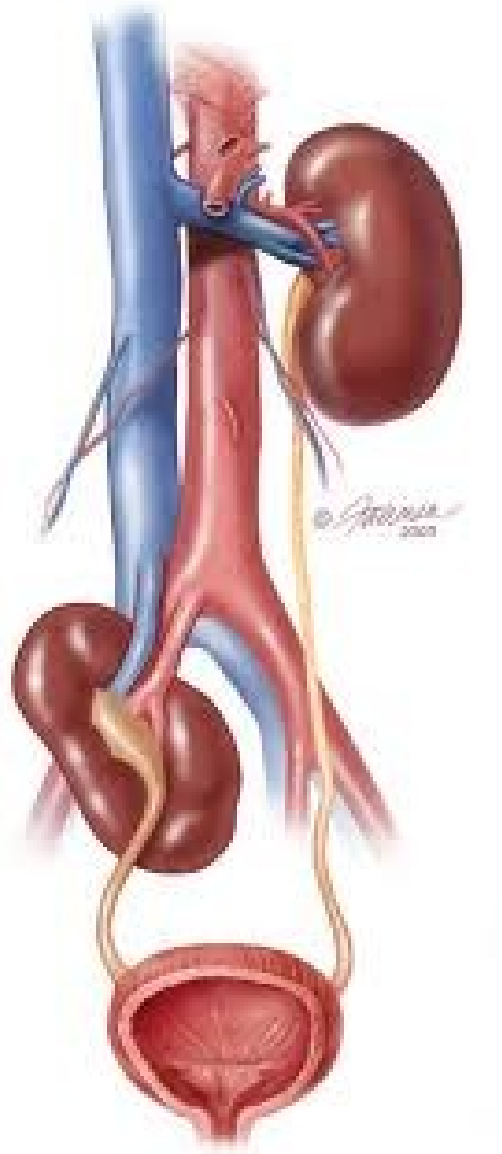


SIN.

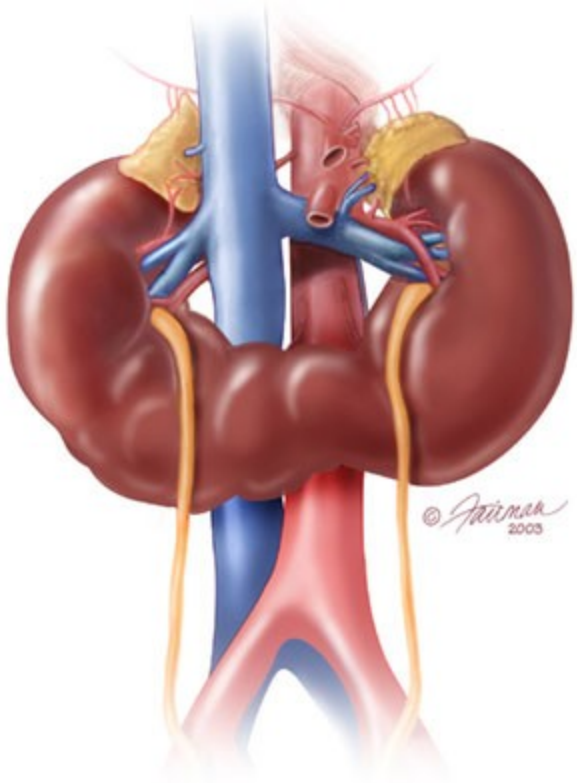
1. Fascia renalis
2. Lamina praerenalis
3. Lamina retrorenalis
4. Capsula adiposa
5. Corpus adiposum pararenale
6. Peritoneum
7. Fascia transversalis



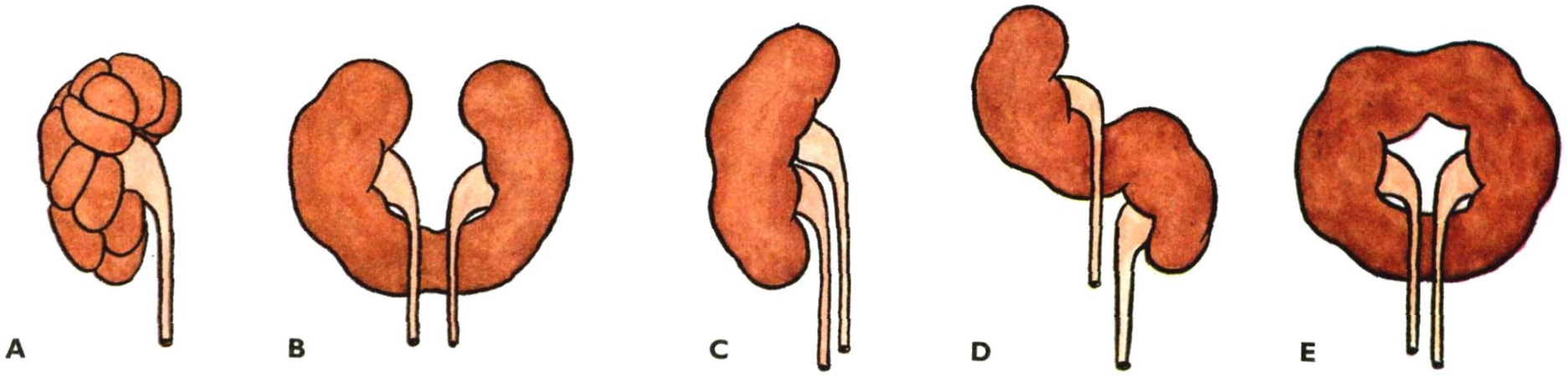
Ectopic kidney x ren migrans



Horseshoe kidney

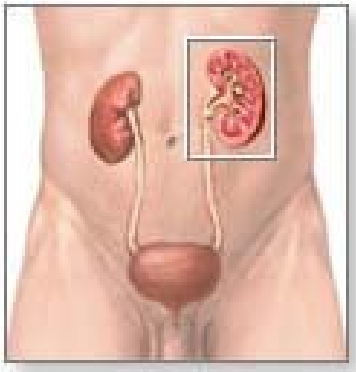


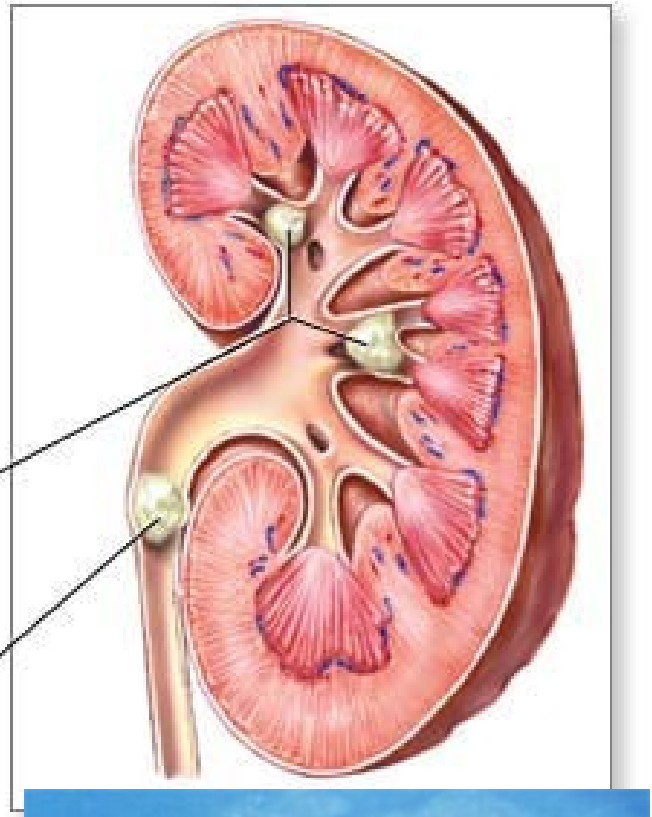
- ren sigmoideus
- ren fungiformis
- ren duplex
- agenesia renis

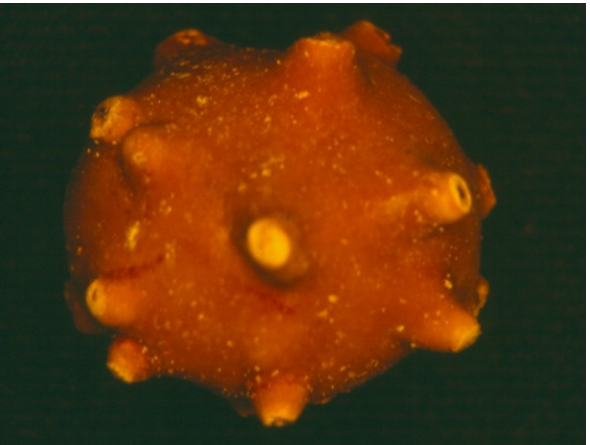


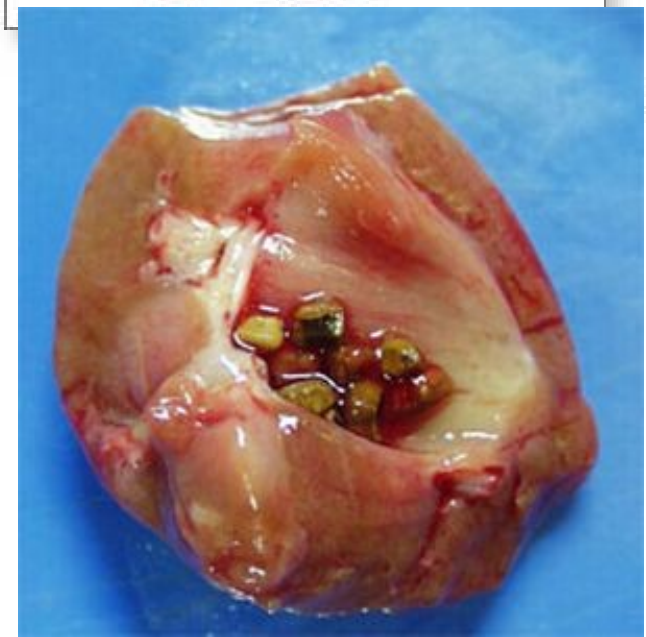
Nephrolithiasis

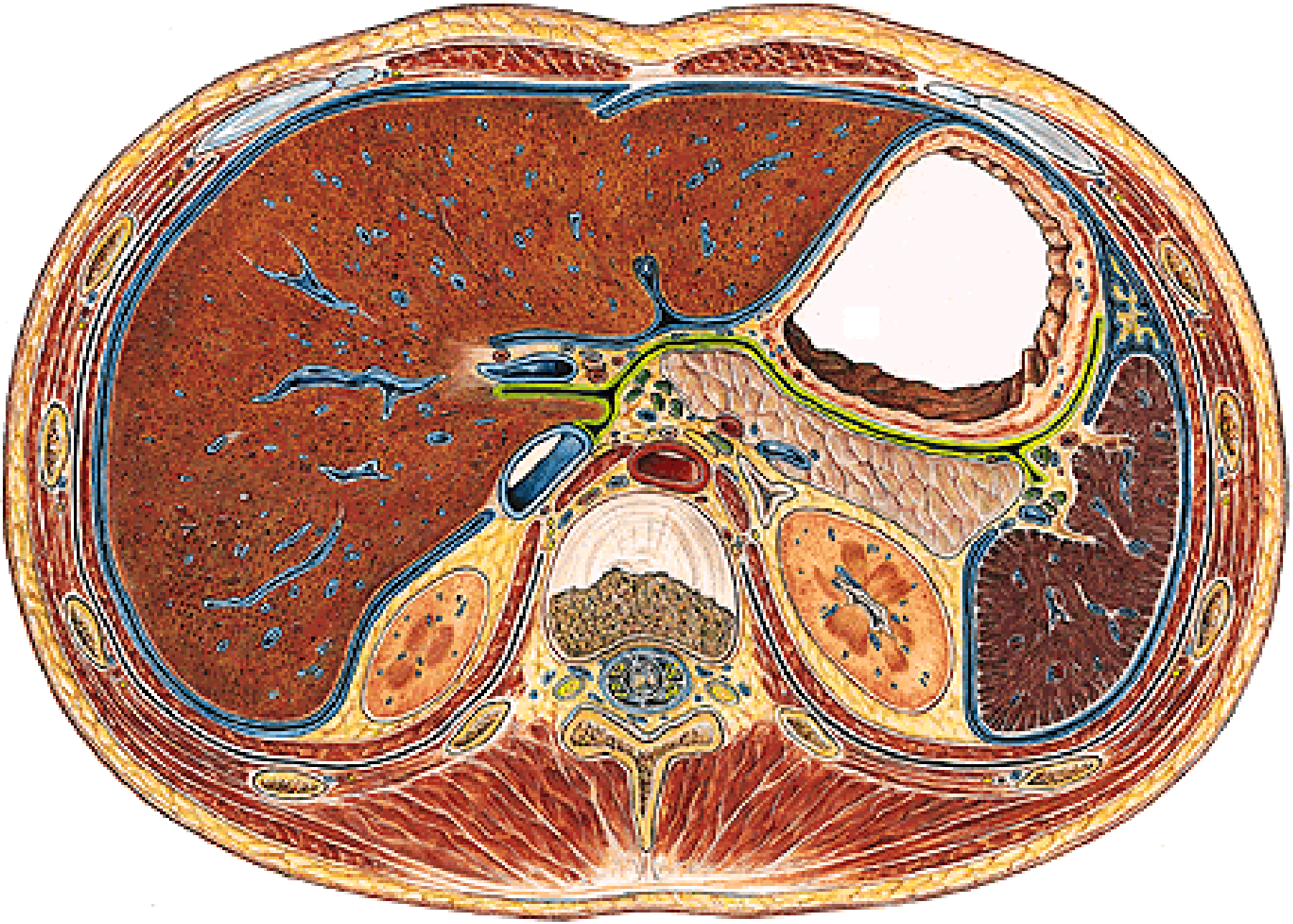
Calcium oxalate crystals – 80%
Uric acid – 5 - 10%











Transverse section through the intervertebral disc between T12 and L1

Cross-sectional image through the L1 obtained with CT

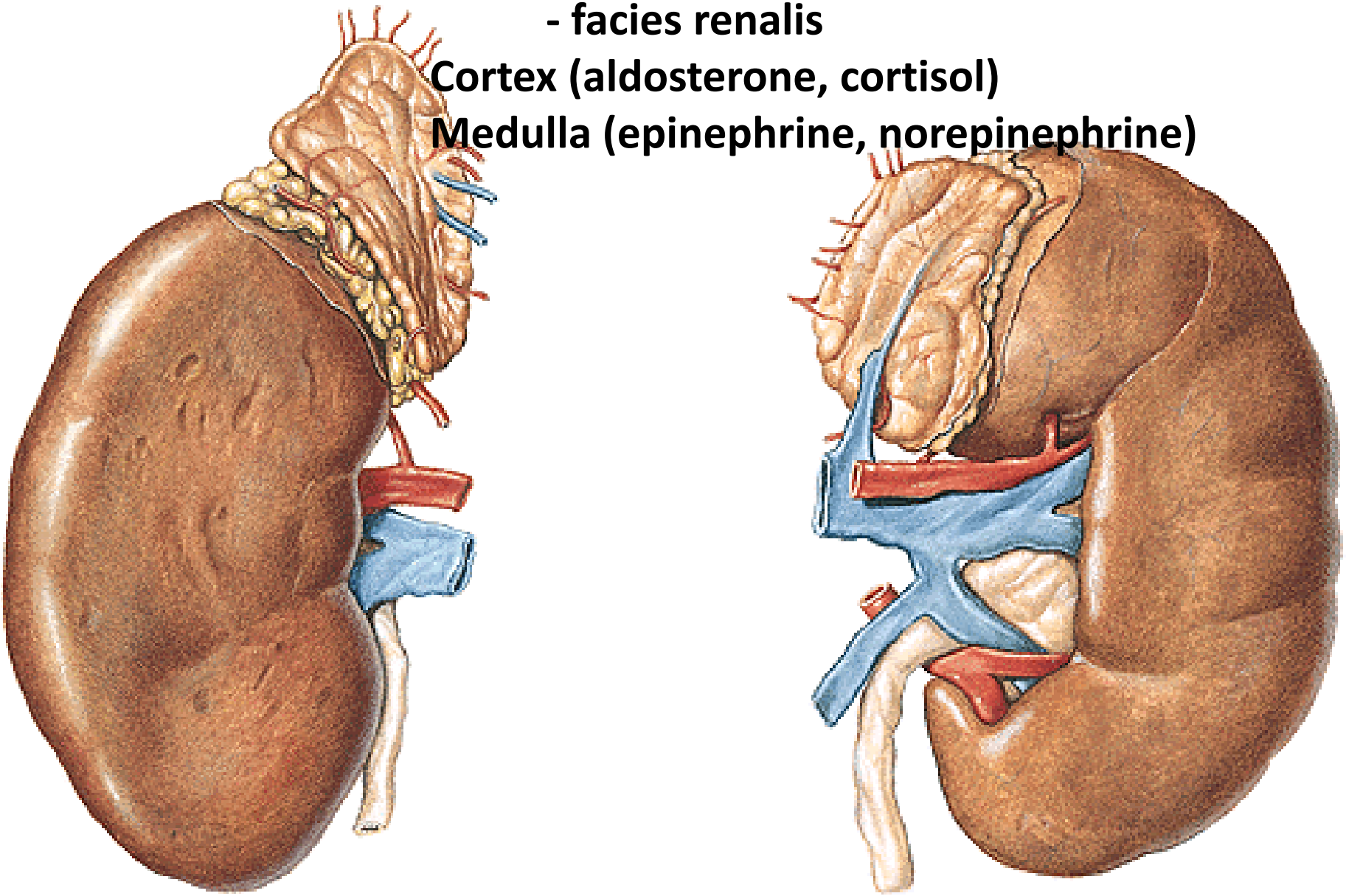
GLANDULA SUPRARENALIS – facies anterior – hilum

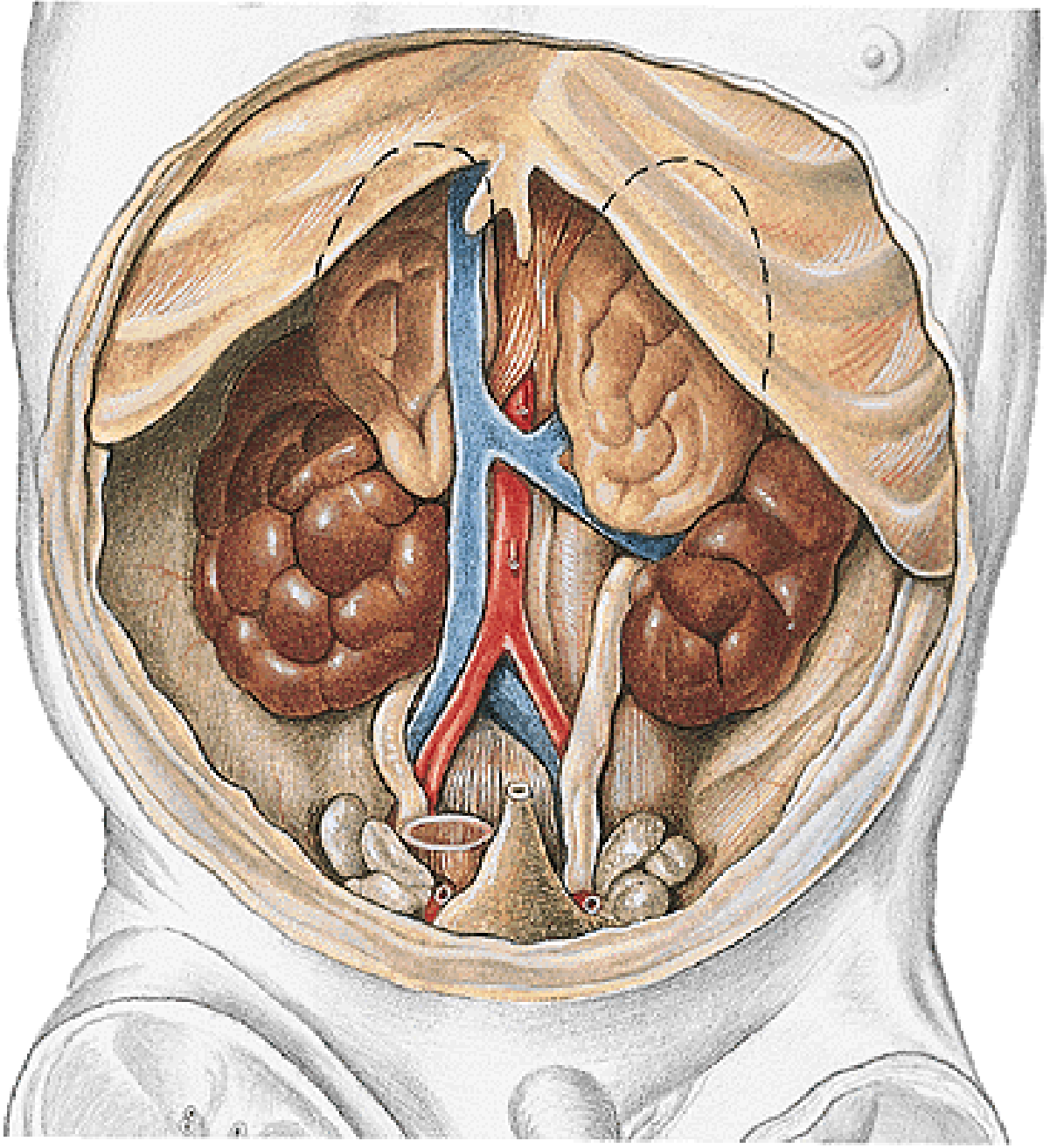
- facies posterior

- facies renalis

Cortex (aldosterone, cortisol)

