Notions de radiologie abdominale

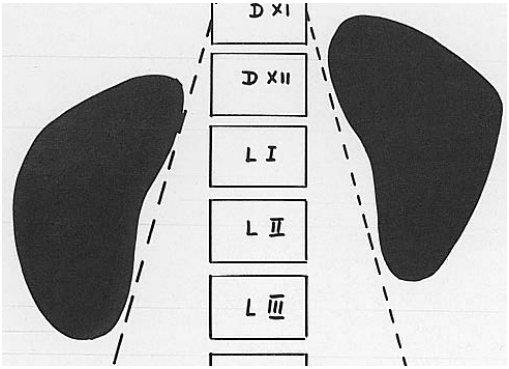
Bac 13

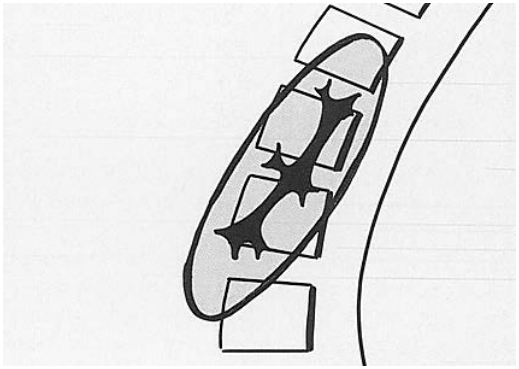
Voies urinaires

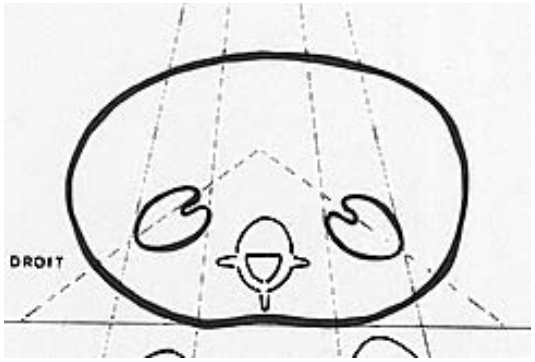
- Radiologie
  - Sans contraste
  - Par voie prograde
  - Par voie rétrograde
- Echographie
  - Transcutanée
  - Par voie endocavitaire
- Scanner
  - Sans ou avec injection IV d'iode
- IRM

Reins

- Situés dans la région lombaire D12-L2
- Diamètres : 12 x 6 x 3 cm
- Triple obliquité
- Rein gauche est situé plus haut que le droit
- Empreinte splénique sur le contour supéro-externe du rein gauche





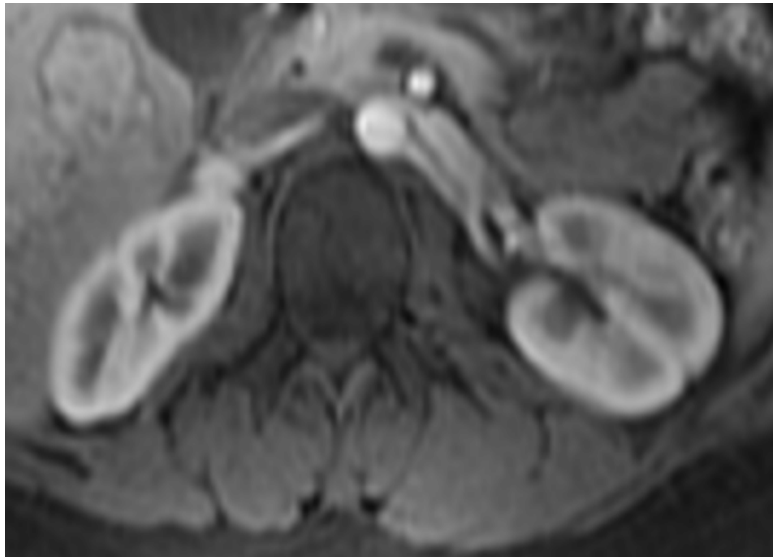


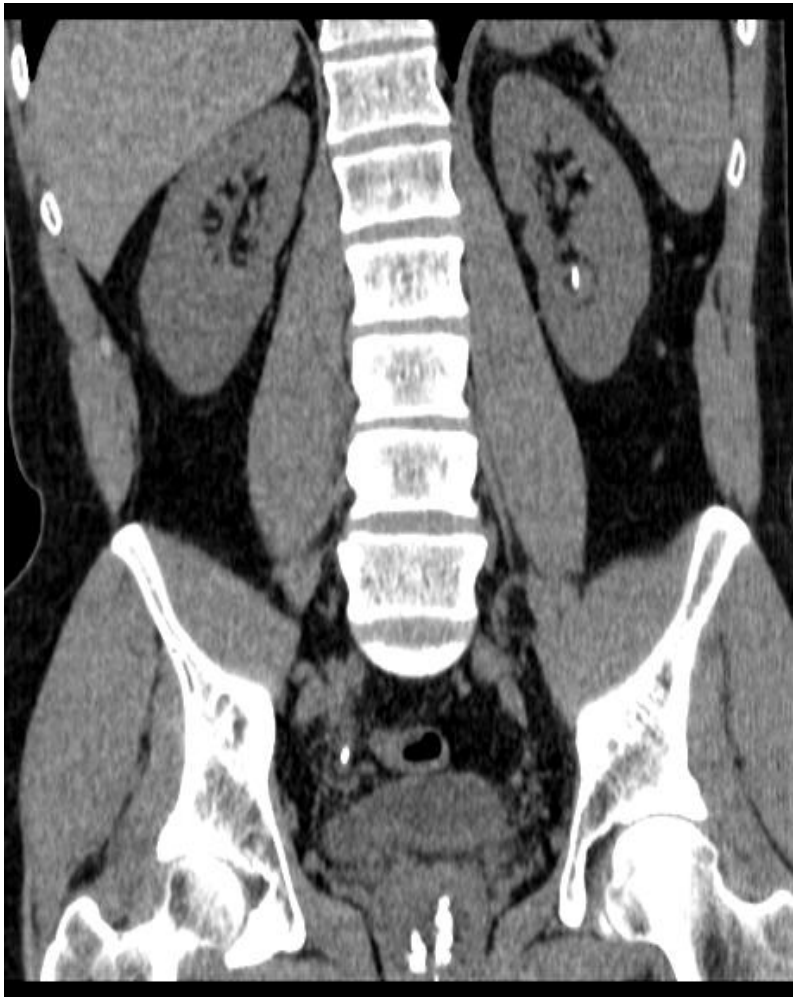
Rappel anatomique

Reins : Organes rétropéritonéaux

Hauteur 12 cm

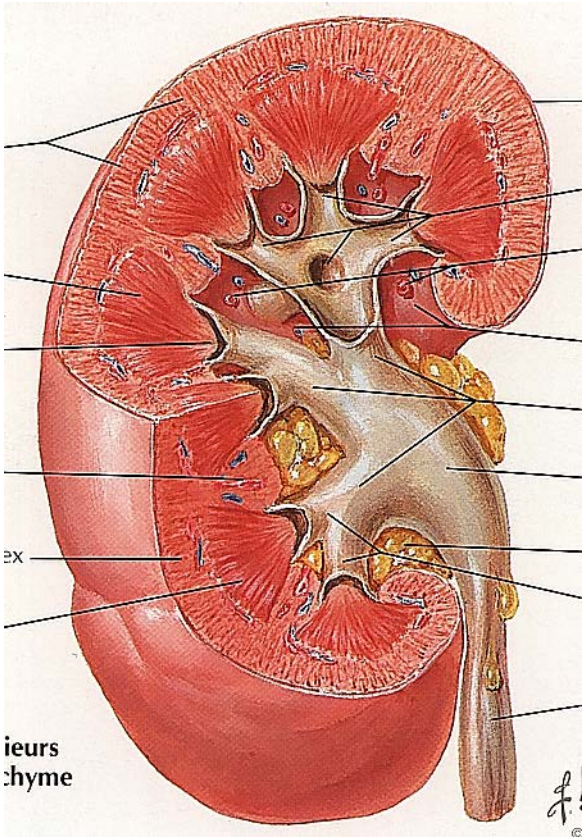
Triple obliquité





Structure interne des reins

- Cortex : périphérie et colonnes de Bertin
- Médullaire : pyramides de Malpighi
- Papille : partie interne des pyramides faisant protrusion dans le sinus
- Lobe : pyramide et cortex adjacent



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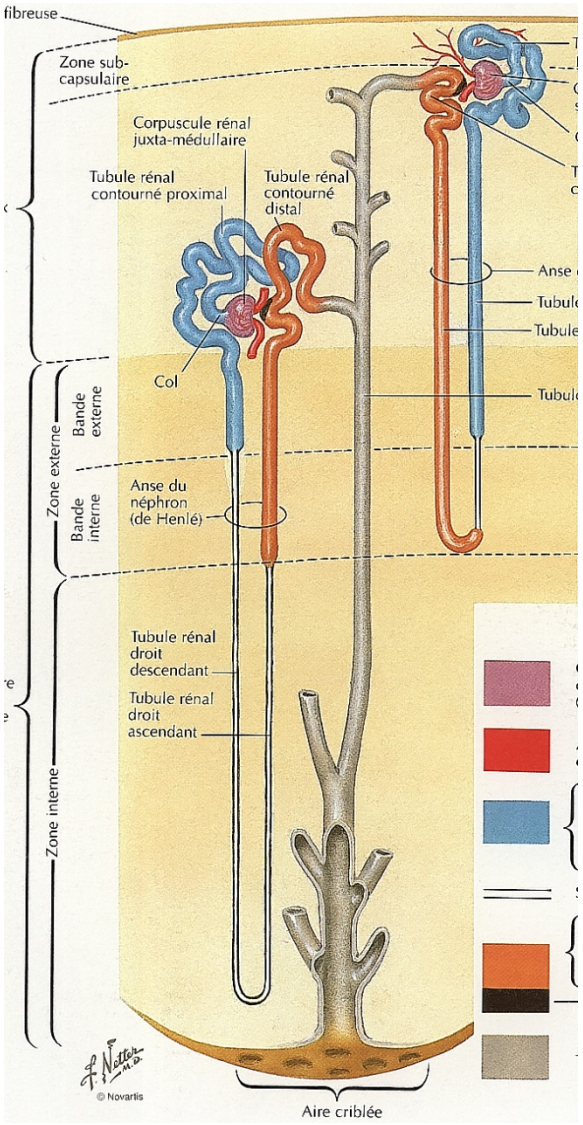
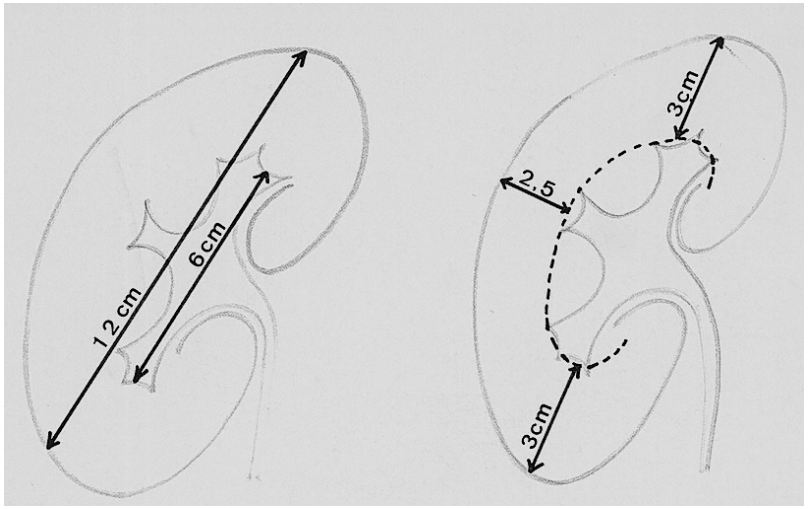
Néphron

- Cortex
  - Corpuscule
    - Glomérule
    - Capsule de Bowman
  - Tubes contournés proximal et distal
- Médullaire
  - Anse du néphron (anse de Henlé)
  - Tube collecteur



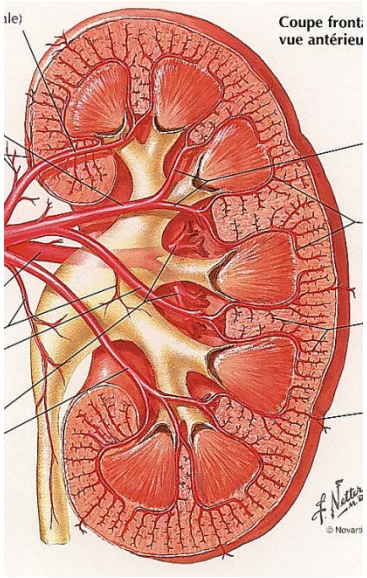
In Netter, Atlas d'anatomie humaine, 4ème édition, 2007

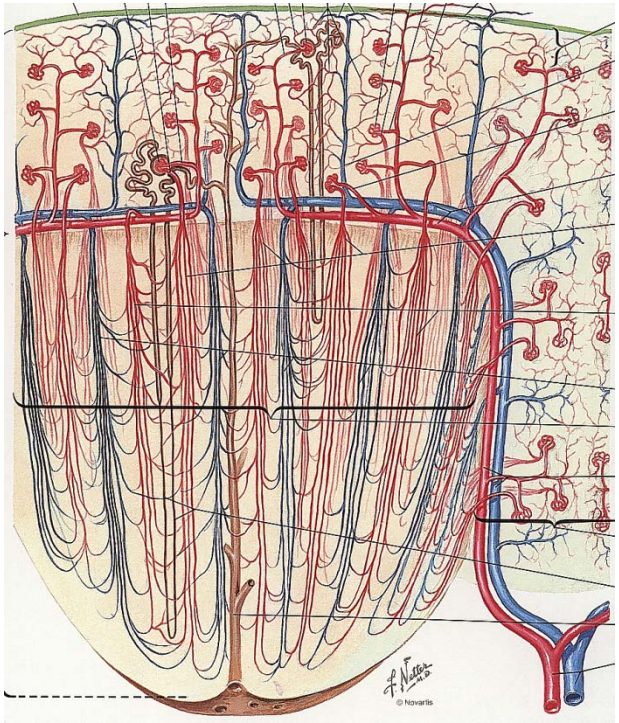
- Sinus
  - Veine rénale
  - Artère rénale
  - Cavités pyélocalicielles
  - Calices mineurs
  - Calices majeurs ou tiges calicielles
  - Bassinet
- Calices mineurs sont situés à une distance plus ou moins constante du contour latéral du rein (2.5 cm et 3 cm au niveau des pôles) : ligne de Hodson



Vascularisation artérielle rénale

- Artère rénale venant de l'aorte
- Artère rénale surnuméraire dans 30% des cas
- Artères pré et rétropyélique
- Artères segmentaires
- Artères interlobaires
- Artères arquées : jonction cortico-médullaire
- Artères interlobulaires
- Artères afférentes
- Glomérules
- Artères efférentes
- Vaisseaux droits





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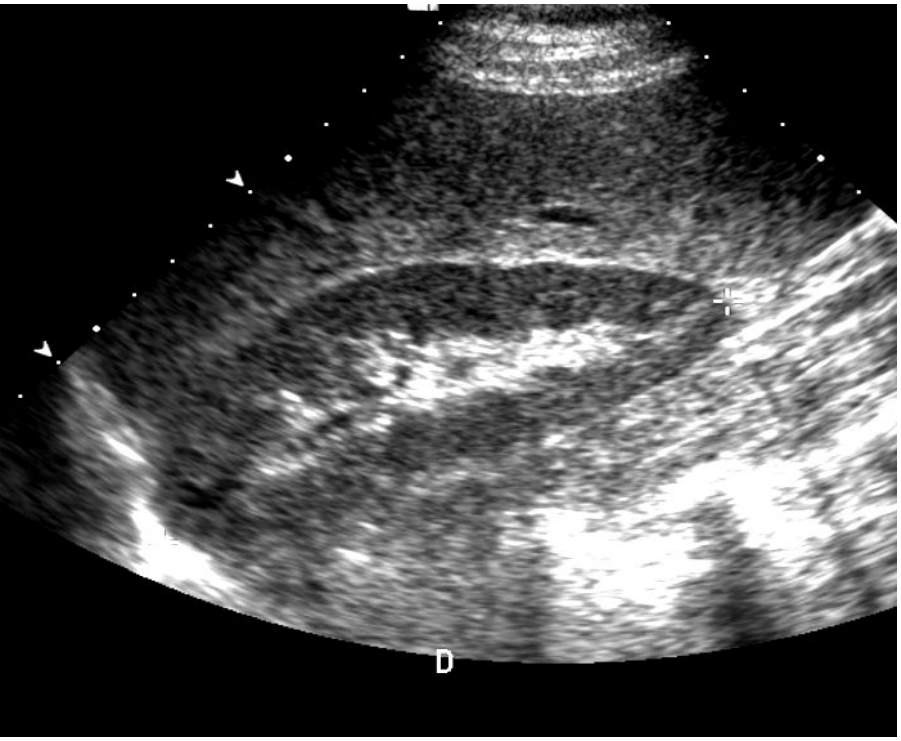
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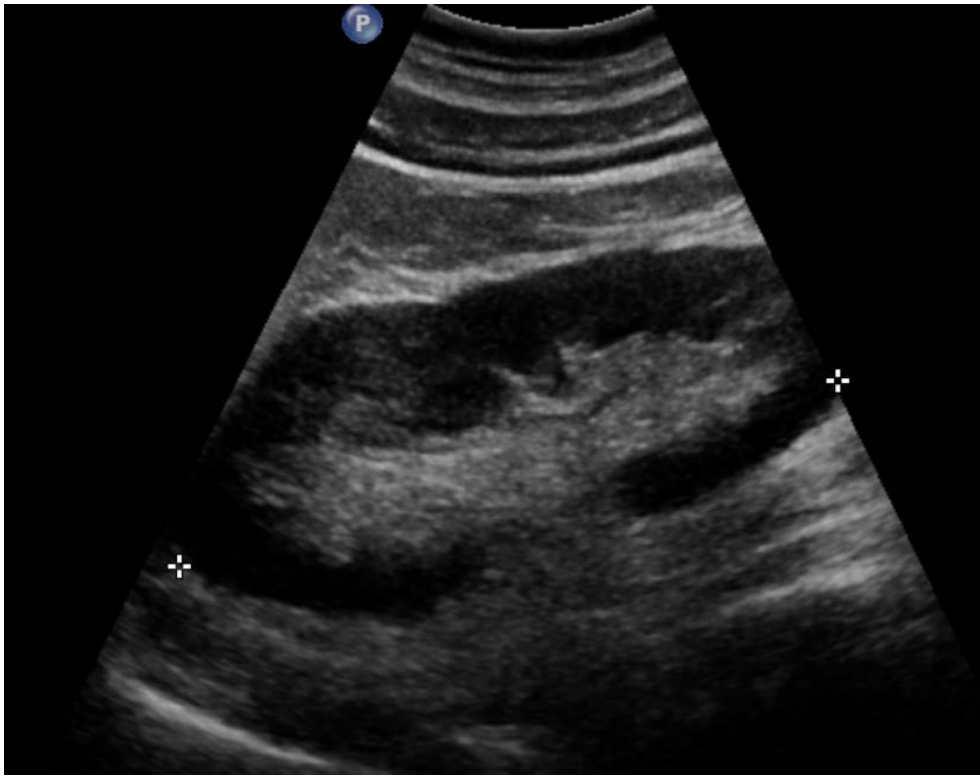
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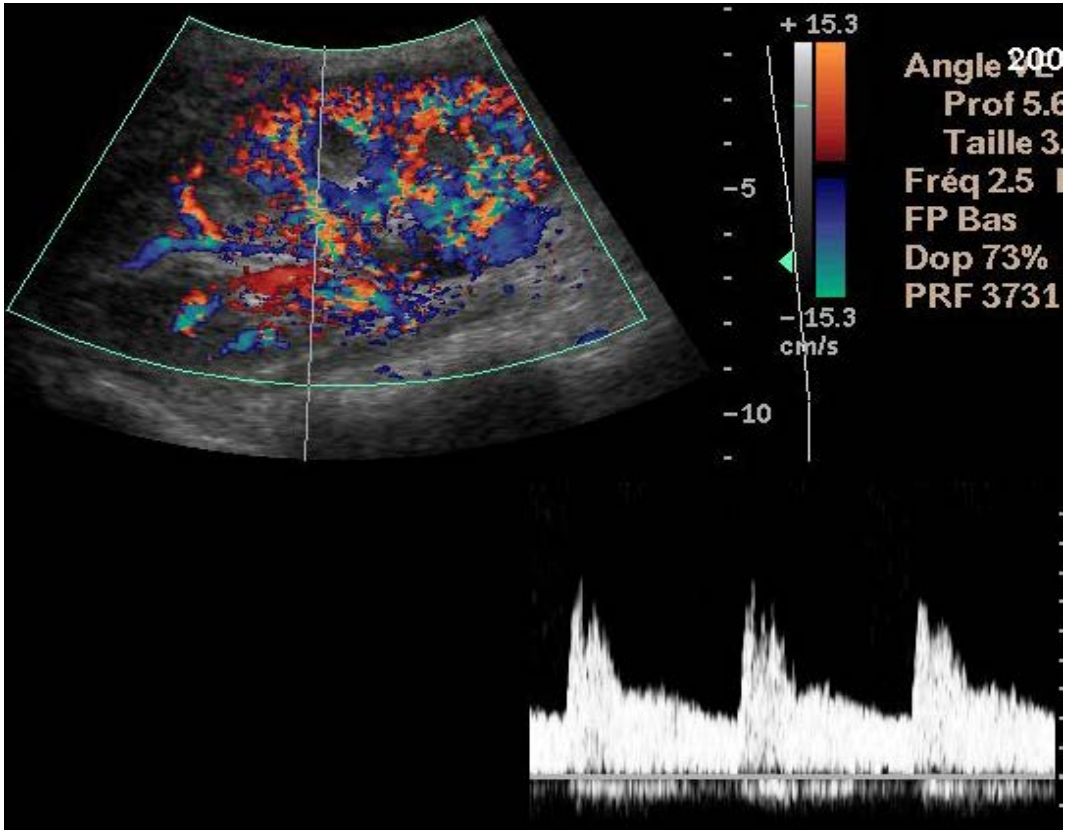
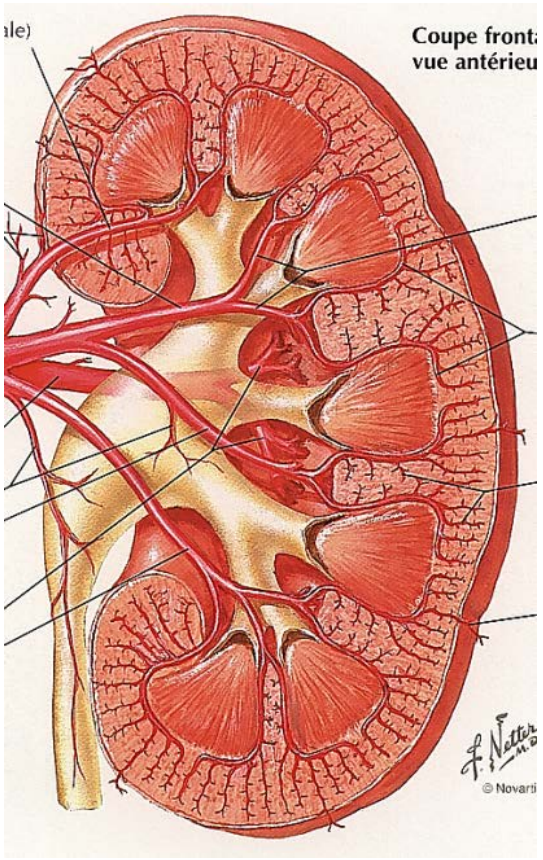
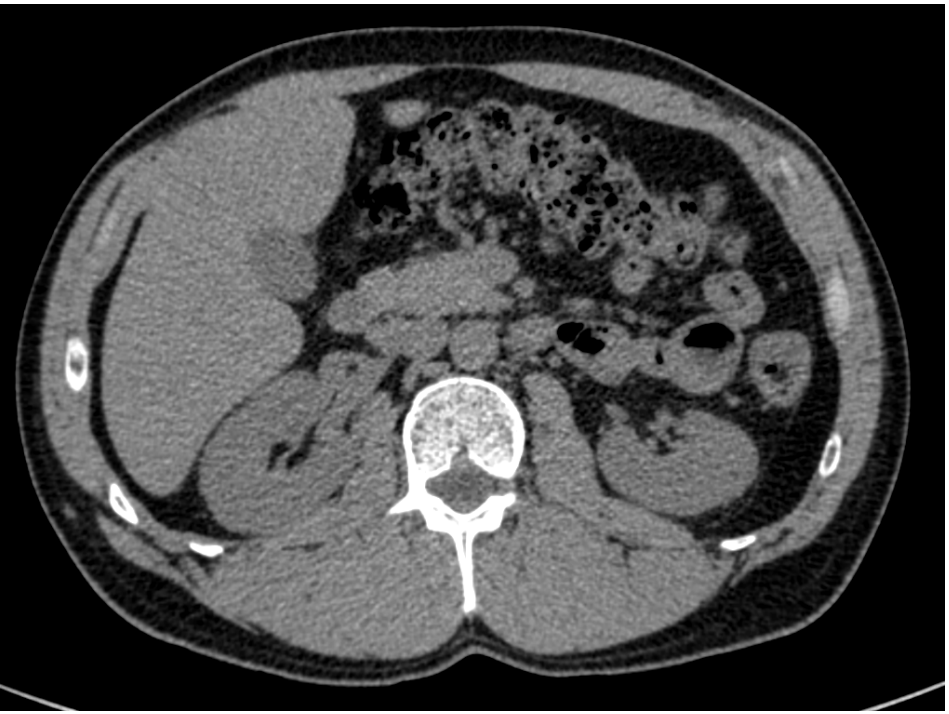
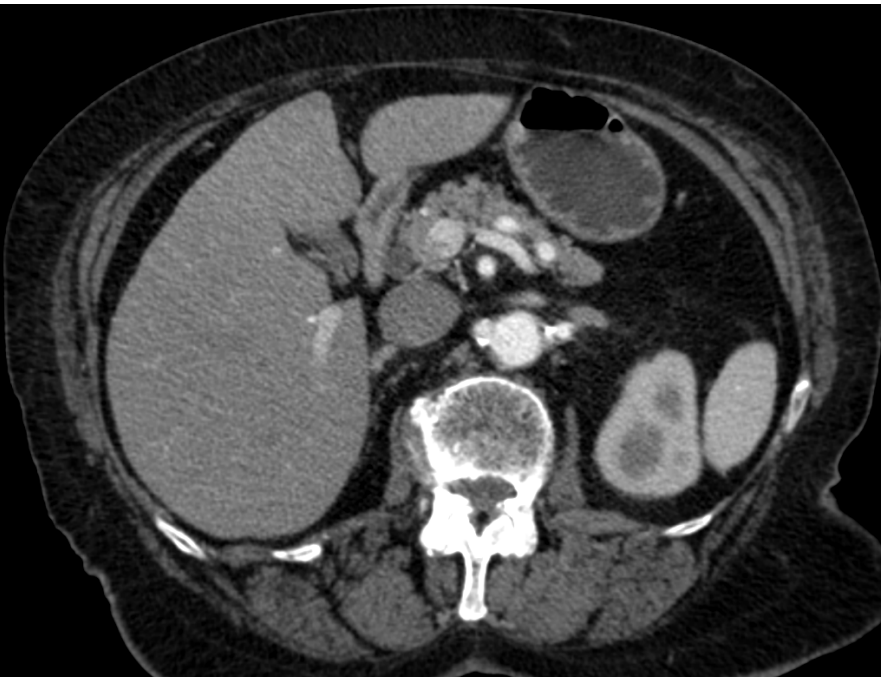
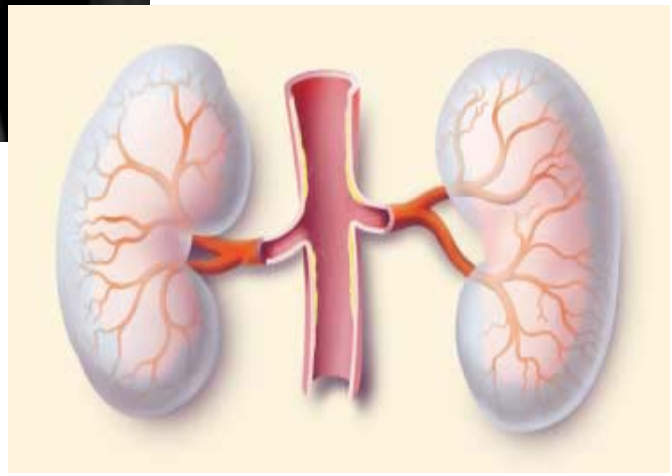

