

# Notions de radiologie abdominale

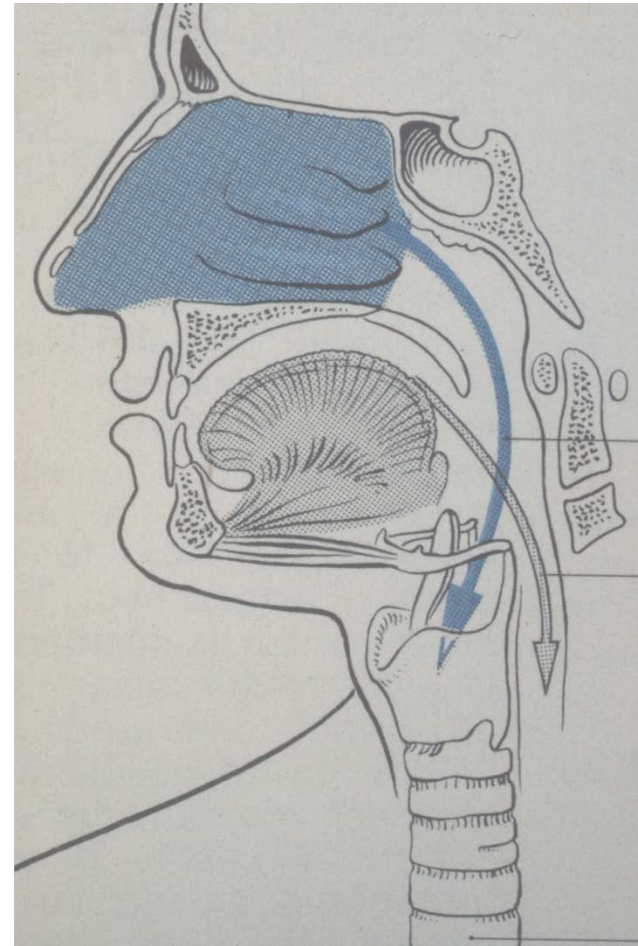
Bac 13

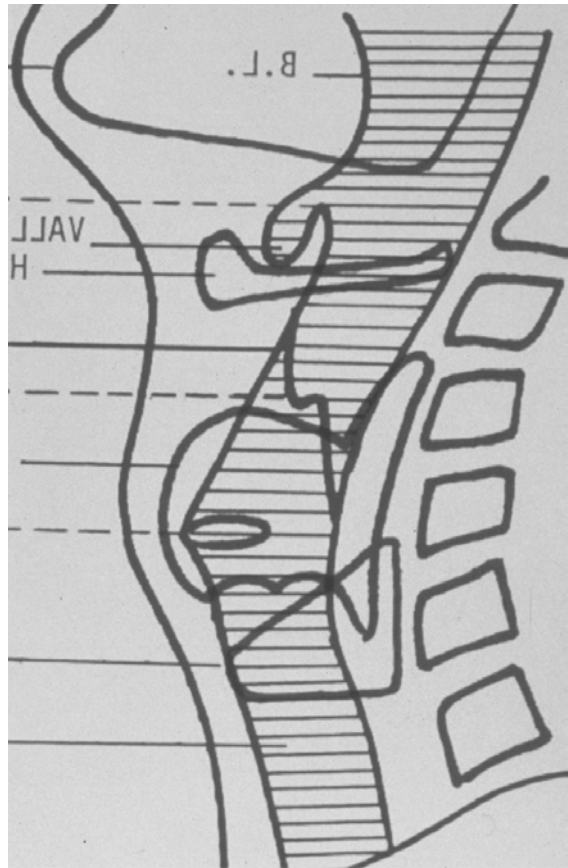
# Notions d'anatomie radiologique

- Foie, voies biliaires, pancréas
- Tube digestif
  - Du pharynx à l'anus
- Voies urinaires
  - Des reins aux testicules
- Vascularisation abdominale et péritoine

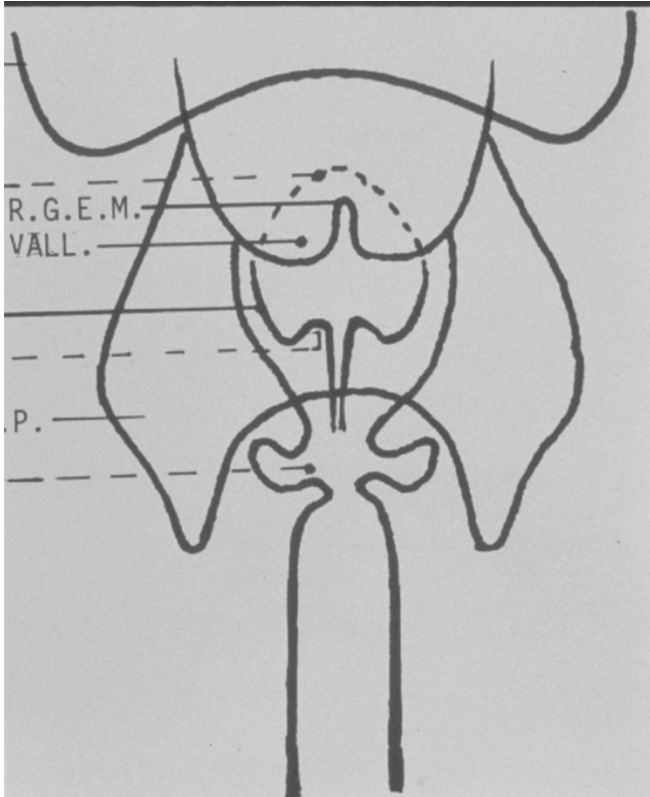
# Pharynx

- Conduit mixte en arrière des cavités nasales et de la bouche et se continuant à son extrémité inférieure dans le larynx à l'avant et l'oesophage à l'arrière

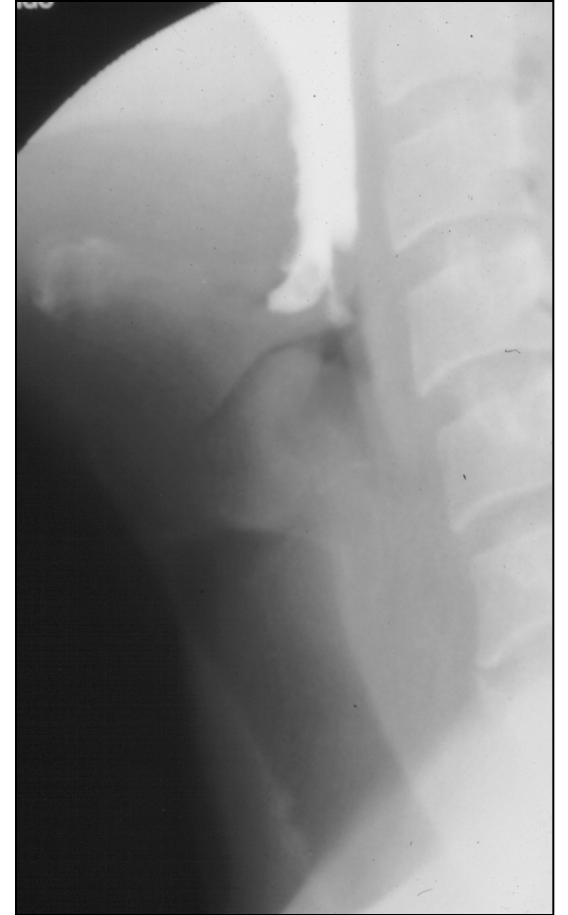
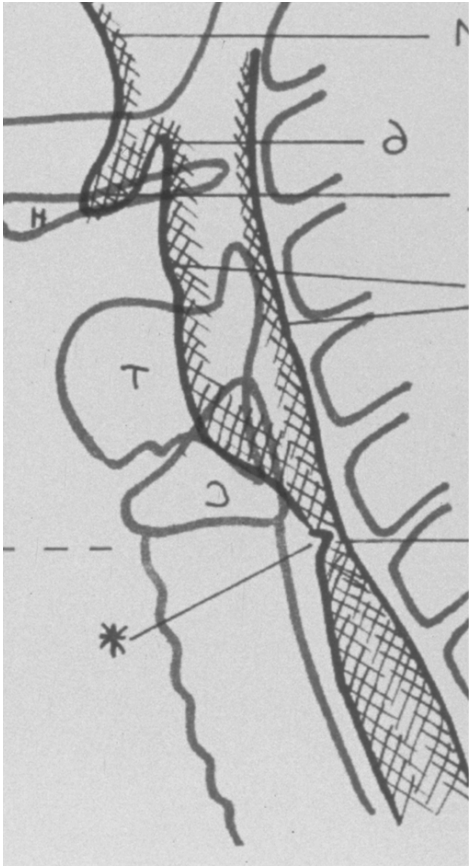