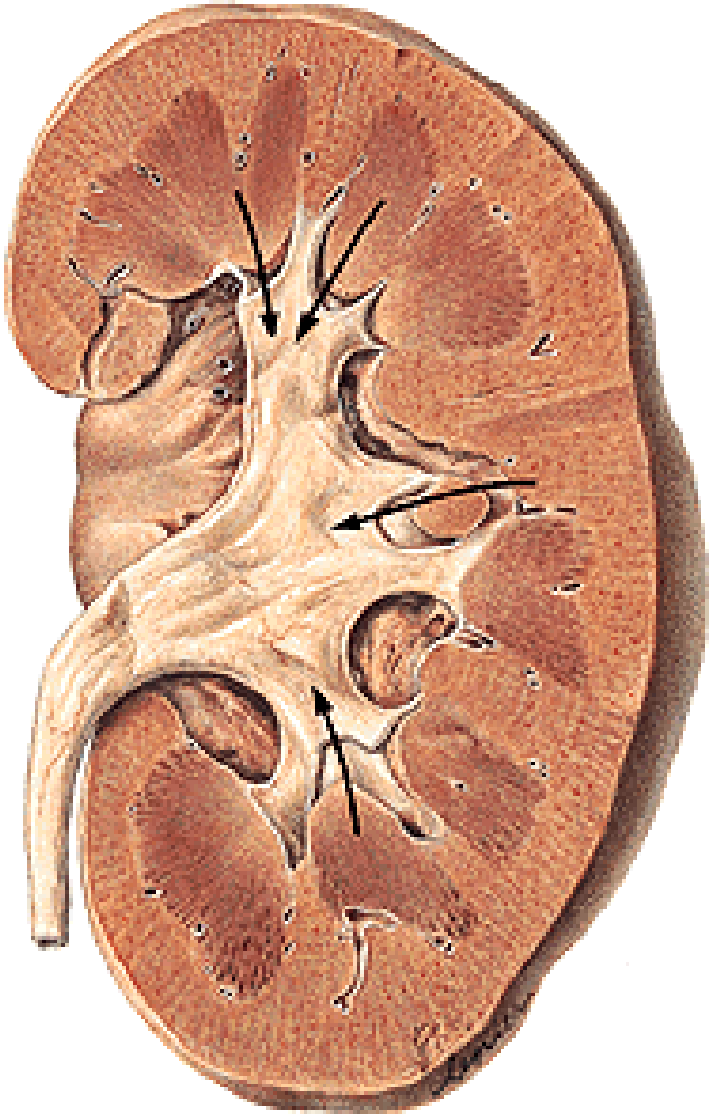
Medulla (epinephrine, norepinephrine)

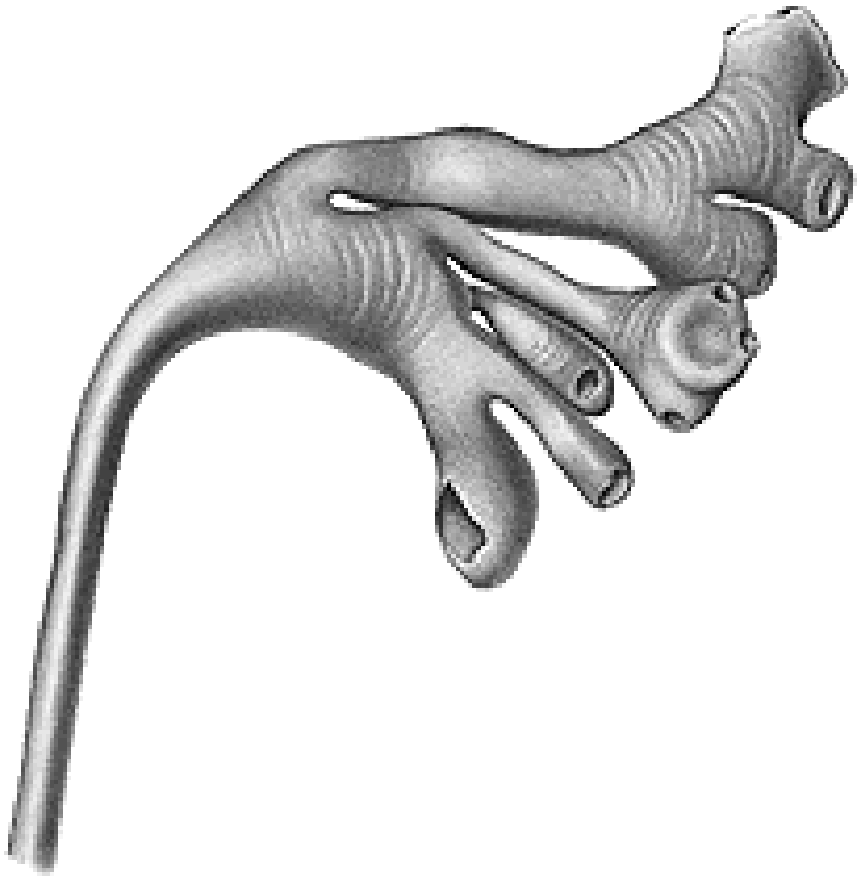




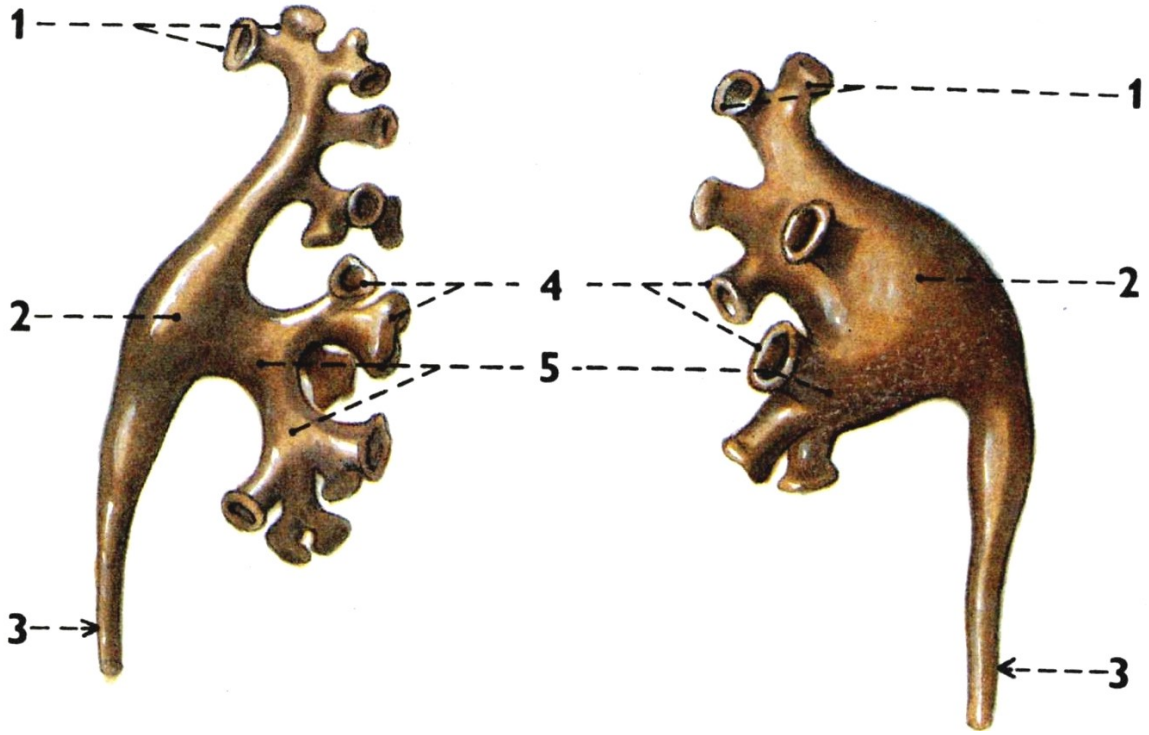
Five-month old fetus

CALICES RENALES – minores (7-14) et majores (2-4)
PELVIS RENALIS (2-5 , 5-8)





Various types of pelvis renalis

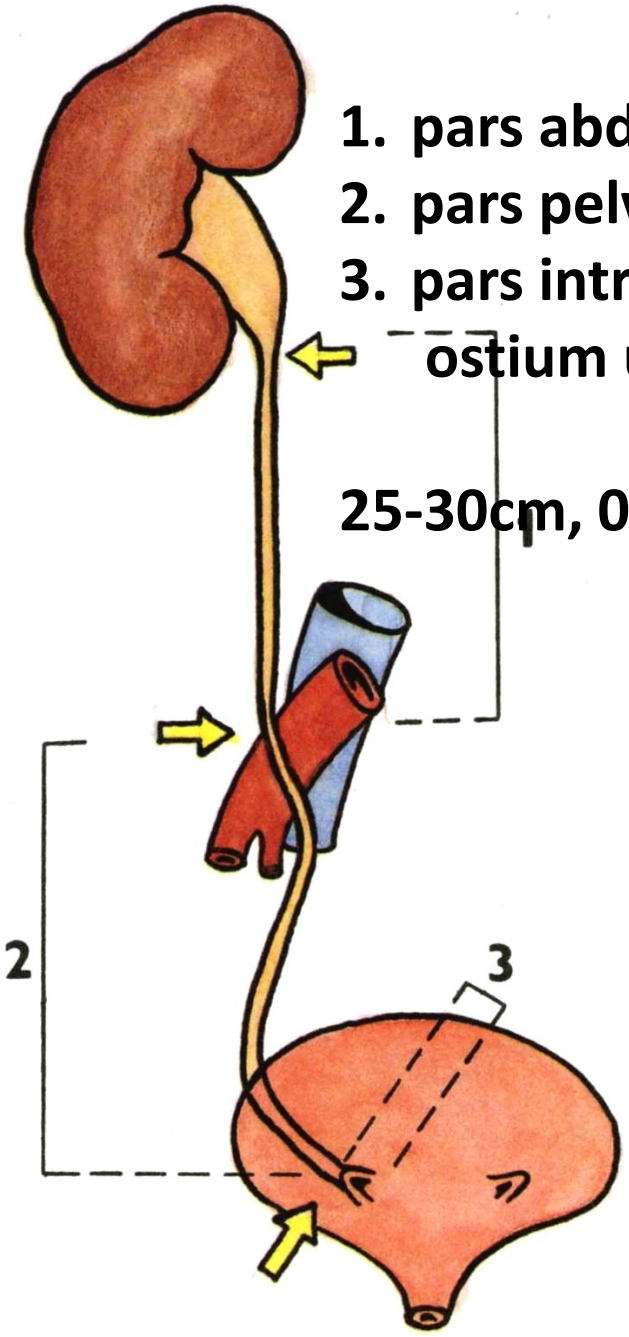


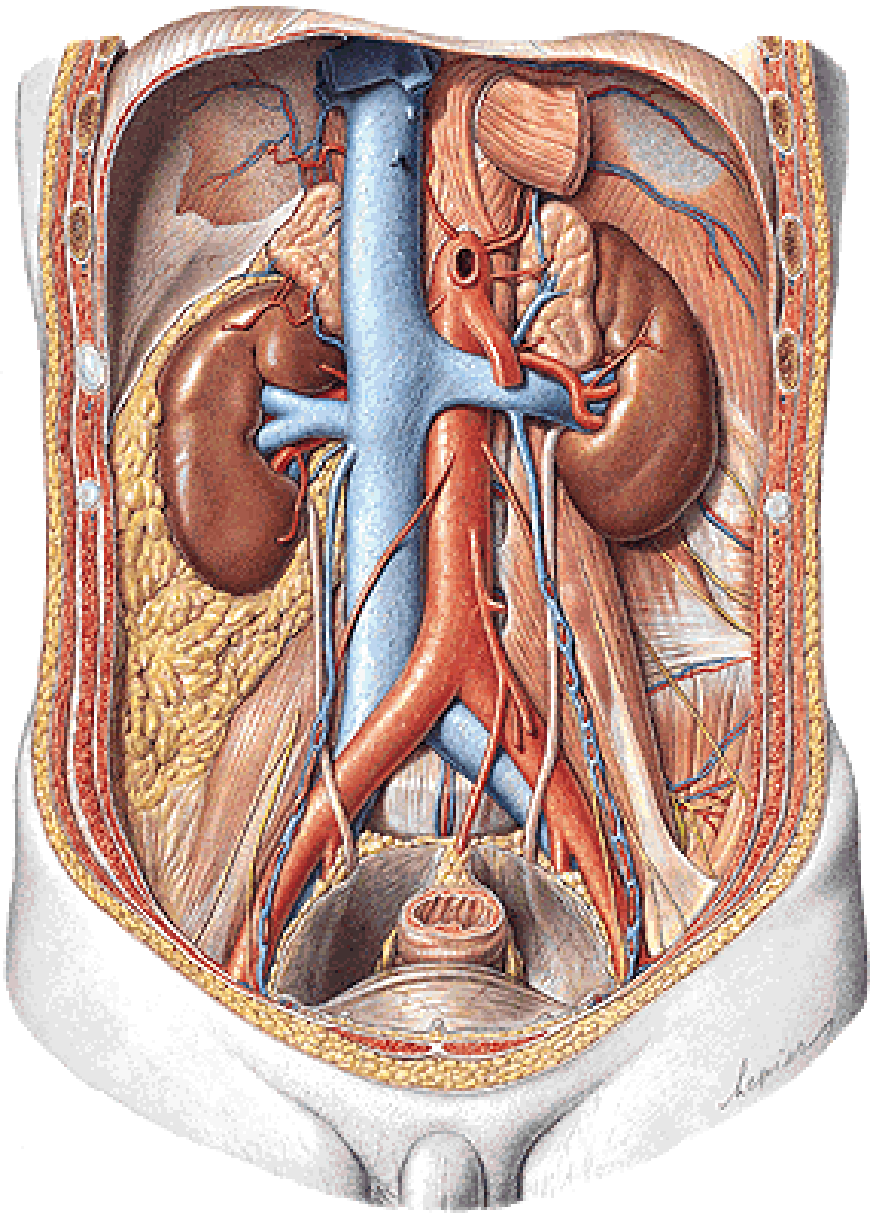
URETER

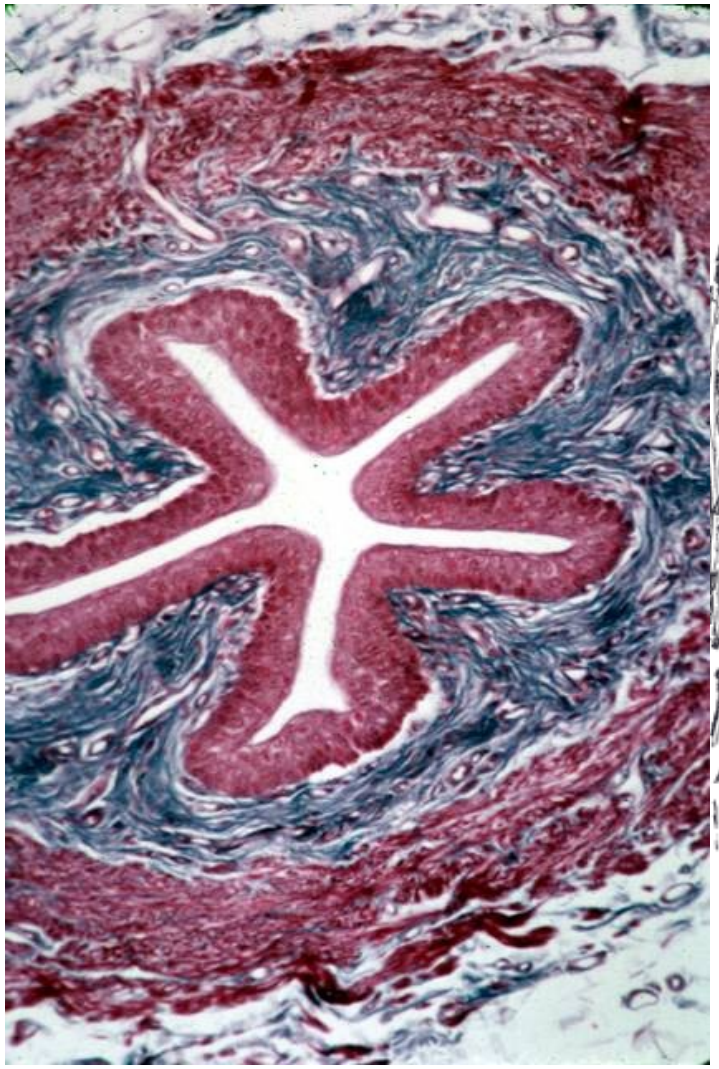
1. pars abdominalis
2. pars pelvina
3. pars intramuralis