+ 15.3
−15.3
cm/s
−5
−10
Prof 5.6
Fréq 2.5
FP Bas
Dop 73%
PRF 3731


Coupe front
vue antérieu

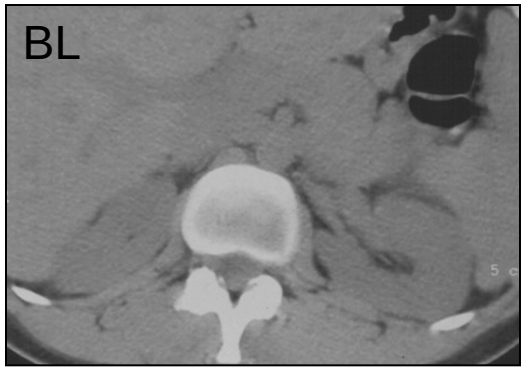


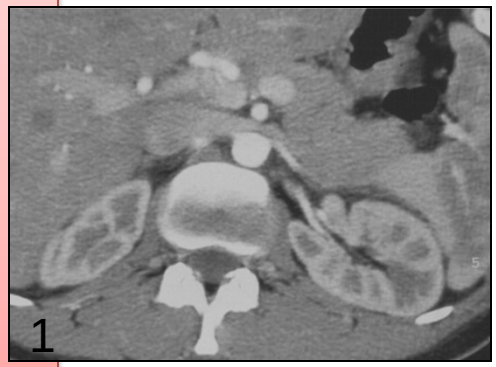


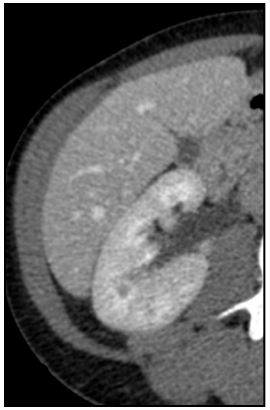


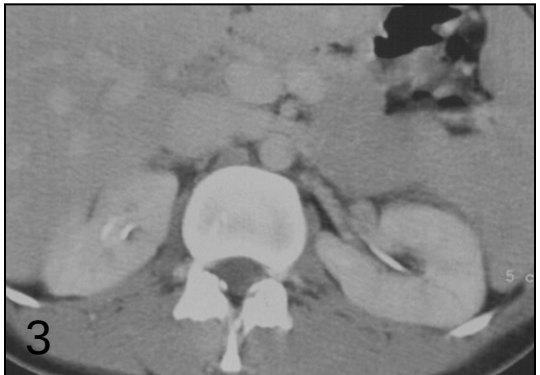
CT-scanner (tomodensitométrie)

1. Phase de néphrographie vasculaire et corticale : 15 - 90 s
2. Phase de néphrographie tubulaire : 30 s – 10 min
   - Optimum : 90 – 150 s
3. Phase urinaire : après 3 min
   - Opacification des cavités pyélocalicielles





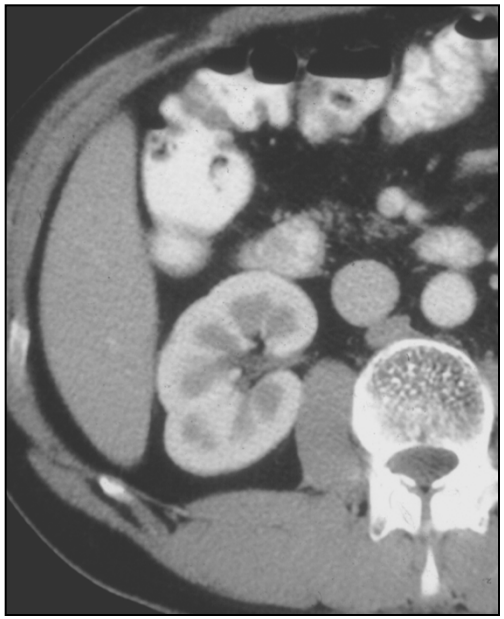


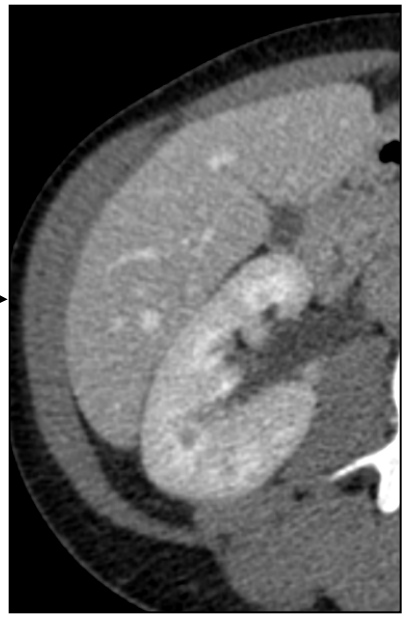


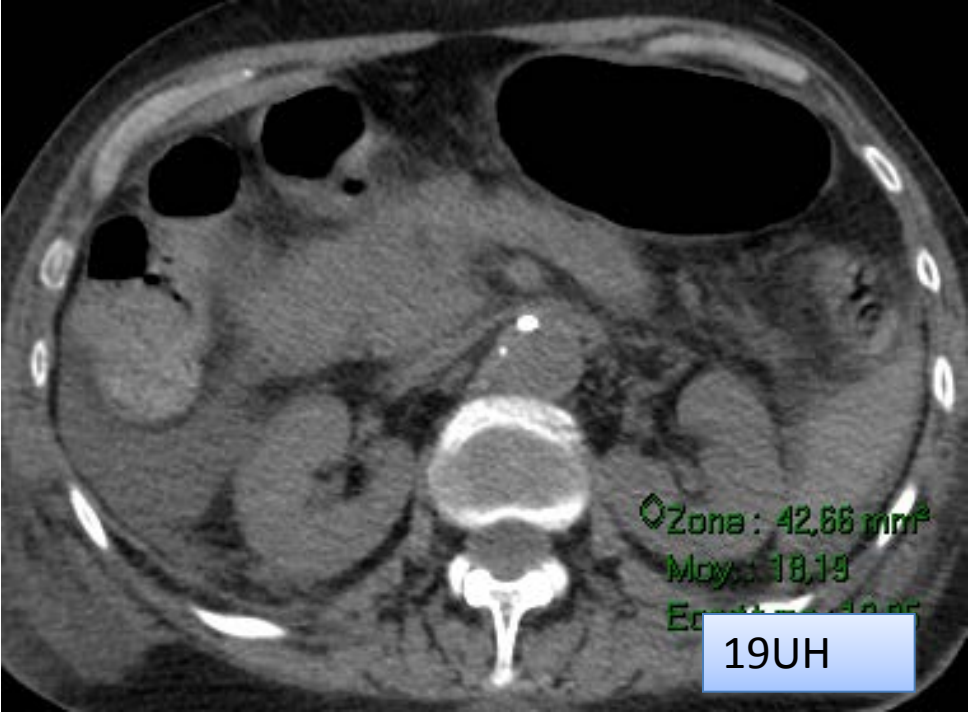
Néphrographie corticale-vasculaire

Tubulaire

urinaire



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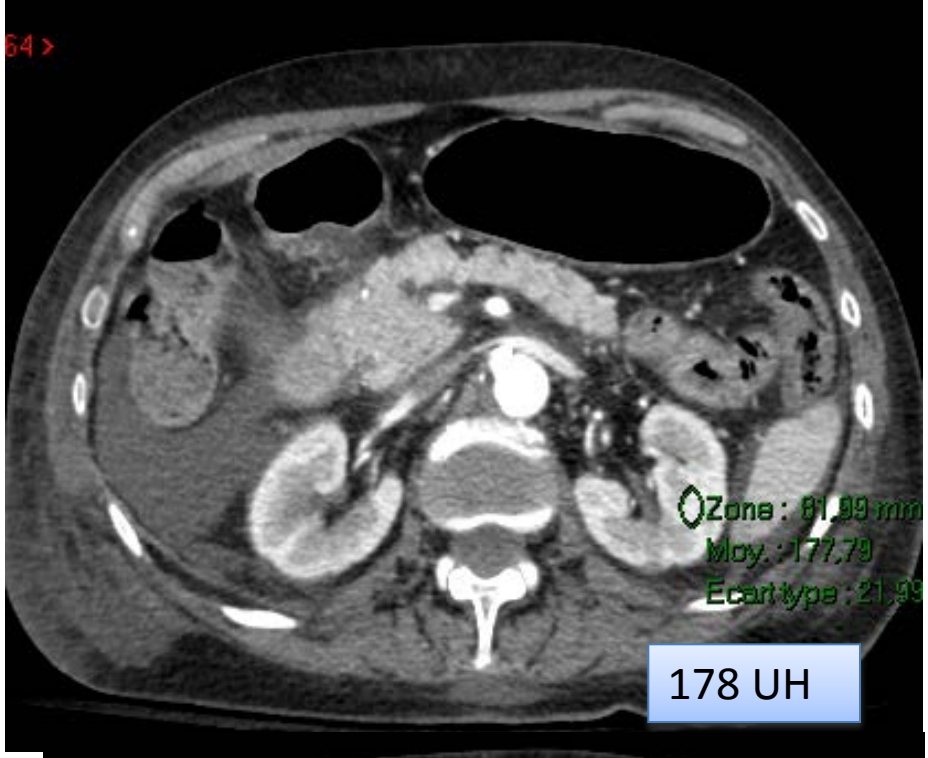
Moy. : 18,19
19UH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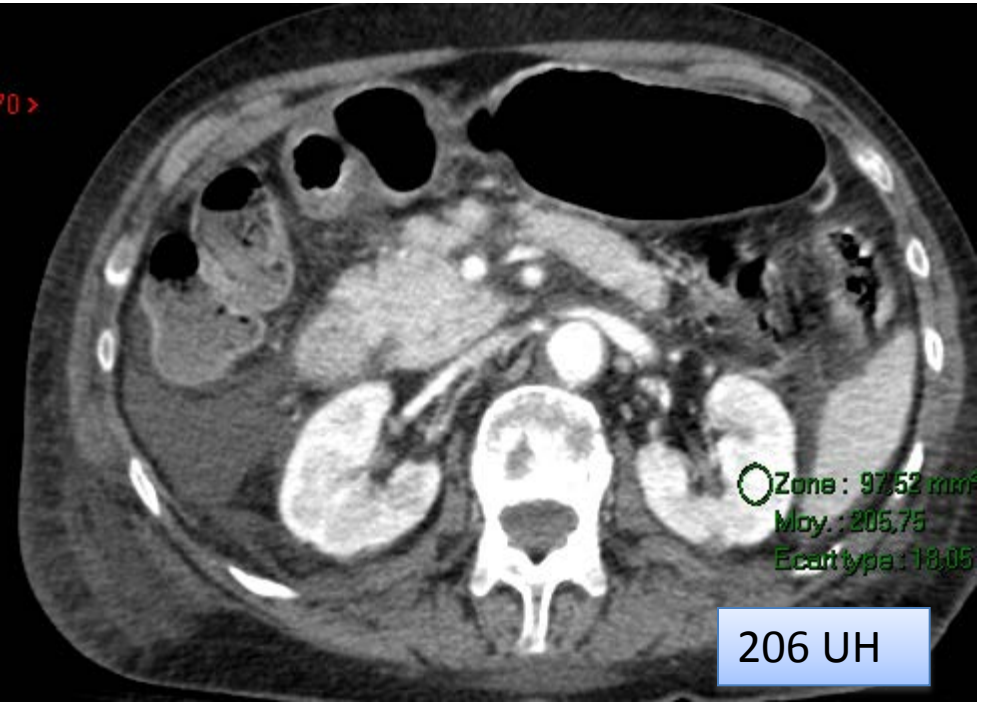
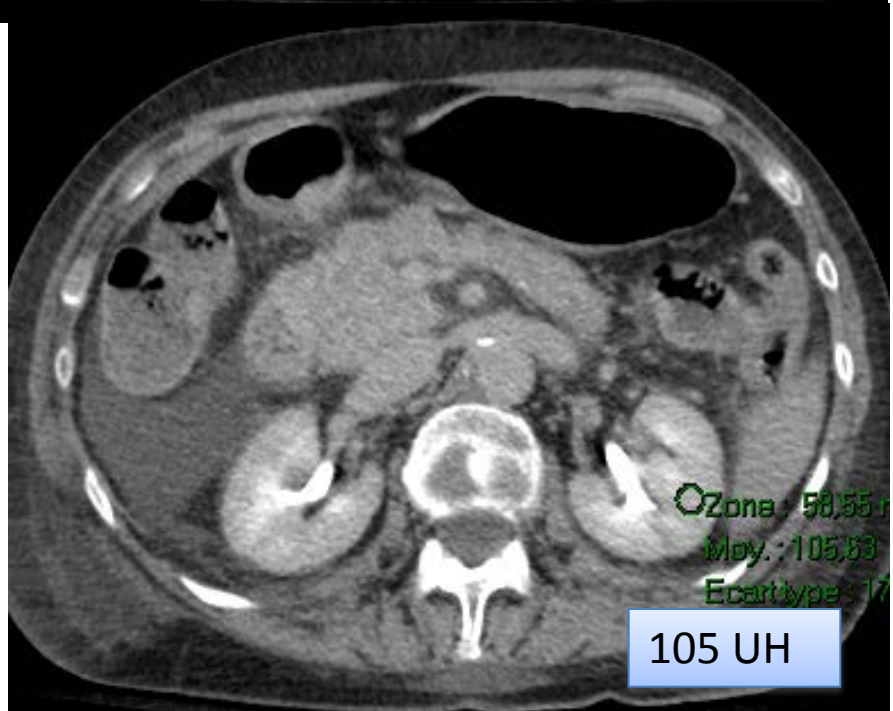
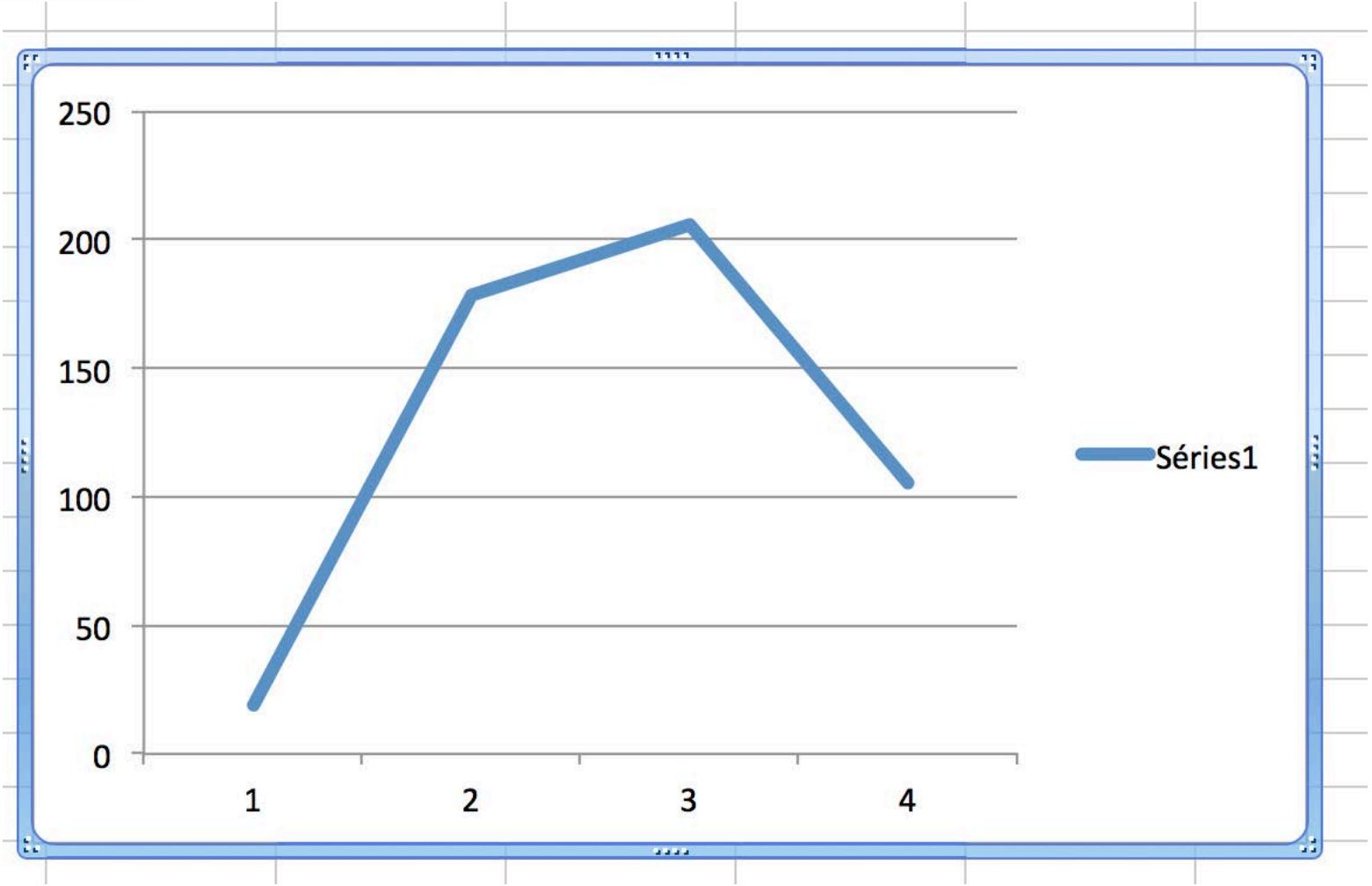
Zone : 61,99 mm
Moy. : 177,79
Ecart type : 21,99
178 UH


70 >
Zone : 97,52 mm²
Moy. : 205,75
Ecart type : 18,05
206 UH


Zone : 58,55
Moy. : 105,53
Ecart type : 17
105 UH

UH



TPS 0……. 35 sec…..90 sec……..180 sec….

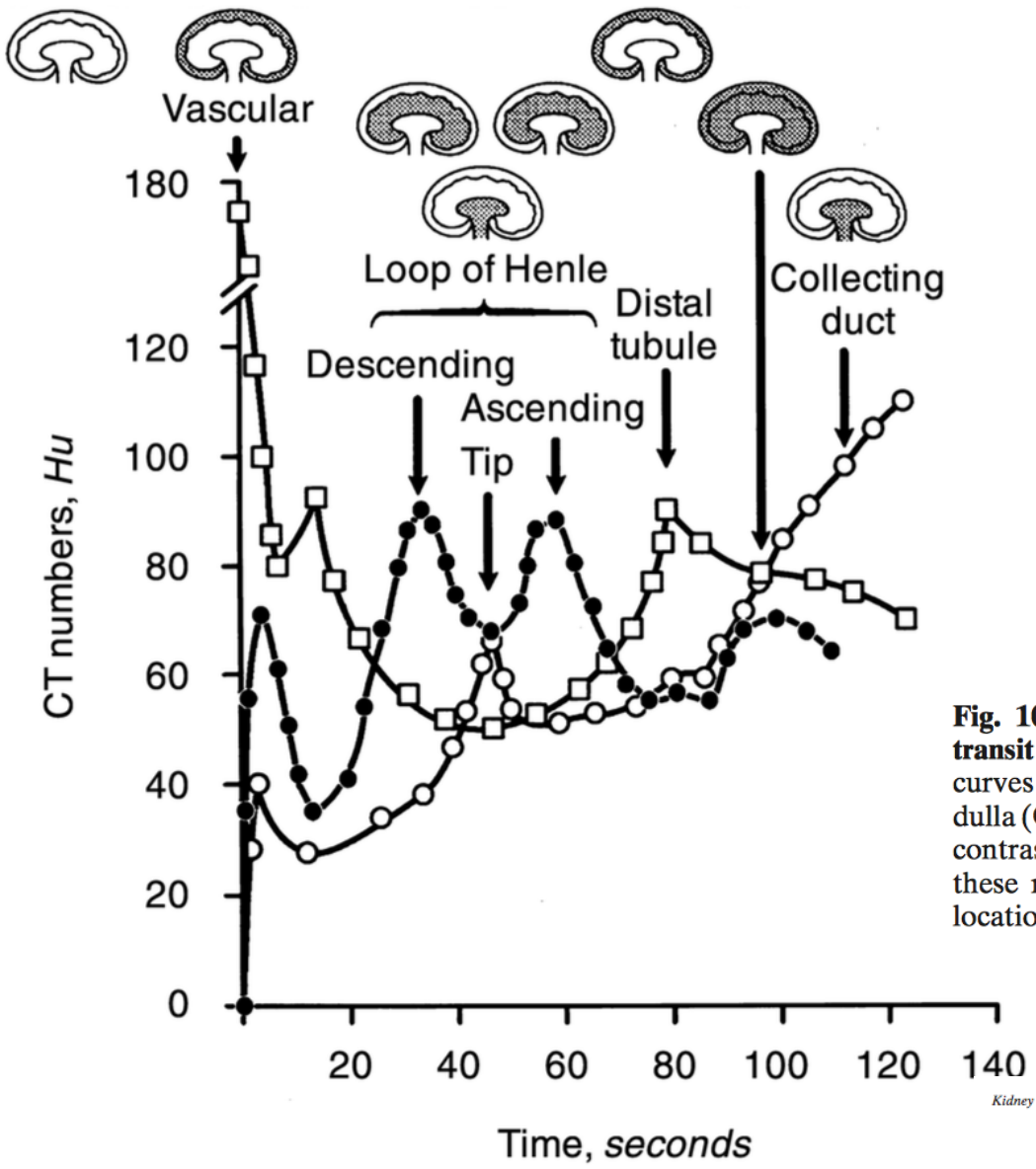


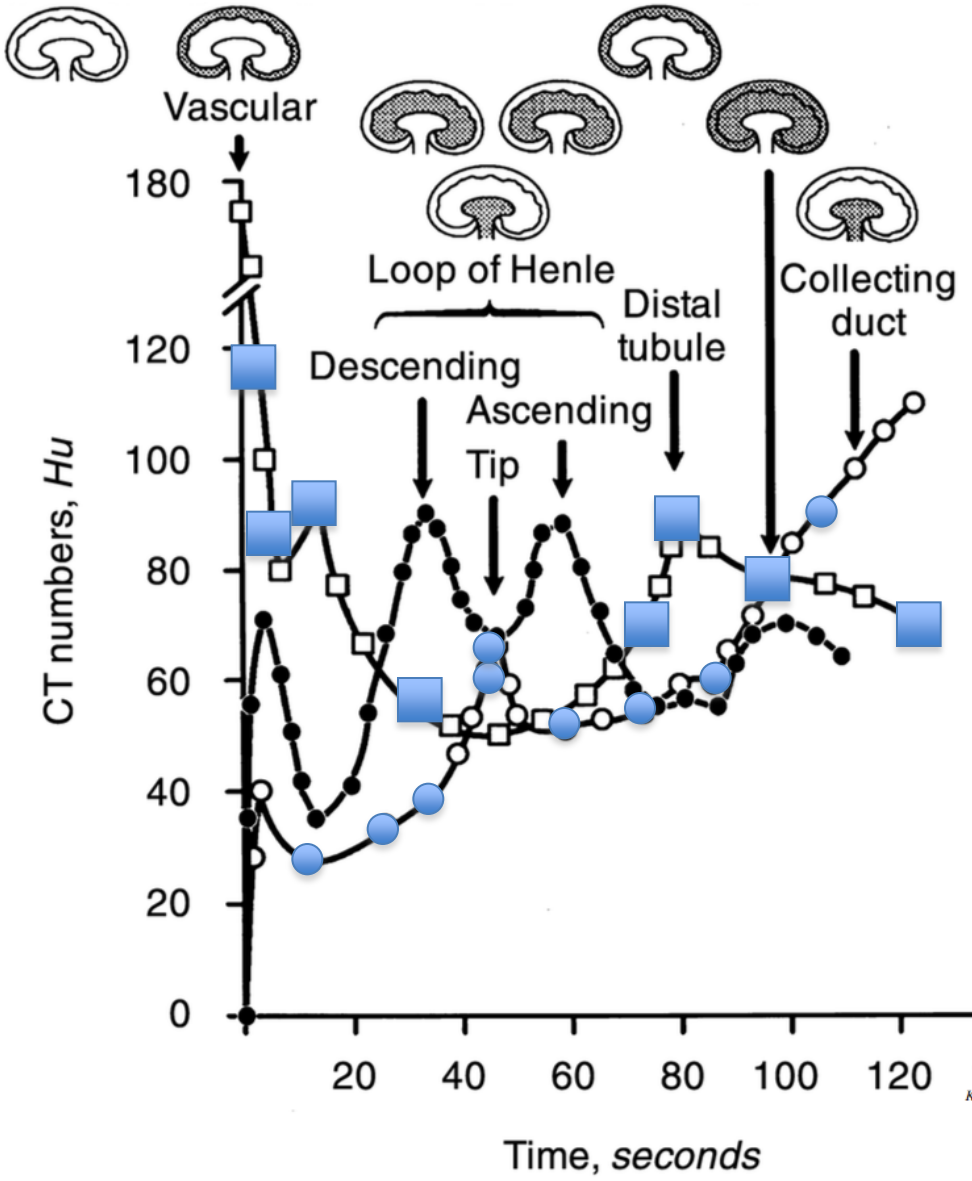
Fig. 10. Time-density curves obtained in a canine kidney during the transit of a bolus of a filterable contrast medium (iopamidol). The curves were obtained separately from the renal cortex (□), outer medulla (●), and inner medulla (○), and each peak represents intratubular contrast sequentially transversing the nephron segments contained in these regions. At the top of the figure, the corresponding anatomic location of the contrast in the renal cross-sectional regions is illustrated.