<2-1>



# Déglutition

## Bouche et pharynx

Accolement de la langue au voile du palais

Recul de la langue

Elévation du voile du palais

Contraction des muscles constricteurs

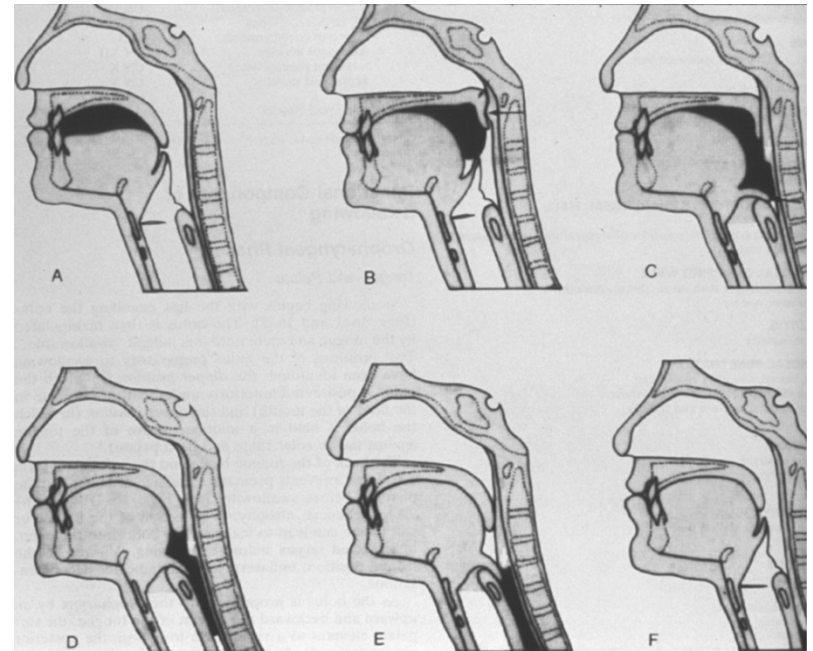
## Larynx

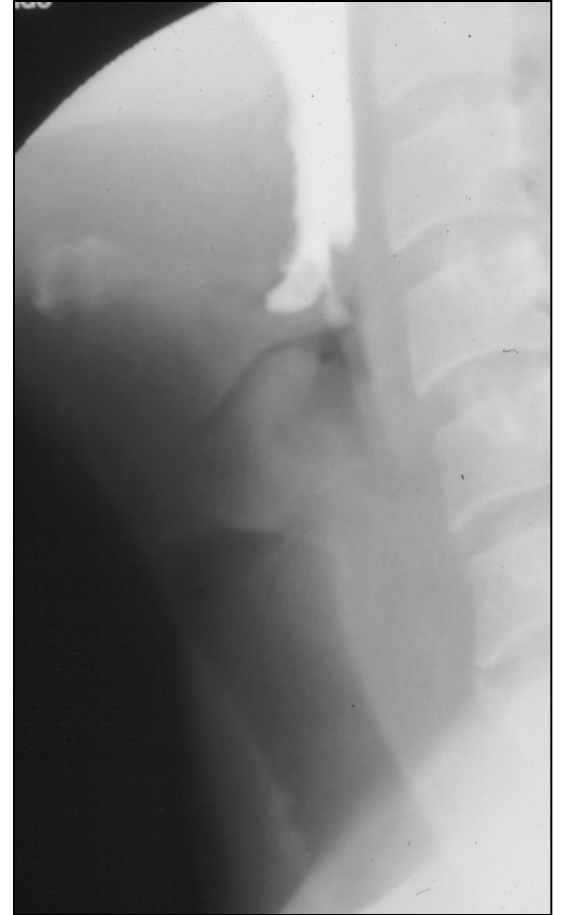
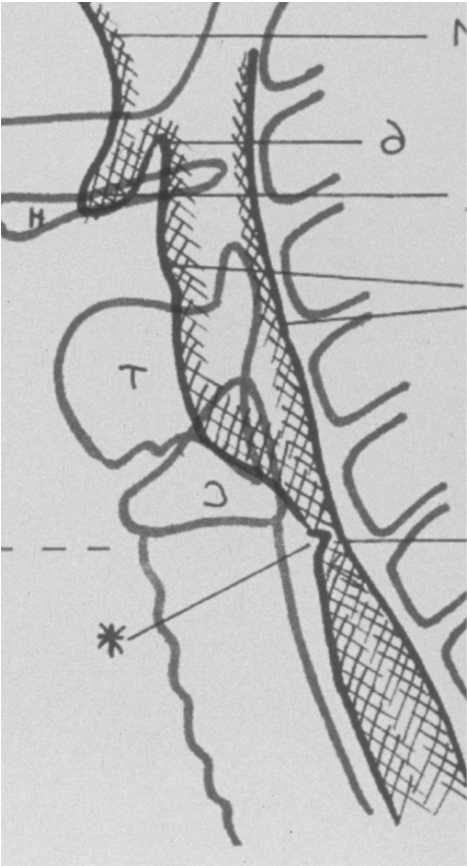
Fermeture du vestibule et des cordes