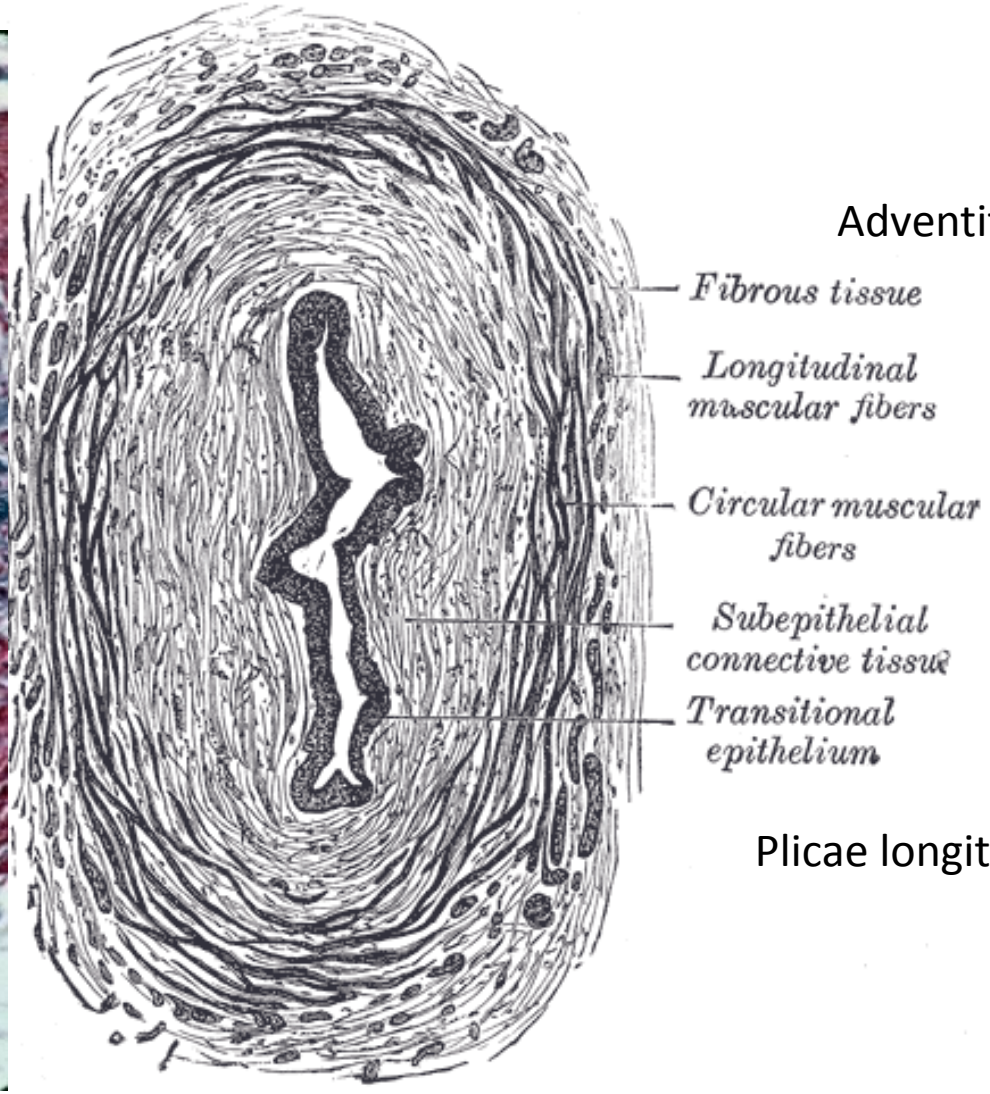
ostium ureteris

25-30cm, 0,5cm



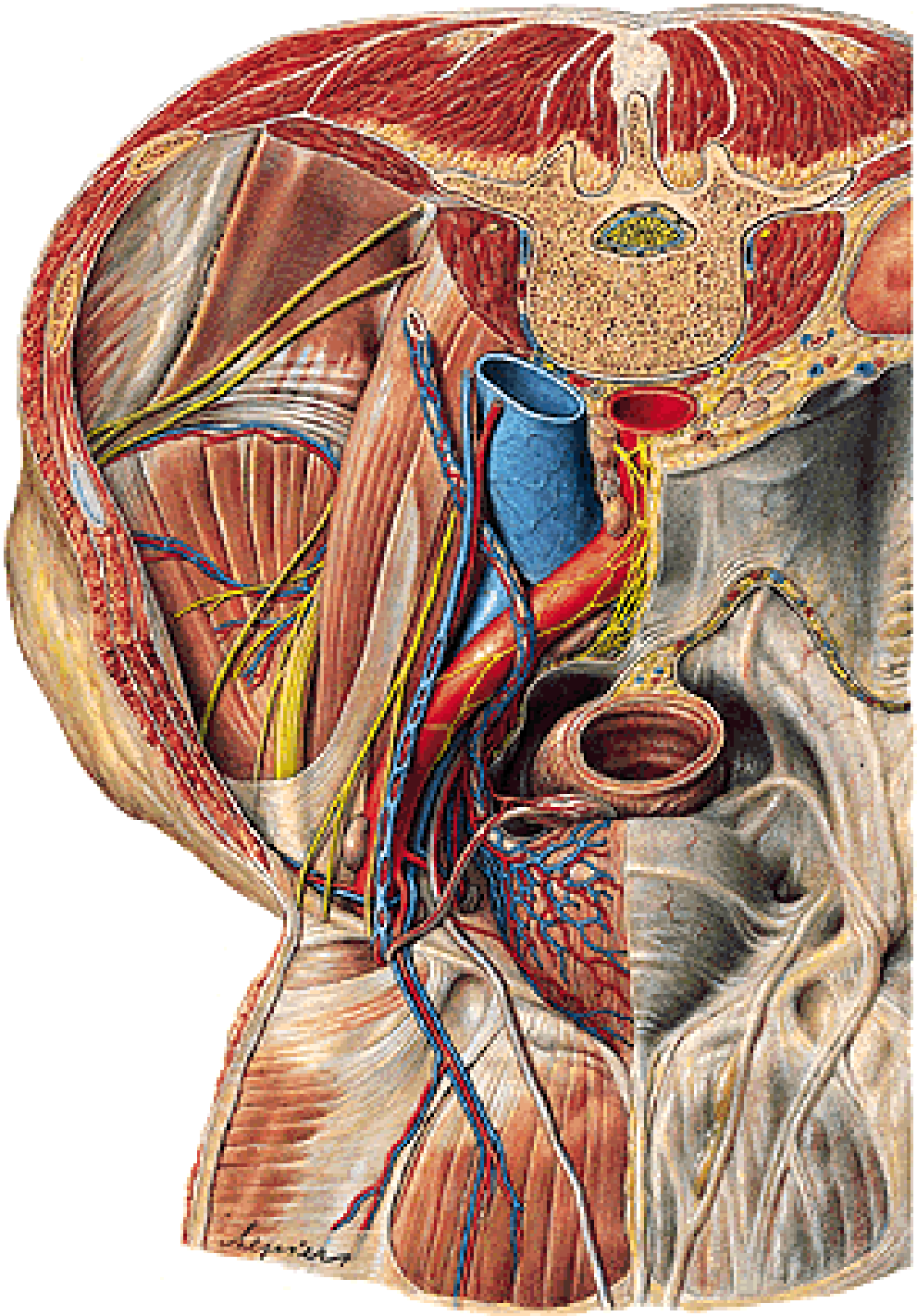


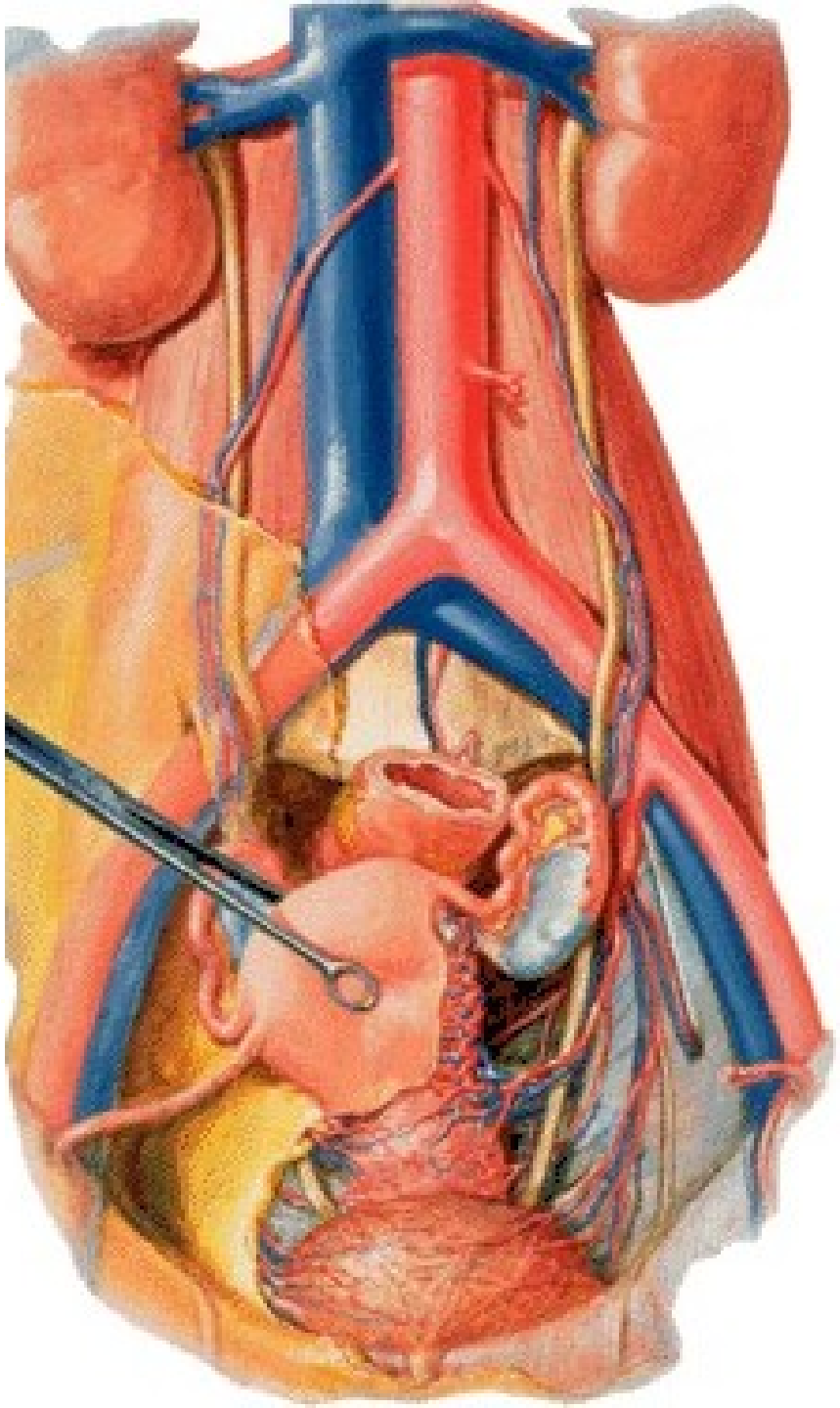




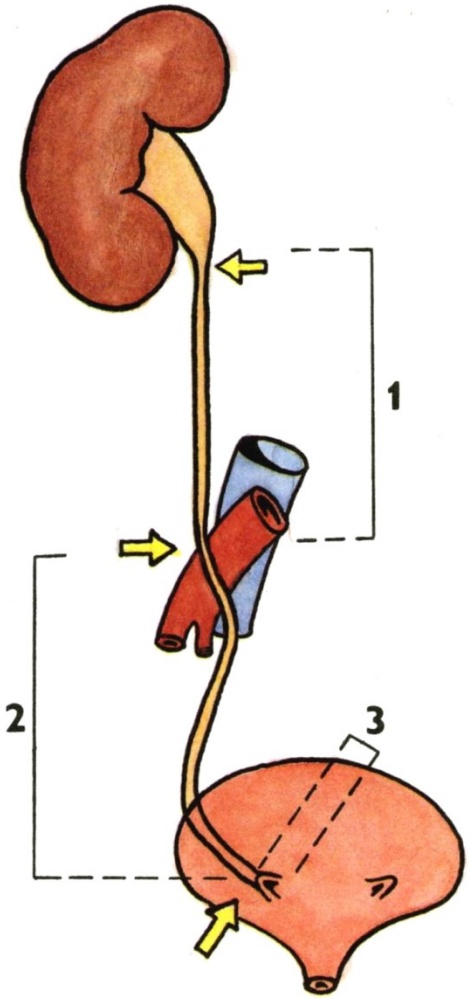
Adventitia

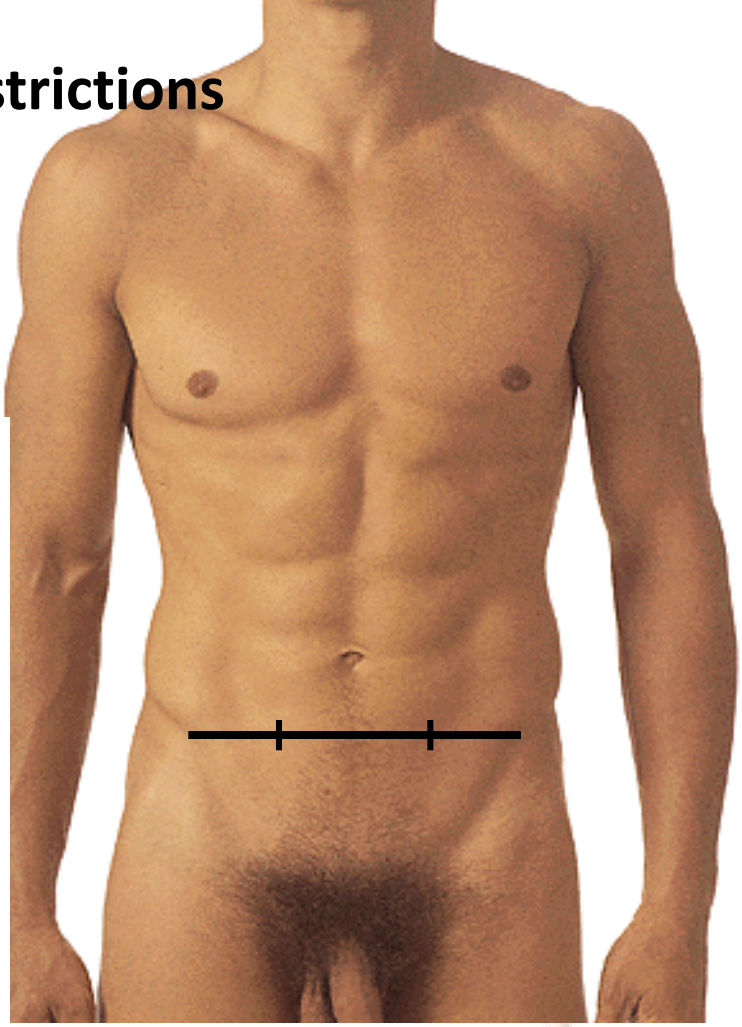
Plicae longitudinales



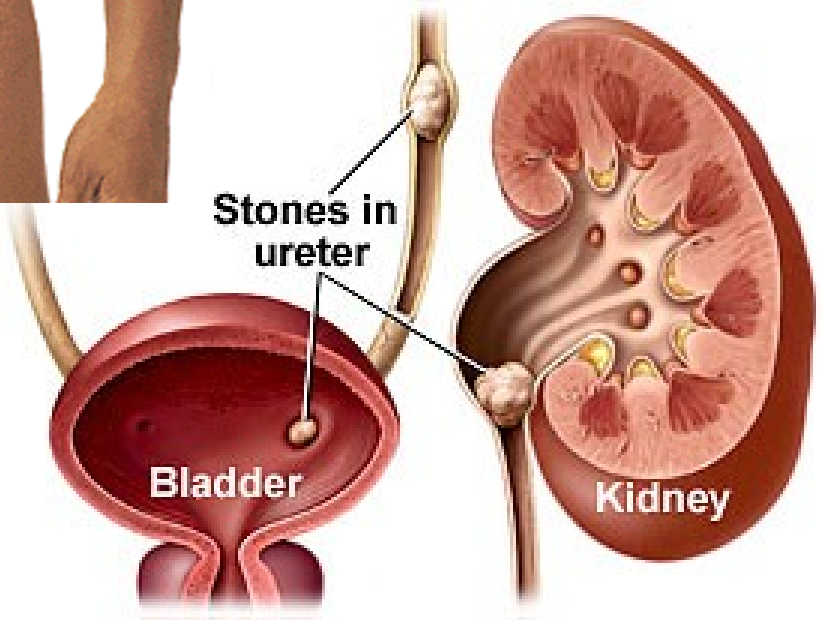


3 physiological constrictions

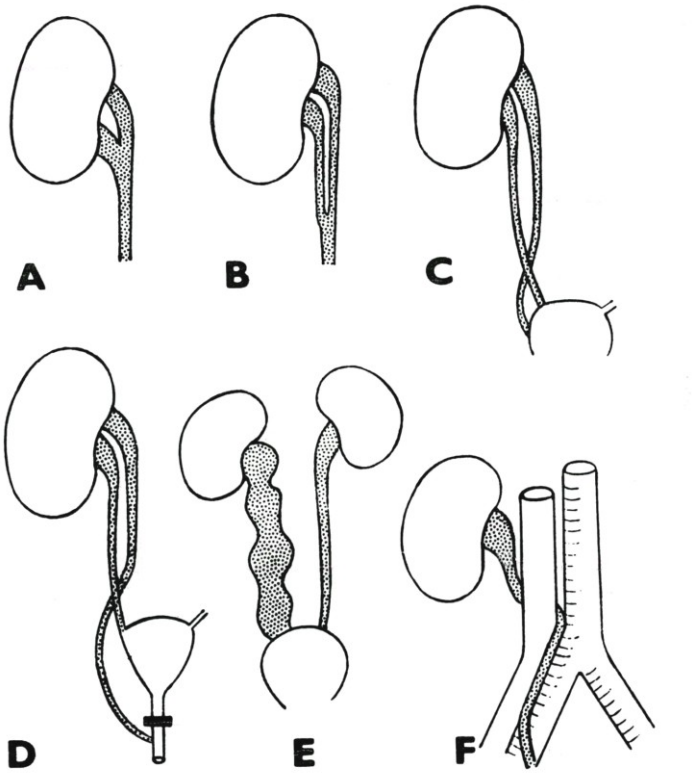




LANZ



VARIATIONS OF URETER



Pelvis duplex

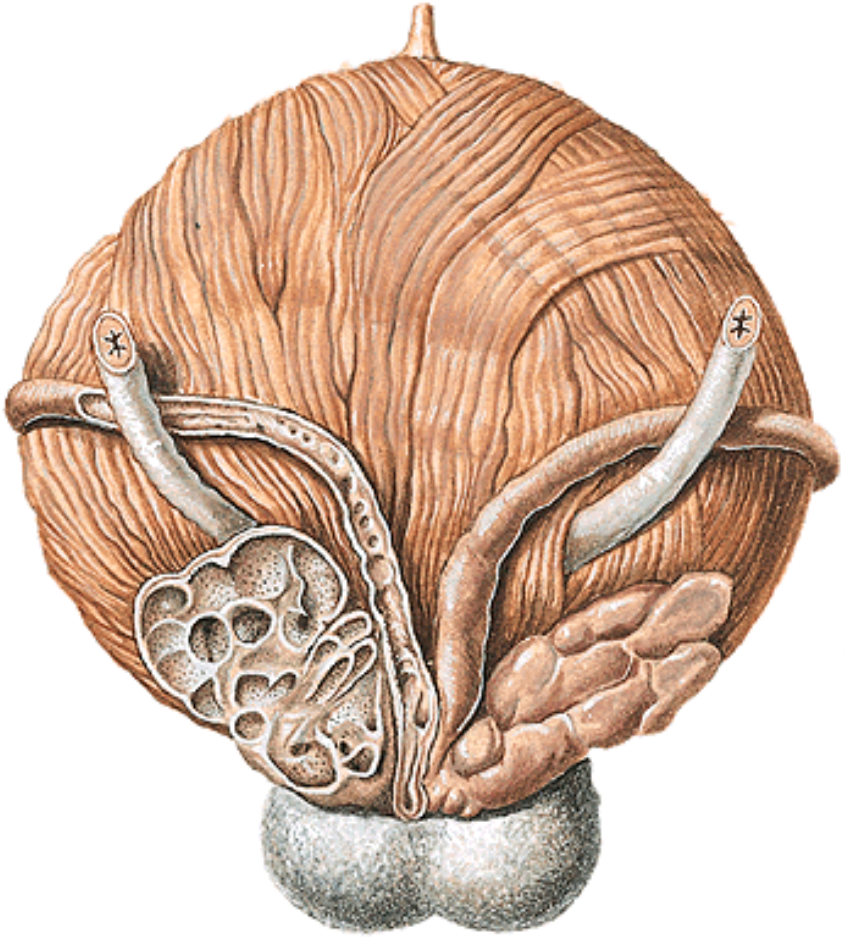
Ureter fissus

Ureter duplex

Megaloureter

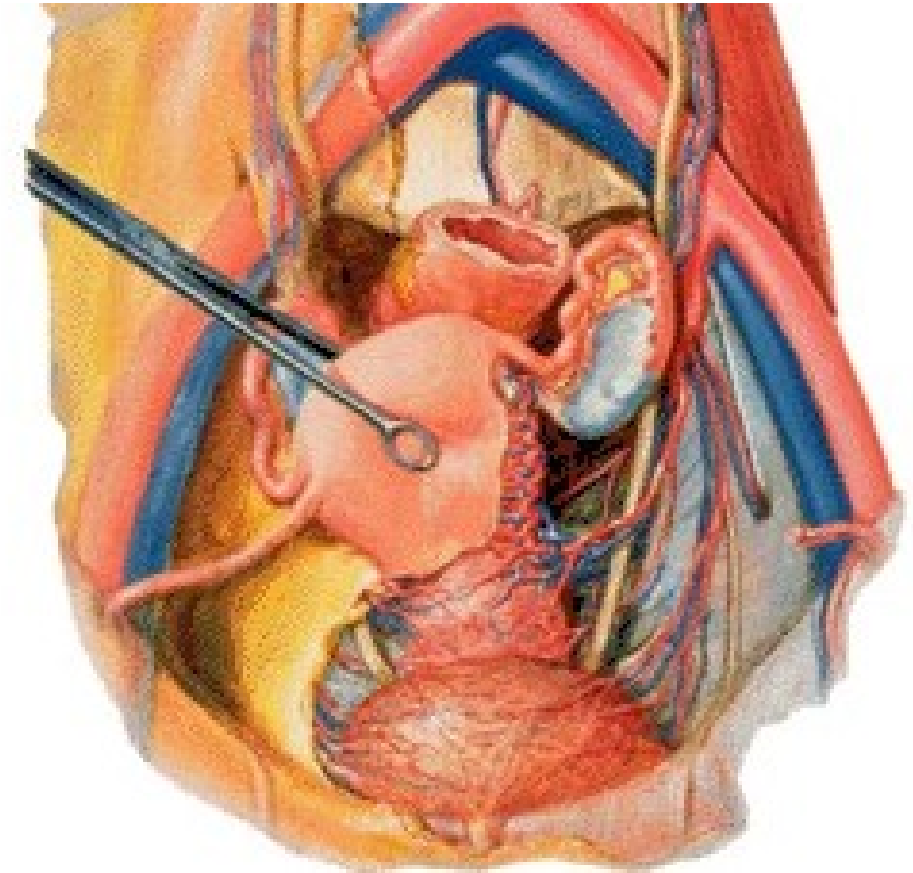
Ectopia ostii ureteris

Retrocaval passage of ureter



Dorsal view at urinary bladder
Male

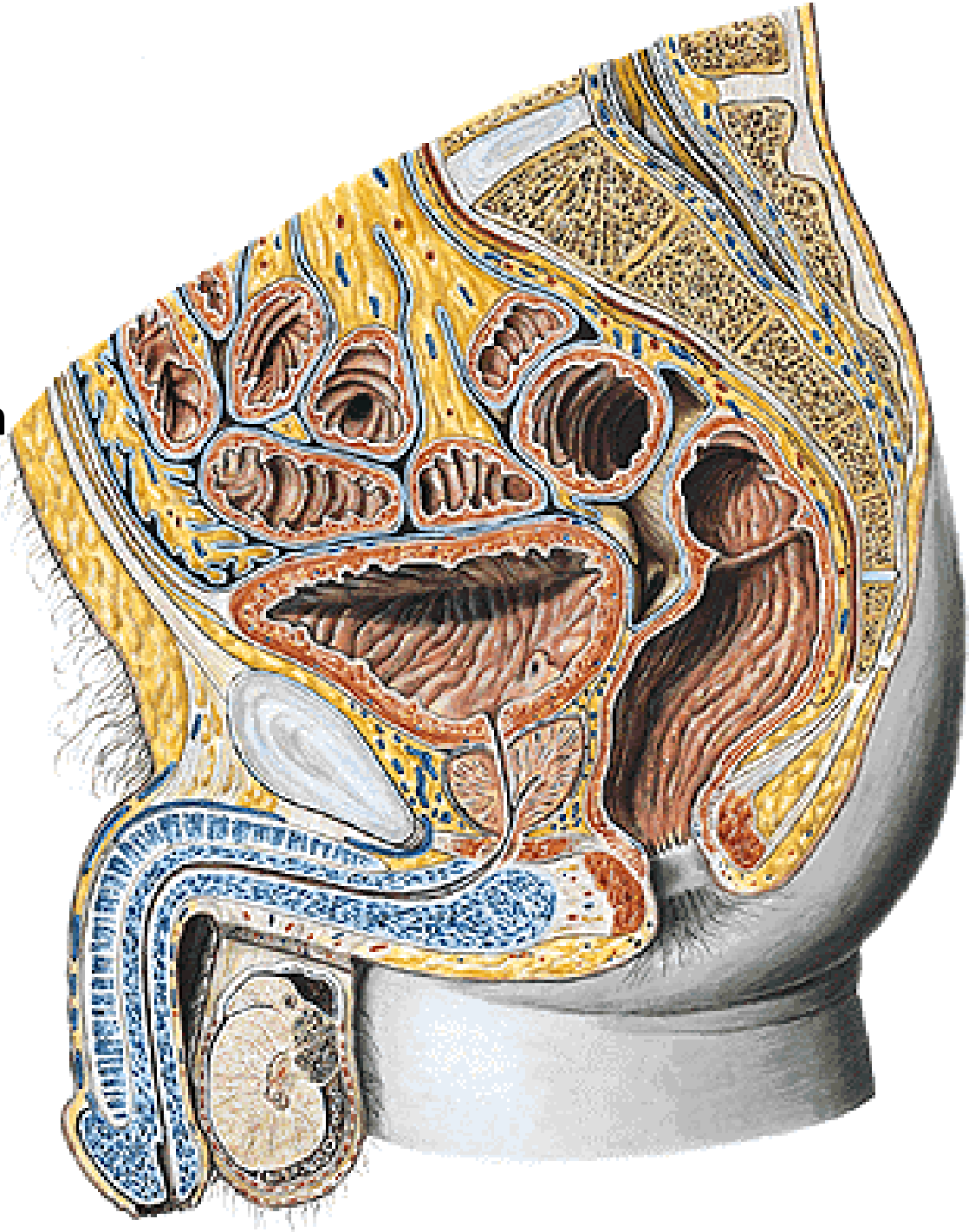
Ductus deferens