Kidney International, Vol. 55 (1999), pp. 400–416

PERSPECTIVES IN BASIC SCIENCE

The development of x-ray imaging to study renal function

LILACH O. LERMAN, MARTIN RODRIGUEZ-PORCEL, and J. CARLOS ROMERO



cortex

Médullaire externe

Médullaire interne

Kidney International, Vol. 55 (1999), pp. 400–416

PERSPECTIVES IN BASIC SCIENCE

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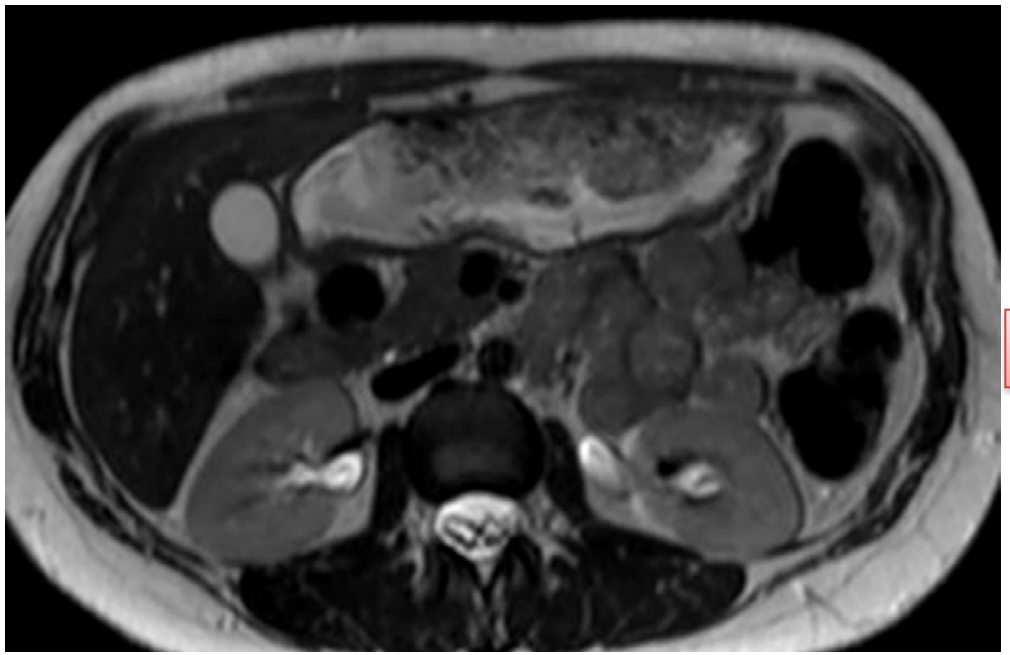
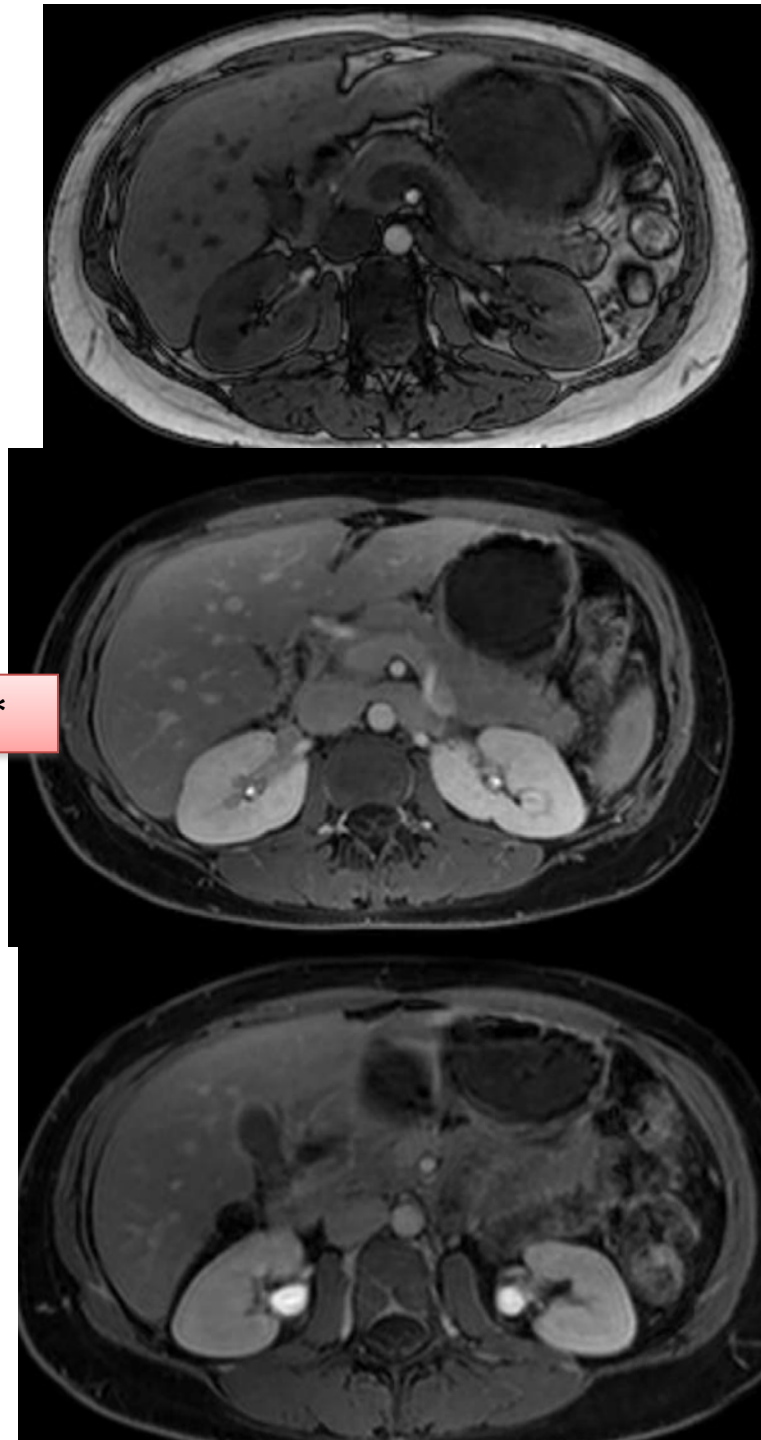
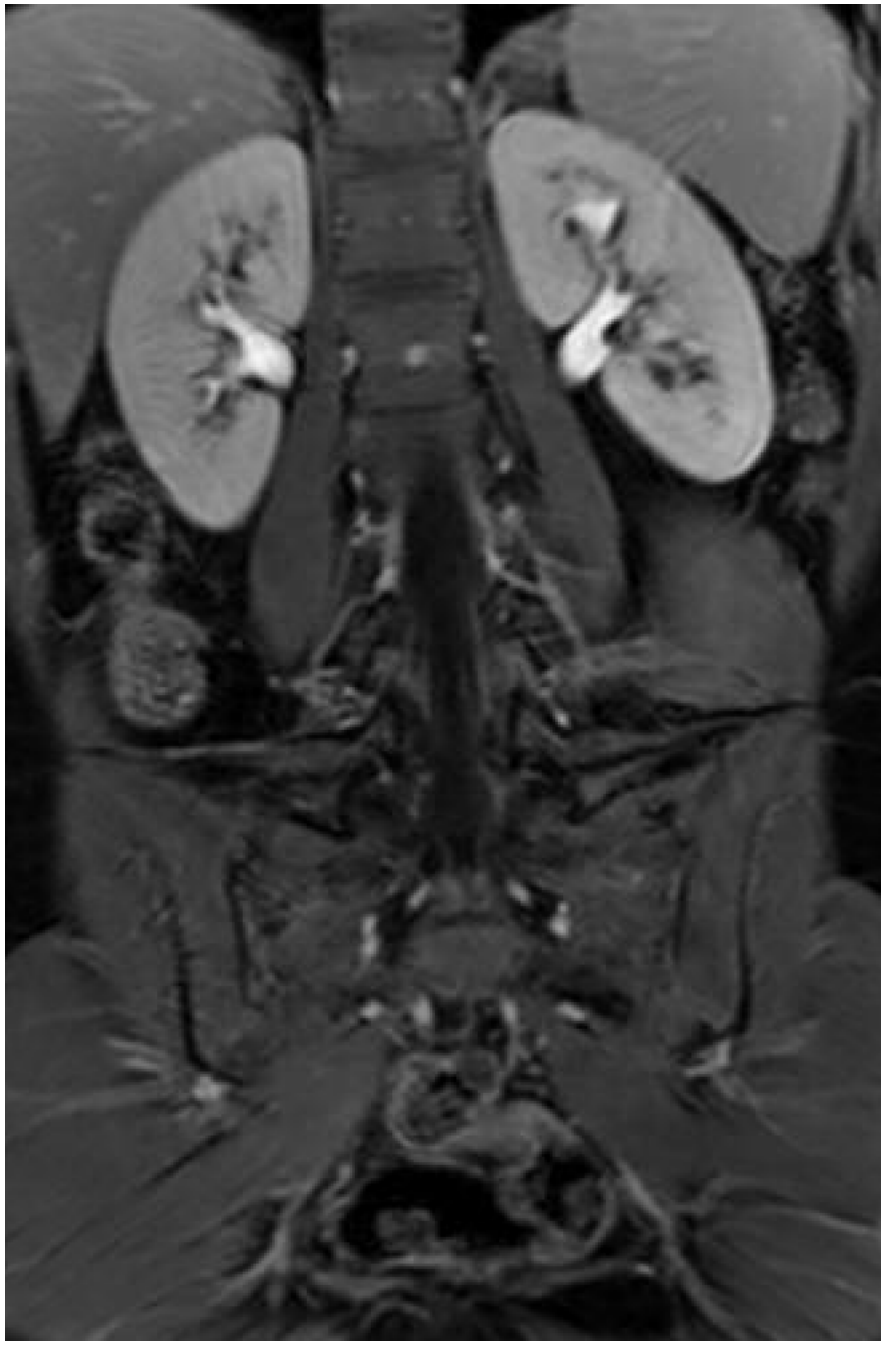


T2

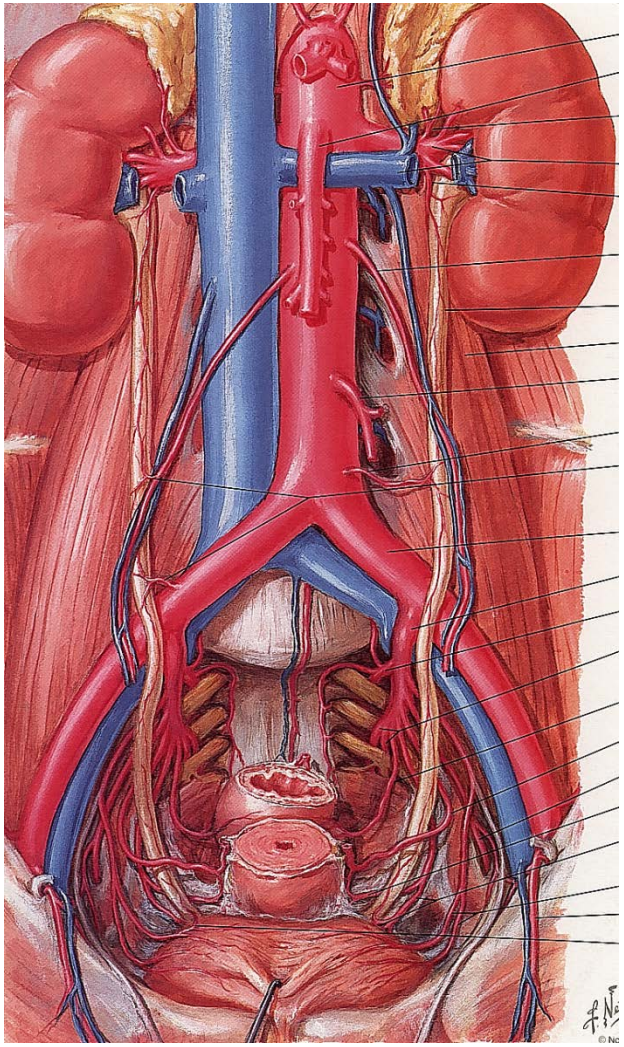


T1 + C*



Veines rénales

- Veine rénale gauche passe entre l'aorte et l'artère mésentérique supérieure
- Veine testiculaire ou ovarique se jette dans la veine cave inférieure à droite et dans la veine rénale à gauche : explique varicocèle gauche



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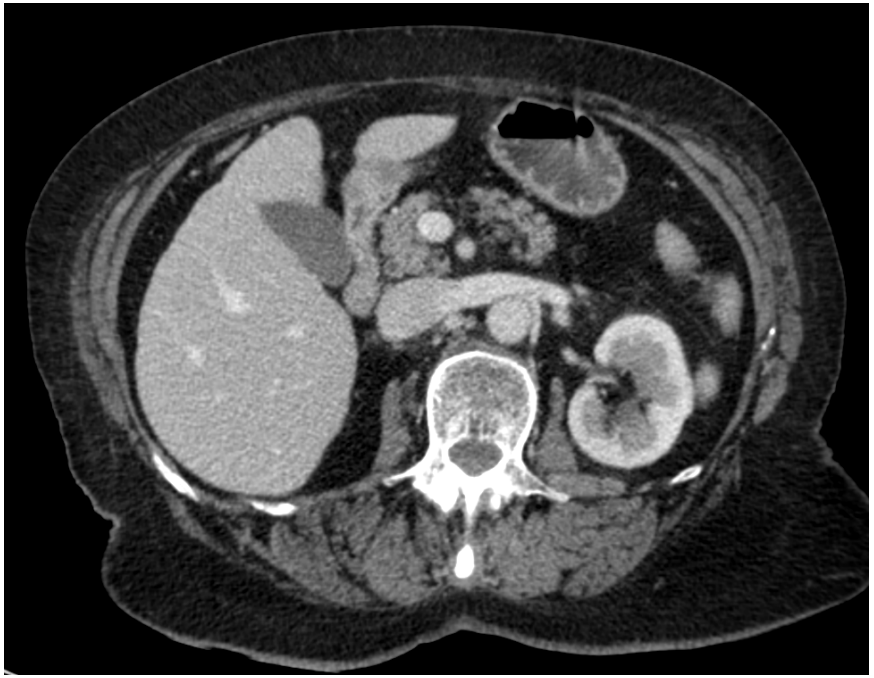
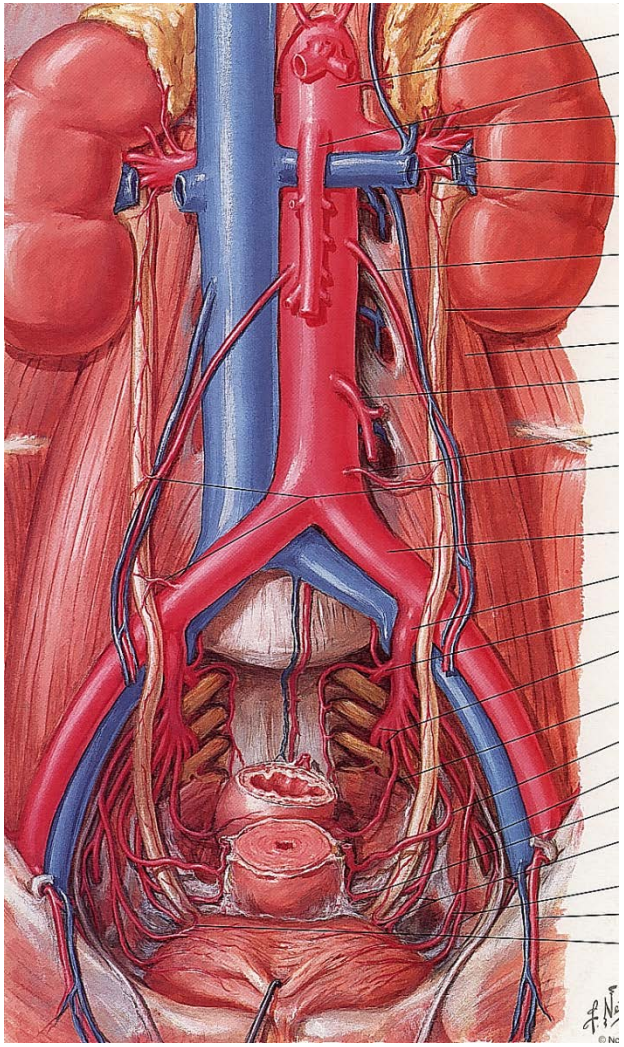
Veines rénales





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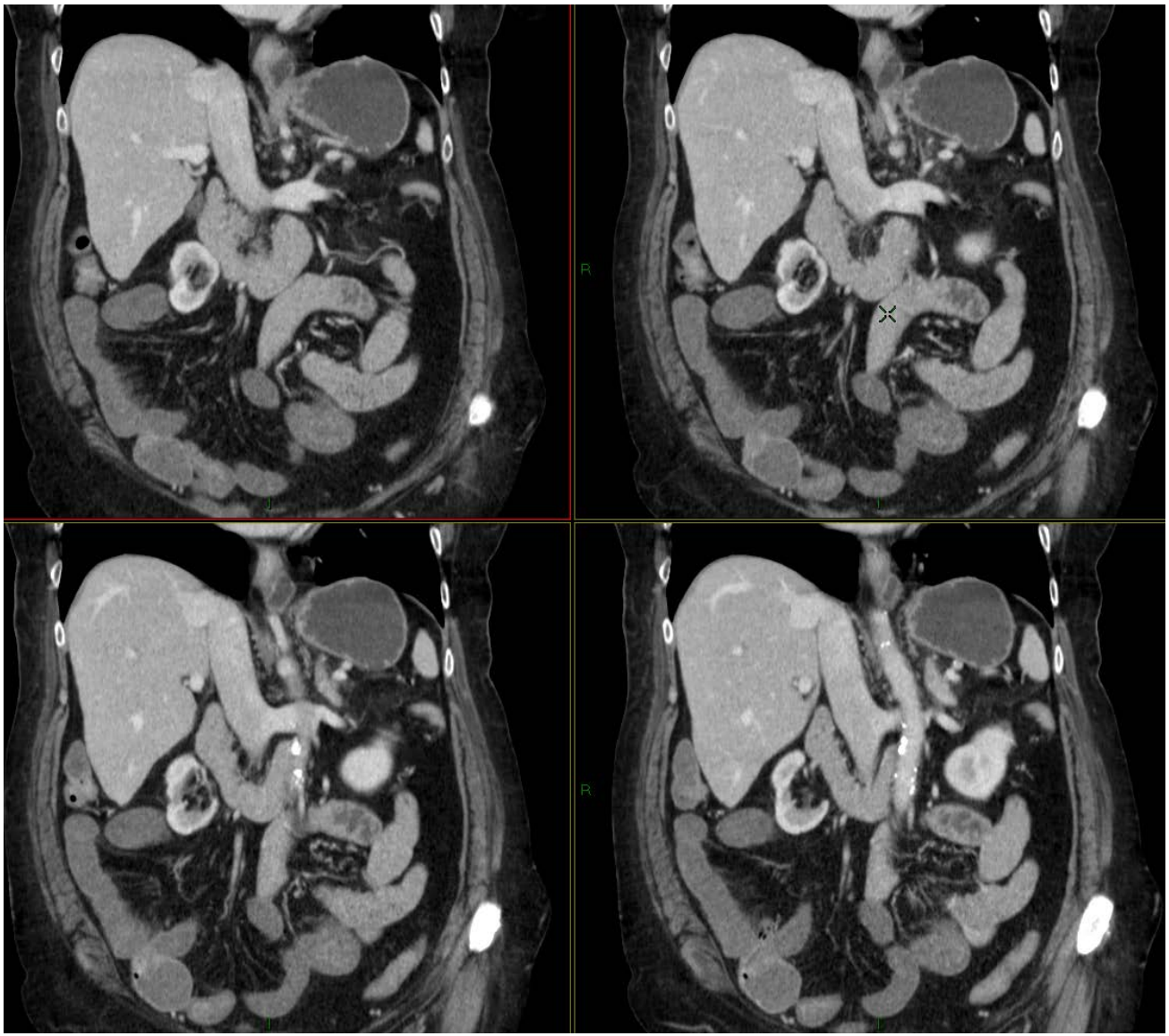
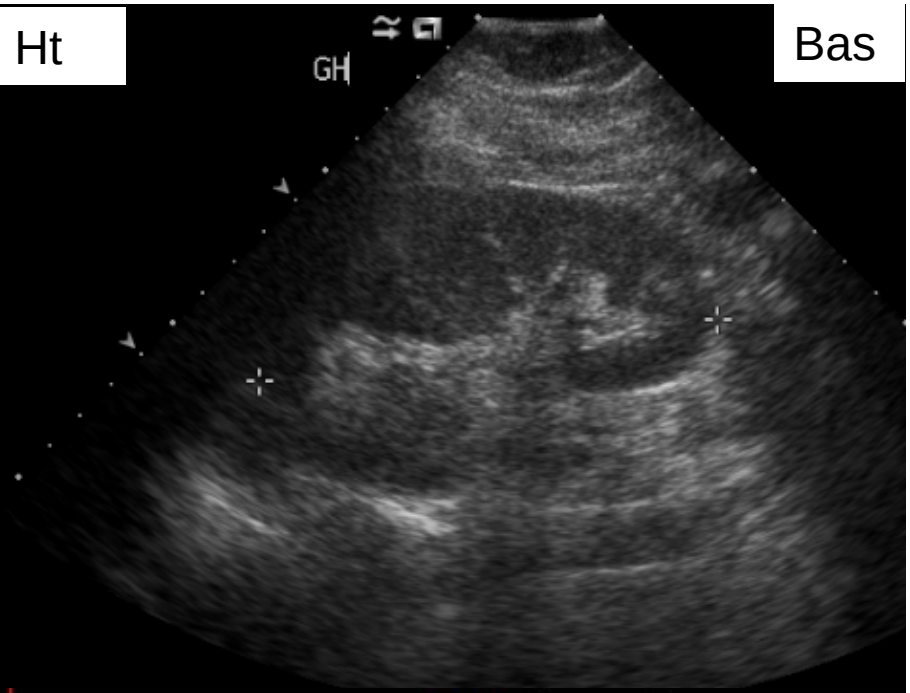
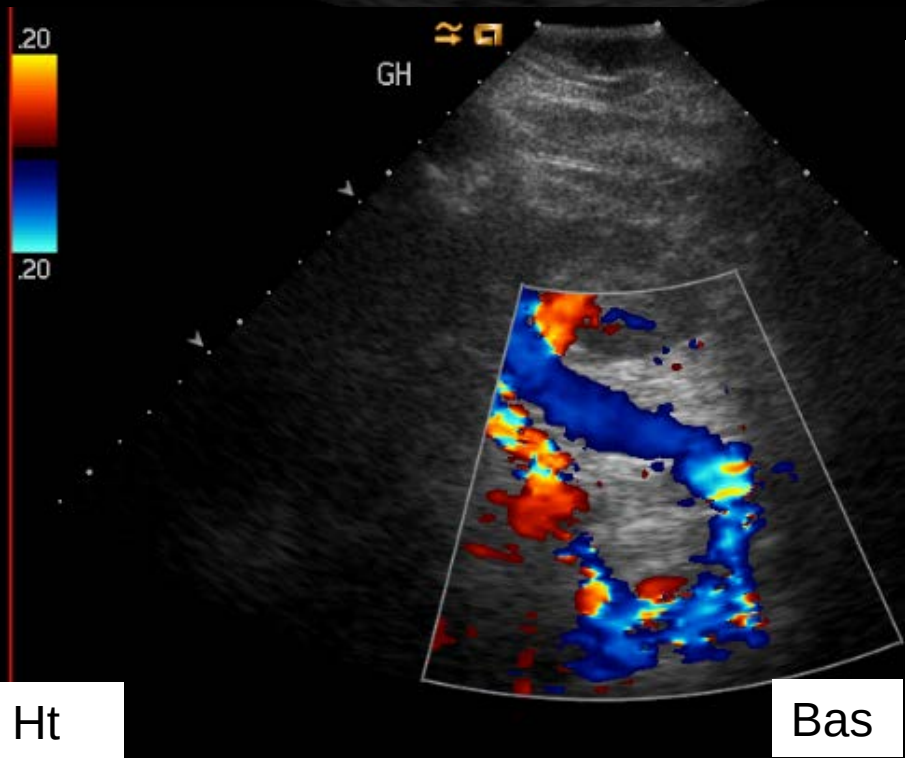
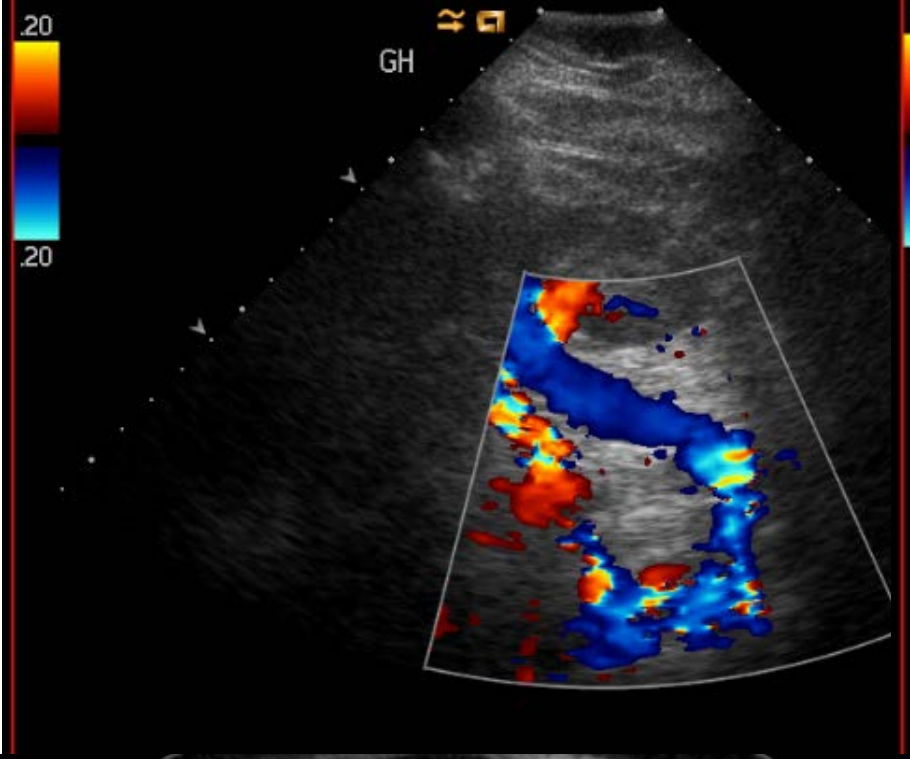