Elévation du larynx et de l'os hyoïde

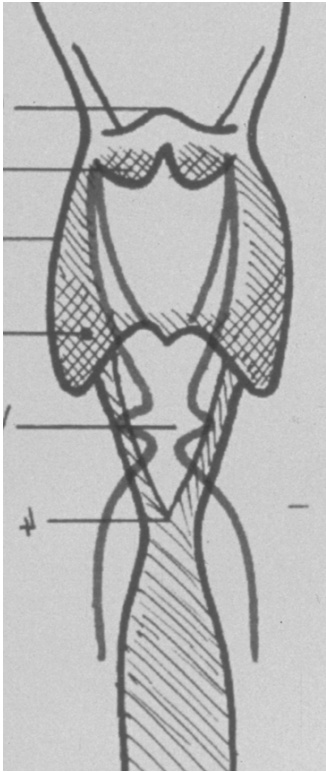
Epiglotte : bascule postérieure

Muscle crico-pharyngien : bouche  
oesophagienne : relaxation



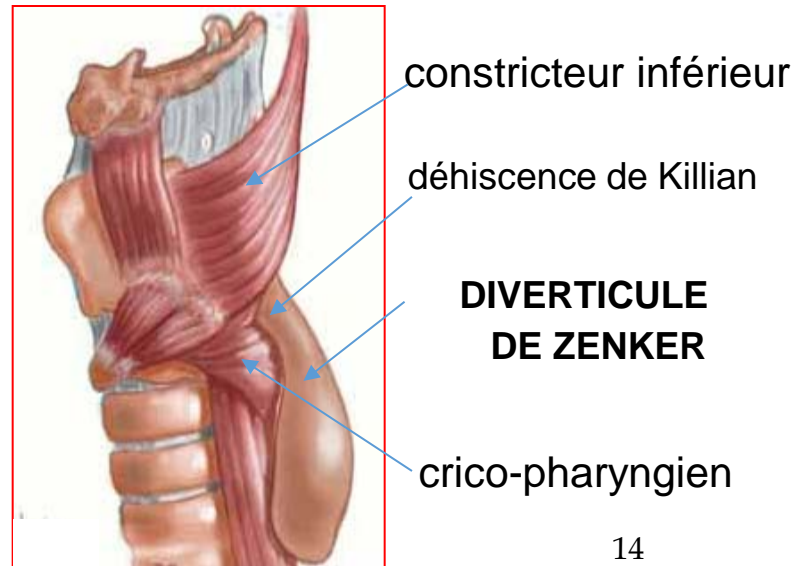




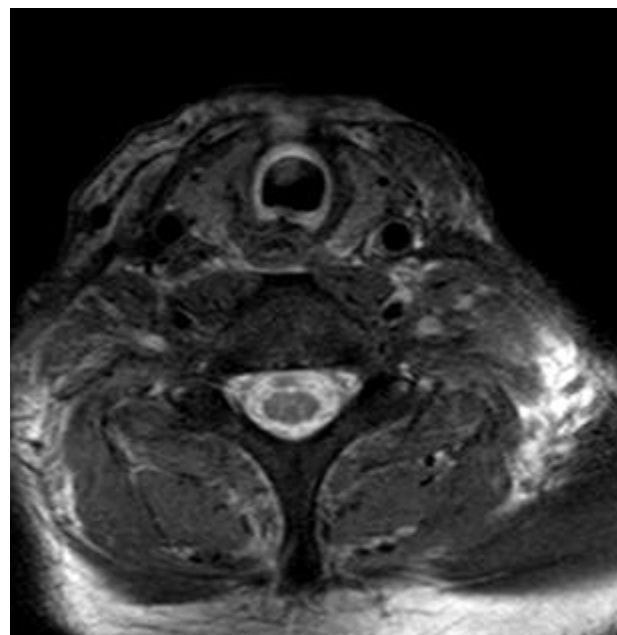








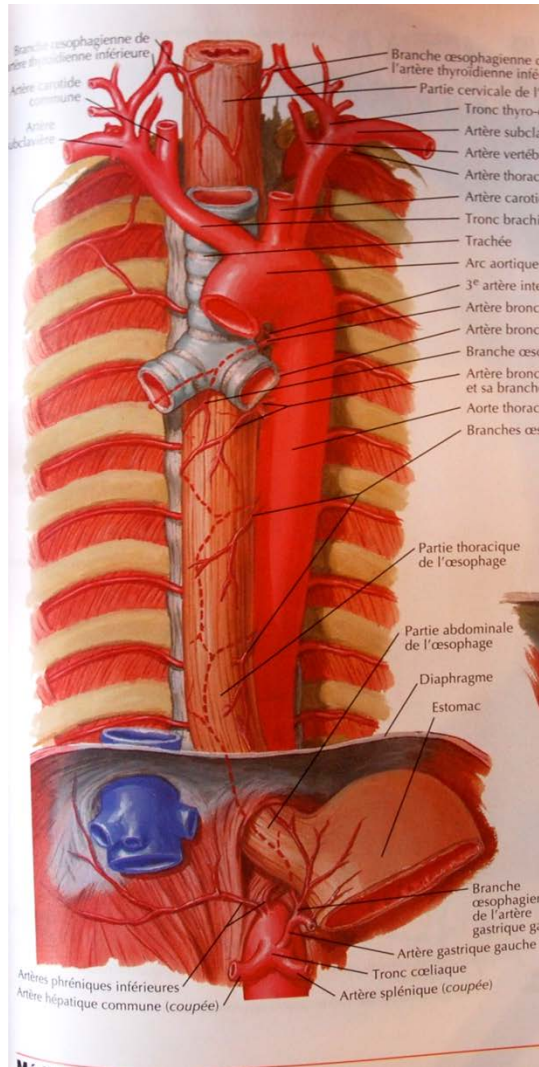
# CT scanner – IRM du cou



# Oesophagus

- Radiologie
- CT scanner





In Netter, Atlas d'anatomie humaine  
Masson, 2007

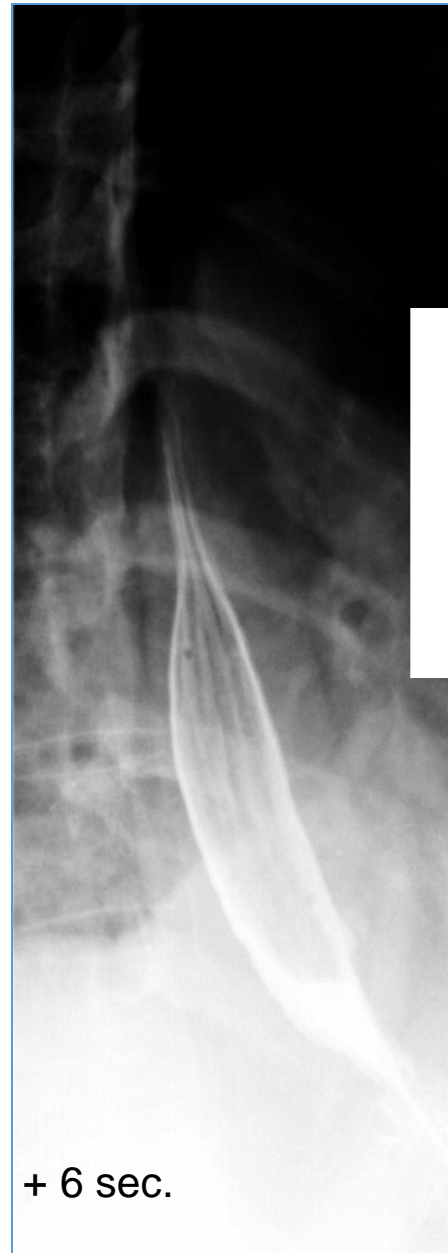
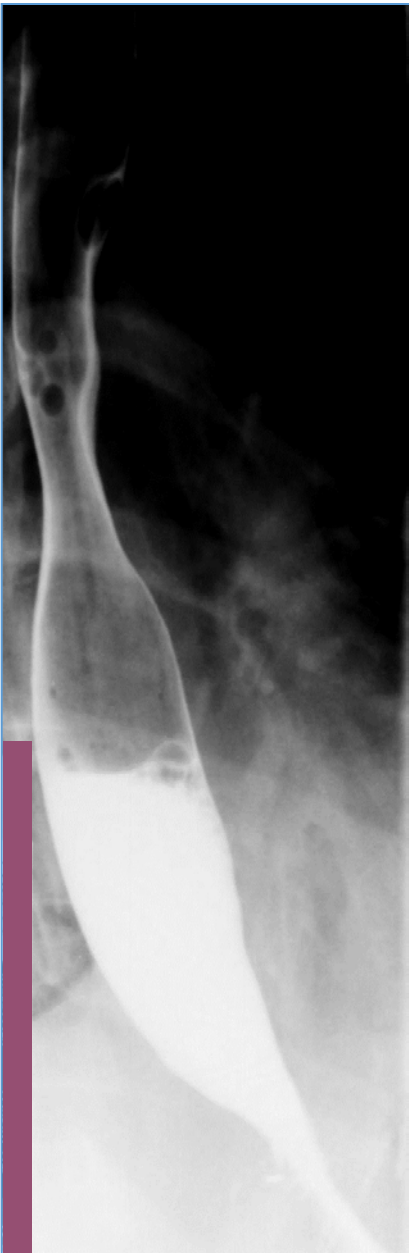


## PERISTALTIQUE PRIMAIRE

(1- 4 cm / sec.)

+ 10 sec.