Female
a. uterina and ureter
2 cm from uterus
2,5 cm from fornix vaginae

VESICA URINARIA

-fundus vesicae
-corpus vesicae
-apex vesicae
  - lig. umbilicale medianum
-cervix vesicae



Ureter

Vesica urinaria

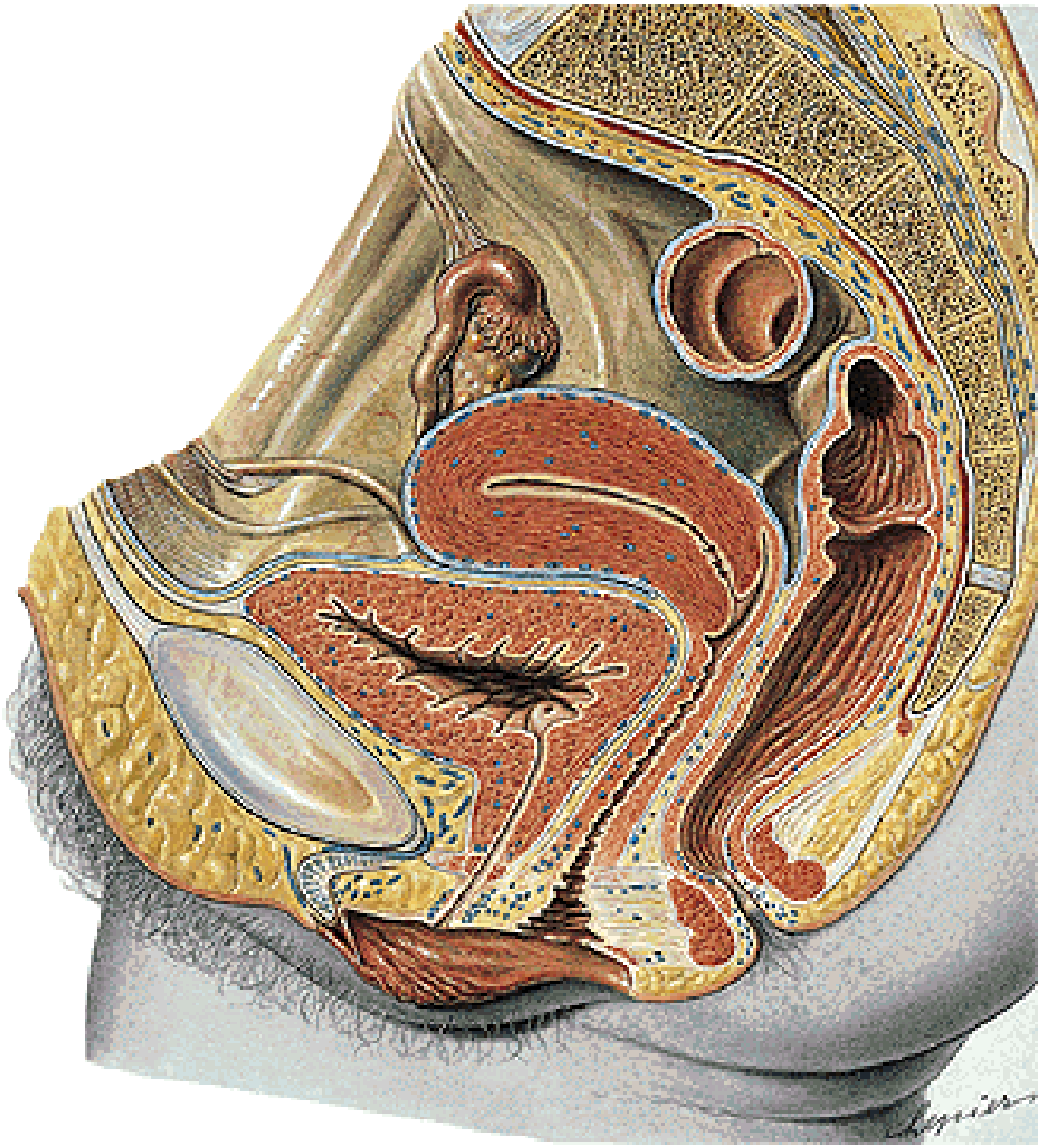
Symphysis

Uterus, vagina

Rectum

Urethra

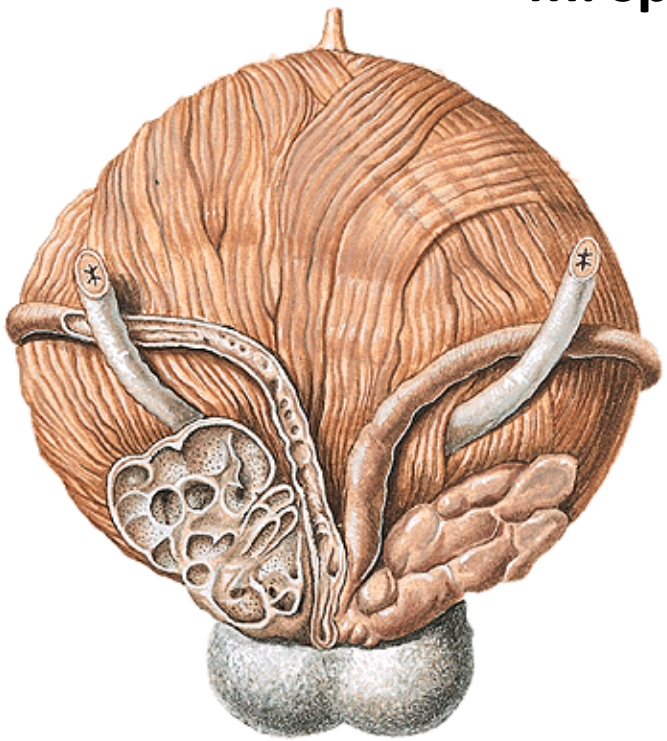
Fundus,
Apex, basis

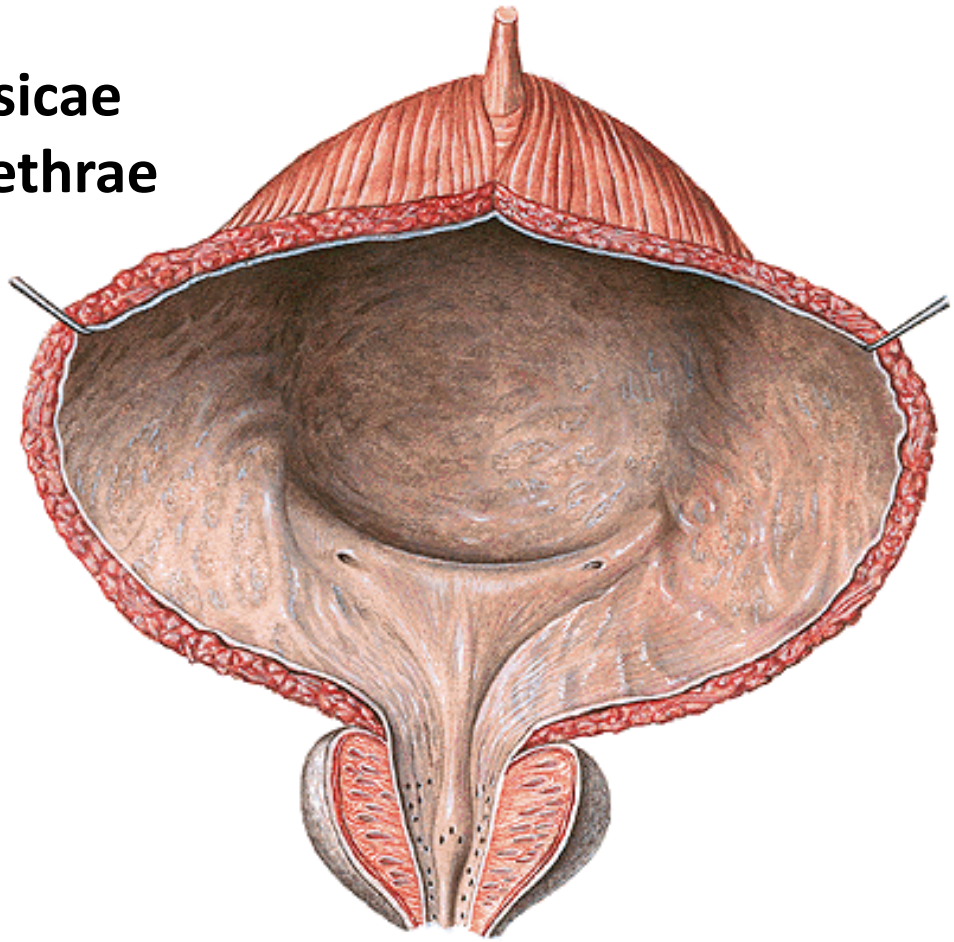


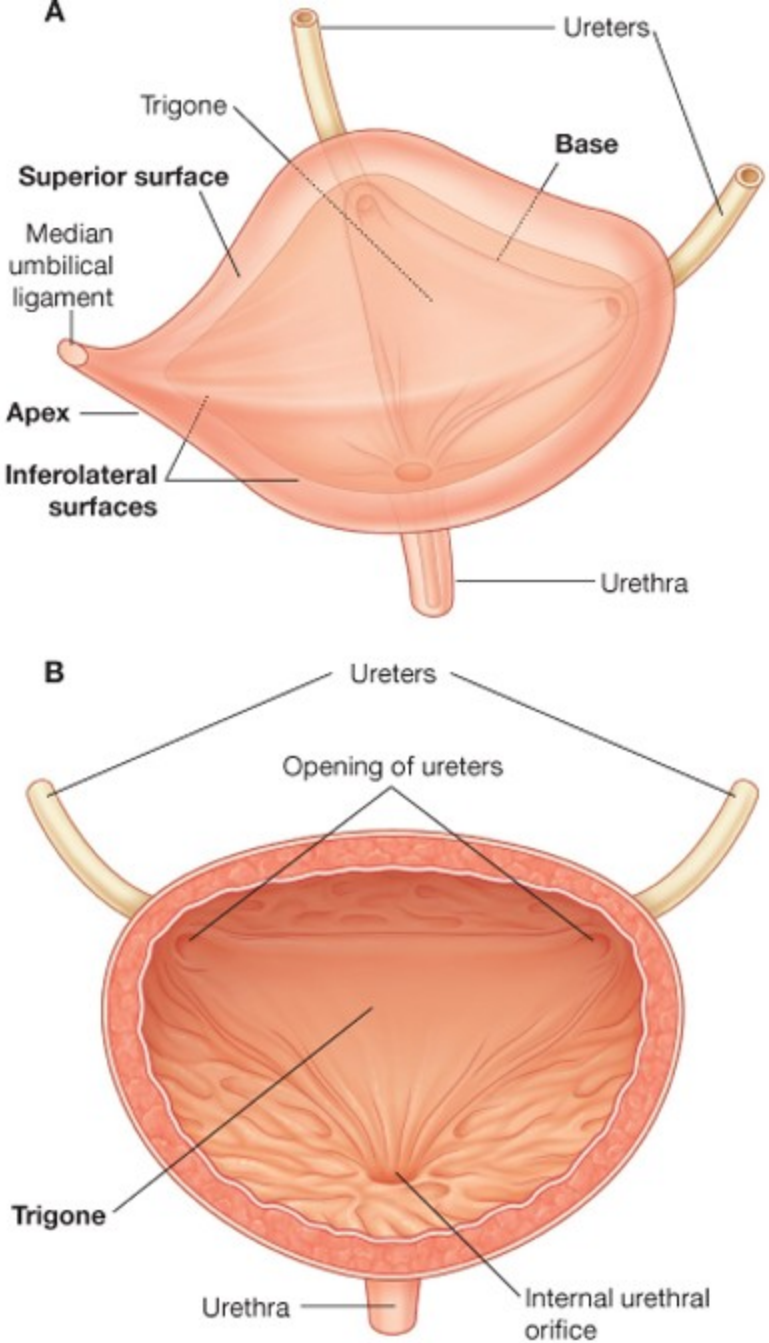
Ostium urethrae ext.

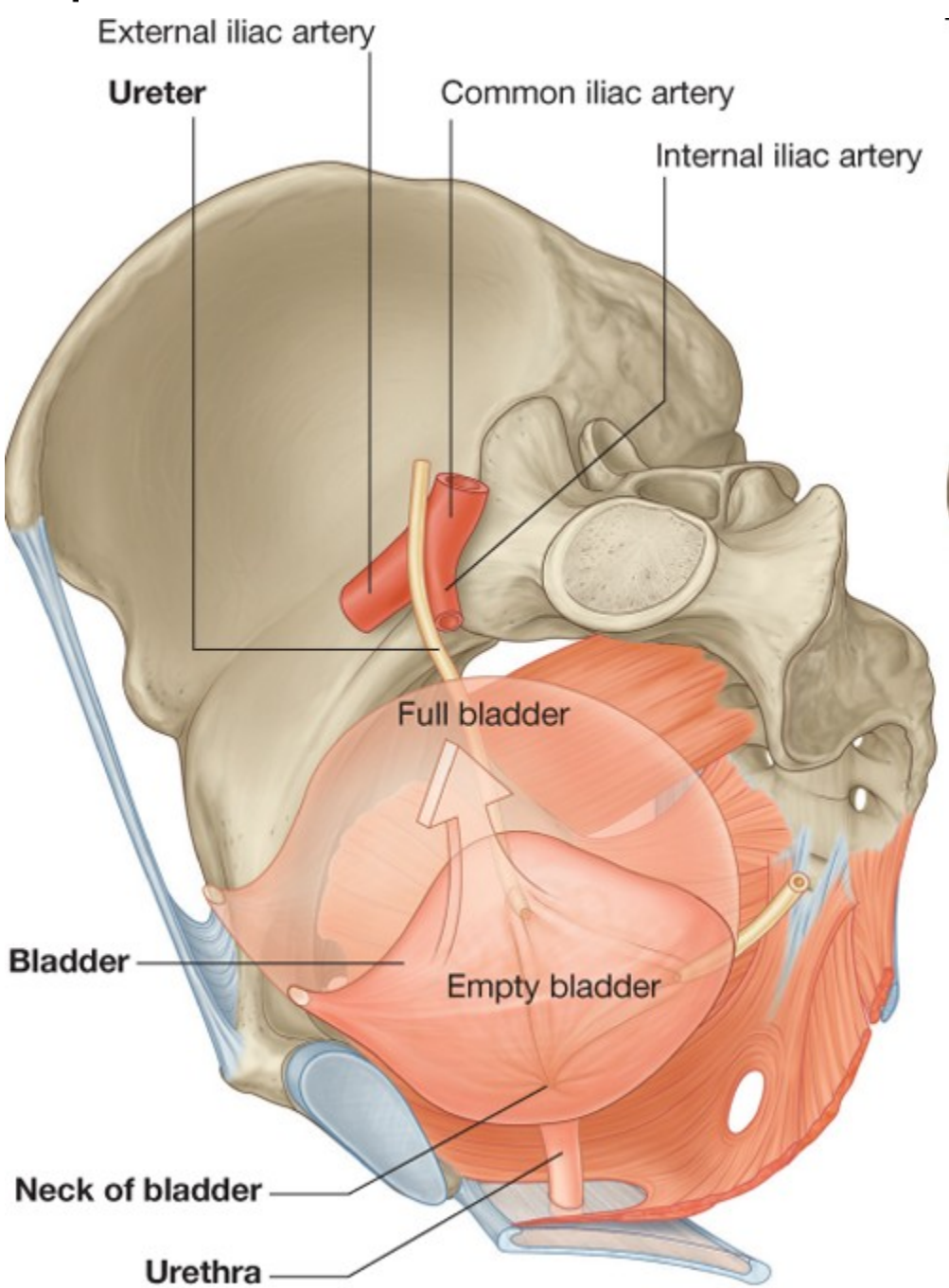
Trigonum vesicae – ostia ureterum

- ostium urethrae internum
- plica interureterica
- fossa retrotrigonalis
- bundles of Bell
- uvula vesicae
- m. detrusor
- m. sphincter vesicae
- m. sphincter urethrae