REIN GAUCHE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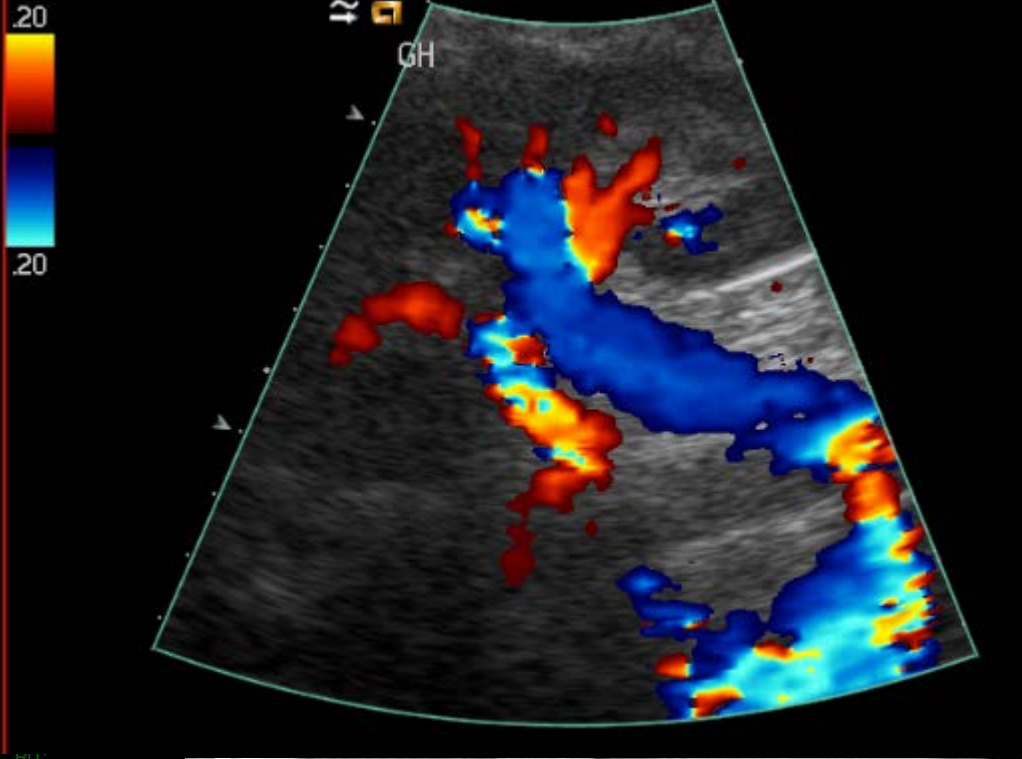
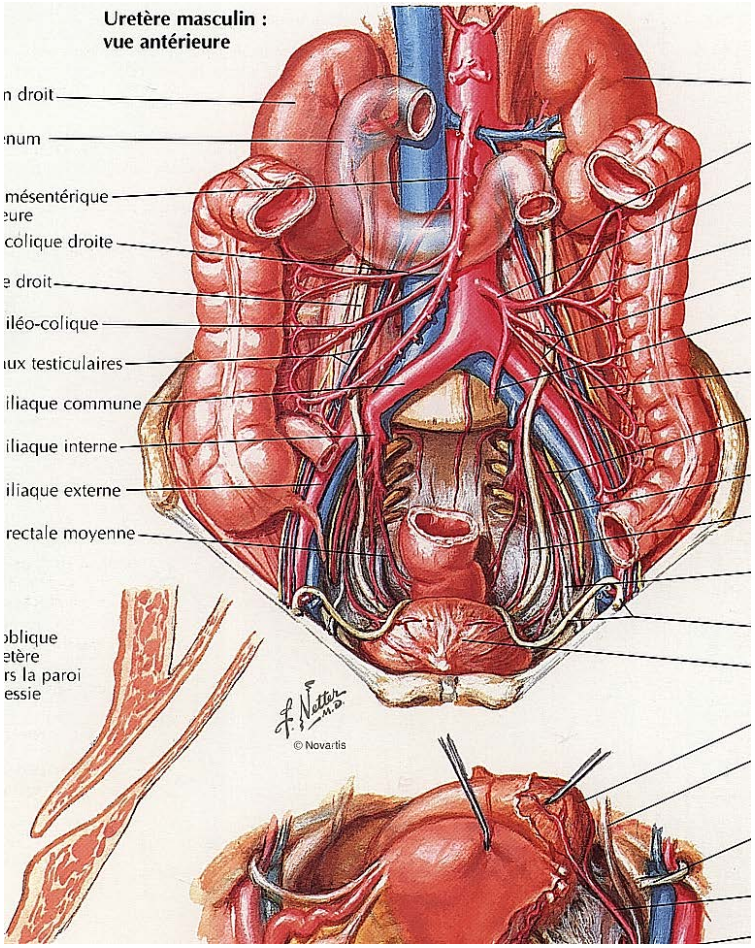
.20
GH


.20
.20
GH

Uretères

- Trois rétrécissements relatifs
  - Jonction pyélo-urétérale
  - Croisement des vaisseaux iliaques
  - Jonction urétéro-vésicale
- Les uretères ont un trajet oblique à travers la paroi de la vessie



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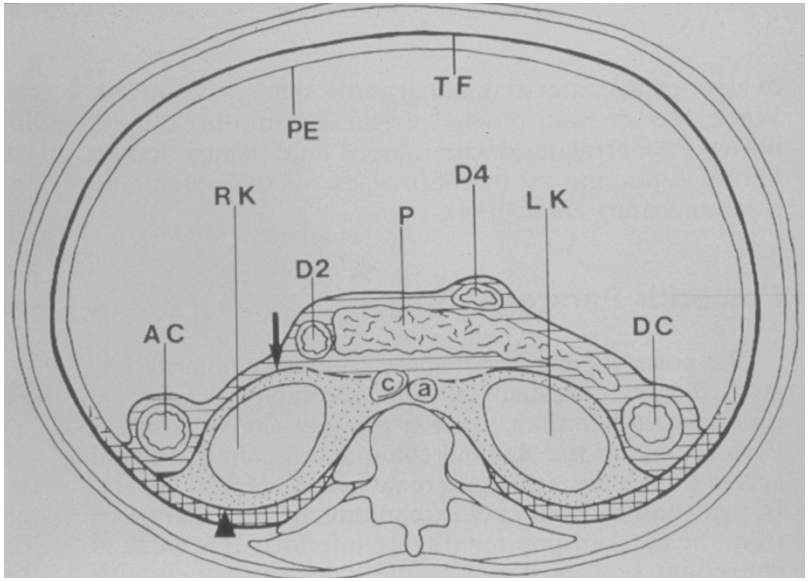
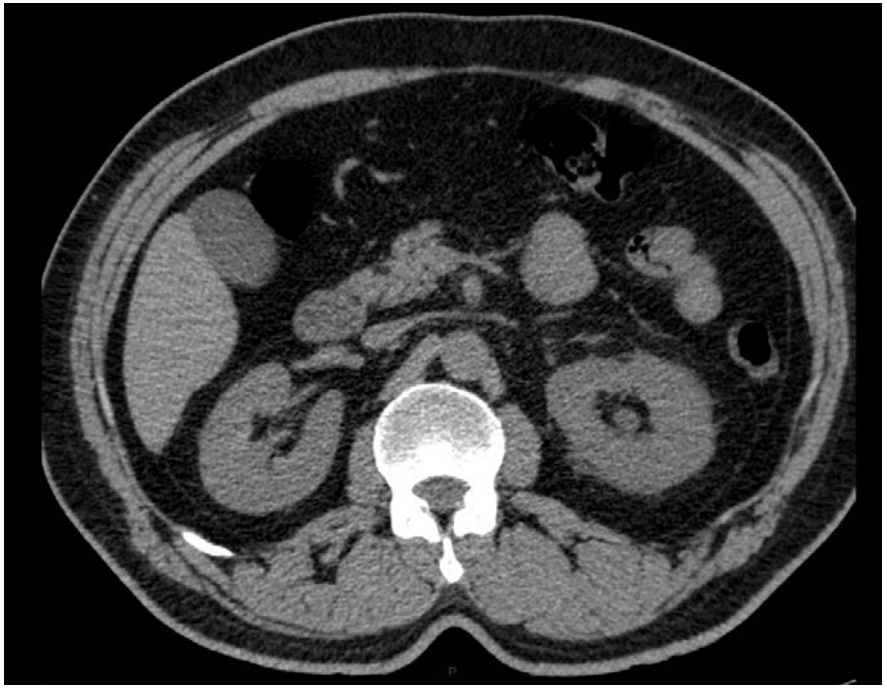
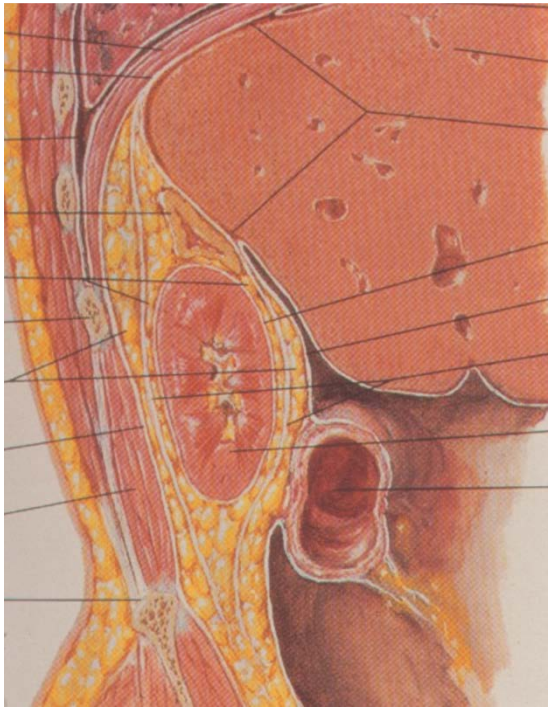
oi)
Oct

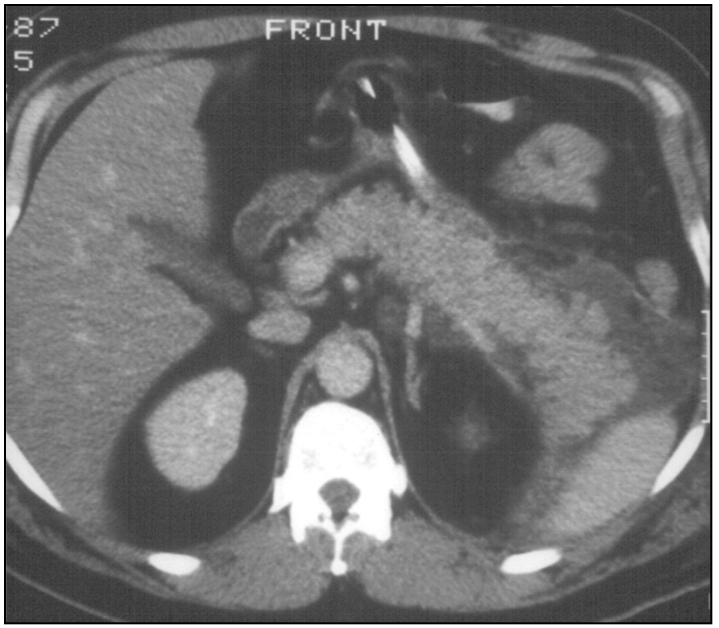
Fascia rénal

- Divise le rétropéritoine en 3 compartiments
  - L'espace pararénal antérieur
    - Côlon ascendant
    - Côlon descendant
    - Duodénum
    - Pancréas
  - L'espace périrénal
    - Reins
    - Ouvert vers le bas
  - Espace pararénal postérieur





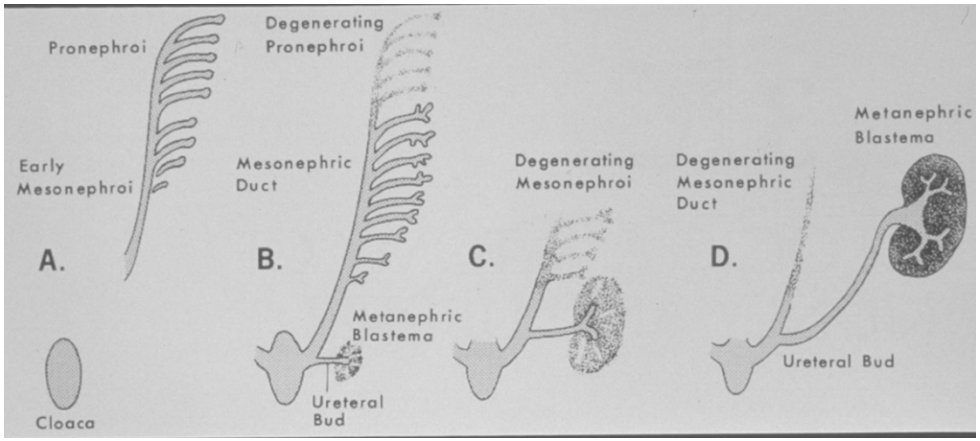


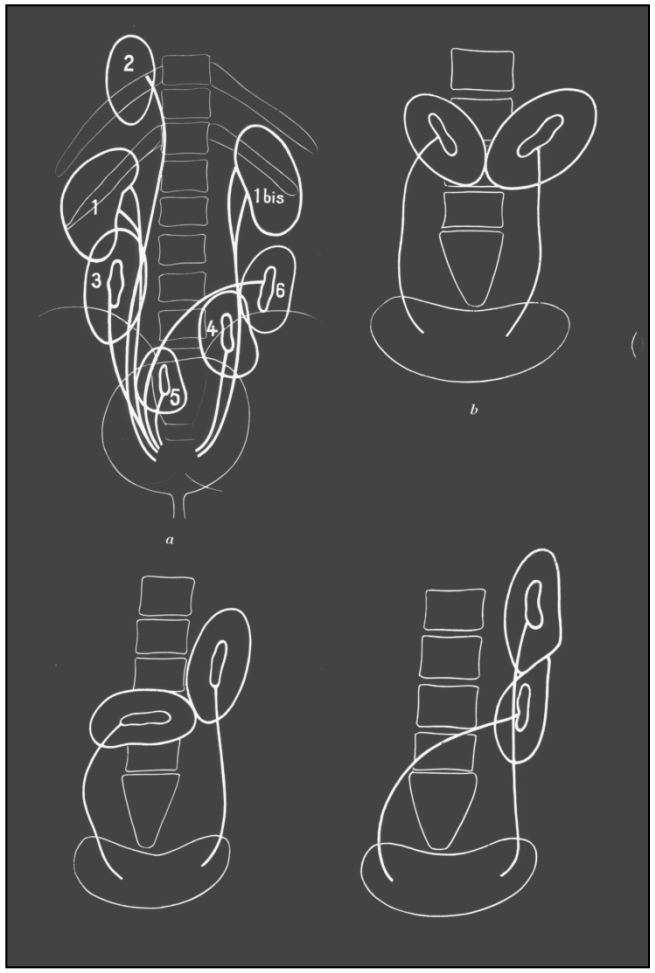


In Netter, Atlas d'anatomie humaine, 4ème édition, 2007

Embryologie du rein

- L'ébauche rénale défnitive (métanéphros) se situe dans le pelvis
- Les cavités s'implantent sur sa face antérieure
- Mouvement d'ascension et de rotation
- Variantes
  - Ectopie simple : rein iliaque, pelvien
  - Ectopie croisée, fusionnée
  - Défaut de rotation
  - Reins en fer à cheval
  - Duplication urétérale partielle ou totale

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1
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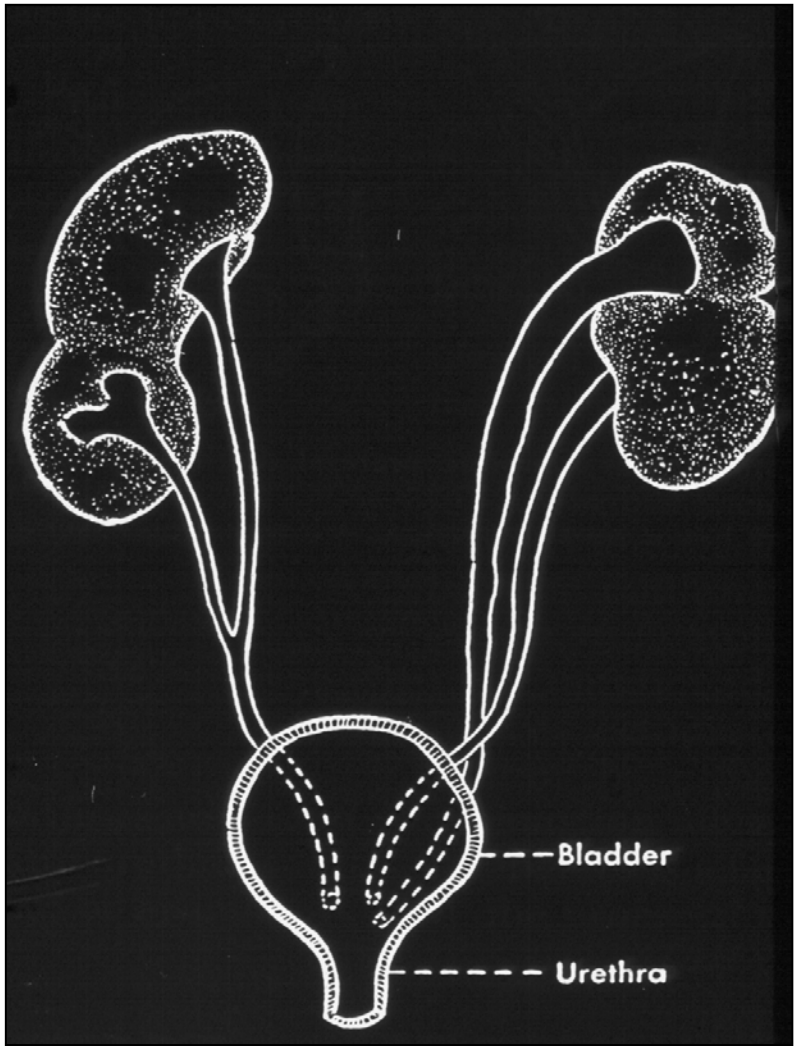
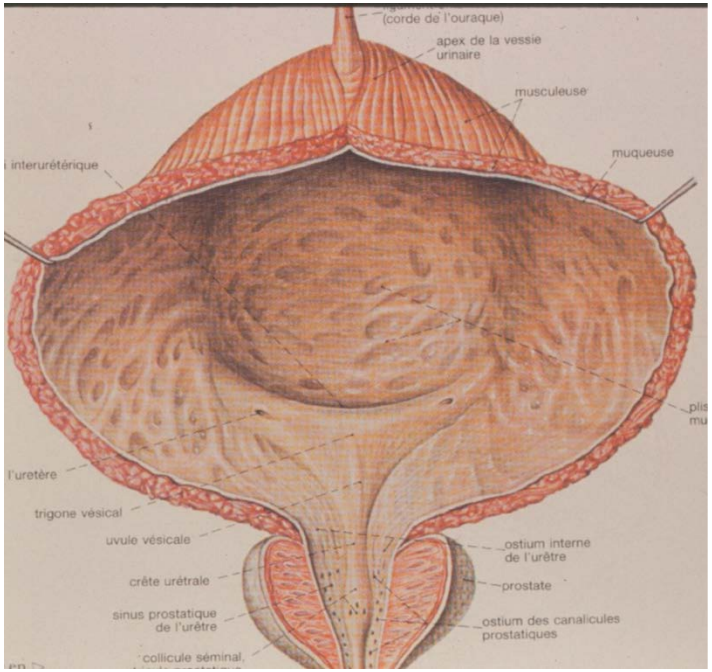