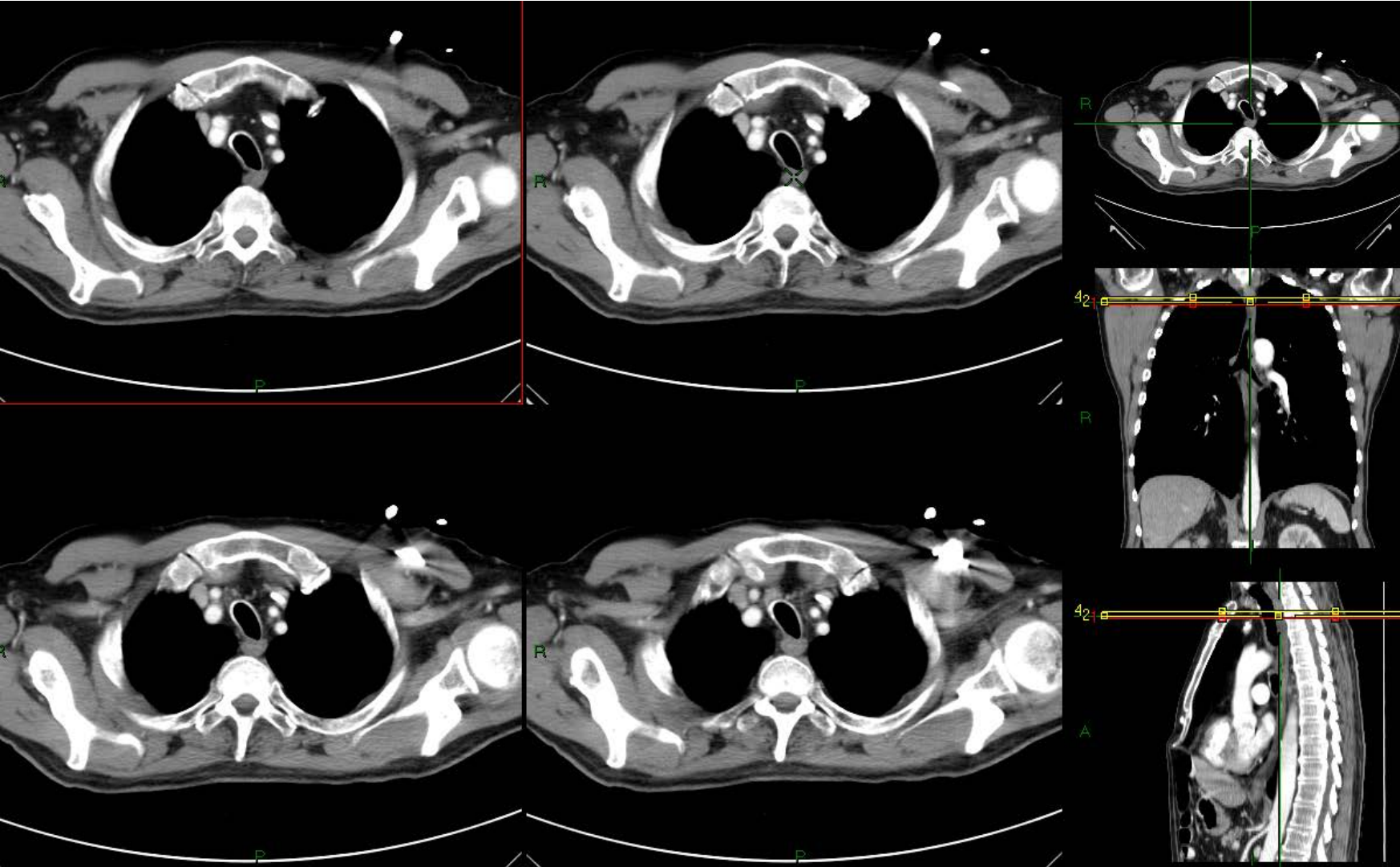




PERISTALTIQUE  
PRIMAIRE  
NORMALE  
( en V inversé )

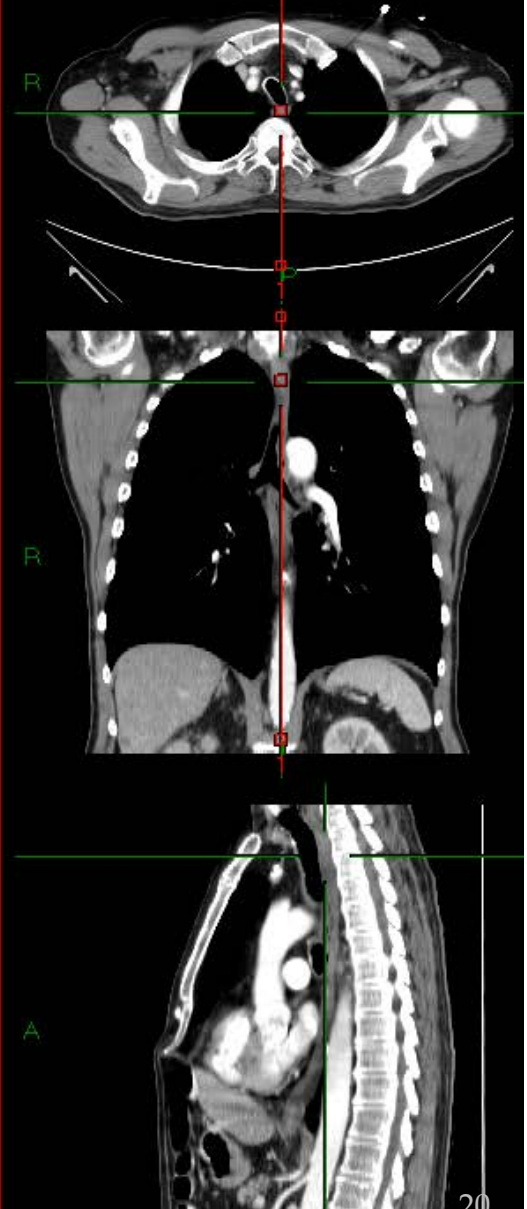
( 1- 4 cm / sec.)

# CT scanner





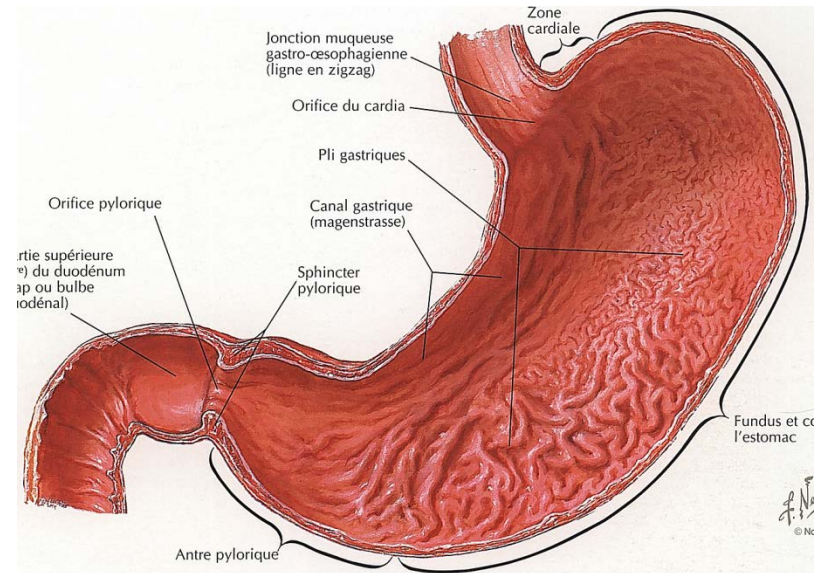
Épaisseur de la paroi de l'œsophage:  
= 5 mm en contraction, 3 mm si distendu  
= jamais > 5,5 mm  
= 1 mm de plus chez l'homme





# Estomac

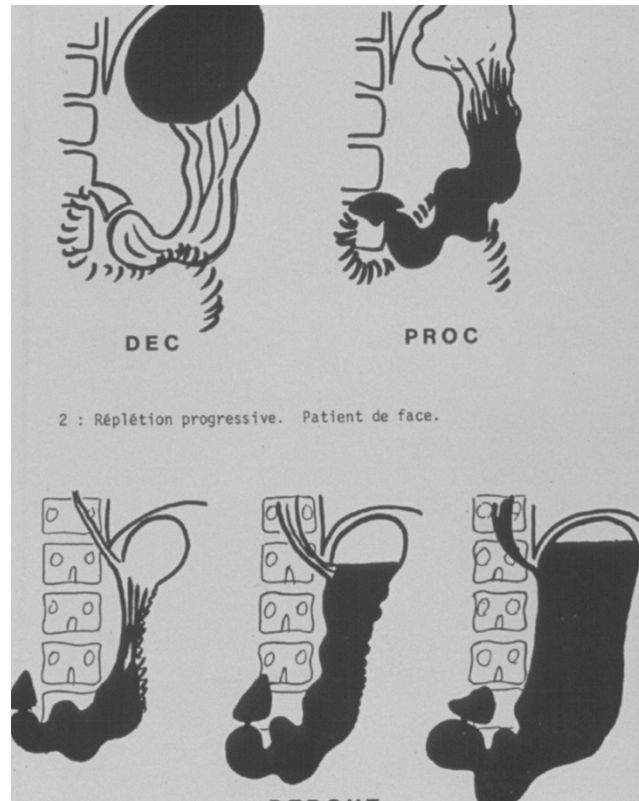
- Forme en J
- Deux faces : antérieure et postérieure
- Deux bords : petite et grande courbures
- Divisions
  - Cardia : extrémité supérieure
  - Fundus ou grosse tubérosité
  - Corps
  - Antre prépylorique
  - Pylore (sphincter) : extrémité inférieure
- Plis gastriques