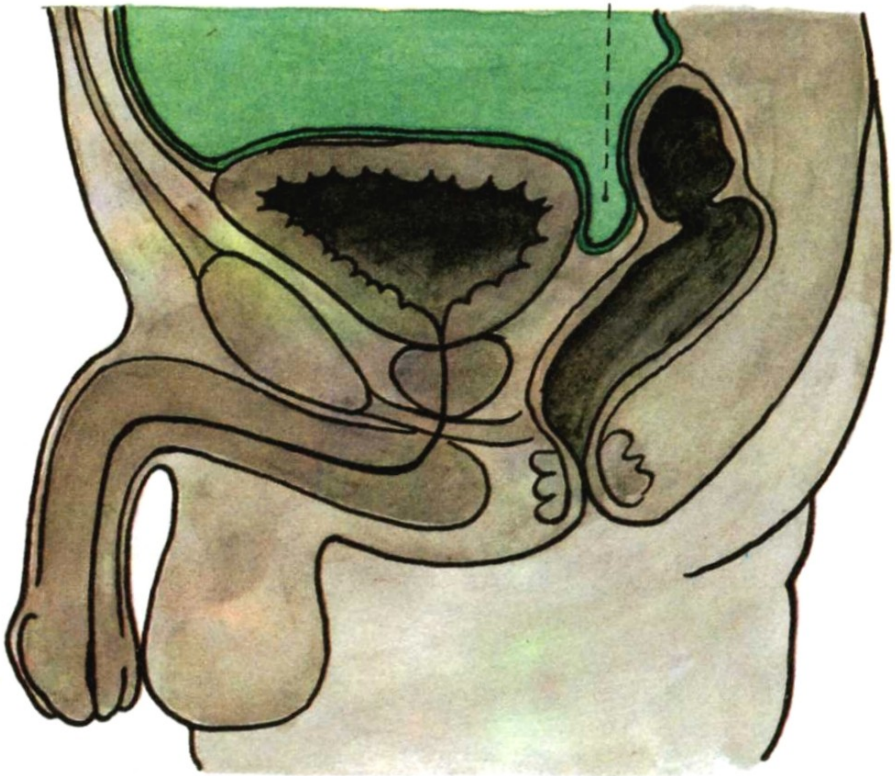






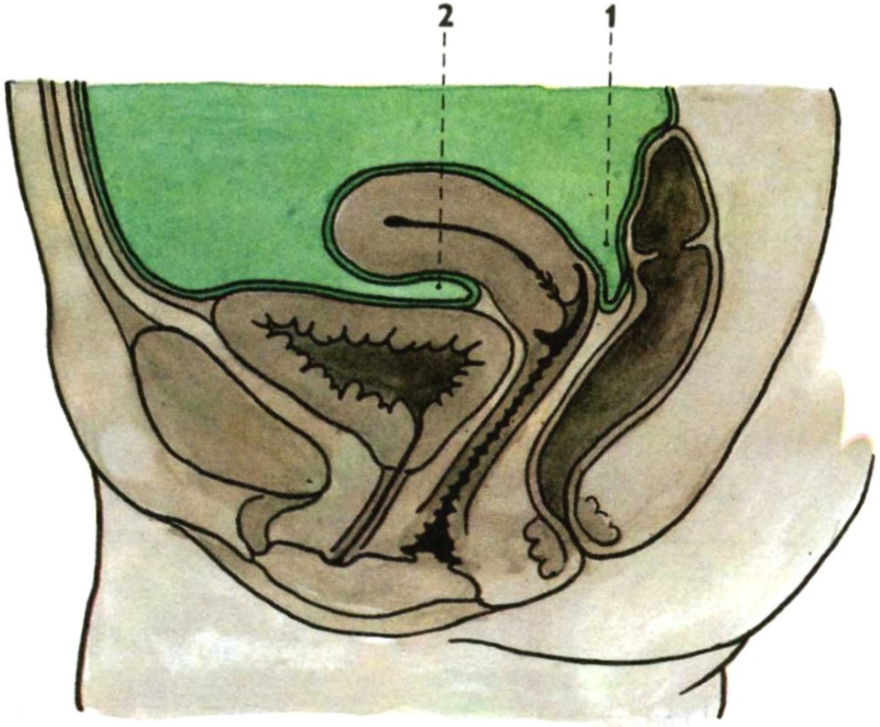
Median section through the male pelvis

1. Excavatio rectovesicalis



Median section through the female pelvis

1. Excavatio rectouterina
2. Excavatio vesicouterina

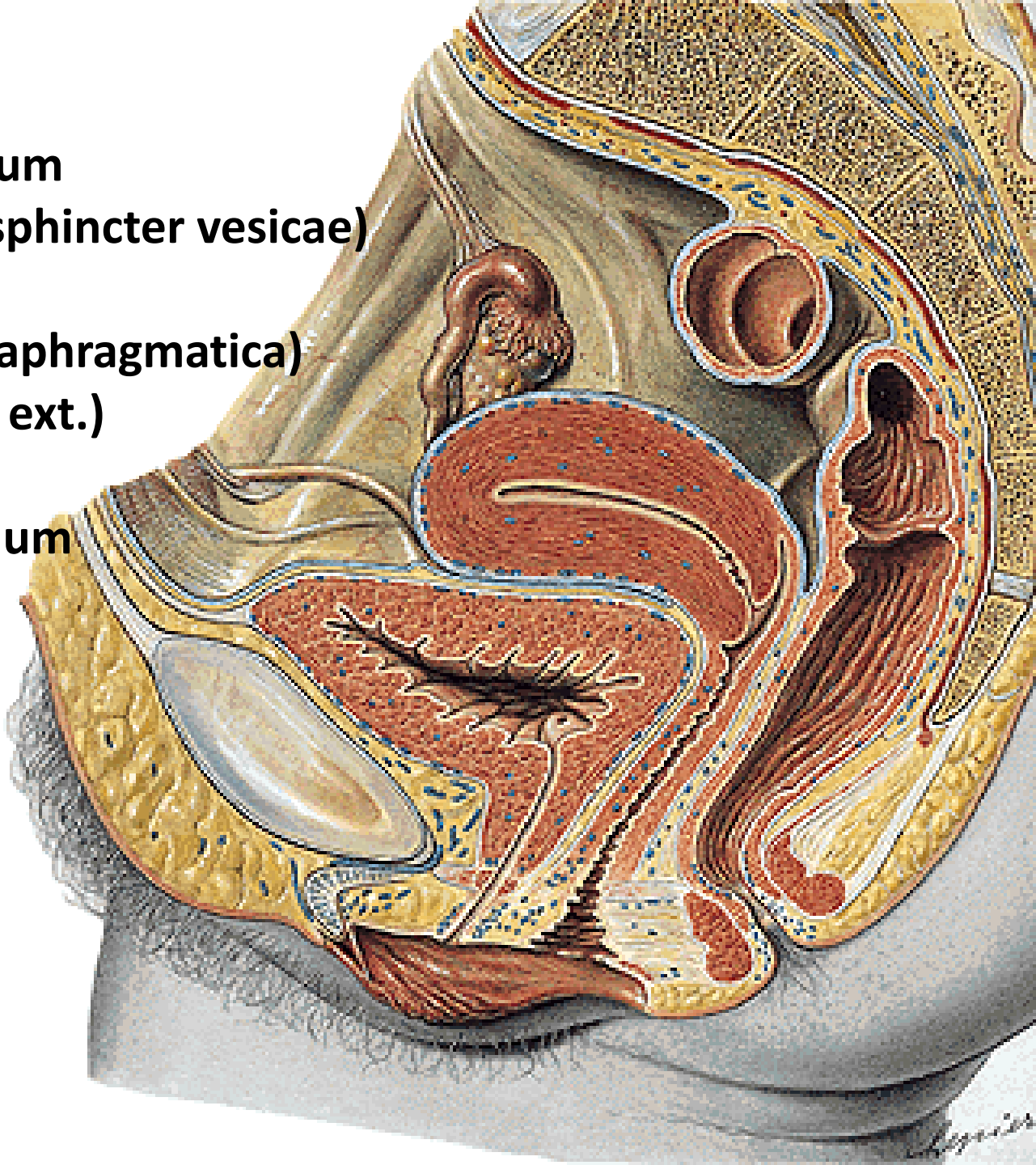


Paracystium – lig. pubo prostaticum (pubovesicale), lig. sacroprostaticum (sacrovesicale)

URETHRA FEMININA

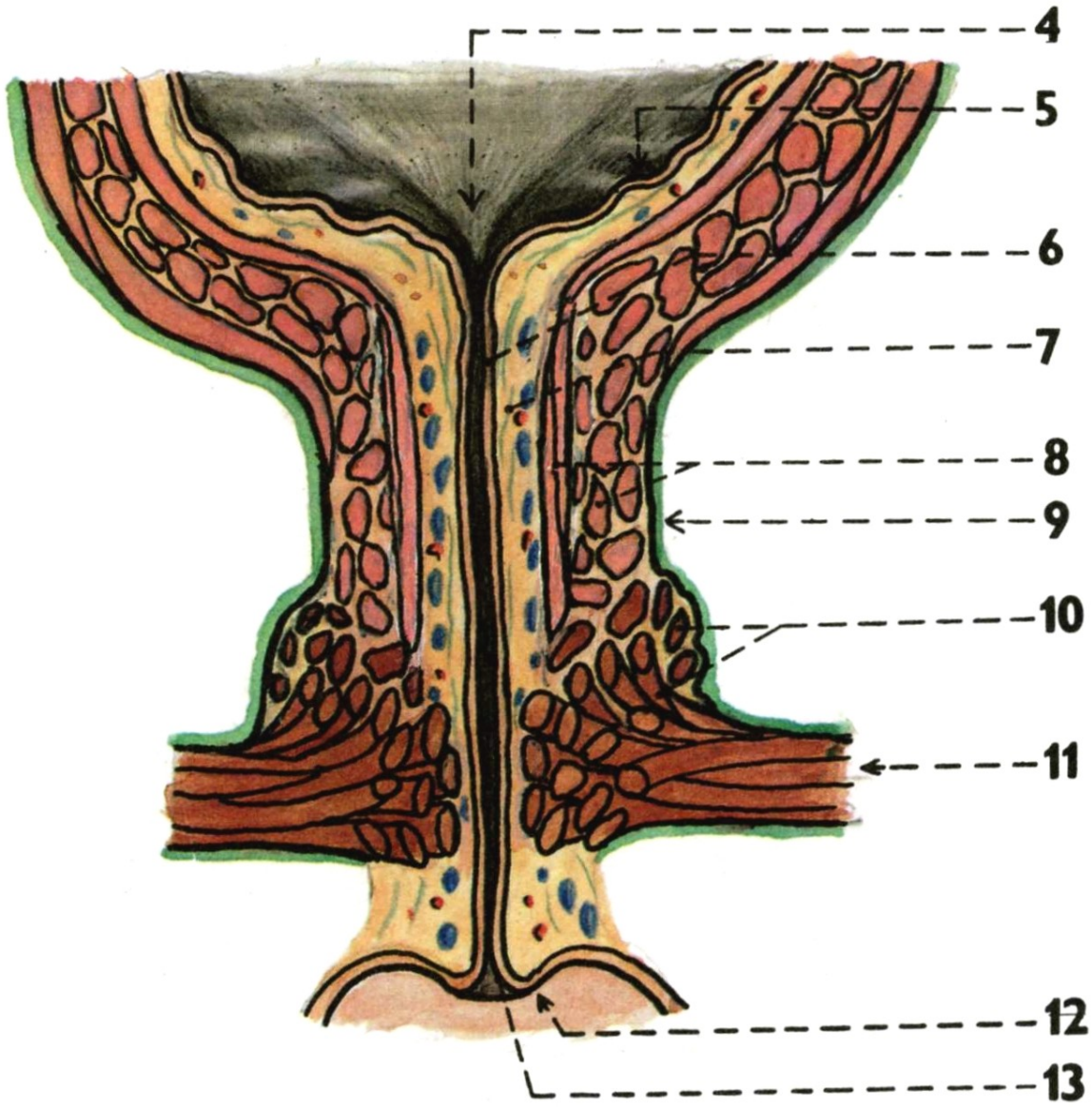
Ostium urethrae internum
- pars intramuralis (m. sphincter vesicae)
- pars pelvina
-pars membranacea (diaphragmatica)
-(m. sphincter urethrae ext.)
- pars perinealis
Ostium urethrae externum

Papilla urethralis
Vestibulum vaginae



URETHRA FEMININA

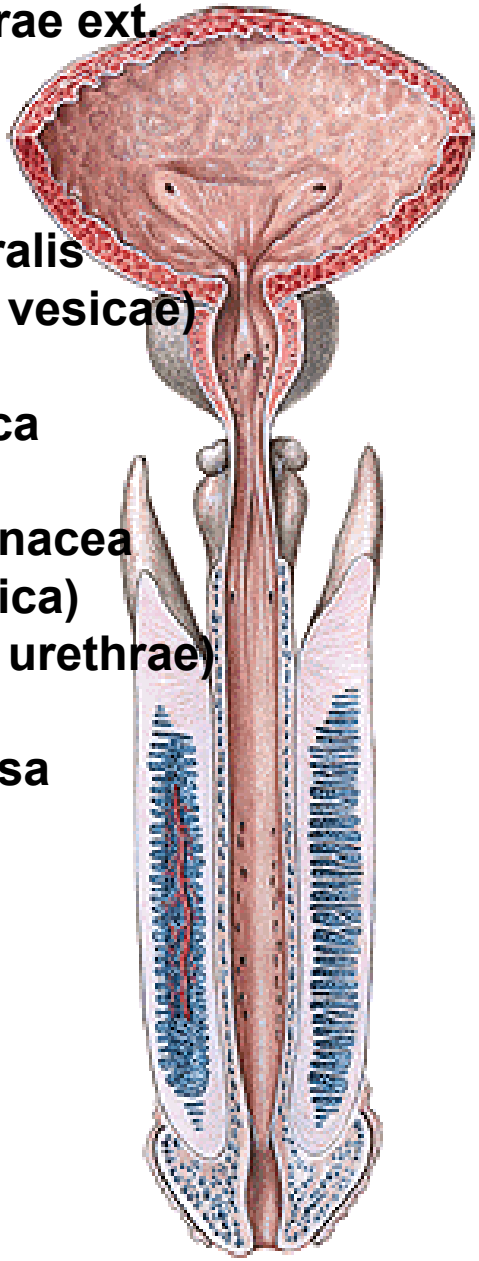
Crista urethralis
Lacunae urethrales
Glandulae urethrales
Ductus paraurethrales



URETHRA MASCULINA

Ostium urethrae int.

Ostium urethrae ext.

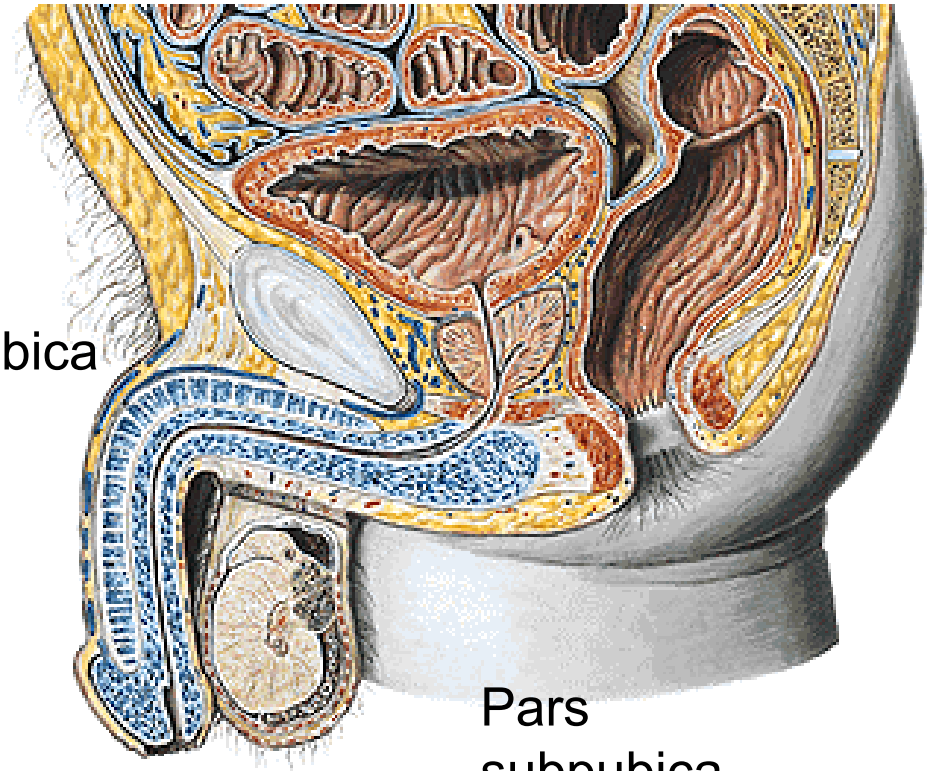


Pars intramuralis
(m. sphincter vesicae)

Pars prostatica

Pars membranacea
(diaphragmatica)
(m. sphincter urethrae)