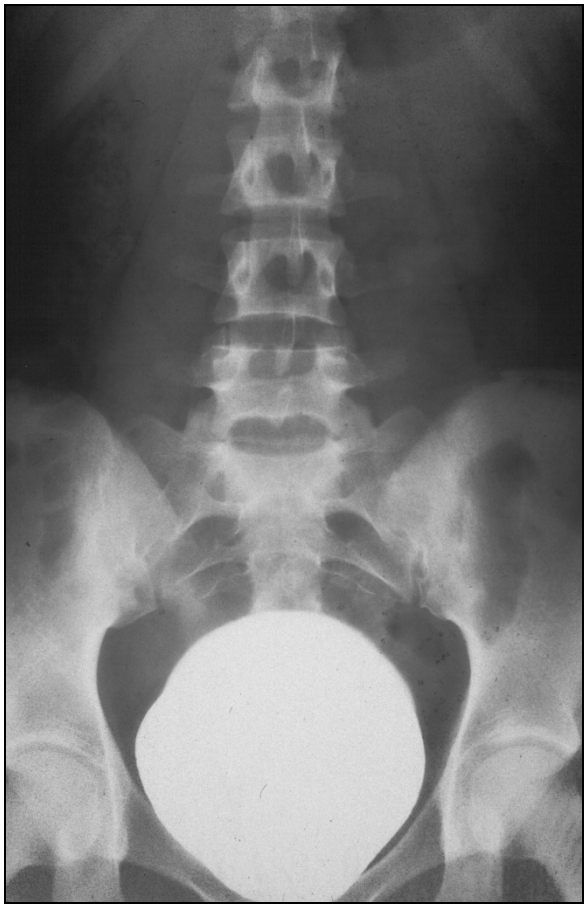
Duplication : Partielle : bifidité

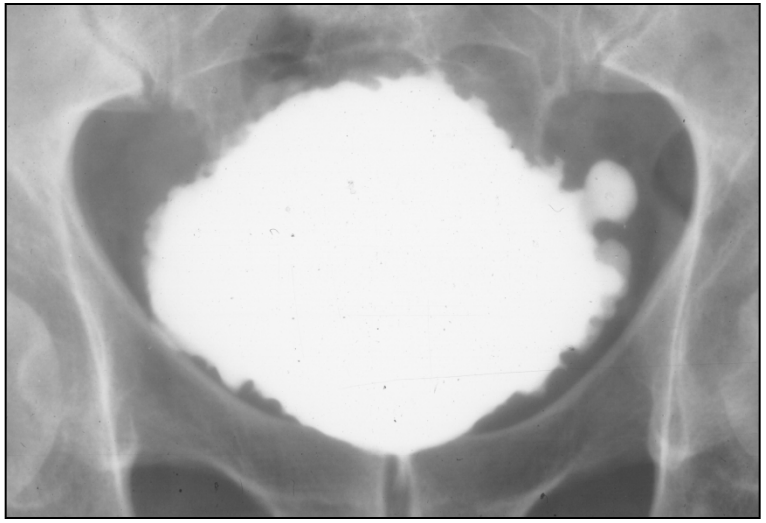
Vessie

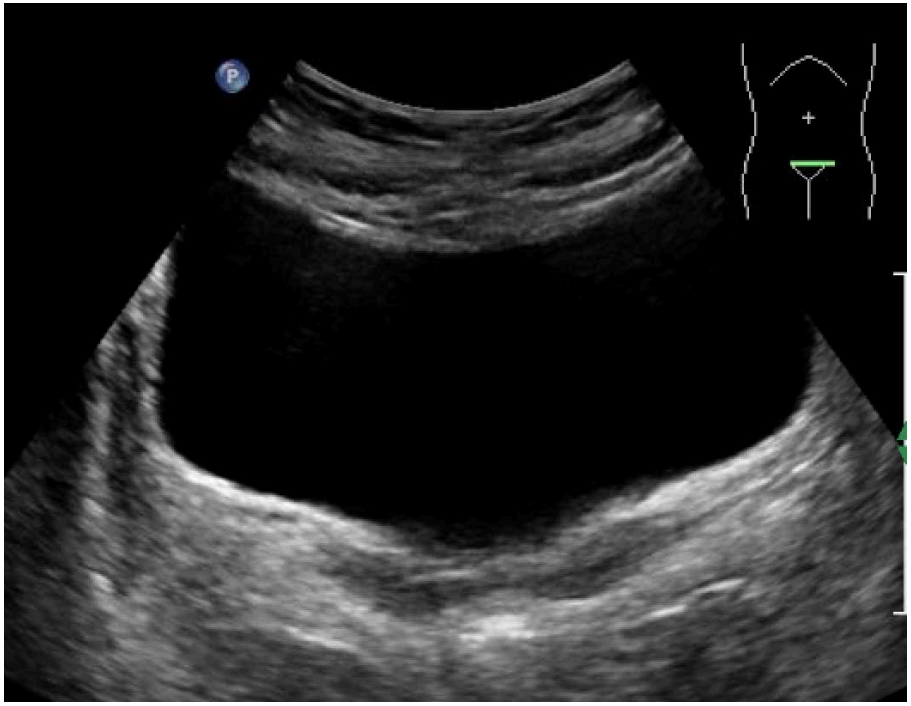
- Tétraèdre
  - Base : postéro-inférieure, triangulaire, délimitée par l'urètre en bas et les uretères en haut (trigone)
  - Apex : donne insertion à l'ouraque, cordon vestigial de l'allantoïde
- Musculeuse
  - Externe : fibres longitudinales
  - Moyenne : fibres circulaires
  - Interne : fibres longitudinales formant un réseau de colonnes et de cellules

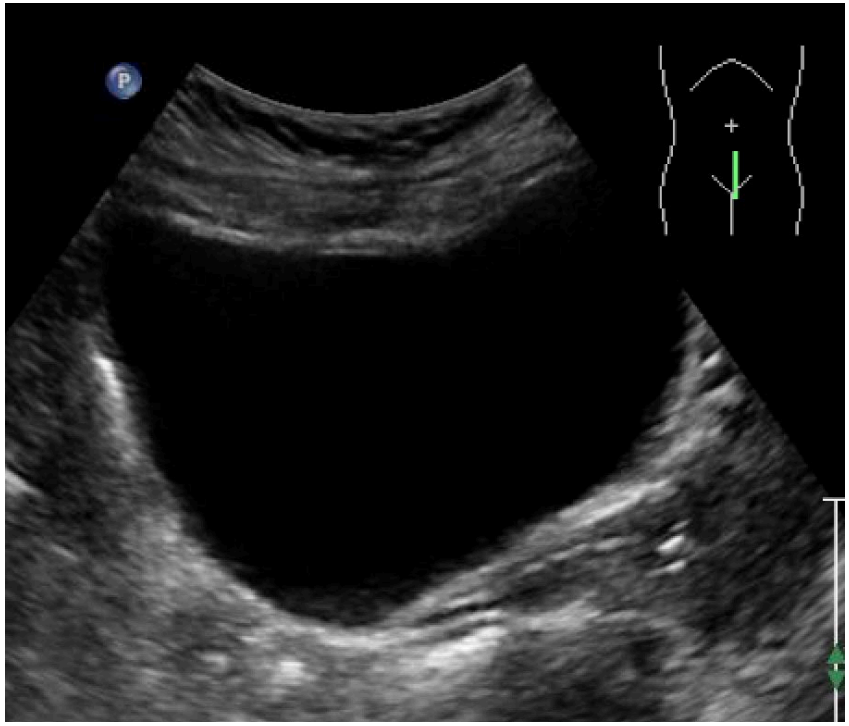


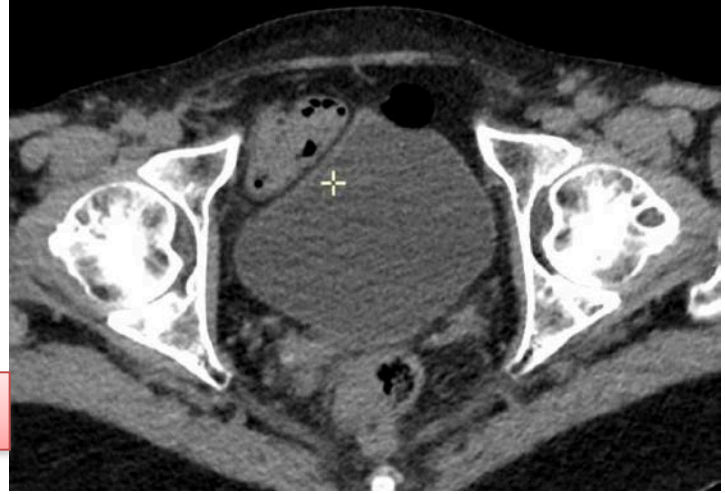
In Netter, Atlas d'anatomie humaine, 4ème édition, 2007











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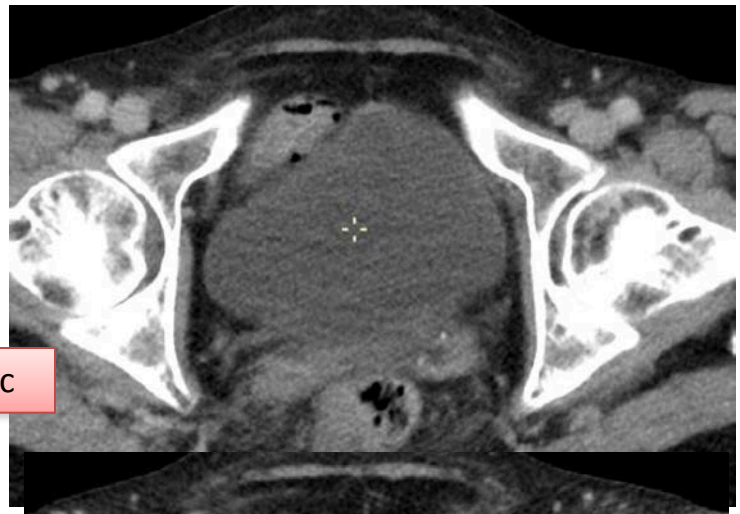
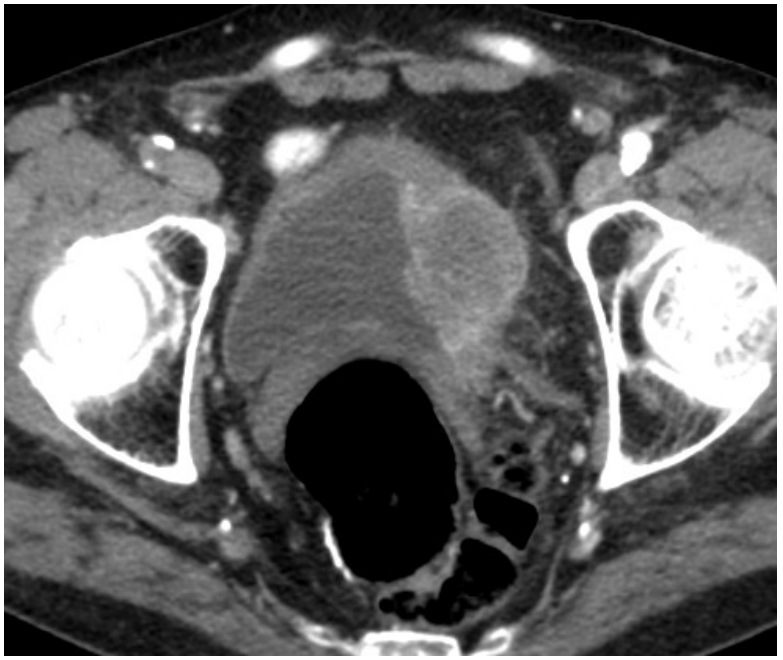


70-90 sec

180 sec



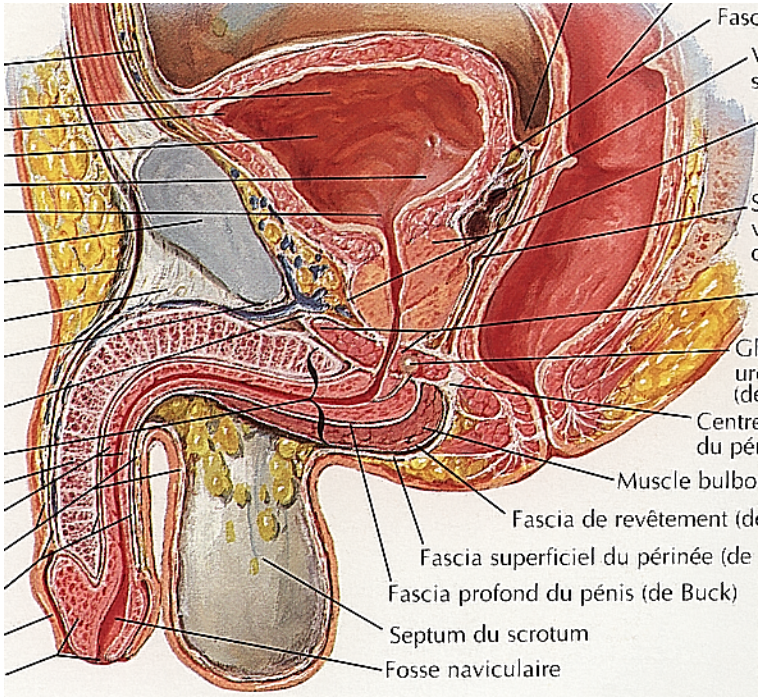
Urètre chez l'homme

Trois parties

- Prostatique
- Membranacée : au niveau du diaphragme uro-génital
- Spongieuse
  - Bulbaire
  - Pénienne

Sphincter interne : autour de la portion initiale de l'urètre prostatique

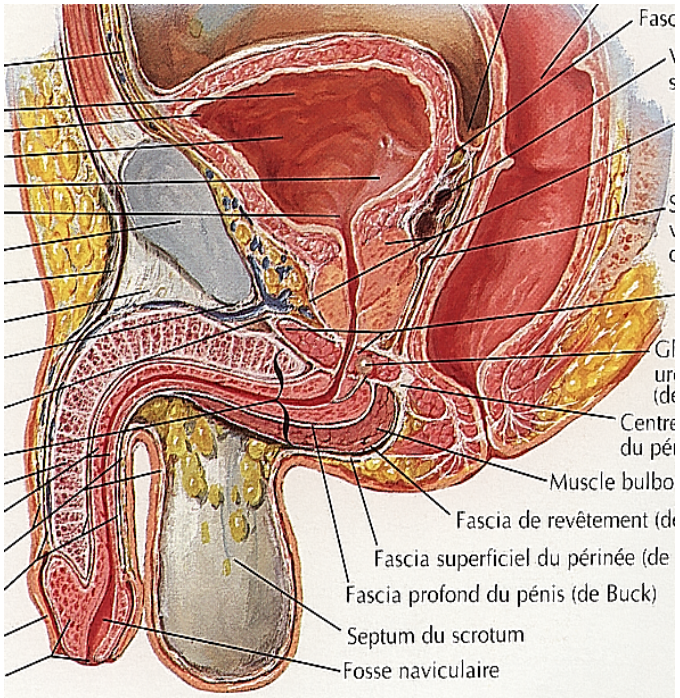
Sphincter externe strié : urètre membranacé



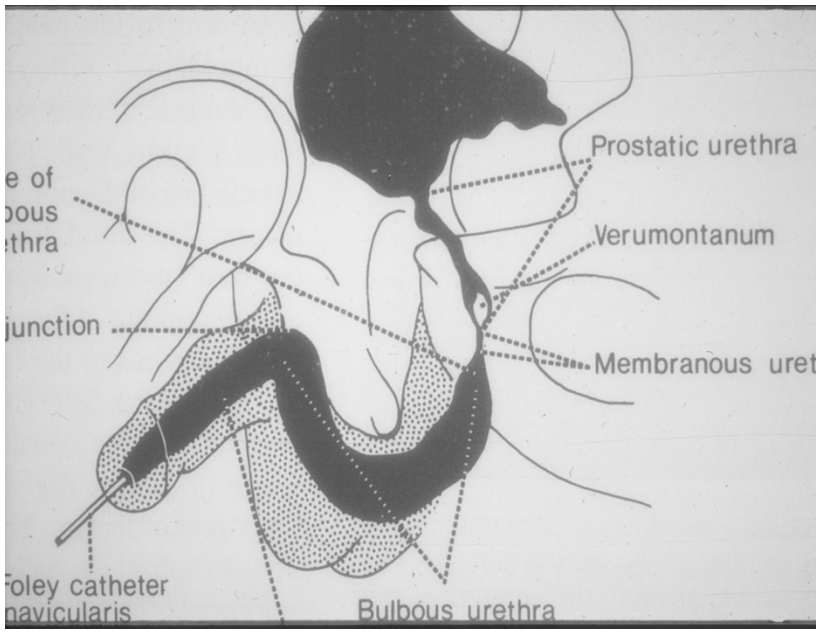
In Netter, Atlas d'anatomie humaine, 4ème édition, 2007

Anatomie de l'urètre chez l'homme

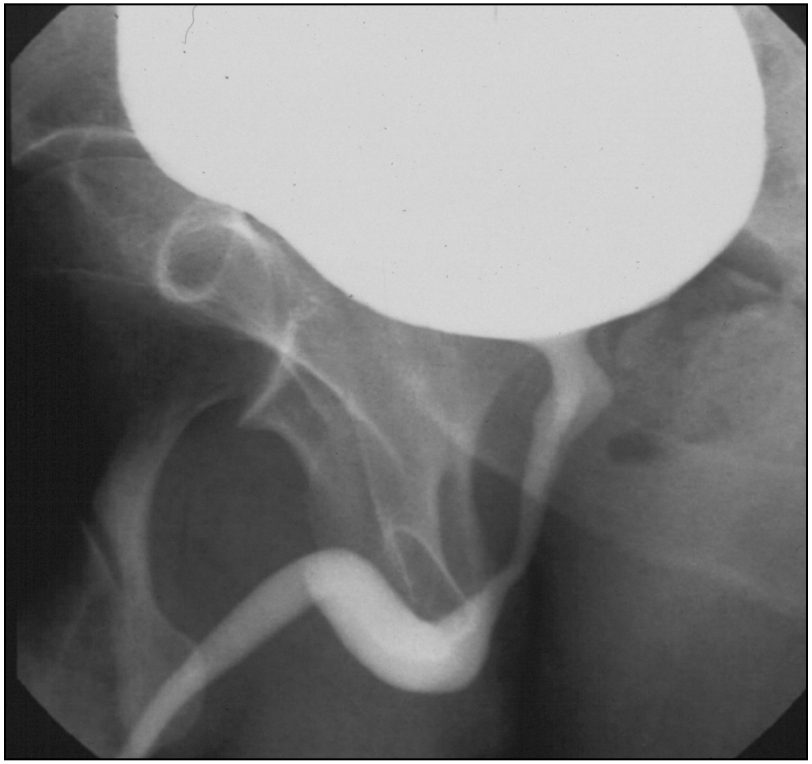
- Urètre postérieur
  - **urètre prostatique**
    - veru montanum : 3 orifices
      - utricule : reste de canal de Muller
      - canaux éjaculateurs
  - **urètre membraneux :** sphincter externe
- **Urètre antérieur (spongieux)**
  - urètre bulbaire
  - urètre pénien



In Netter, Atlas d'anatomie humaine, 4ème édition, 2007



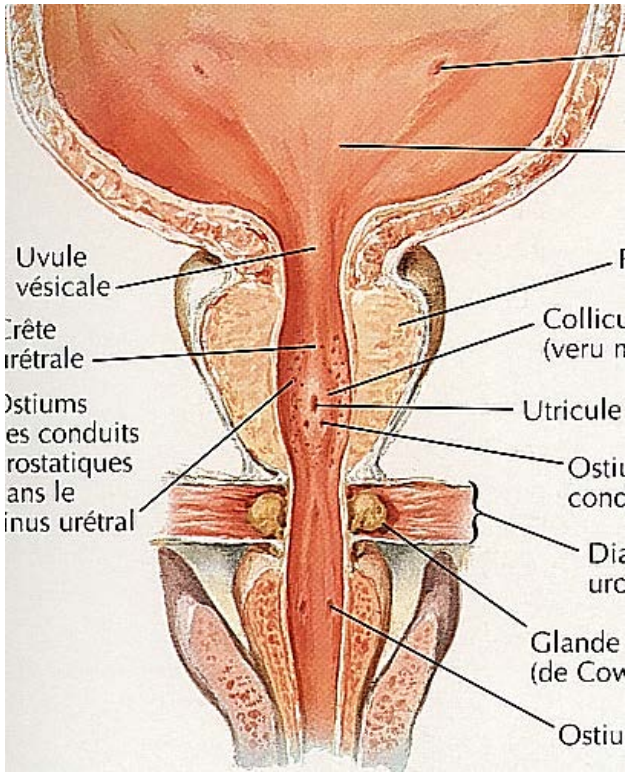
Voie rétrograde



Voie prograde

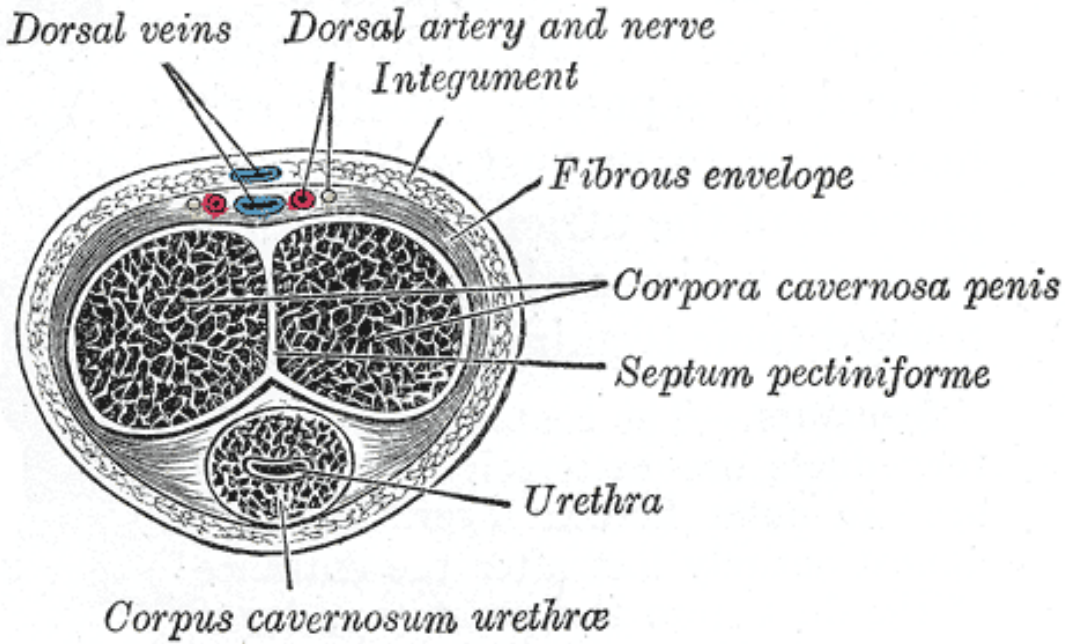
Urètre prostatique

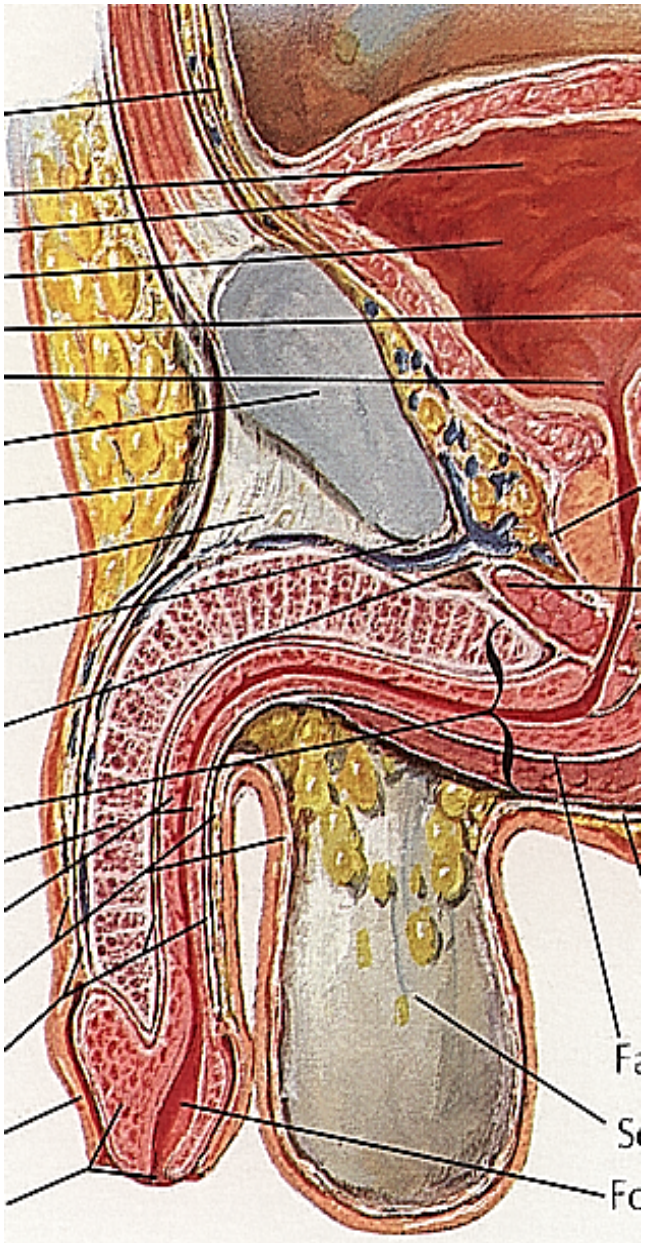
- Saillie postérieure : collicule ou veru montanum
  - Utricule
  - Canaux éjaculateurs
- Sillons latéraux : rigoles
  - Canaux excréteurs de la prostate



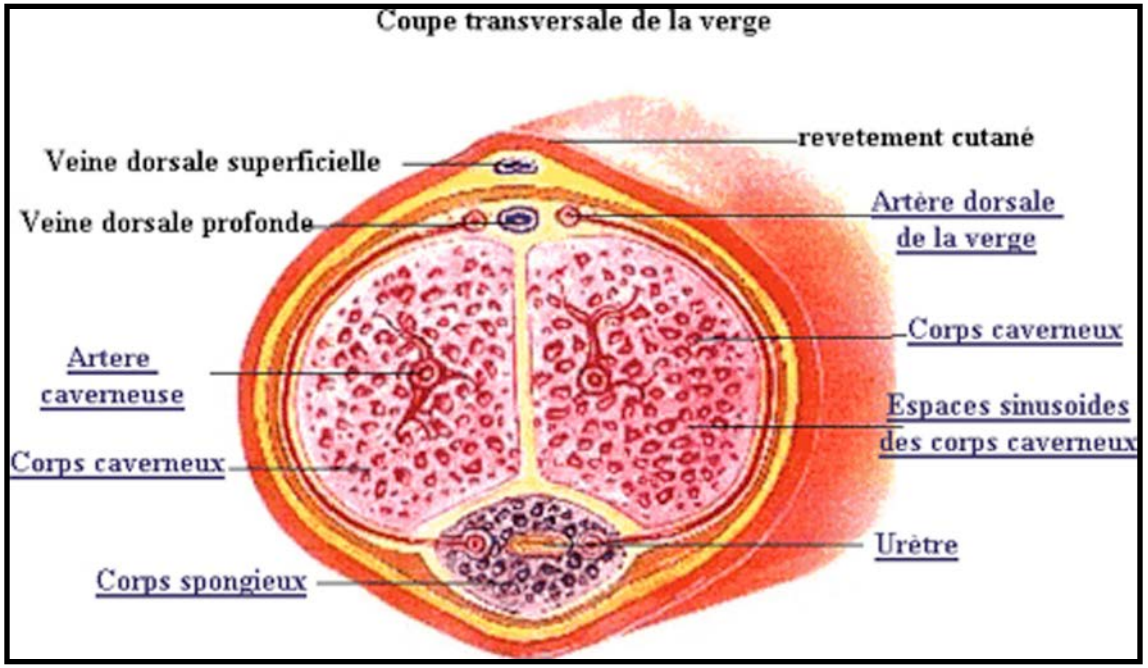
In Netter, Atlas d'anatomie humaine, 4ème édition, 2007