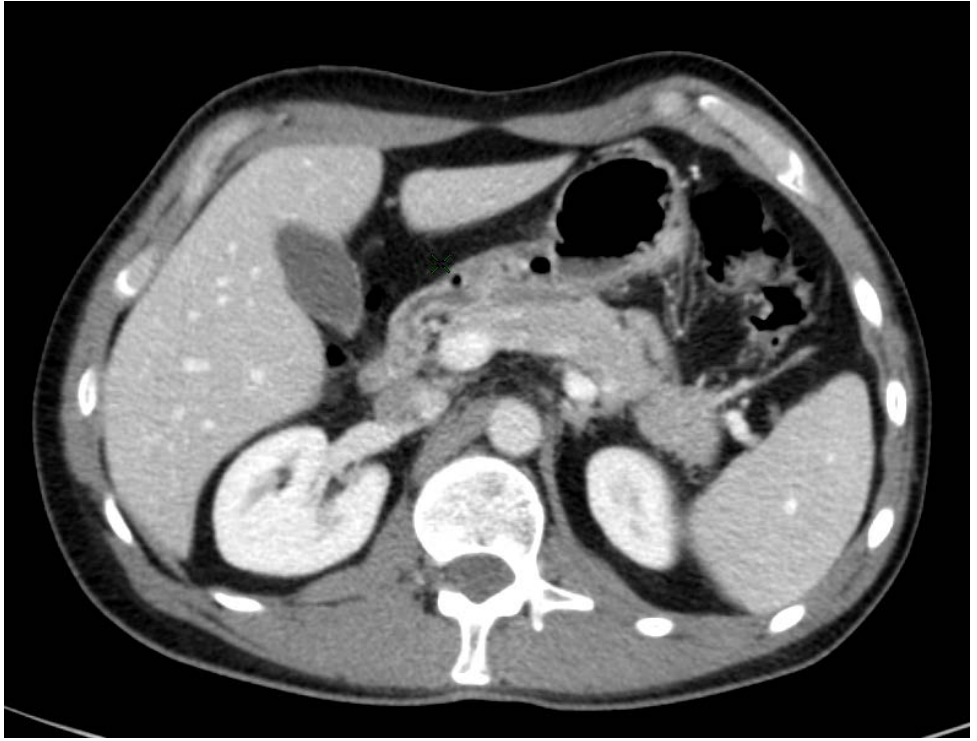
In Netter, Atlas d'anatomie humaine, Masson, 2007

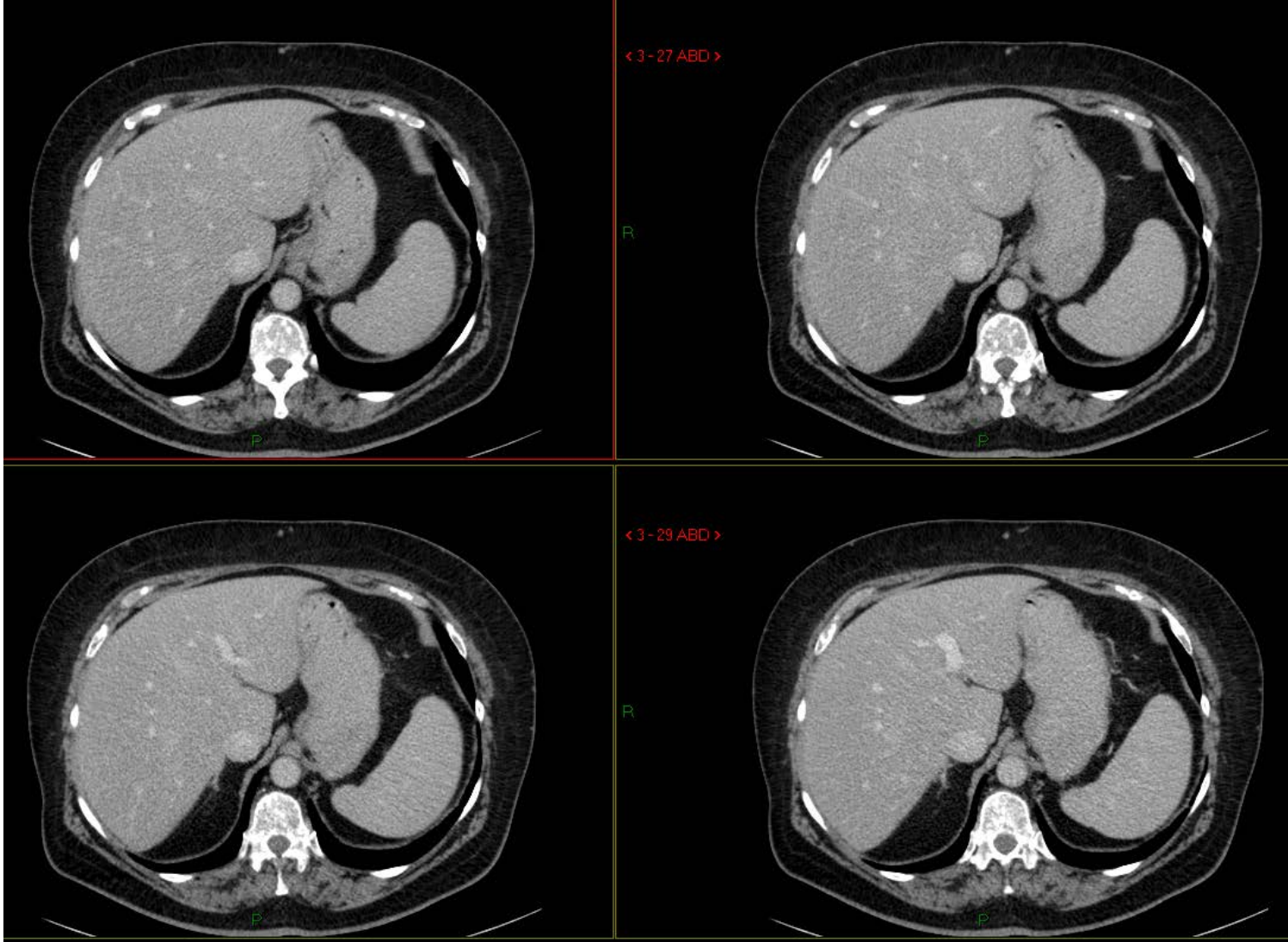
# Incidences radiographiques de l'estomac

- Position debout : air dans le fundus et niveau hydro-aérique
- Procubitus : air dans le fundus
- Décubitus : air dans l'antre
- Morphologie variable en fonction de la corpulence