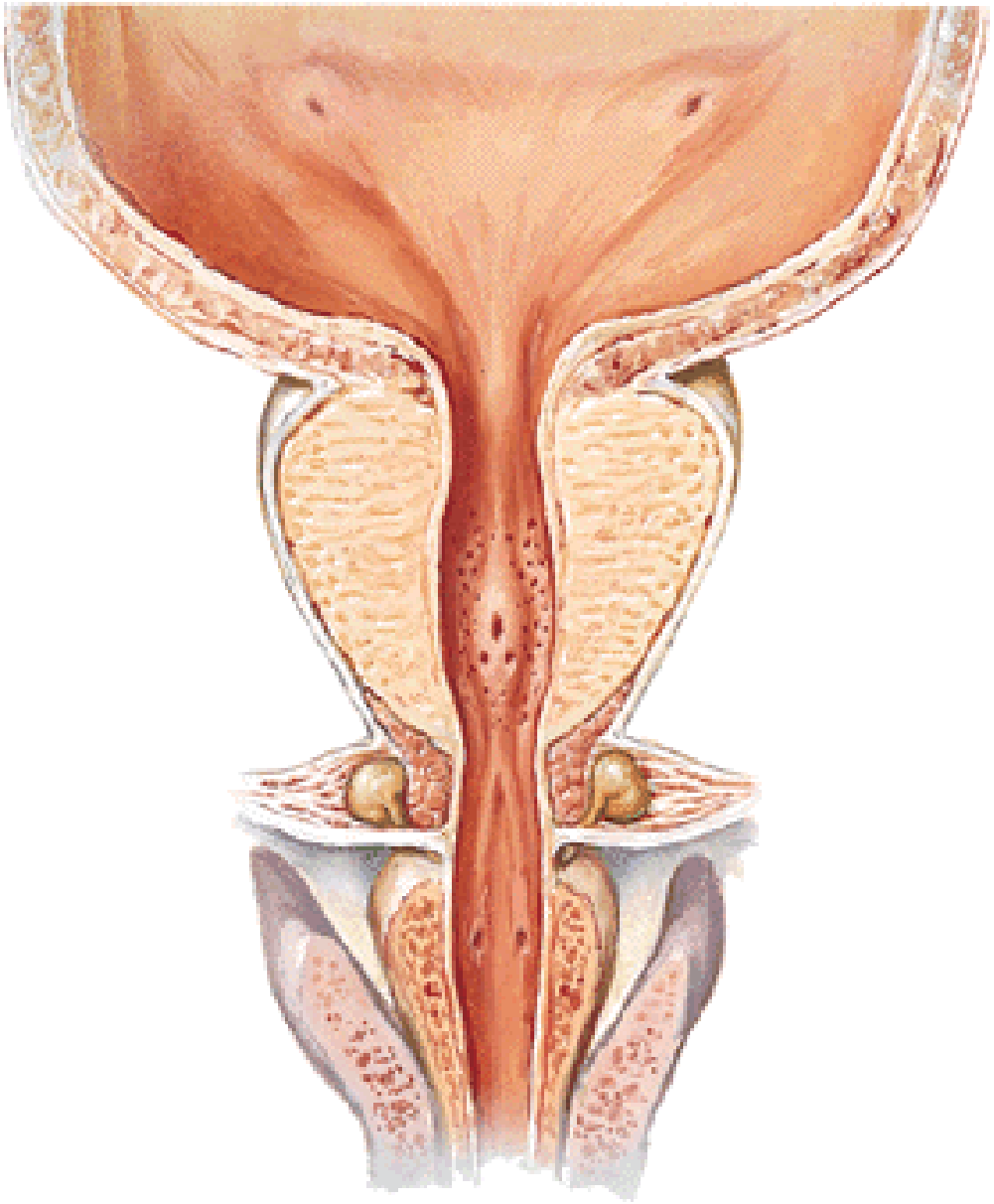
Pars spongiosa



Pars praepubica

Pars subpubica

PARS PROSTATICA URETHRAE



Crista urethralis

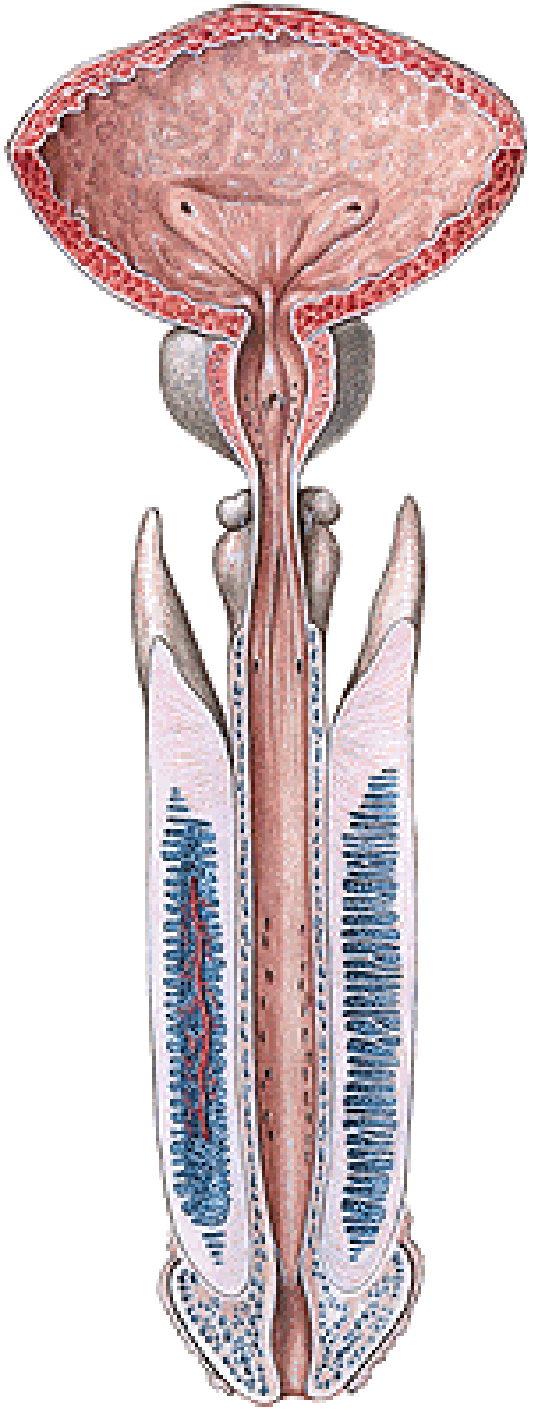
Colliculus seminalis

Utriculus prostaticus

Ductus ejaculatorii

Sinus prostaticus

Ductuli prostatici



PARS SPONGIOSA URETHRAE

Bulbus penis – ostium urethrae externum

Fossa navicularis

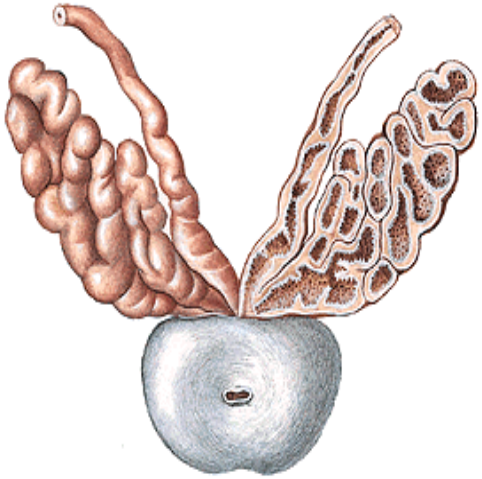
Valvula fossae navicularis

Glandulae bulbourethrales

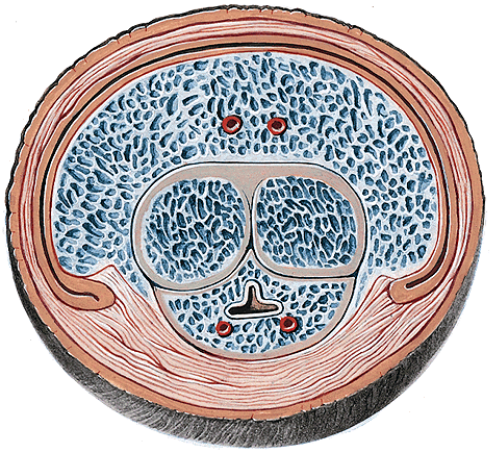
Lacunae urethrales

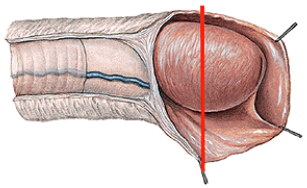
Glandulae urethrales

URETHRA MASCULINA - LUMEN

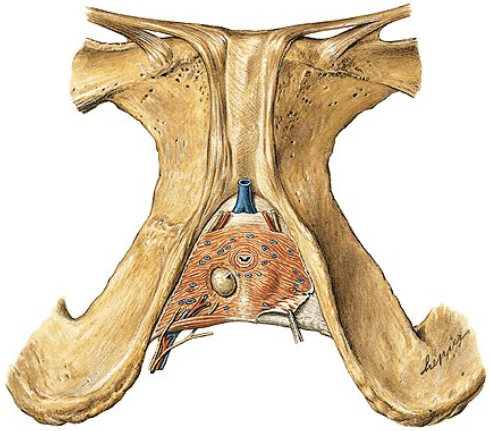


Prostata - semilunar

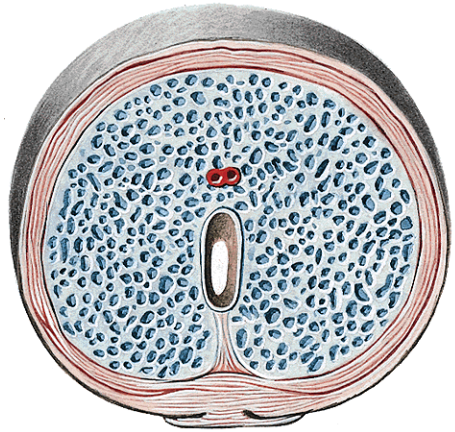


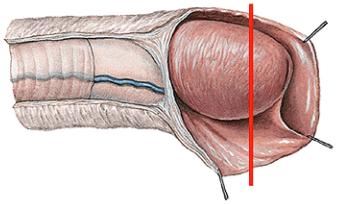


Pars spongiosa – T



Diaphragma urog. – star shape





Ostium urethrae ext. – fissure

Curvatures

Curvatura subpubica

Curvatura praepubica

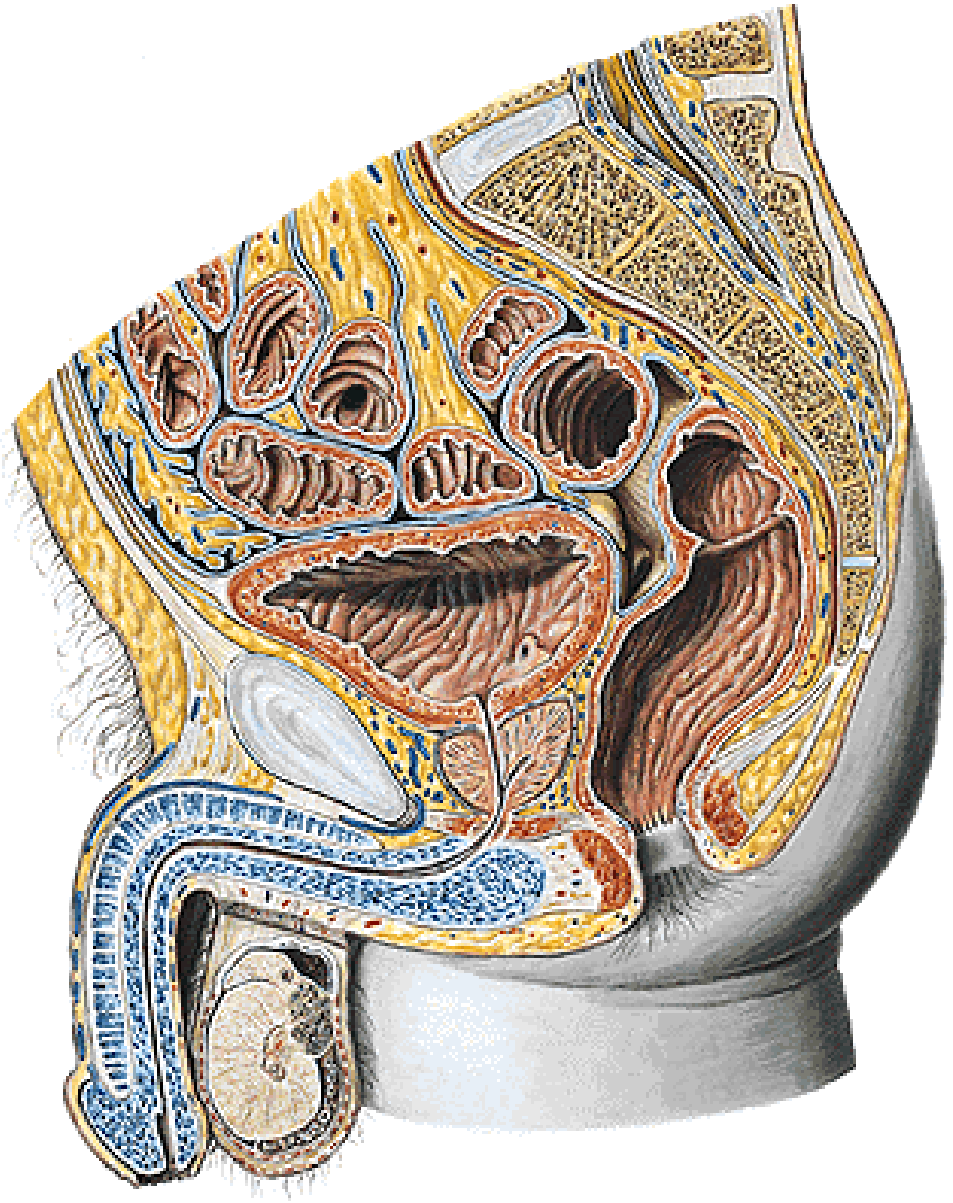
narrowings:

Ostium urethrae externum

Fossa navicularis – bulbus penis

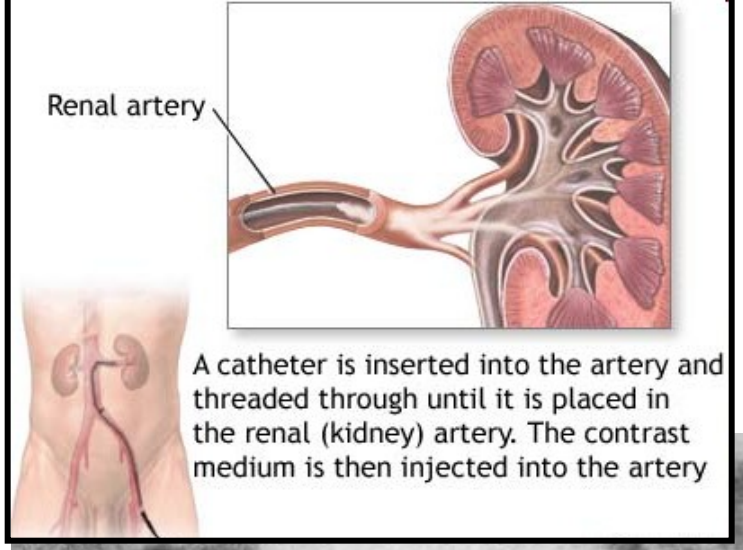
Pars membranacea

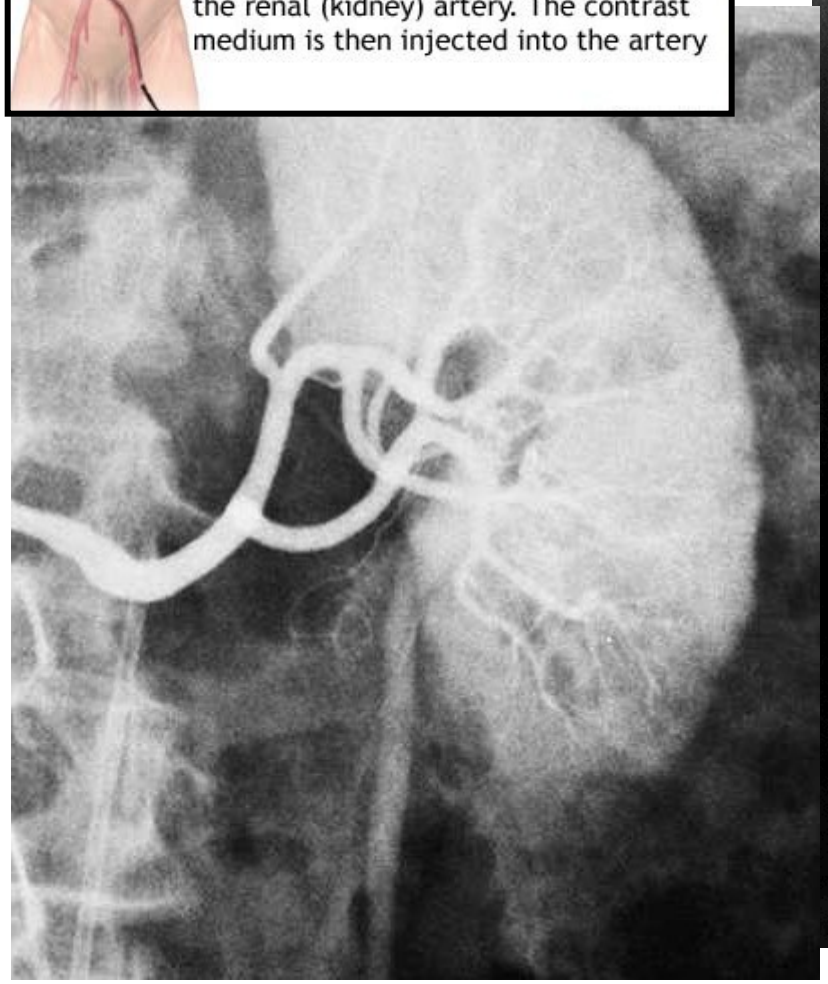
Pars inramuralis

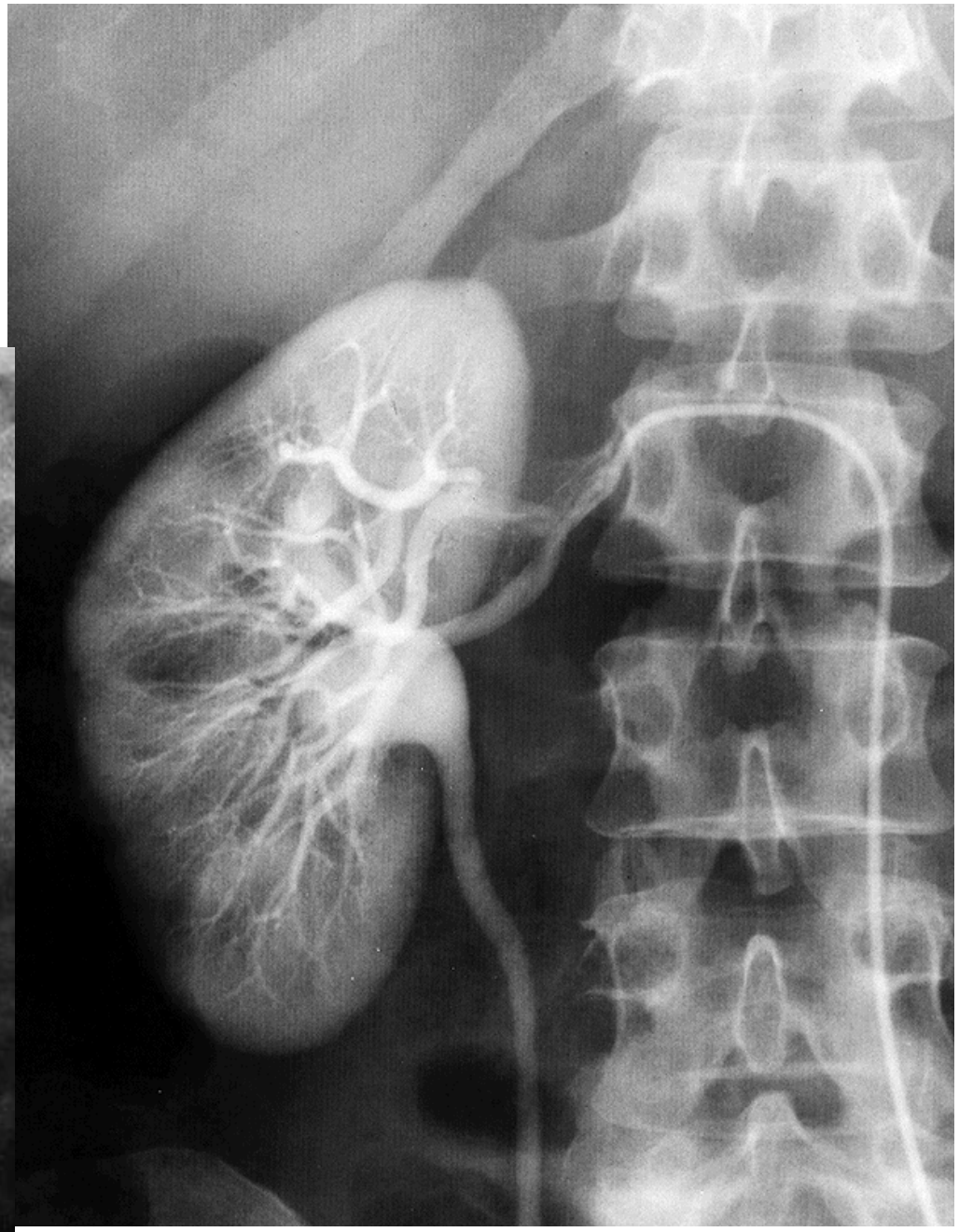


X- ray s of urinary system


IVU
urography

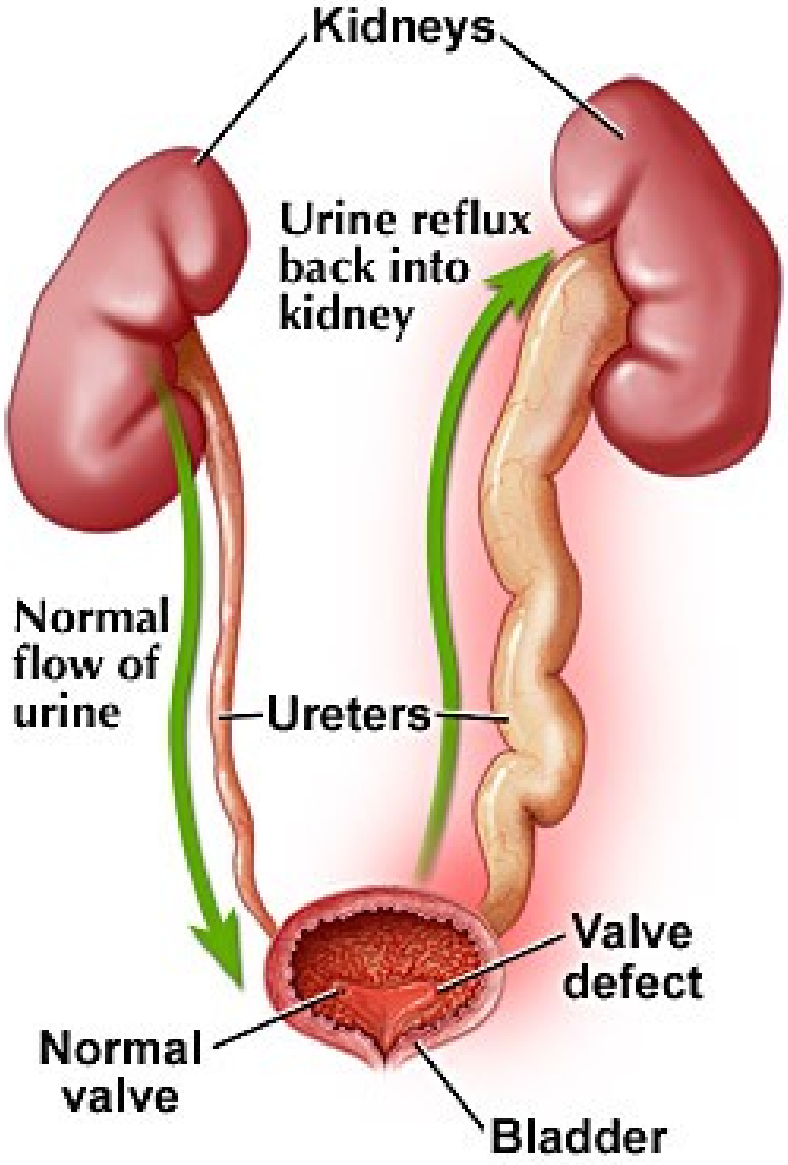

Renal artery
A catheter is inserted into the artery and threaded through until it is placed in the renal (kidney) artery. The contrast medium is then injected into the artery