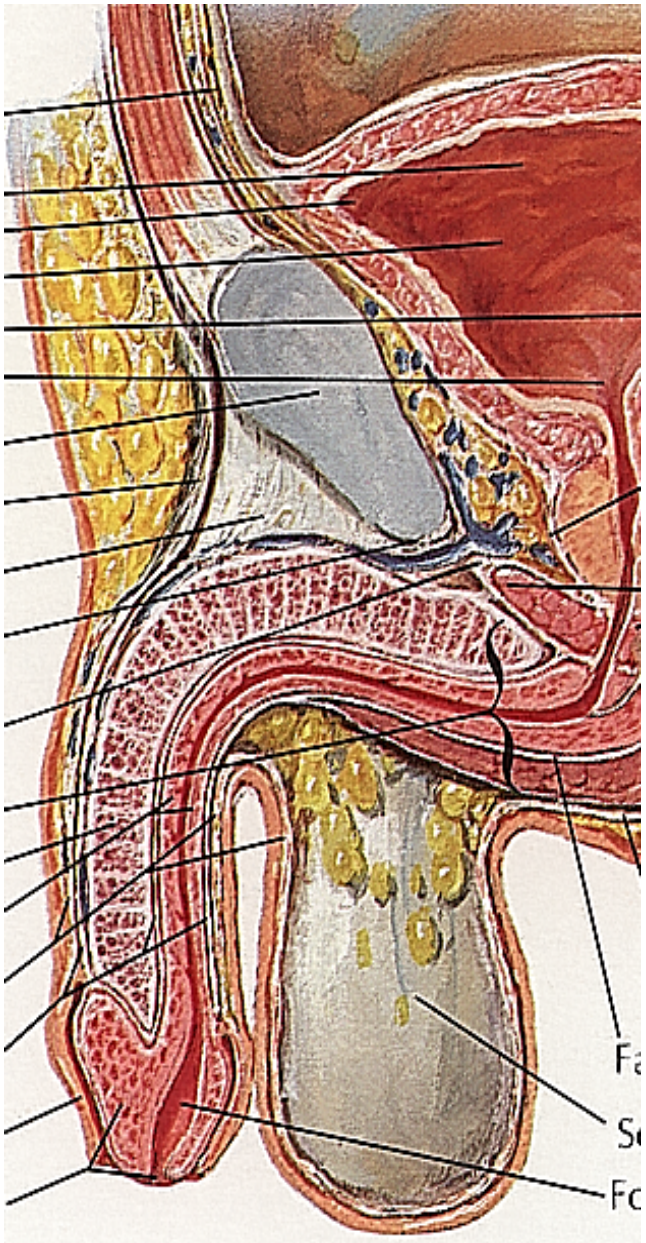
Henry Gray (1918) *Anatomy of the Human Body*
Bartleby.com: Gray's Anatomy, Plate 1155

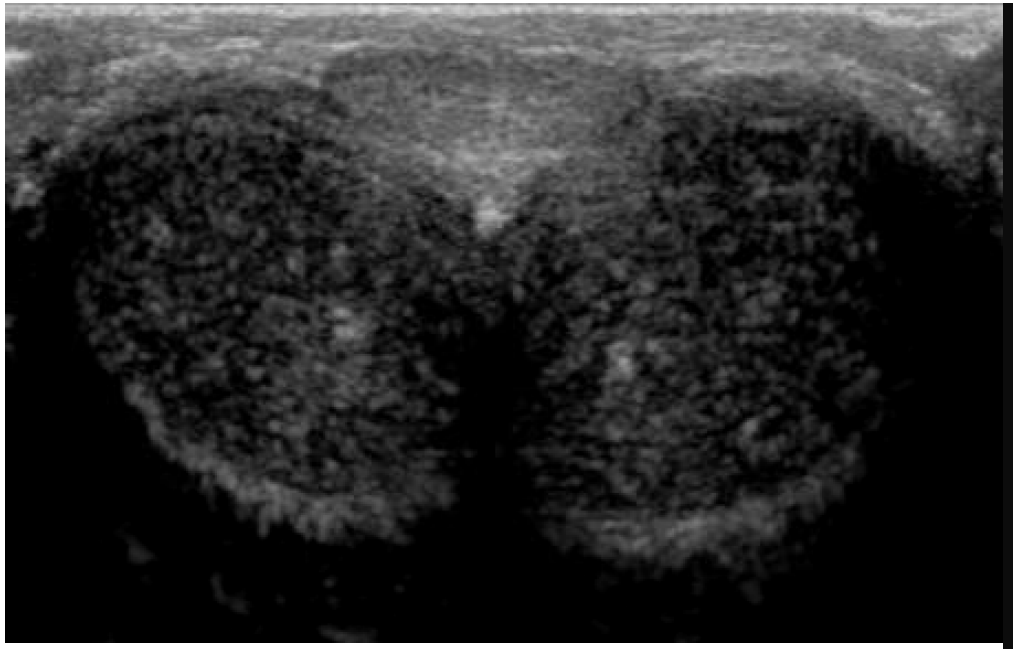


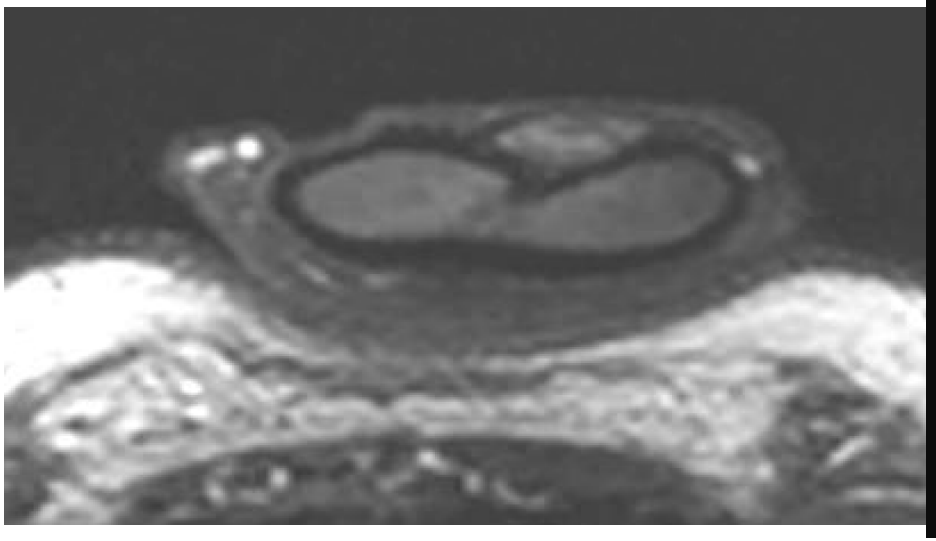


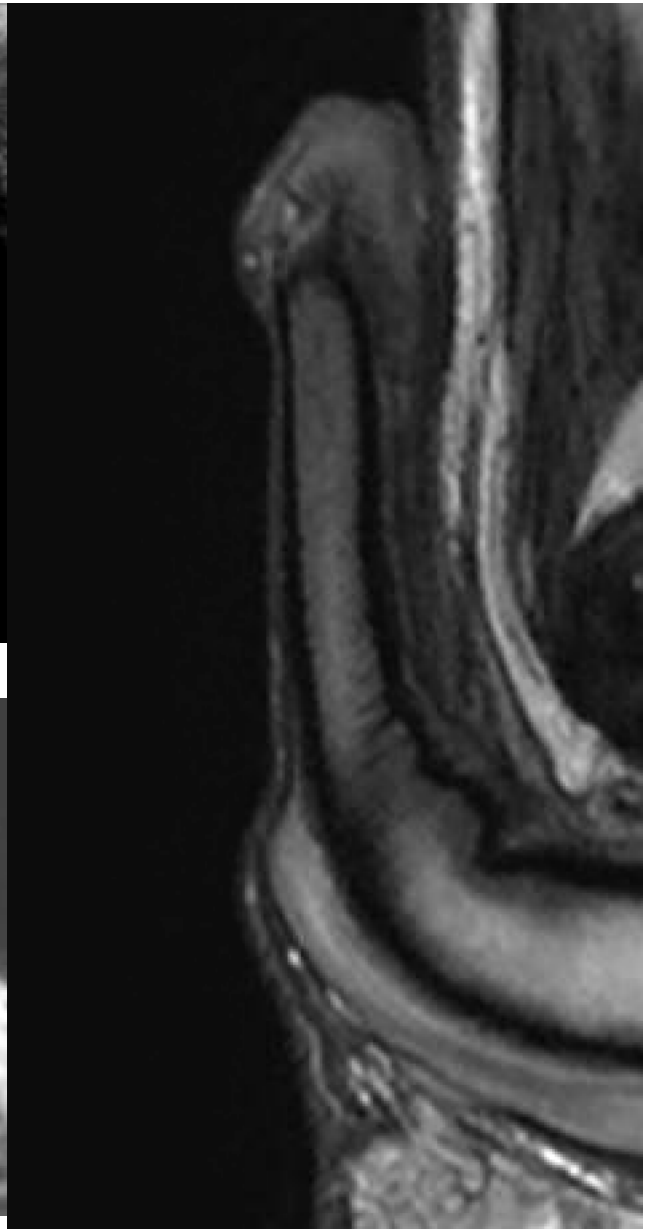
http://campus.cerimes.fr/urologie/enseignement/urologie_20/site/html/images/f20-01-rgb.jpg

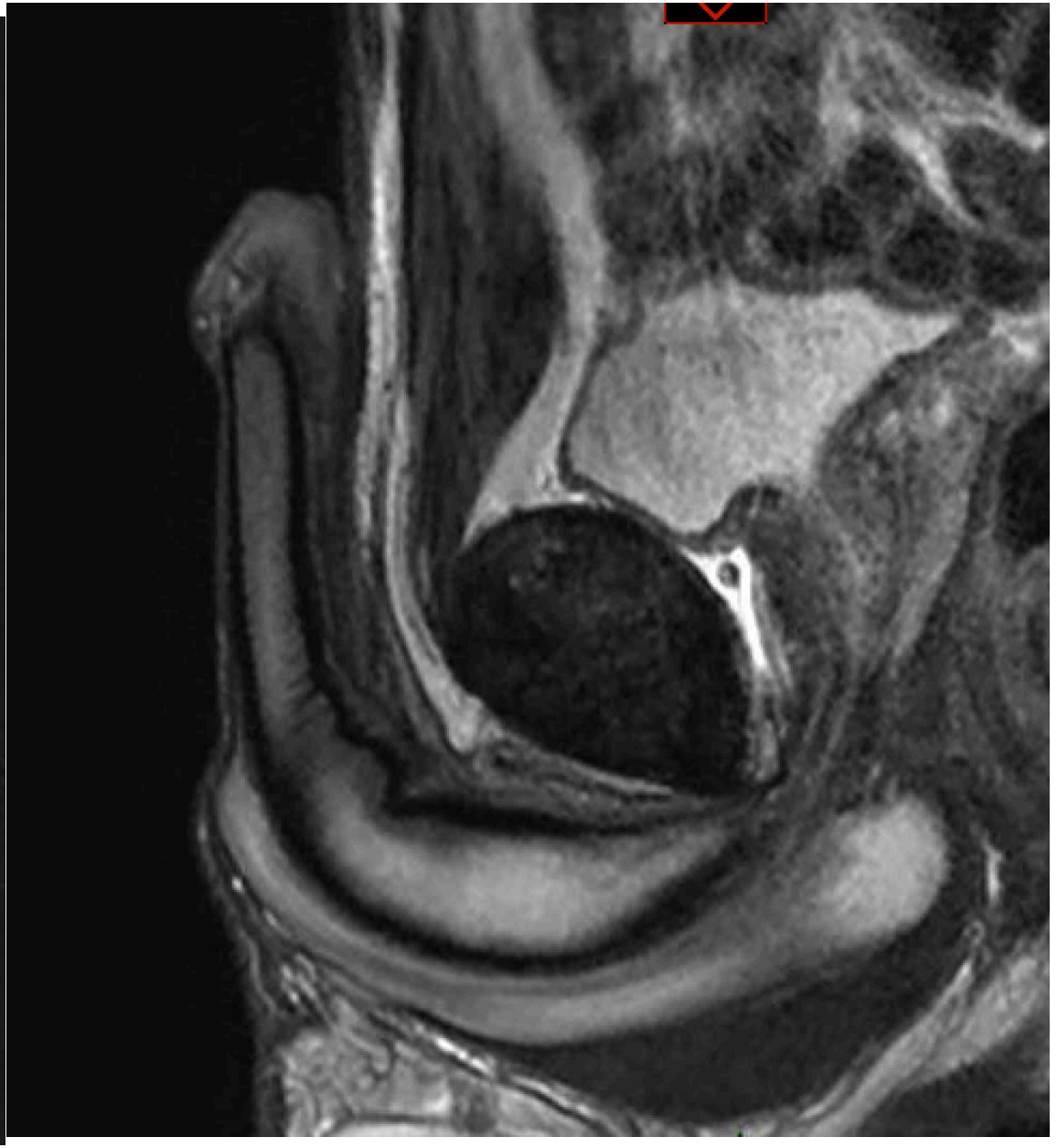






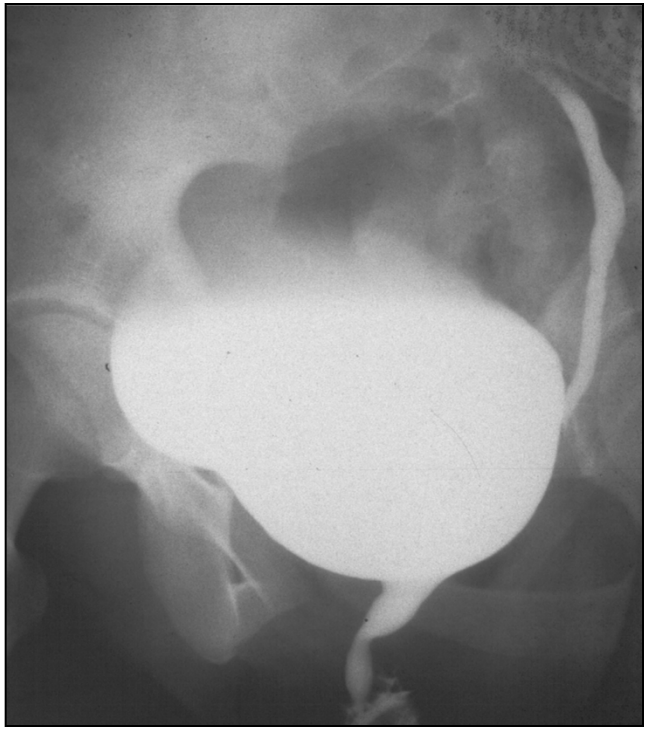






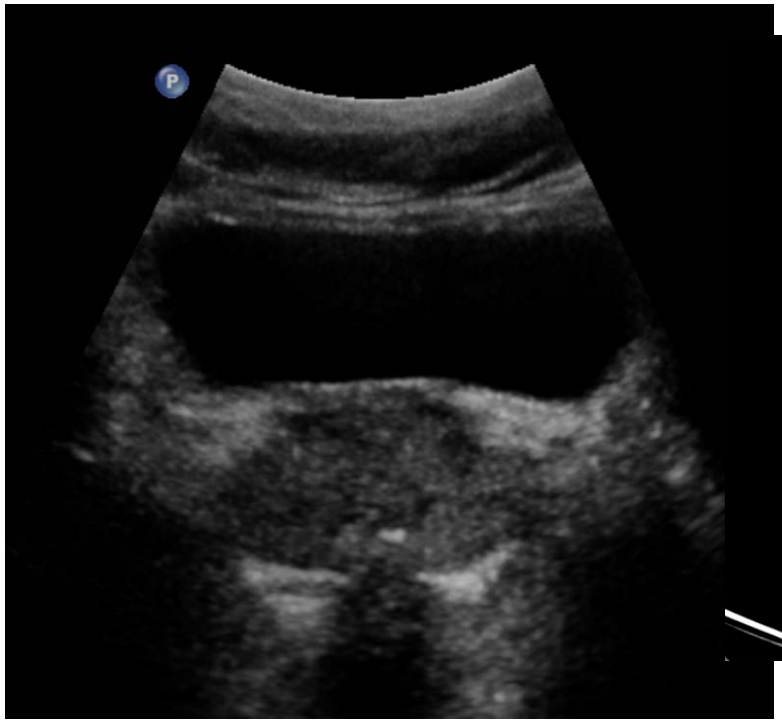
Urètre chez la femme

- Partie intrapelvienne
- Partie extrapelvienne
  - Limite : diaphragme uro-génital



Imagerie des organes génitaux

- Prostate et vésicules séminales
  Echographie, CT, IRM
- Testicules et épididymes
  Echographie



Imagerie des organes génitaux

Prostate et vésicules séminales

IRM

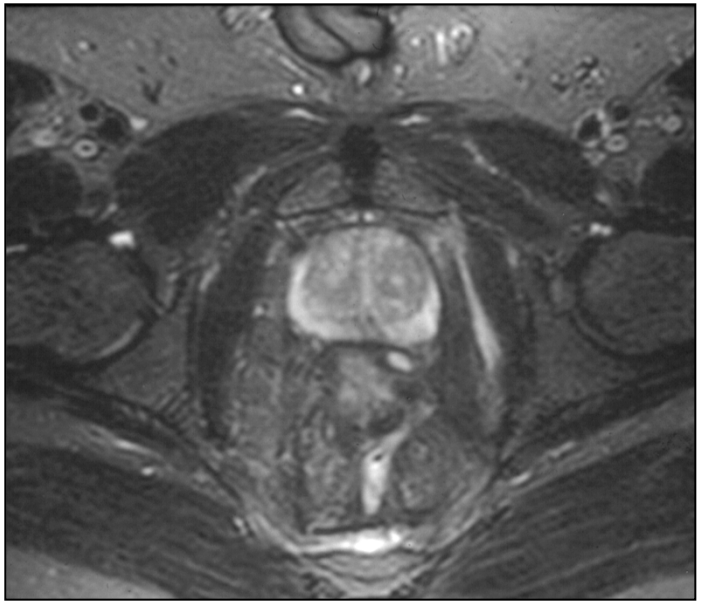
Prostate

4 x 3 x 2.5 cm

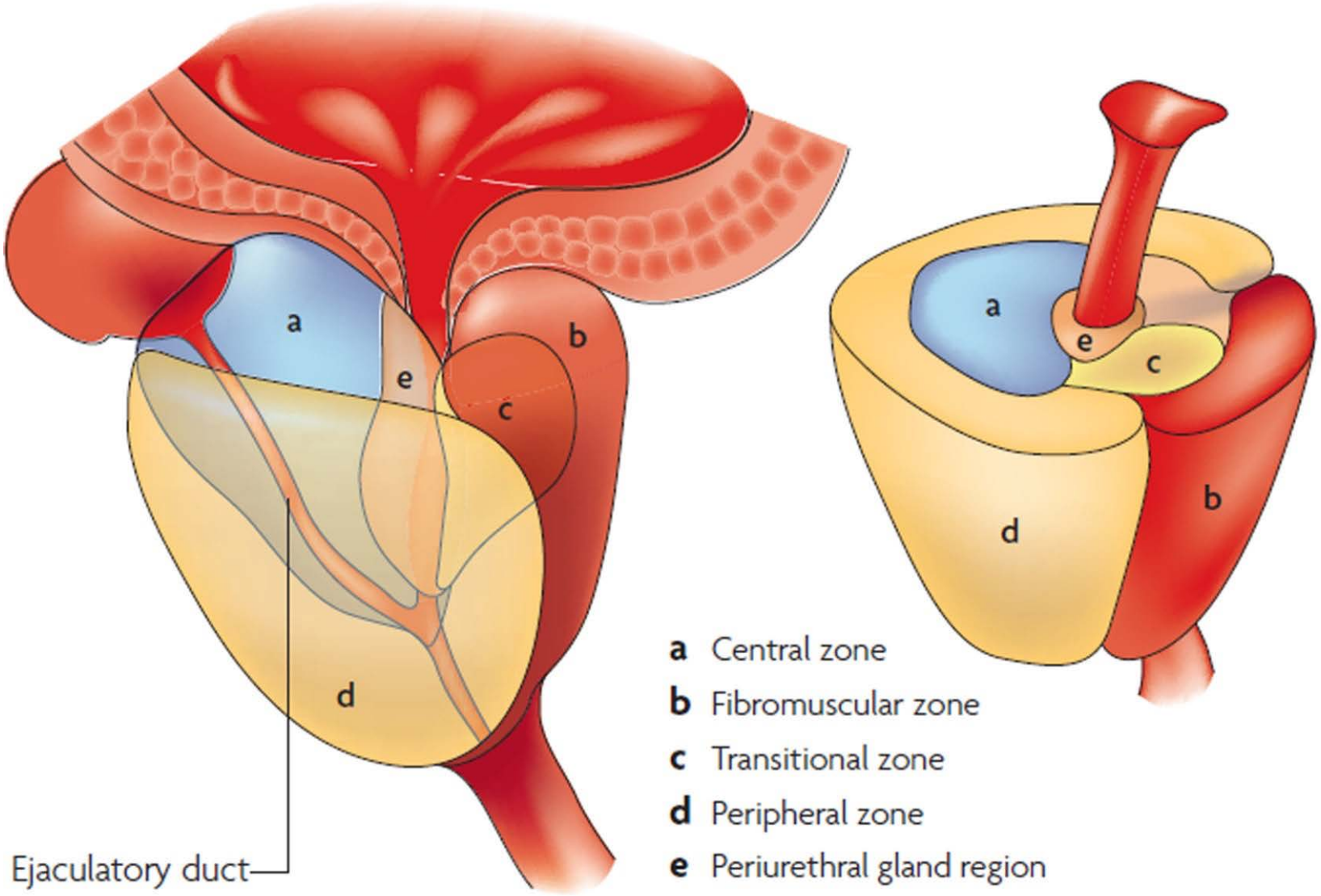
Zone périphérique : hyperintense en T2

Zone centrale : hypointense en T2

Vésicules séminales : hyperintenses en T2



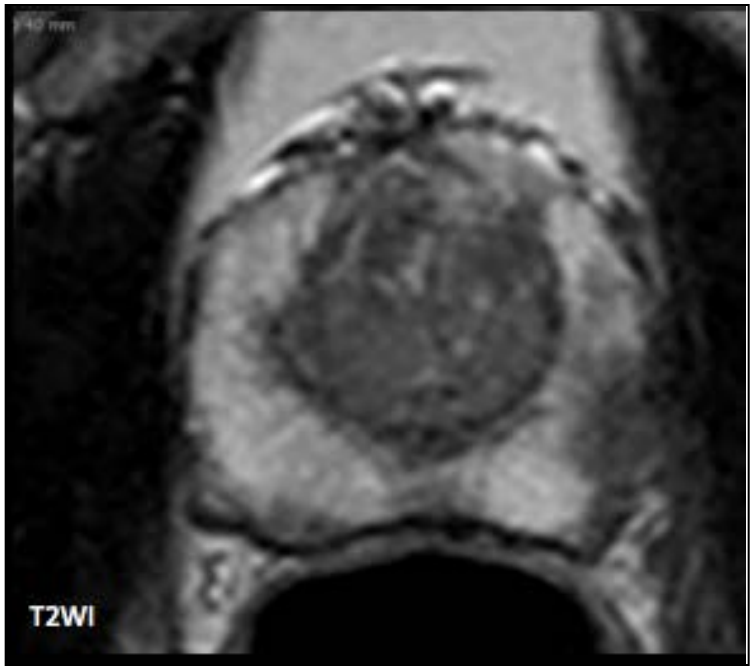
Prostate zones

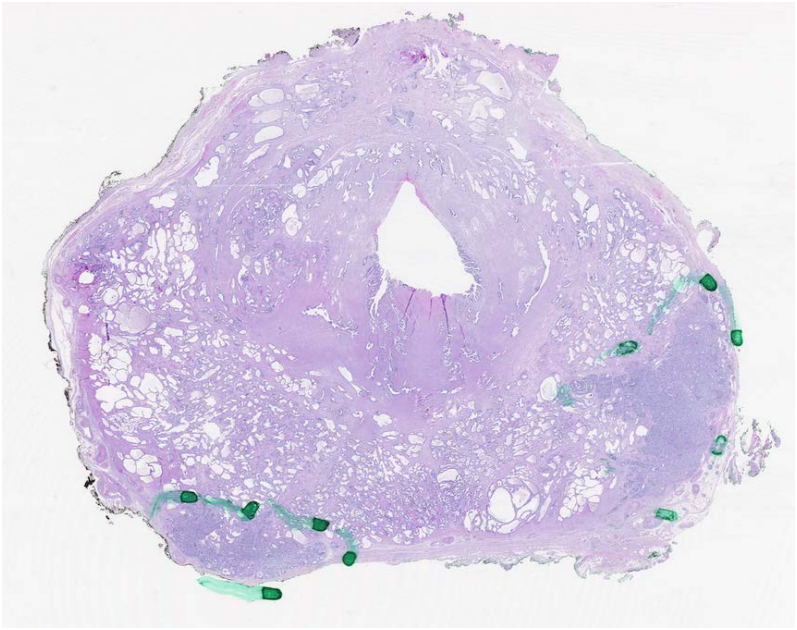


ECR Prostate conference, Vienna 2015

Prostate et vésicules séminales

- IRM
  - Prostate
    - 4 x 3 x 2.5 cm
    - Zone périphérique : hyperintense en T2
    - Zone centrale : hypointense en T2
    - Vésicules séminales : hyperintenses en T2