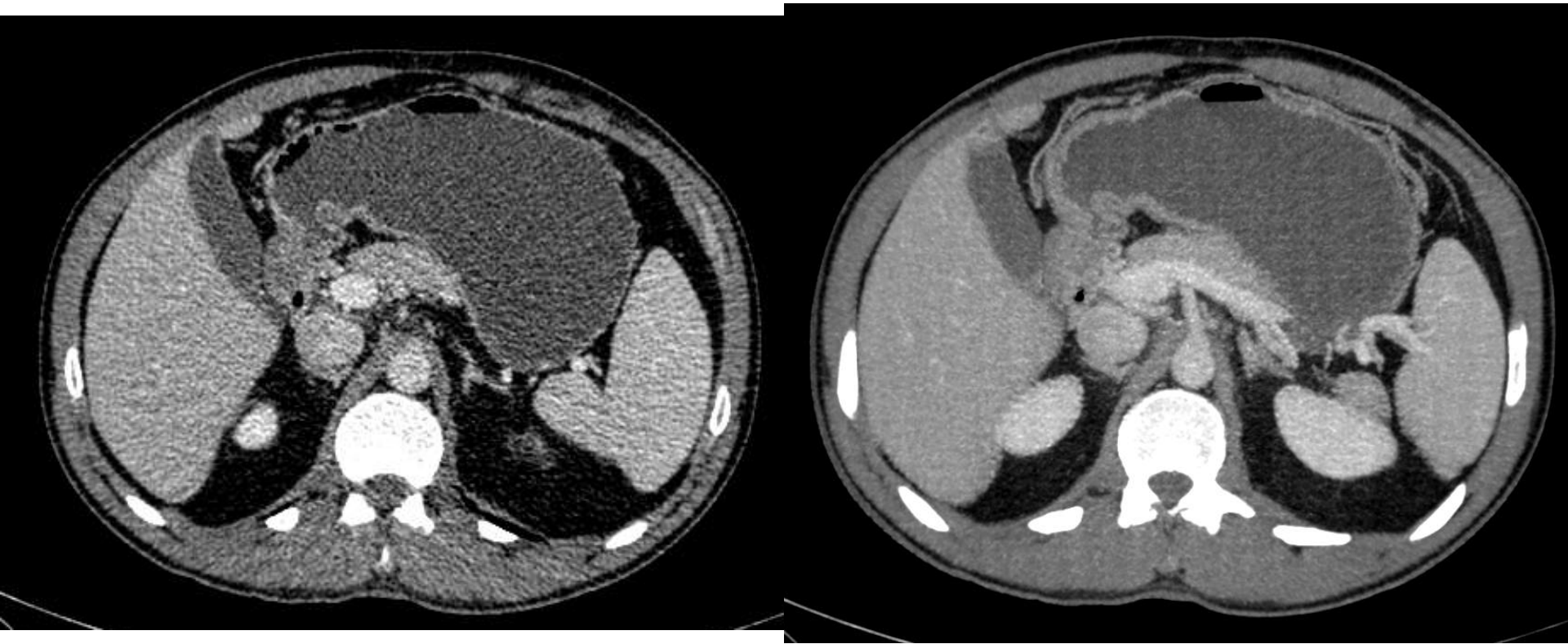




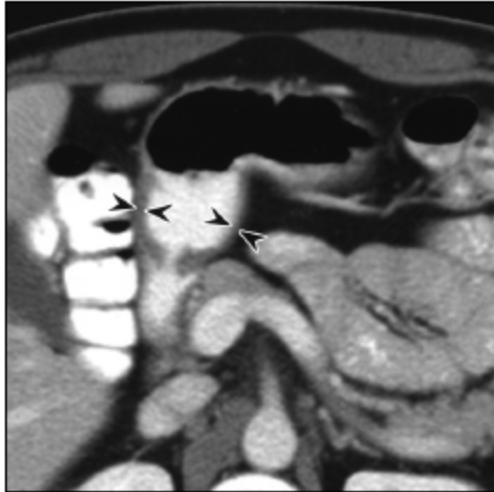
## Grosse tubéros: épaisseur de sa paroi

- < 10 mm : sensibilité : 100 %, spécificité : 42 %
- < 20 mm: sensibilité : 50 %, spécificité : 88 %

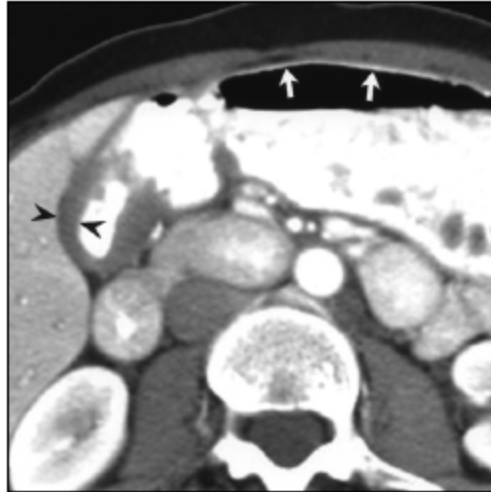




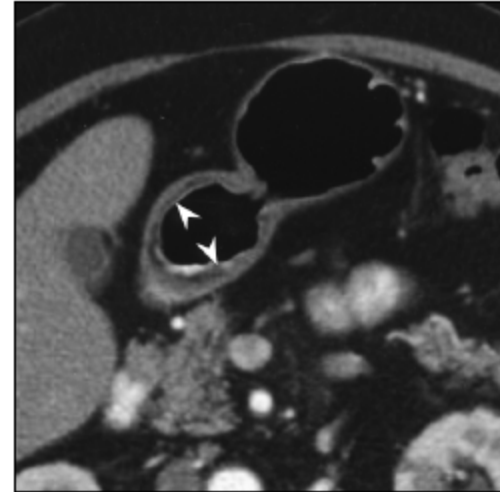
corps gastrique < 5 mm



**Fig. 1.**—Contrast-enhanced axial multidetector CT (MDCT) image in 36-year-old man without gastric disease shows mild to moderate uniform concentric wall thickening involving well-distended gastric antrum (*arrowheads*). Pylorus and duodenal bulb are well depicted on this image. This appearance of gastric antrum was most common on MDCT.

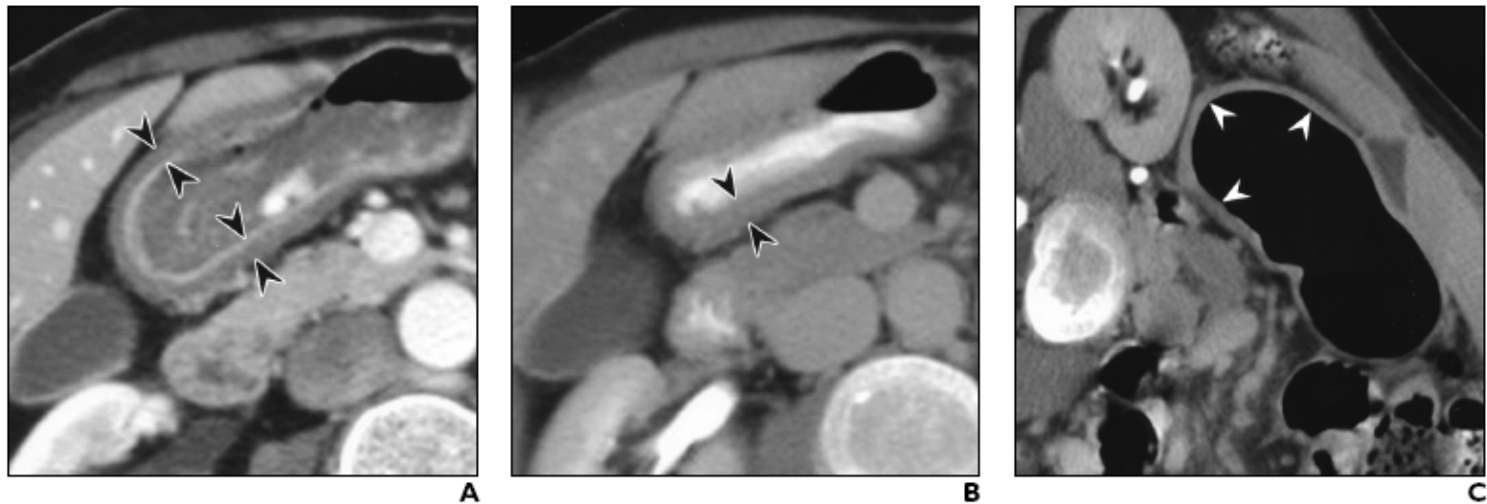


**Fig. 2.**—Contrast-enhanced axial multidetector CT image in 45-year-old woman without gastric disease shows prominent short-segment circumferential wall thickening (*arrowheads*) of distal gastric antrum. Note thin-walled gastric body (*arrows*).