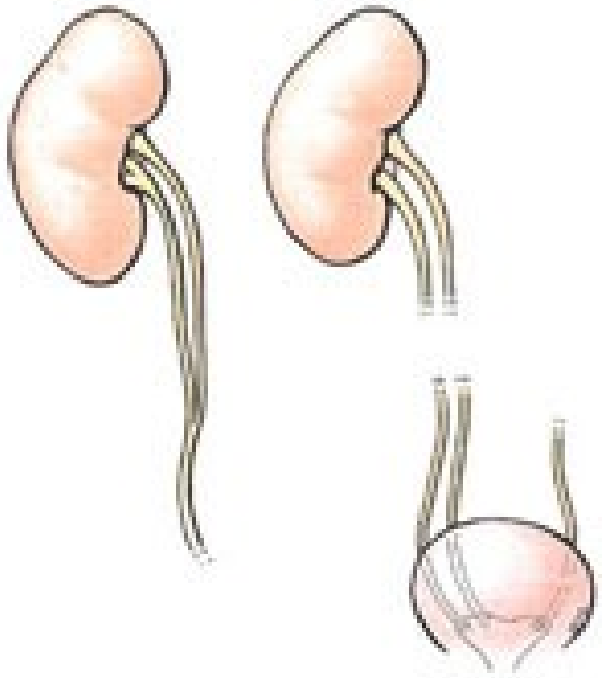
Retrograde pyelography

Vesicoureteral reflux (VUR) – voiding cystourethrogram (VCU)

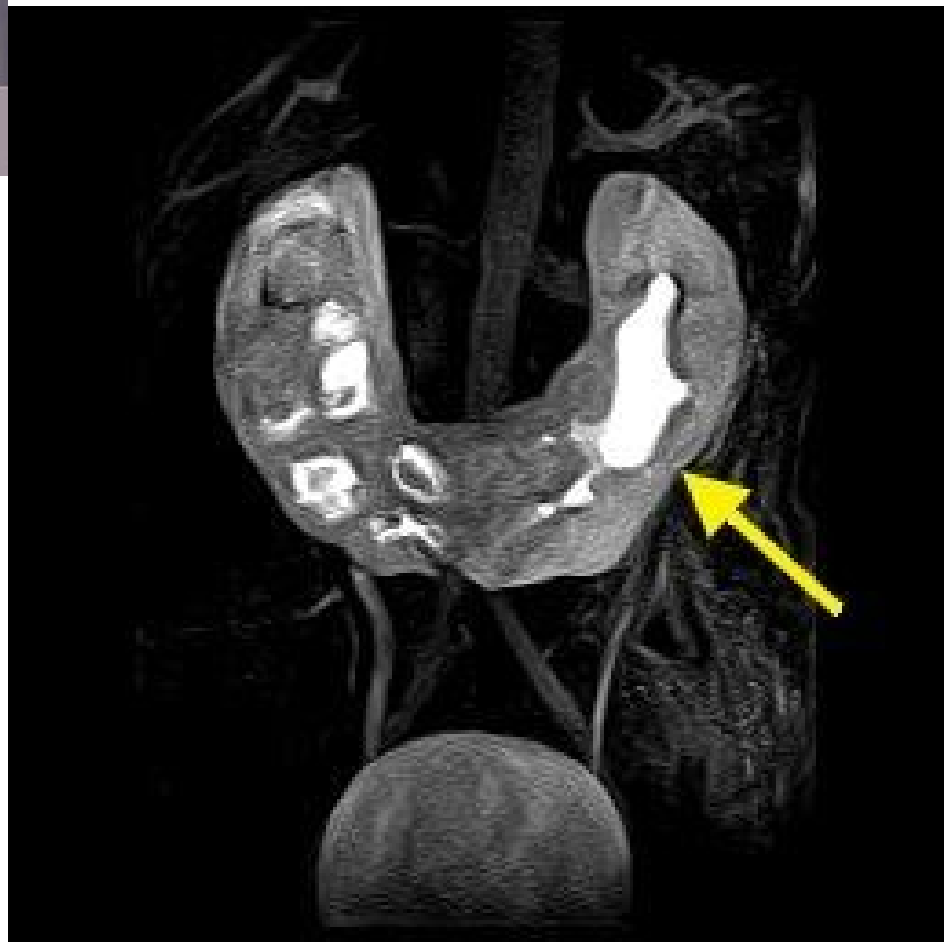


Retrocaval ureter

Ureter duplex



Horseshoe kidney



PELVIC FLOOR

DIAPHRAGMA PELVIS

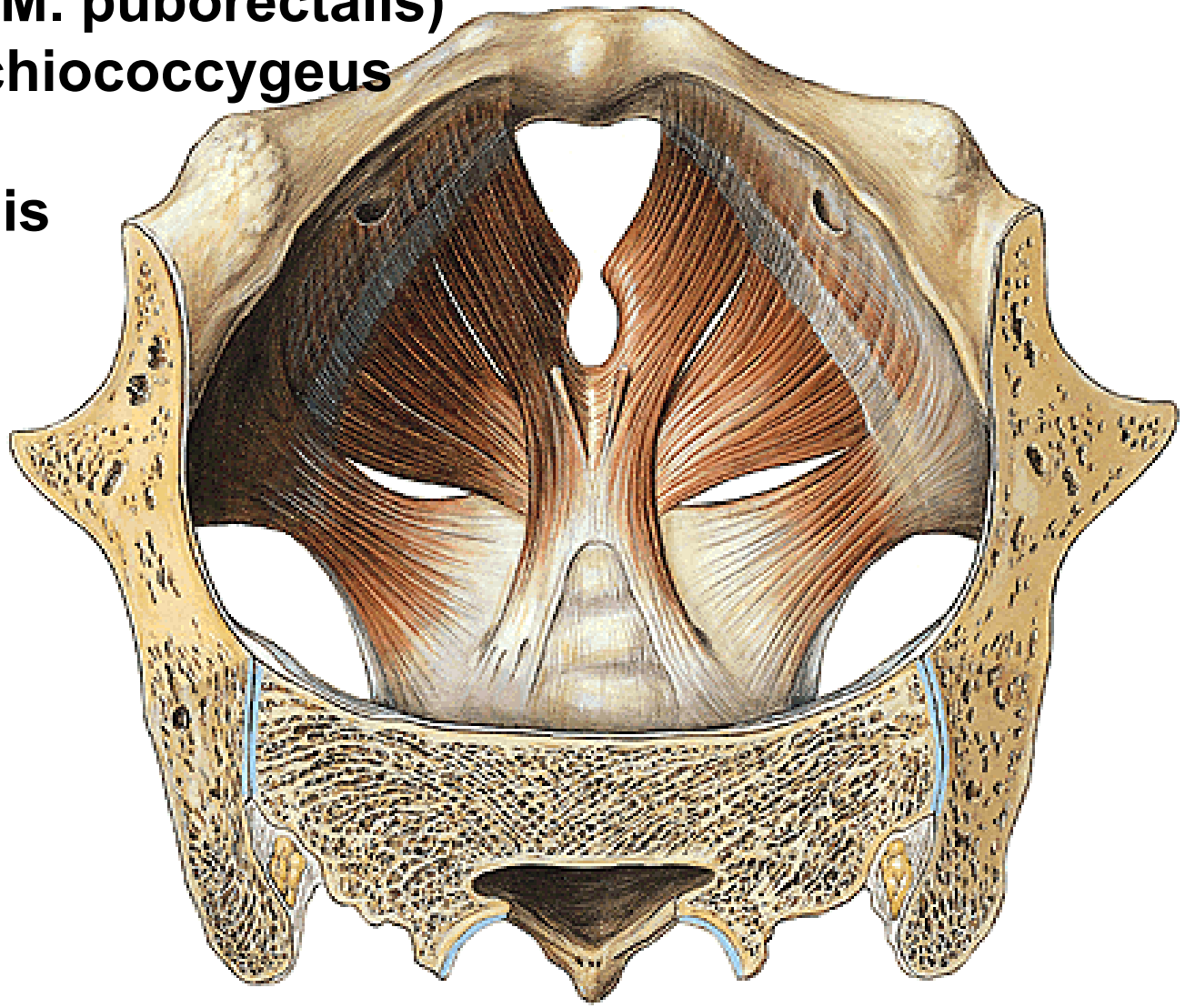
M. levator ani – pars iliaca (M. iliococcygeus)

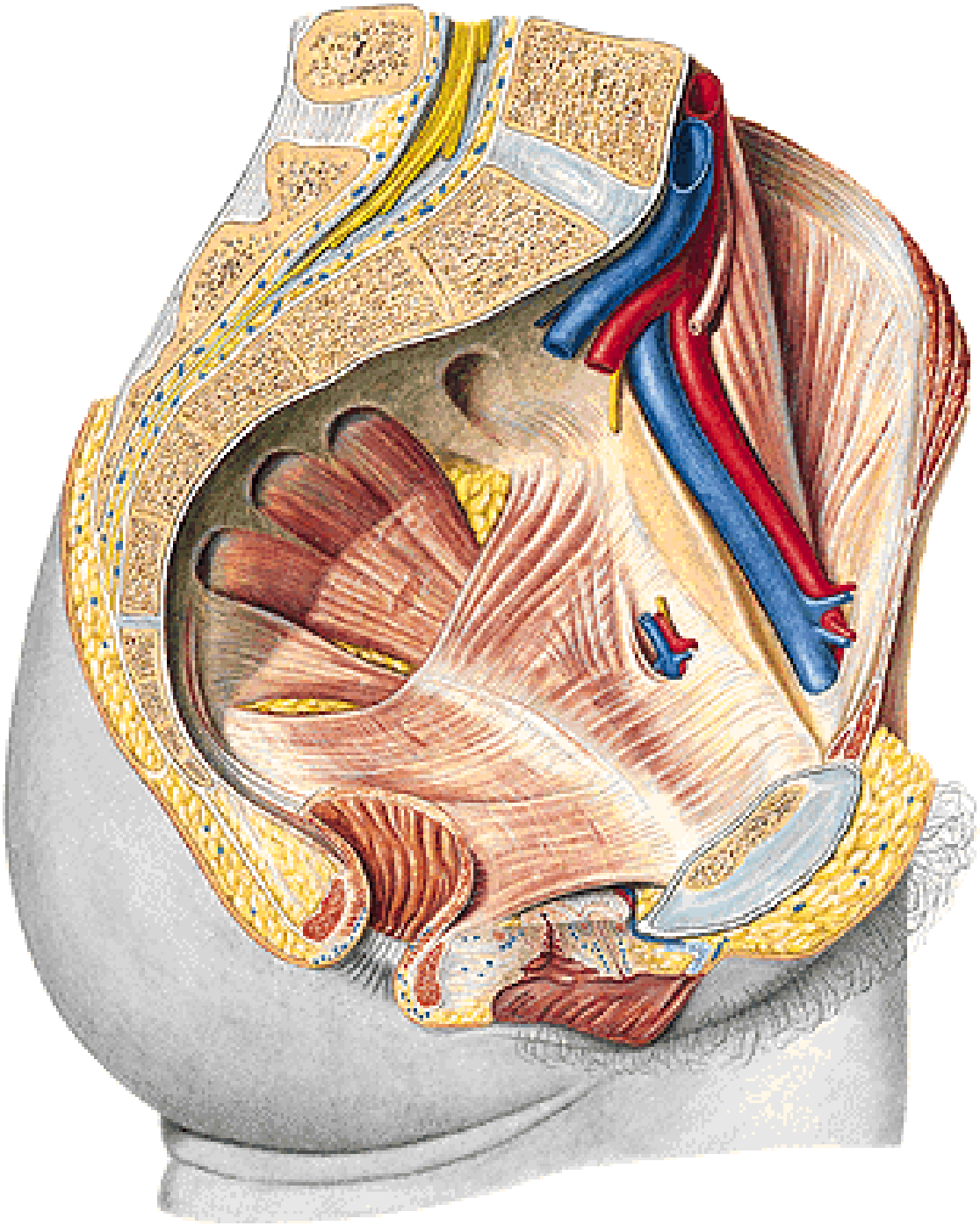
- pars pubica (M. pubococcygeus)

(- M. puborectalis)