Prostate et vésicules séminales

IRM

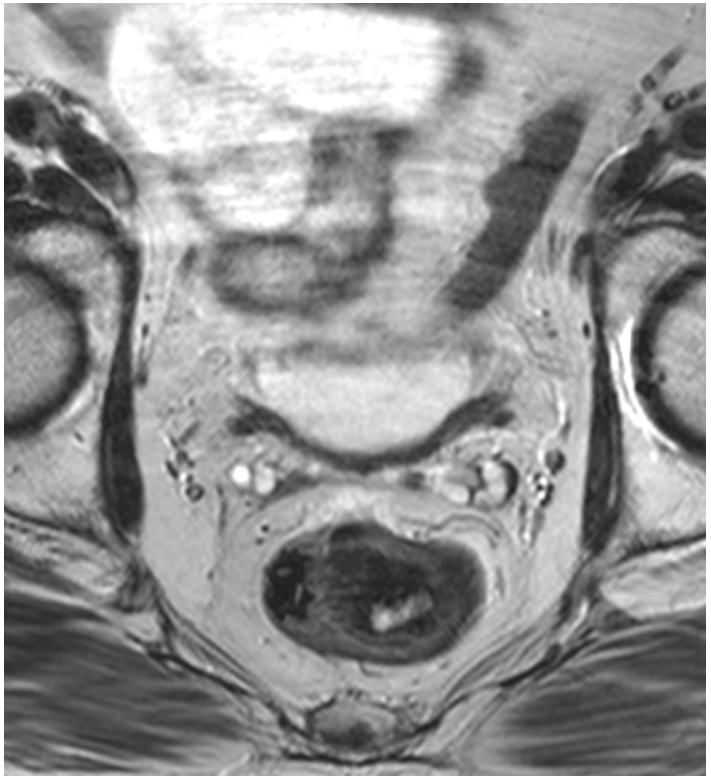
Prostate

4 x 3 x 2.5 cm

Zone périphérique : hyperintense en T2

Zone centrale : hypointense en T2

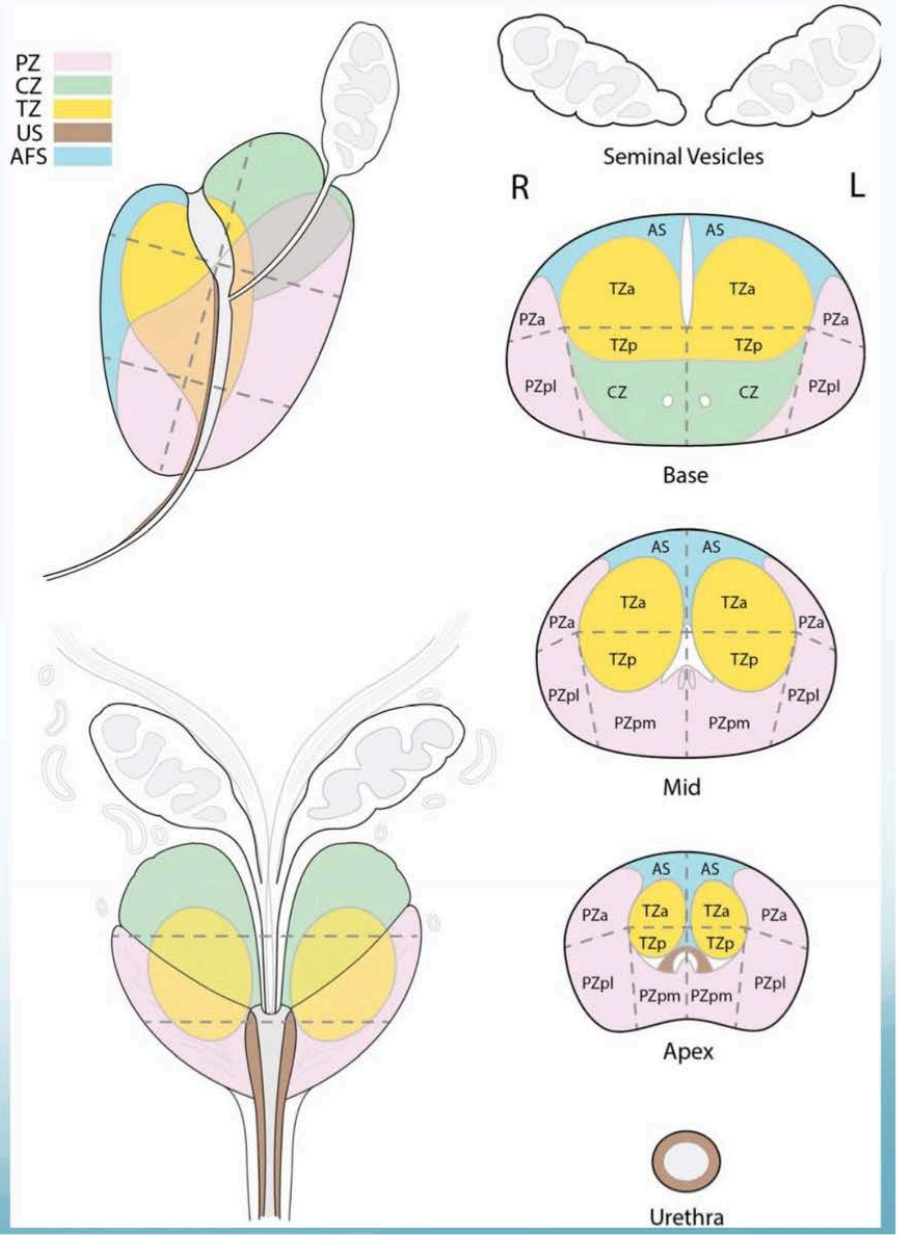
Vésicules séminales : hyperintenses en T2



Carte sectorielle

- 39 secteurs
  - 36 prostate
  - 2 vésicules séminales
  - 1 sphincter externe de l'urètre

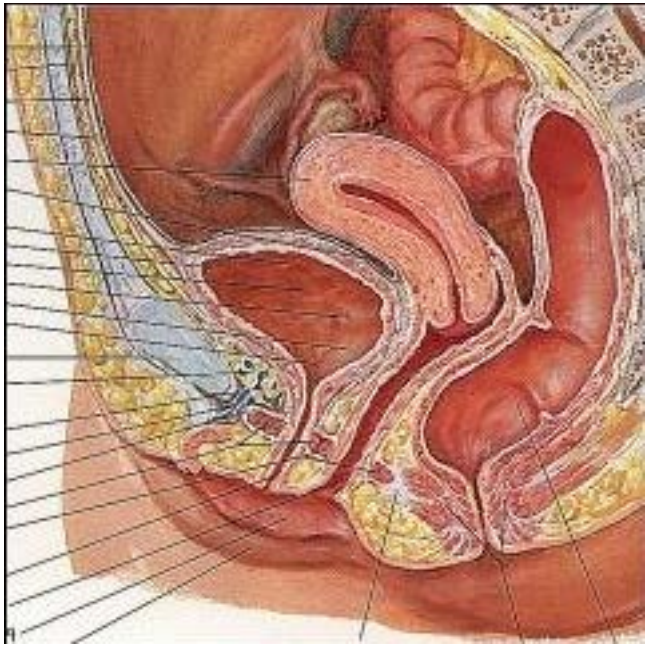
- Relations entre la tumeur et la surface de la glande et les structures adjacentes (él. neuro-vascu., sphincter ext. de l'urètre, col de la vessie)



L Annet 2015

Utérus et ovaires

- Echographie et IRM
- Utérus : trois parties
  - Corps
  - Isthme
  - Col
  - Endomètre : hyperintense en T2
  - Zone jonctionnelle : partie interne du myomètre : hypointense en T2
  - Myomètre : signal intermédiaire
- Ovaires
  - 3 x 1.5 x 1.2 cm
  - Hyperintenses en T2



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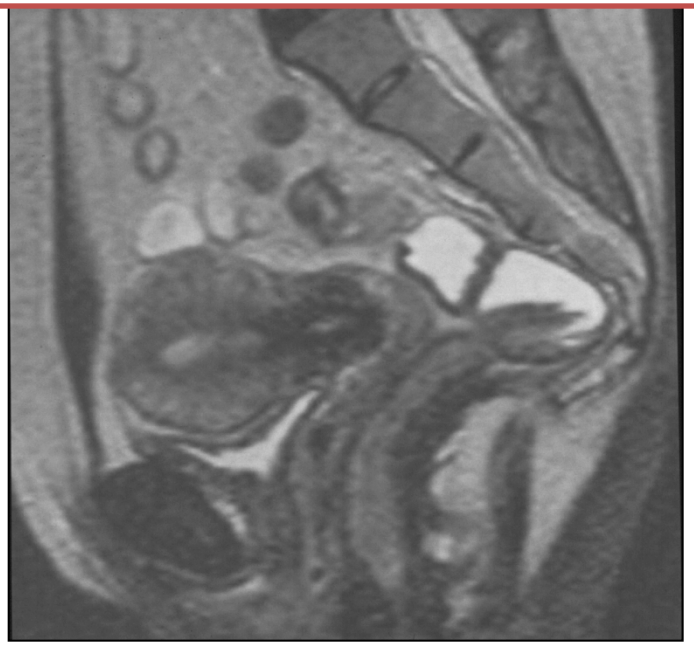
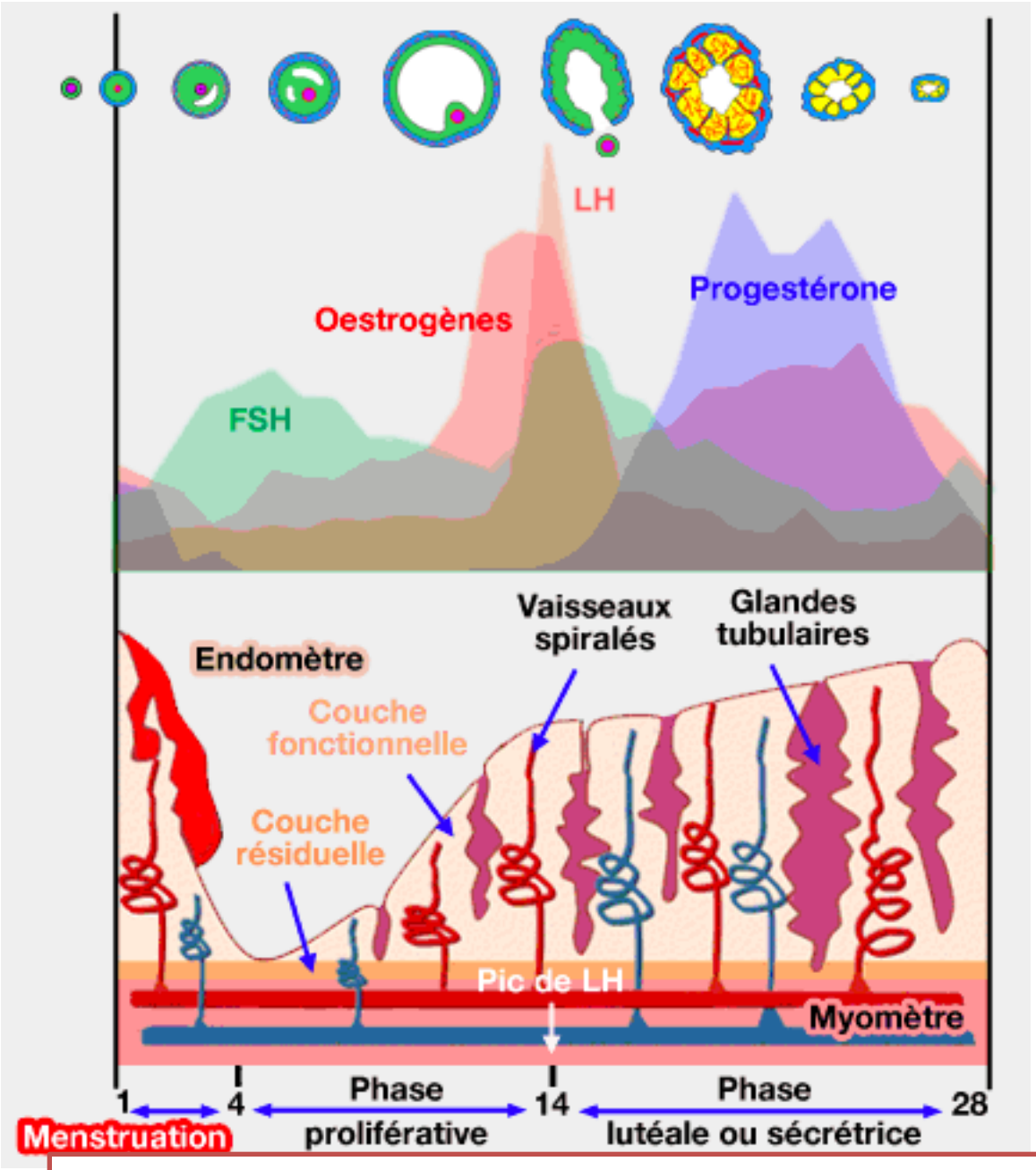
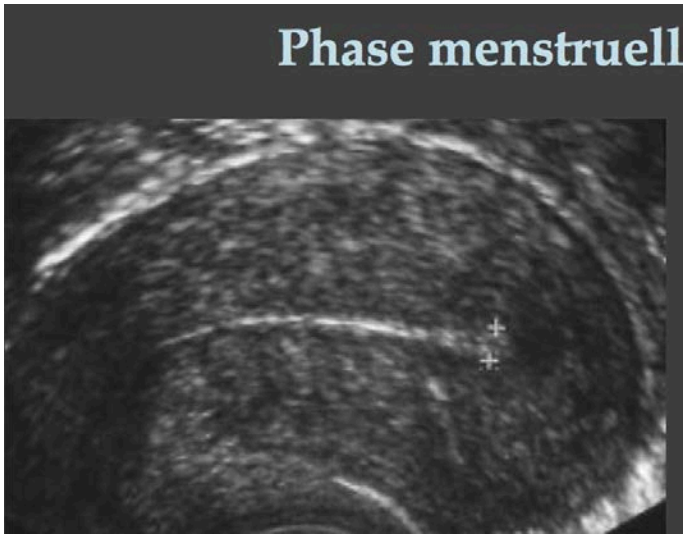


In Netter, Atlas d'anatomie humaine, 4ème édition, 2007





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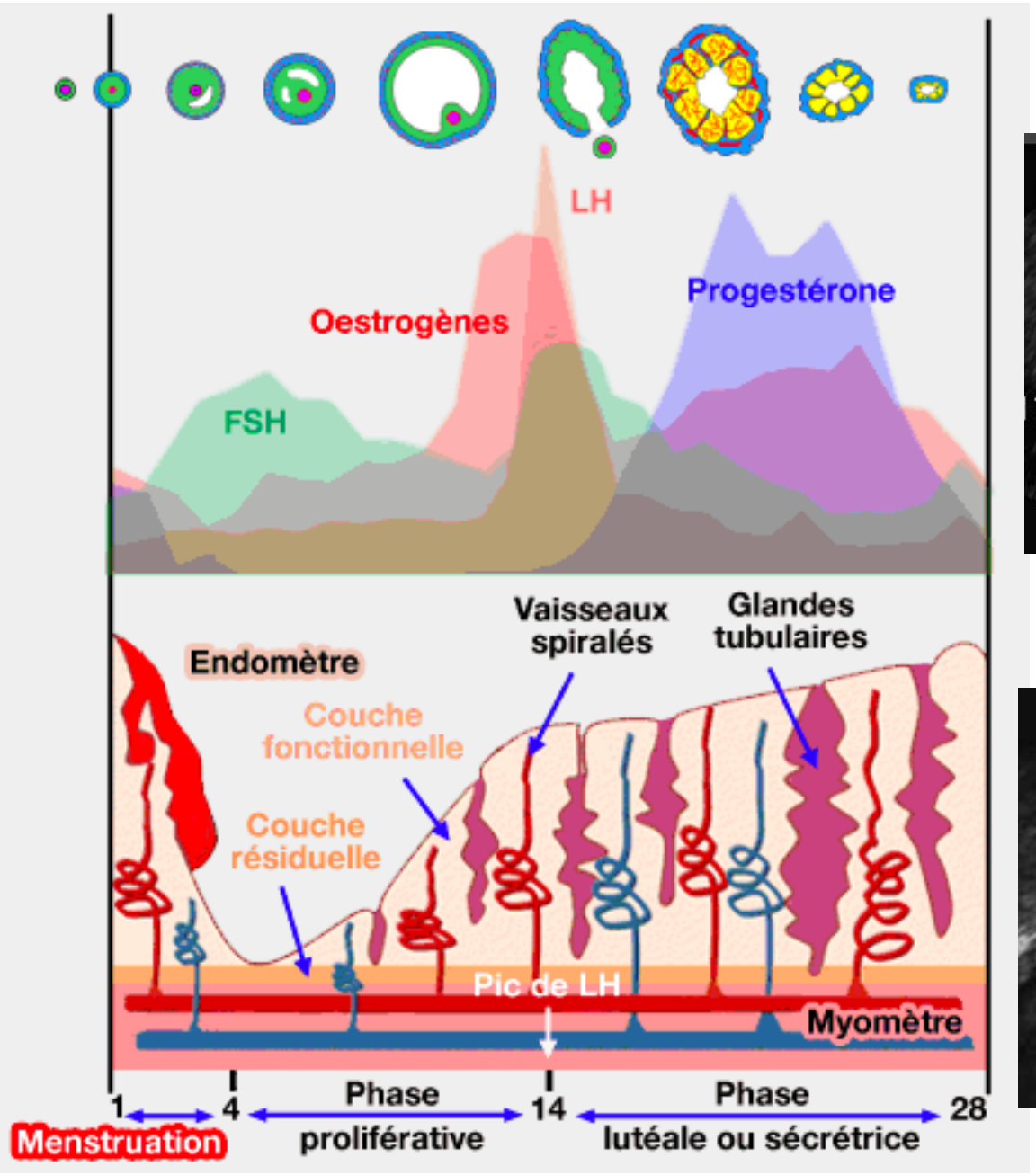
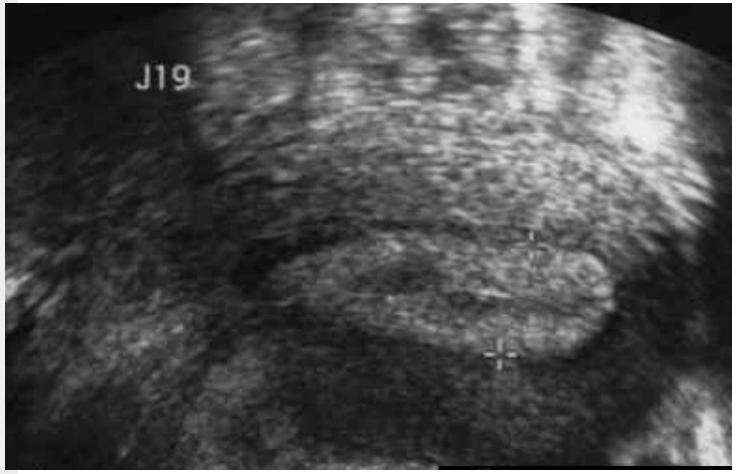


Phase proliférative

Phase lutéale



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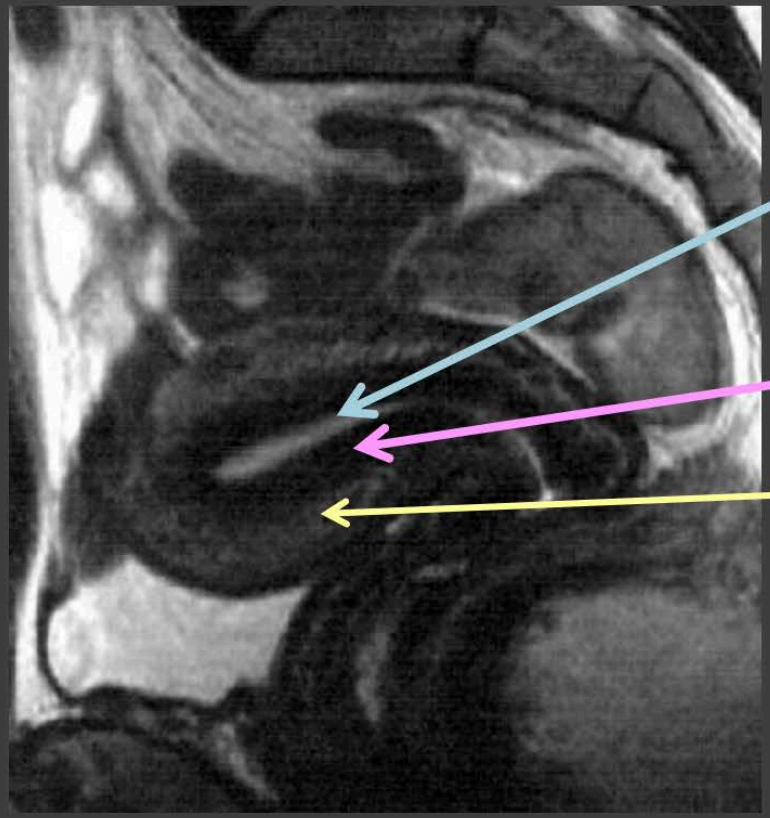
Utérus en IRM

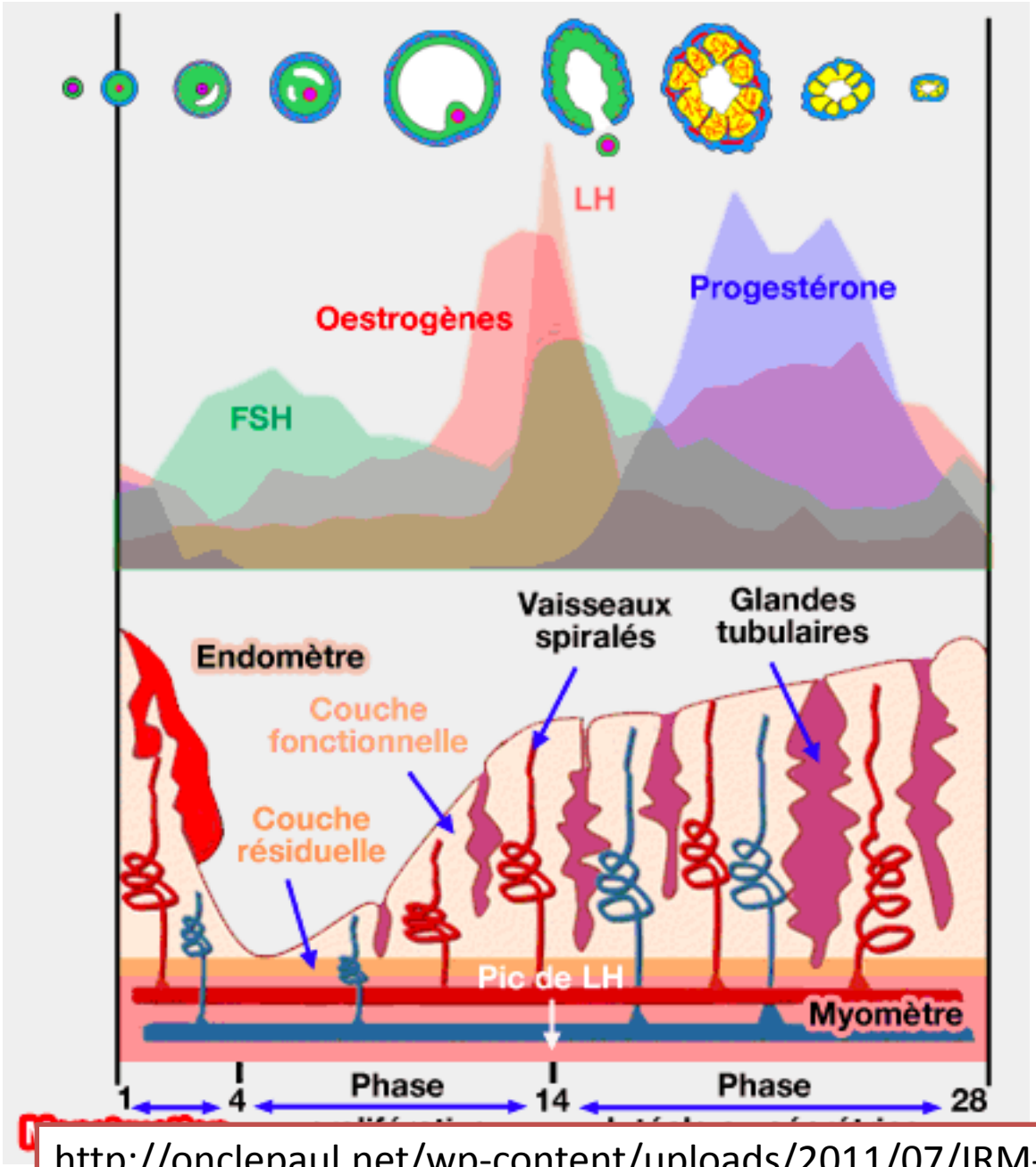


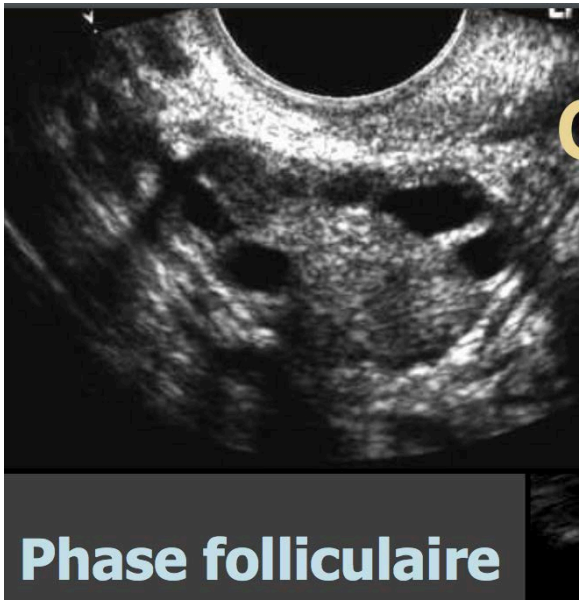
Blanc: endomètre

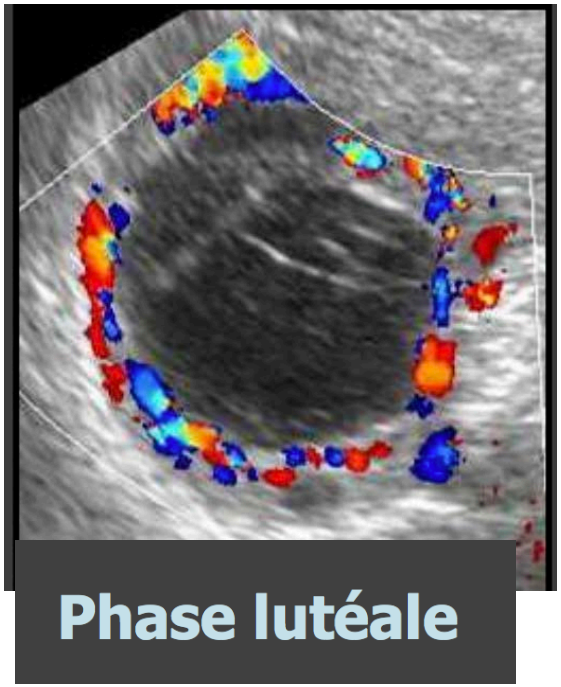
Noir : zone jonctionnelle = myomètre interne