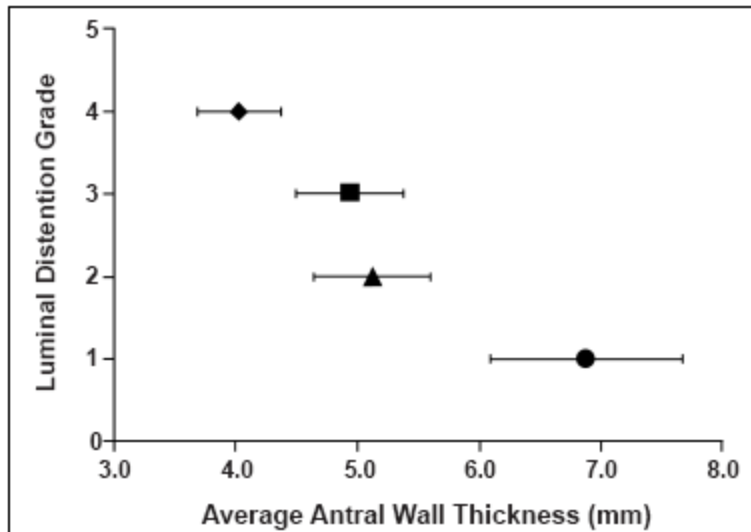


**Fig. 3.**—Contrast-enhanced axial multidetector CT image in 65-year-old man without gastric disease shows moderate antral wall thickening (*arrowheads*) relative to gastric body. Note linear submucosal fat attenuation in area of antral thickening.

antre < 12 mm



**Fig. 6.**—Images show effect of degree of luminal distention on appearance of concentric long-segment antral thickening in 62-year-old woman without gastric disease. **A**, Contrast-enhanced axial multidetector CT (MDCT) image during dynamic phase shows concentric antral thickening (*arrowheads*) with moderate luminal distention. Note conspicuity of bright mucosal enhancement using water as oral contrast material, which would be obscured by positive oral contrast material. **B**, Contrast-enhanced axial MDCT image during delayed phase shows decreased luminal distention and further increase in antral thickening (*arrowheads*). **C**, Delayed axial MDCT image with optimal distention and patient in decubitus position after ingesting effervescent crystals shows decreased but persistent antral wall thickening (*arrowheads*).

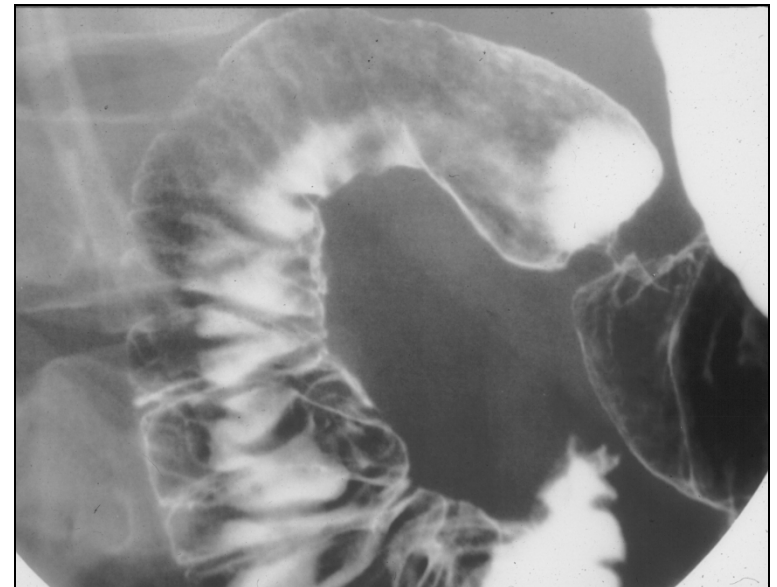
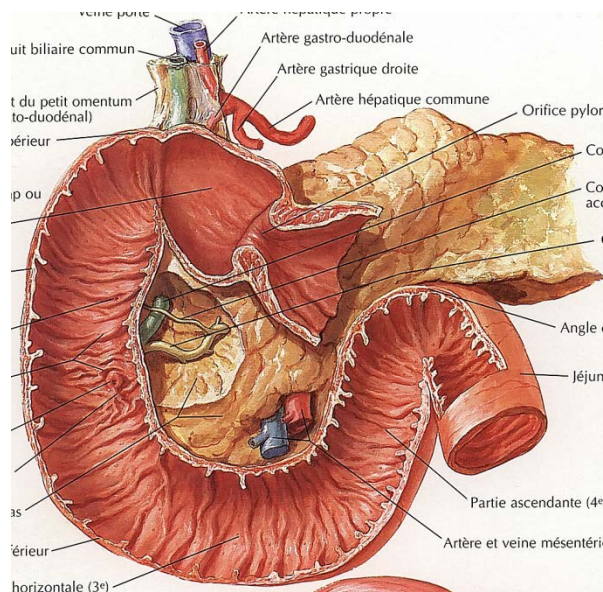


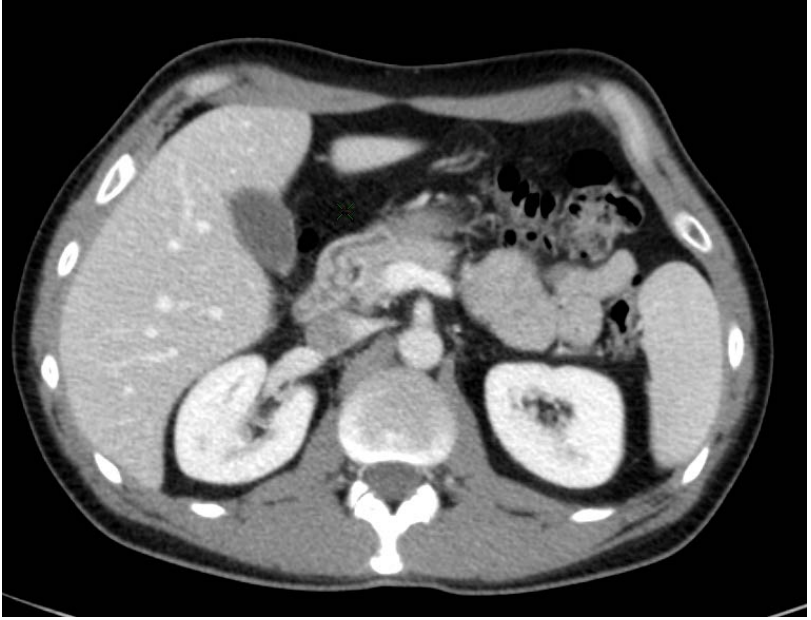
Pickhardt & Asher, *AJR*,  
2003, 181, 973-979



# Duodénum

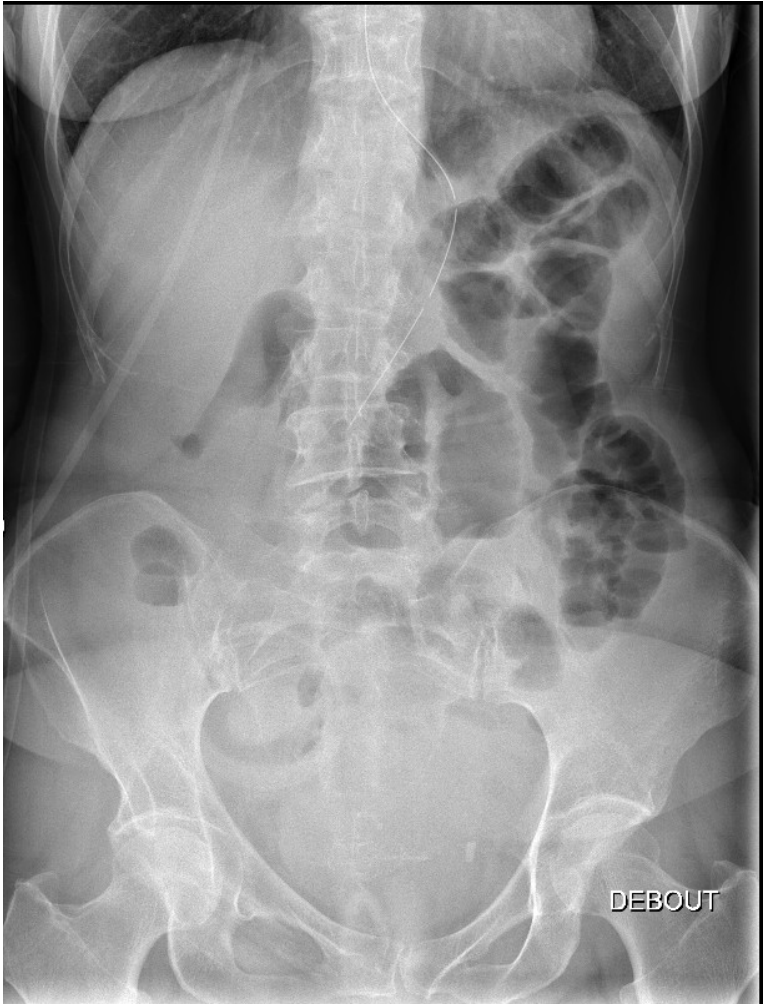
- Entoure la tête du pancréas
- Bord interne du tiers de moyen de D2
  - Papille majeure : cholédoque et conduit pancréatique principal
  - Papille mineure : conduit pancréatique accessoire