M. coccygeus/ischiococcygeus

Hiatus urogenitalis





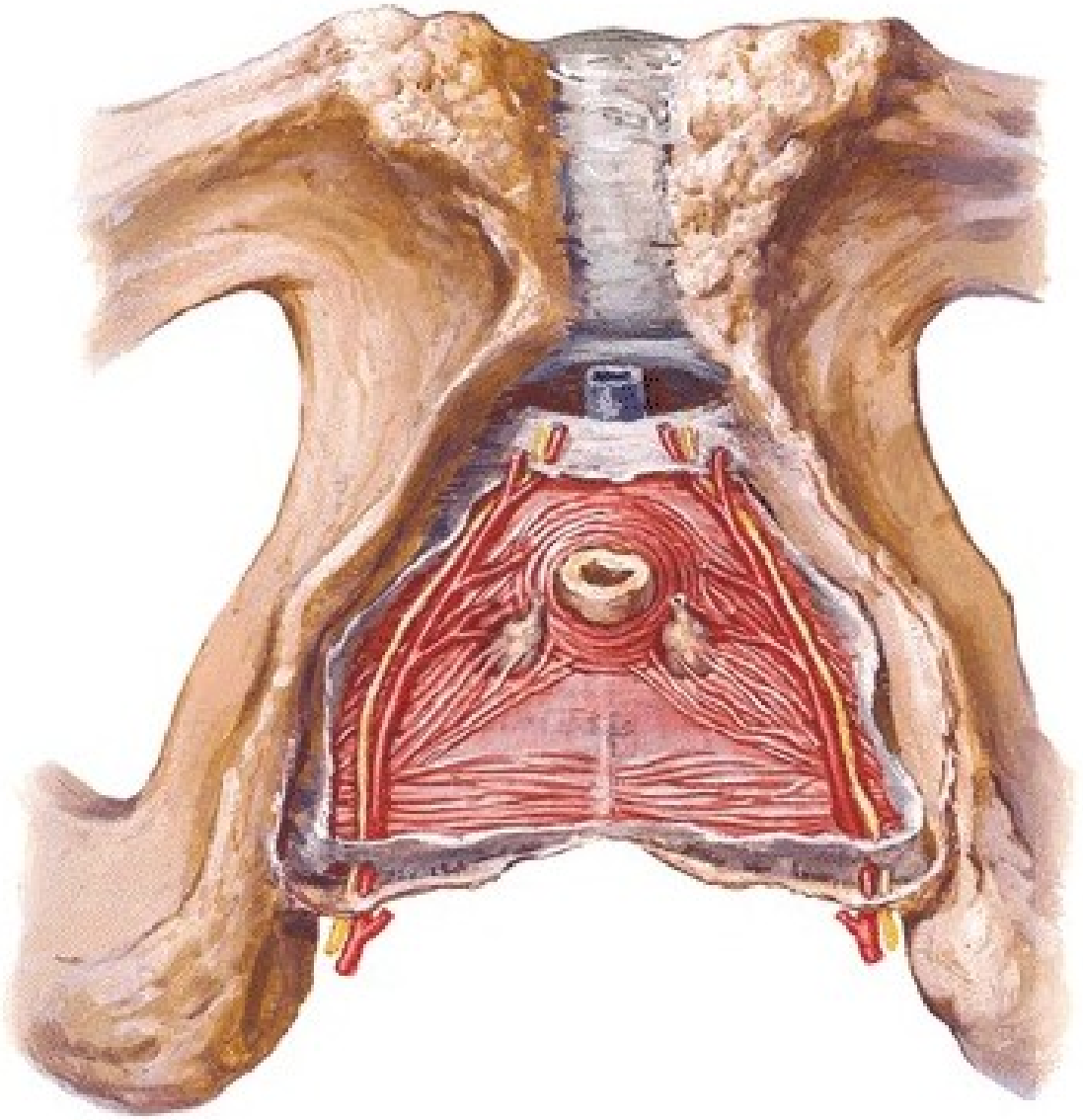
MALE DIAPHRAGMA UROGENITALE

M. transversus perinei profundus – Centrum perineale

M. sphincter urethrae

Lig. transversum perinei

Glandulae bulbourethrales



FEMALE DIAPHRAGMA UROGENITALE

M. transversus perinei profundus – centrum perineale

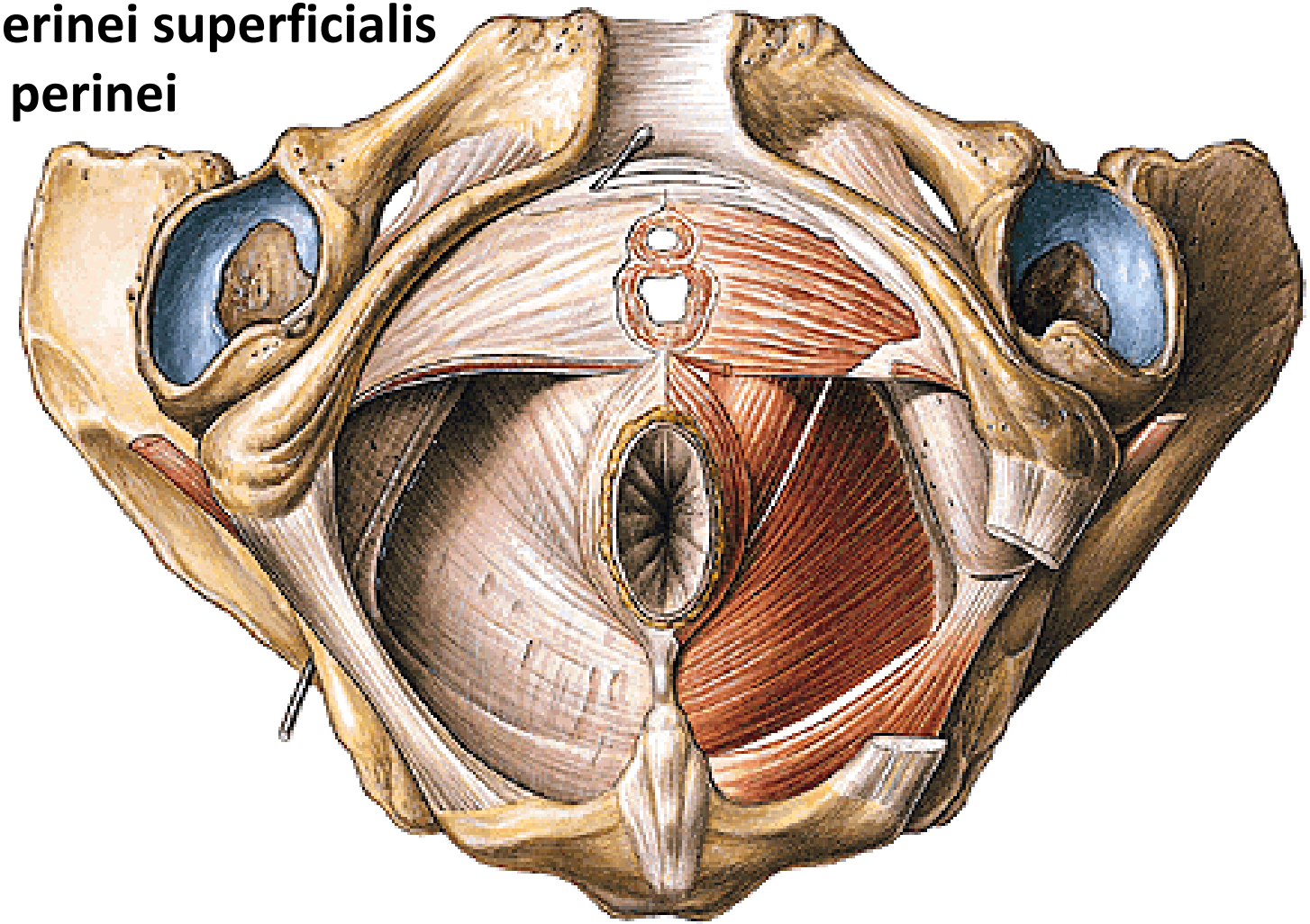
M. sphincter urethrae

M. sphincter urethrovaginalis

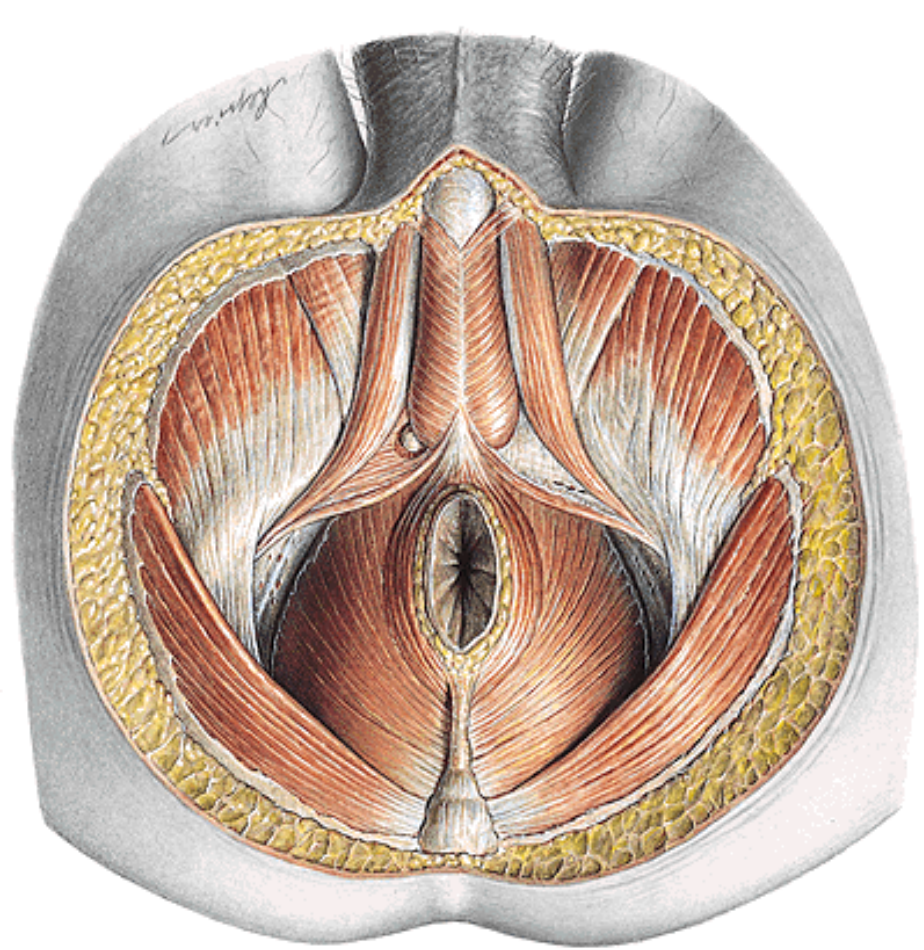
M. compressor urethrae

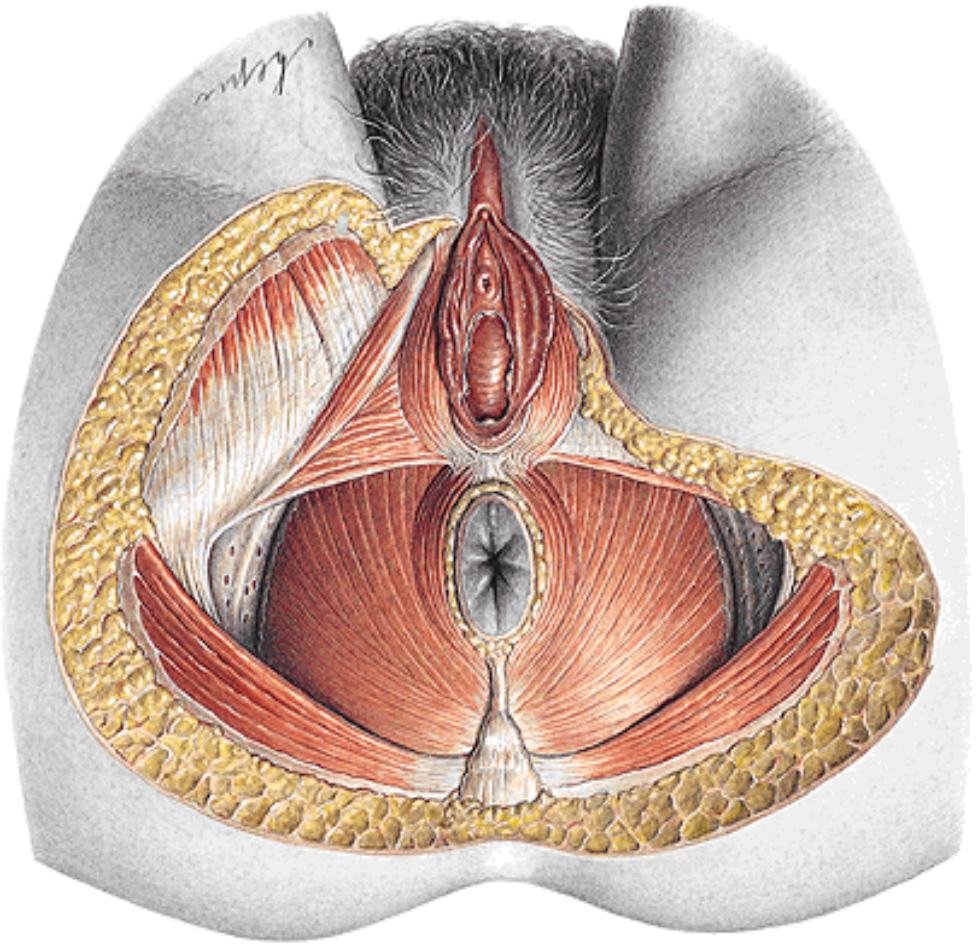
M. transversus perinei superficialis

Lig. transversum perinei



M. ischiocavernosus
M. bulbospongiosus (M. constrictor cunni)
M. sphincter ani externus
Lig. anococcygeum





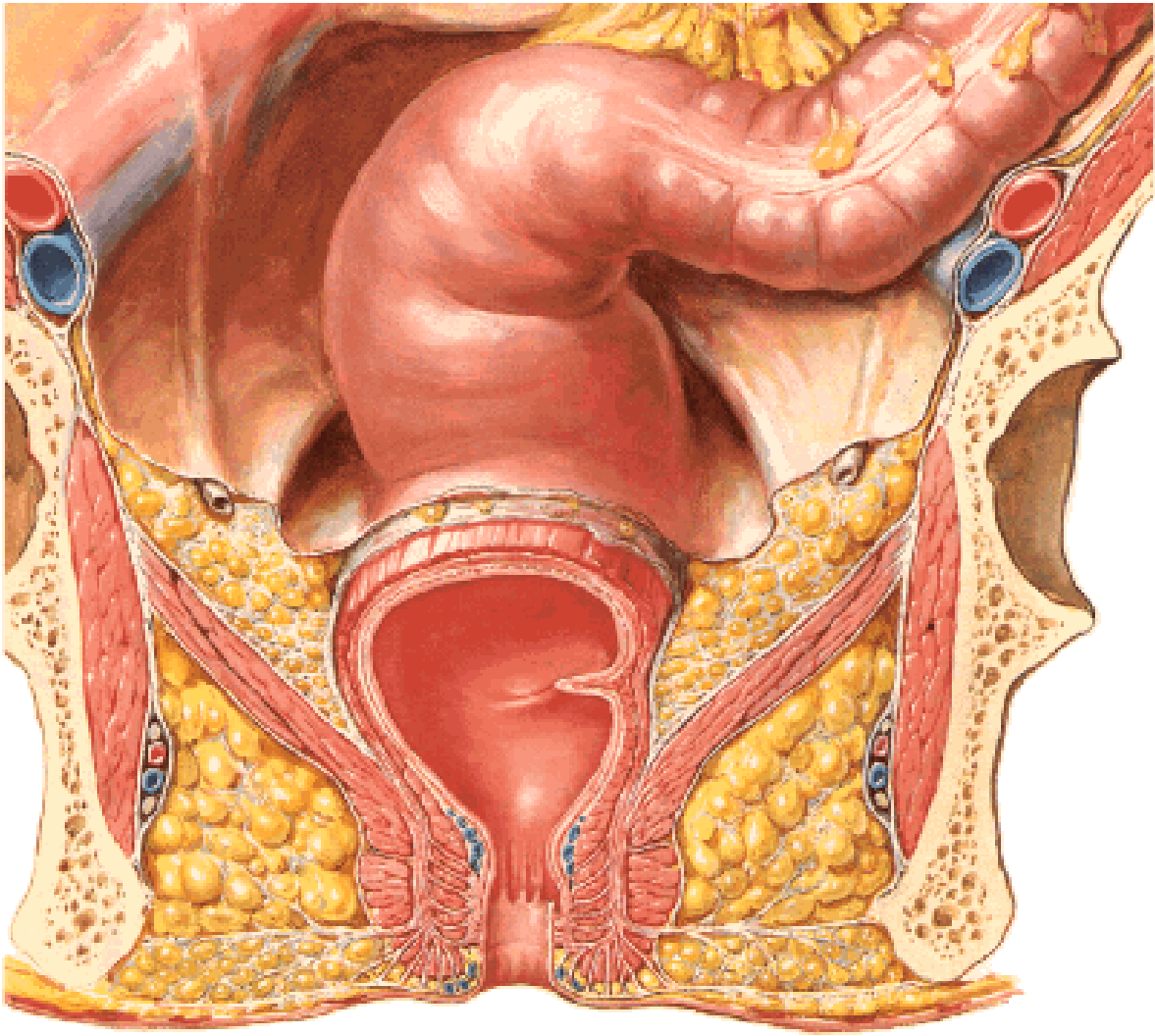
FOSSA ISCHIORECTALIS

Mediocranially:
- **diaphragma pelvis**

Laterally:
- **m. obturatorius int.**
- **fascia obturatoria**
- **(canalis pudendalis)**

Ventrally:
- **recessus pubicus**

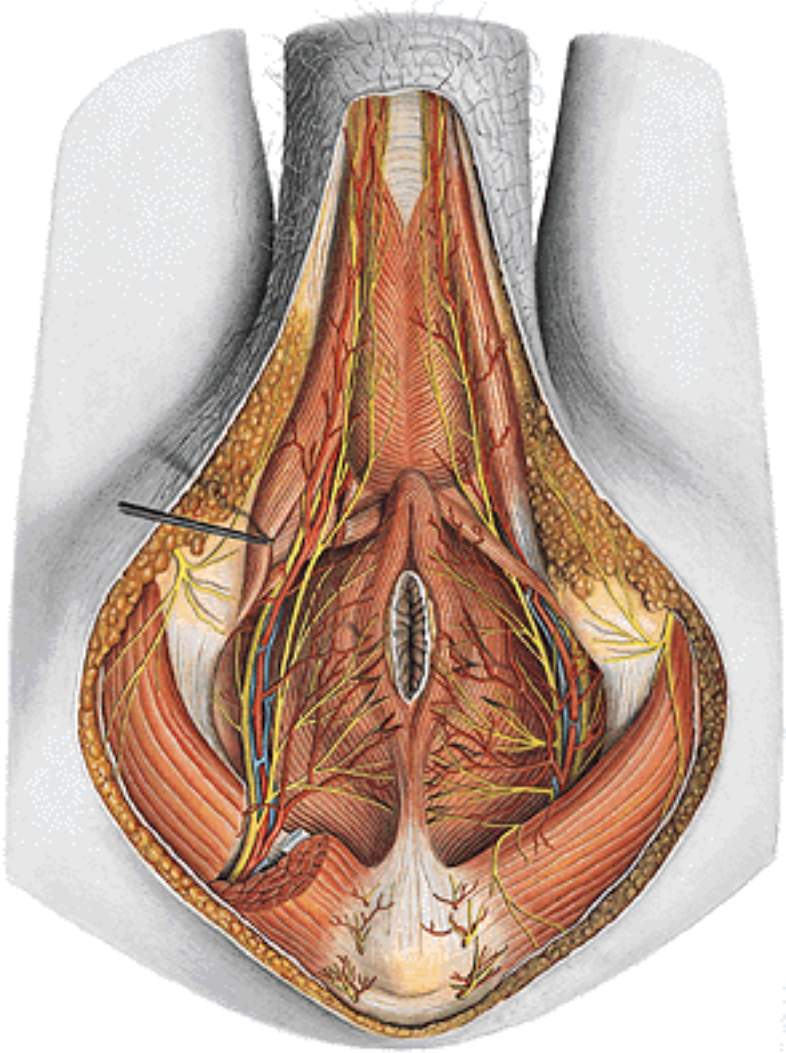
Dorsally:
- **m. glutaeus maximus**

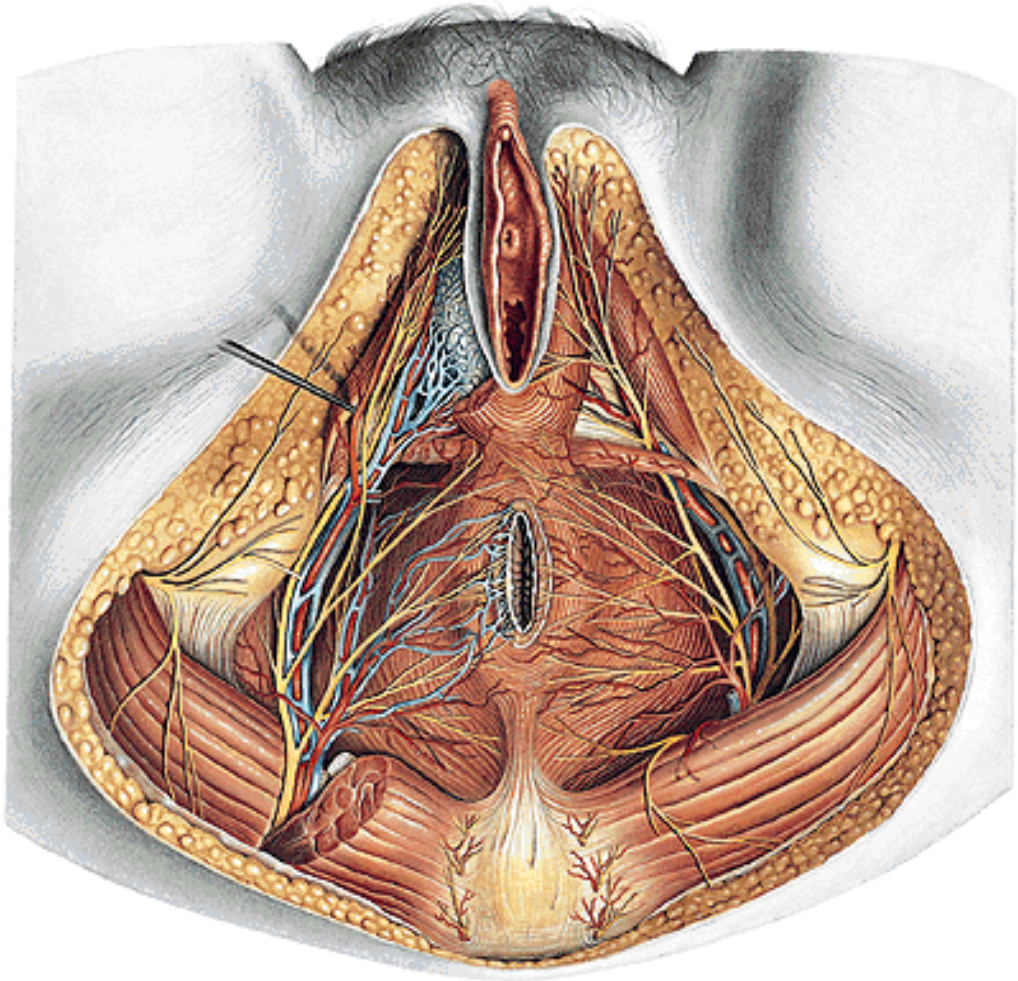


FOSSA ISCHIORECTALIS – recessus pubicus

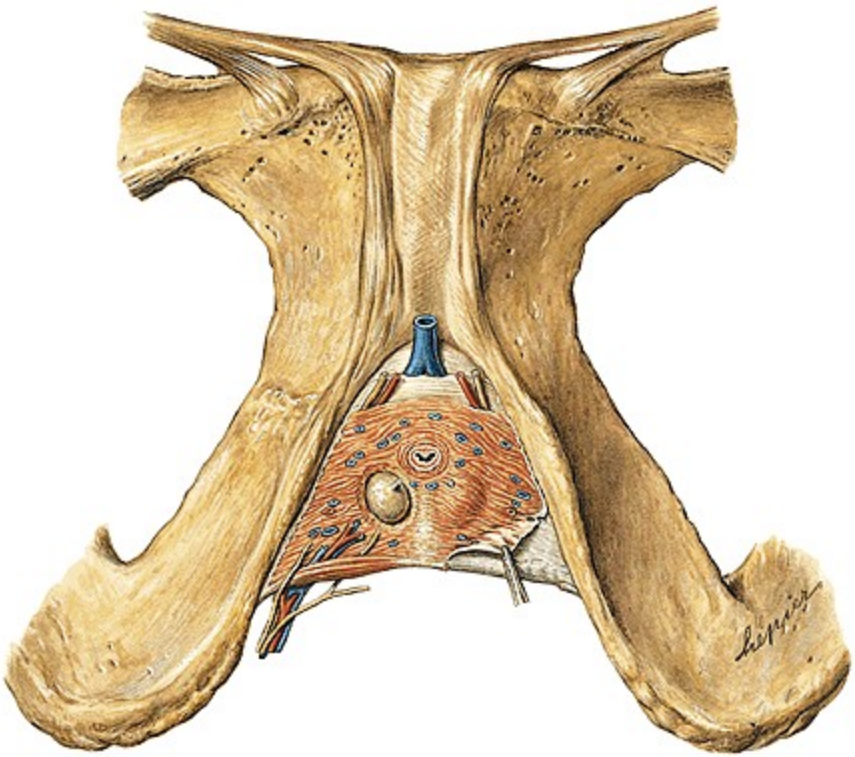
a. et v. pudenda interna, n. pudendus – canalis pudendalis -

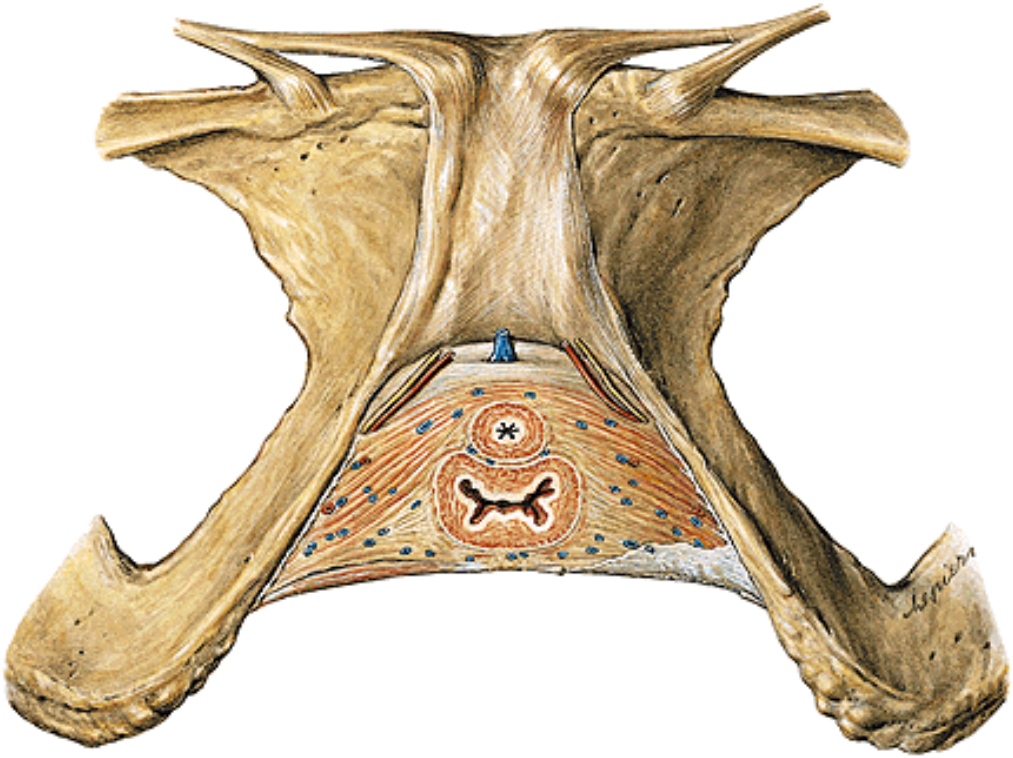
aa., vv. et nn. rectales inf.





A. dorsalis penis (clitoridis)
N. dorsalis penis (clitoridis)
V. dorsalis penis (clitoridis) profunda
A.,v. et n. perinealis
Gl. bulbourethralis





Fascia obturatoria
Canalis pudendalis (Alcock)
Fascia diaphragmatis pelvis sup.
Fascia diaphragmatis pelvis inf.
Fossa ischiorectalis

Illustrations were copied from:

Atlas der Anatomie des Menschen/Sobotta. Putz,R., und Pabst,R. 20. Auflage. München: Urban & Schwarzenberg, 1993)

Netter: Interactive Atlas of Human Anatomy. Windows Version 2.0

Čihák R: Anatomie 2 (Splanchnologia). Avicenum, zdravotnické nakladatelství, Praha, 1988.