Gris : myomètre externe

http://onclepaul.net/wp-content/uploads/2011/07/IRM-pelvienne-pour-les-nuls.pdf







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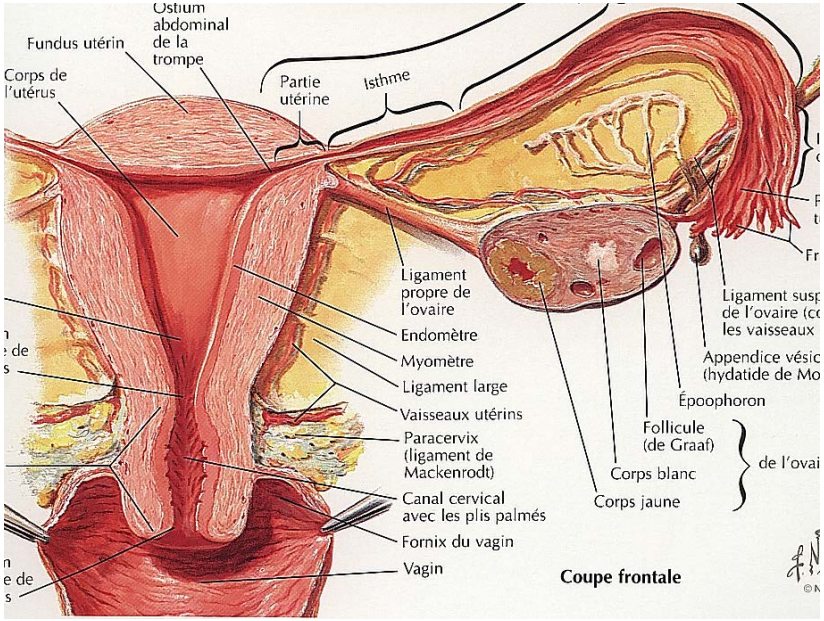
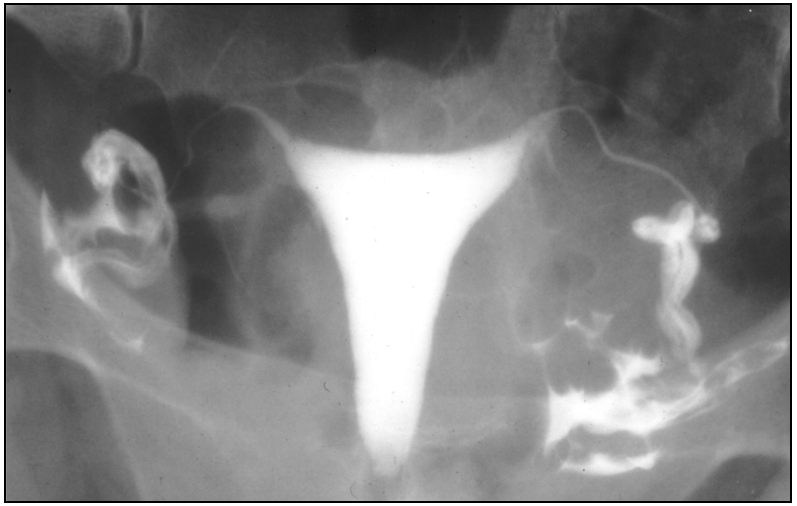
Trompes

- Hystérosalpingographie





In Netter, Atlas d'anatomie humaine, 4ème édition, 2007

TESTICULE

- ovoïde
- 5 x 3.5 x 3 cm
- echostructure homogène, fine

SCROTAL SONOGRAPHY: CURRENT USES*

Evaluation of the location and characteristics of scrotal masses
Detection of an occult primary tumor in patients with known metastatic disease
Follow-up of patients with testicular microlithiasis
Follow-up of patients with previous testicular neoplasms, leukemia, or lymphoma
Evaluation of extratesticular pathology
Evaluation of the acute scrotum
Evaluation of scrotal trauma
Localization of the undescended testis
Detection of varicoceles in infertile men
Evaluation of testicular ischemia with color flow and power mode Doppler sonography

*References 1-7.

Rumack et Wilson, Diagnostic Ultrasound, Mosby, 2004

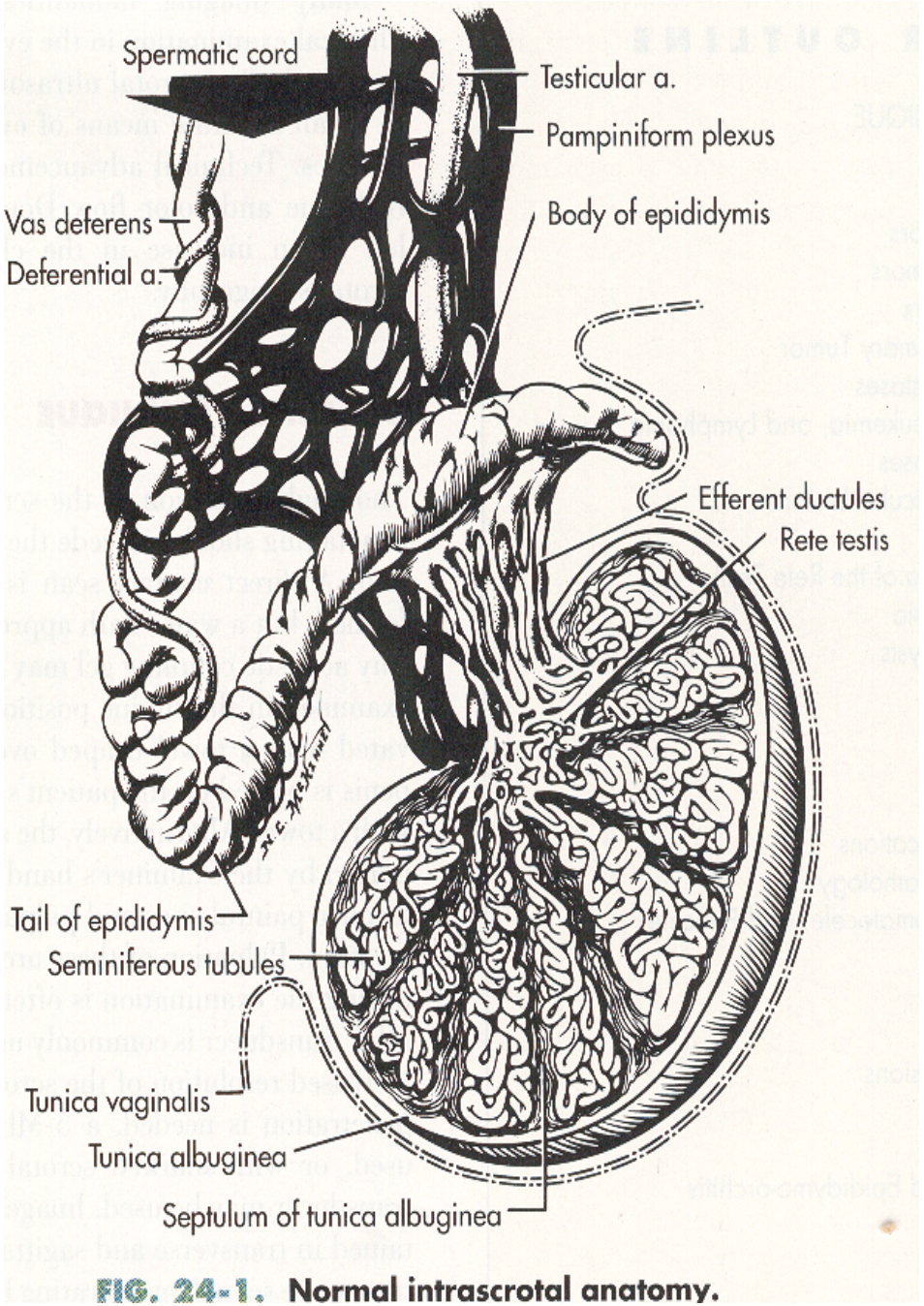
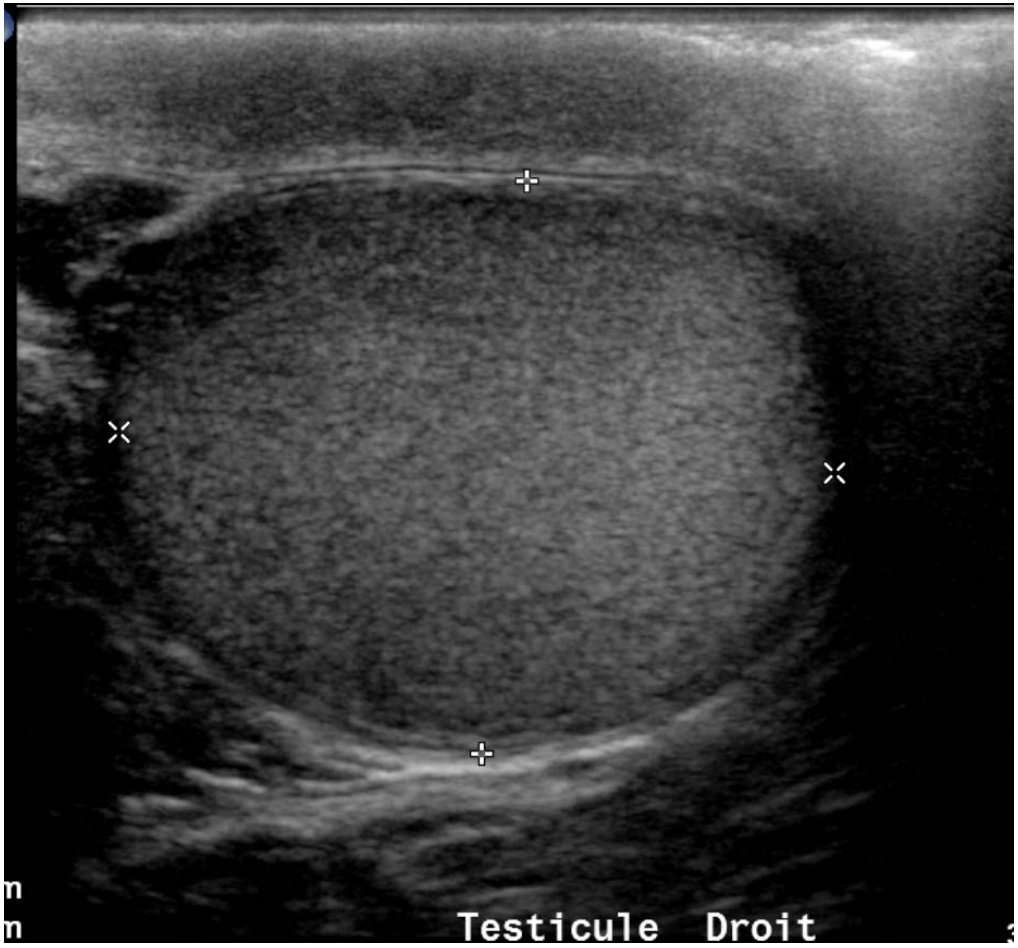
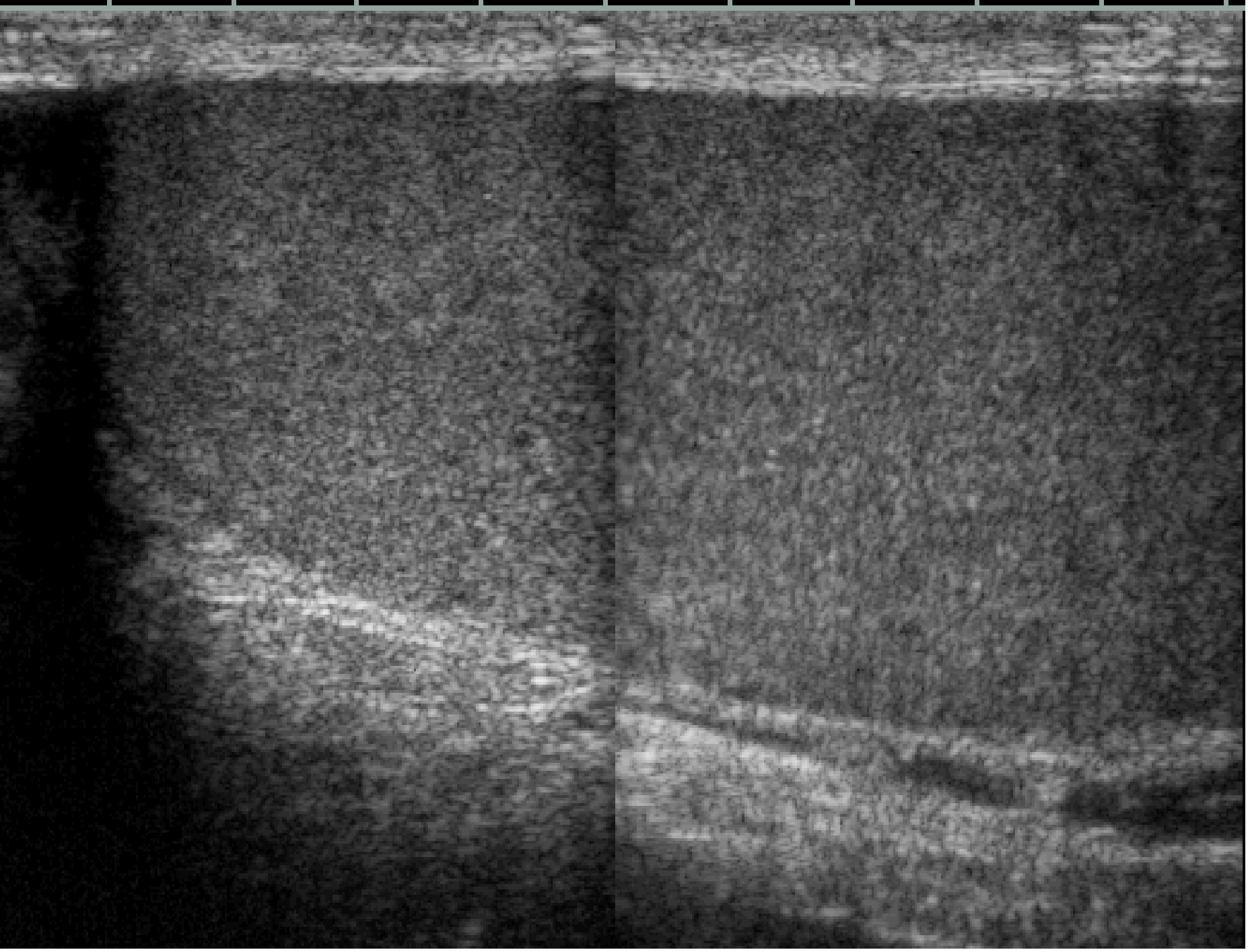
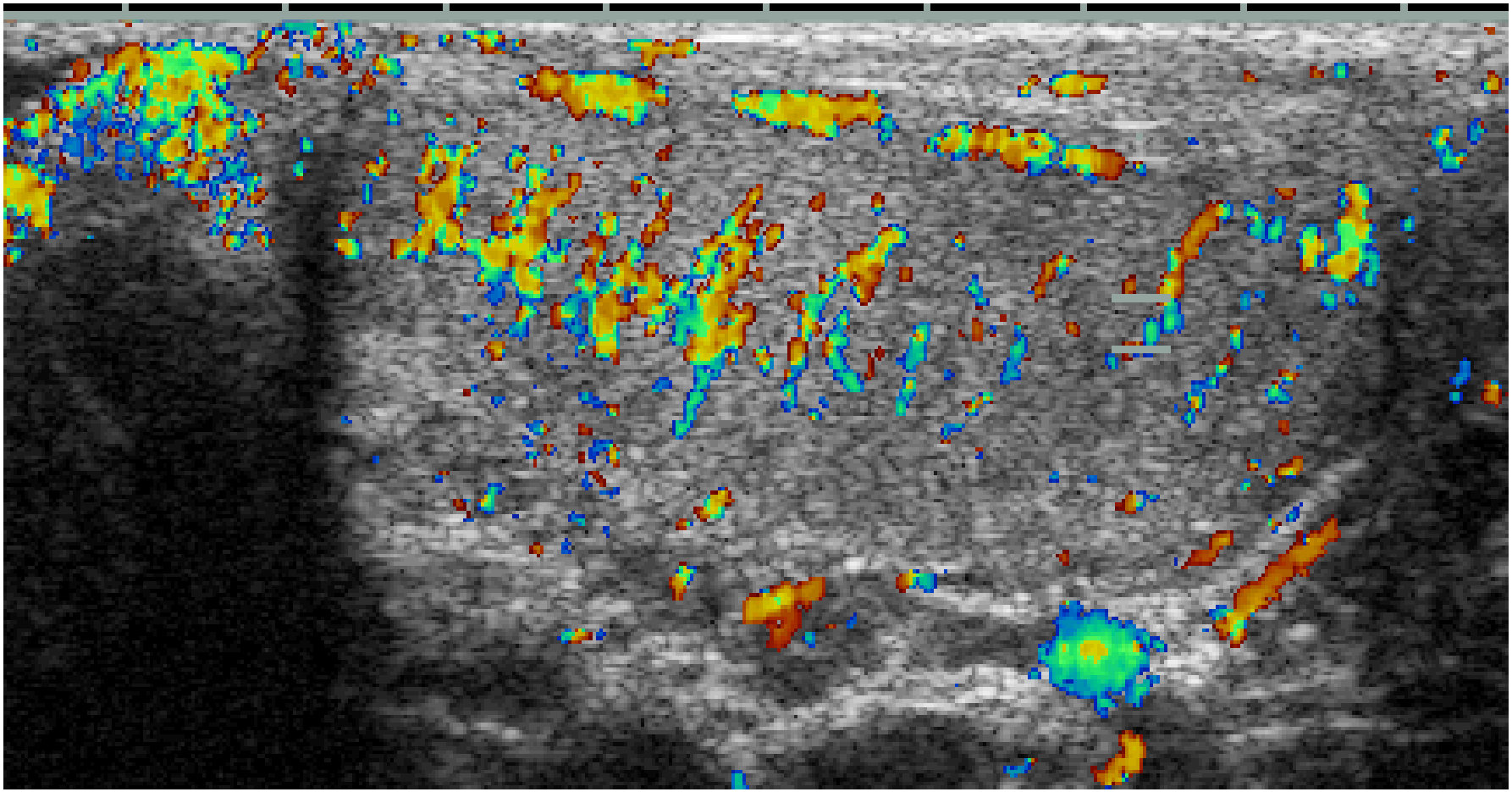
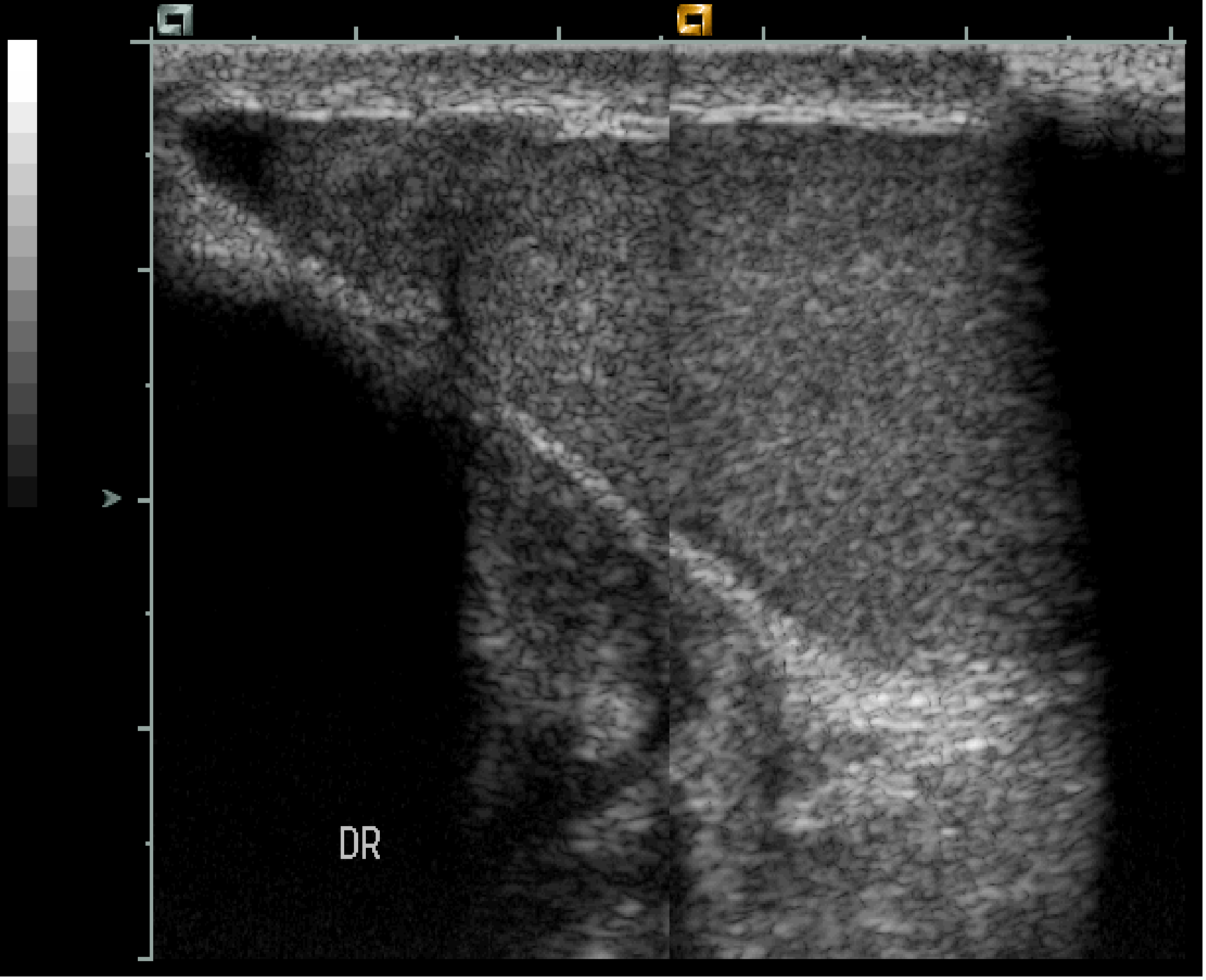


FIG. 24-1. Normal intrascrotal anatomy.


Testicule Droit



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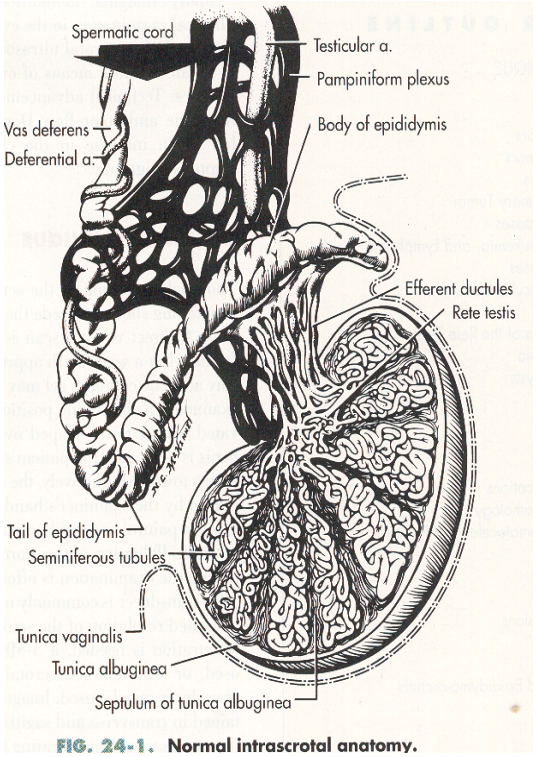

FIG. 24-1. Normal intrascrotal anatomy.