# Intestin grêle et colon

- RX, US, CT , IRM

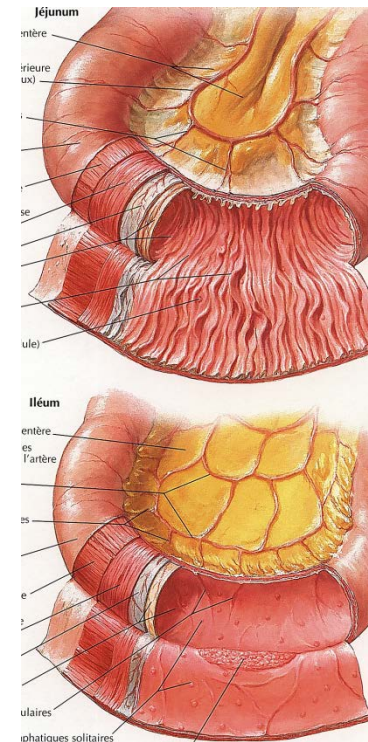
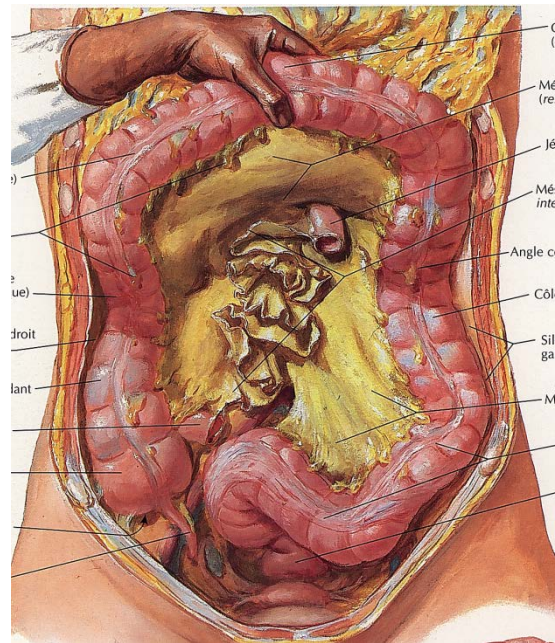
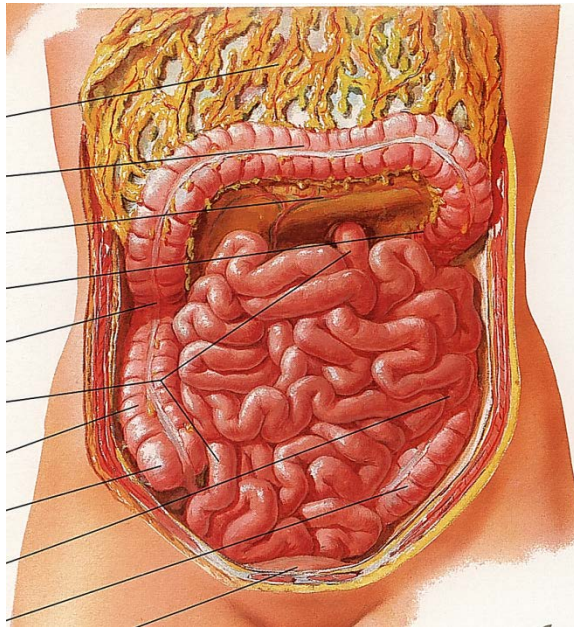






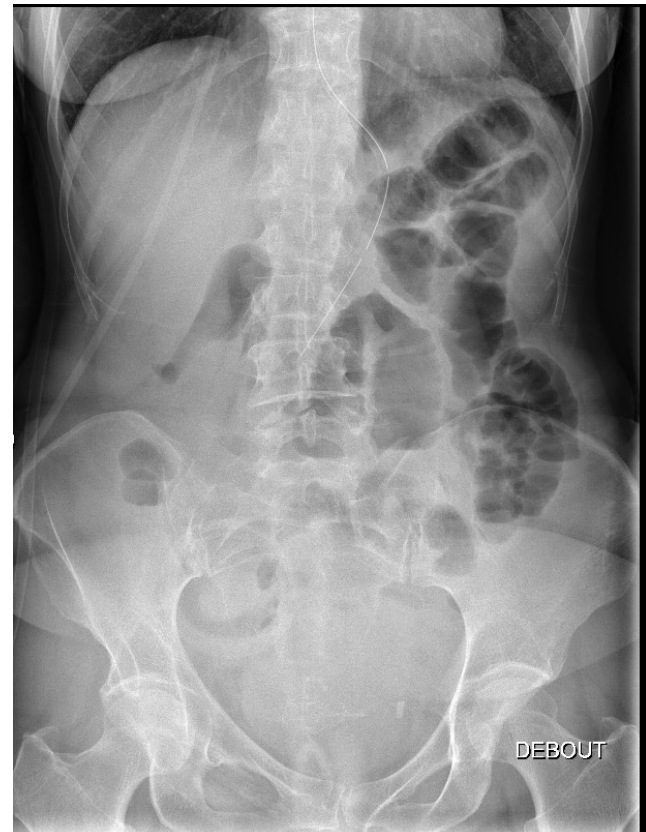
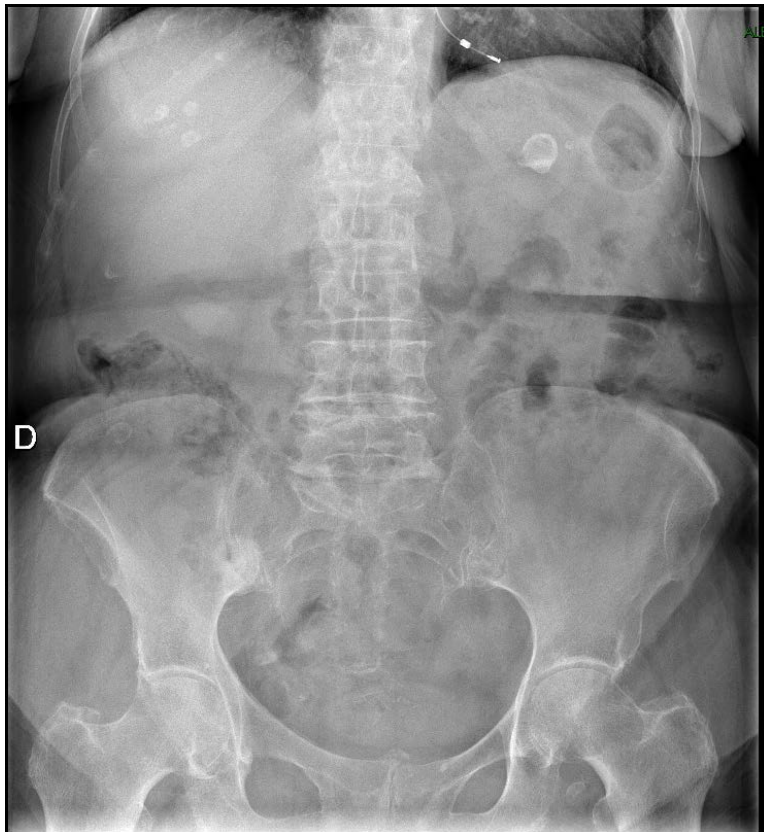
# Jéjuno-iléon

- Mésentère a un bord pariétal court suivant une ligne oblique en bas et à droite, allant de la face gauche de L2 à la fosse iliaque droite
- Jéjunum : essentiellement dans l'hypocondre et le flanc gauches
- Iléon : essentiellement dans le flanc droit
- Valvules conniventes : beaucoup plus nombreuses sur le jéjunum

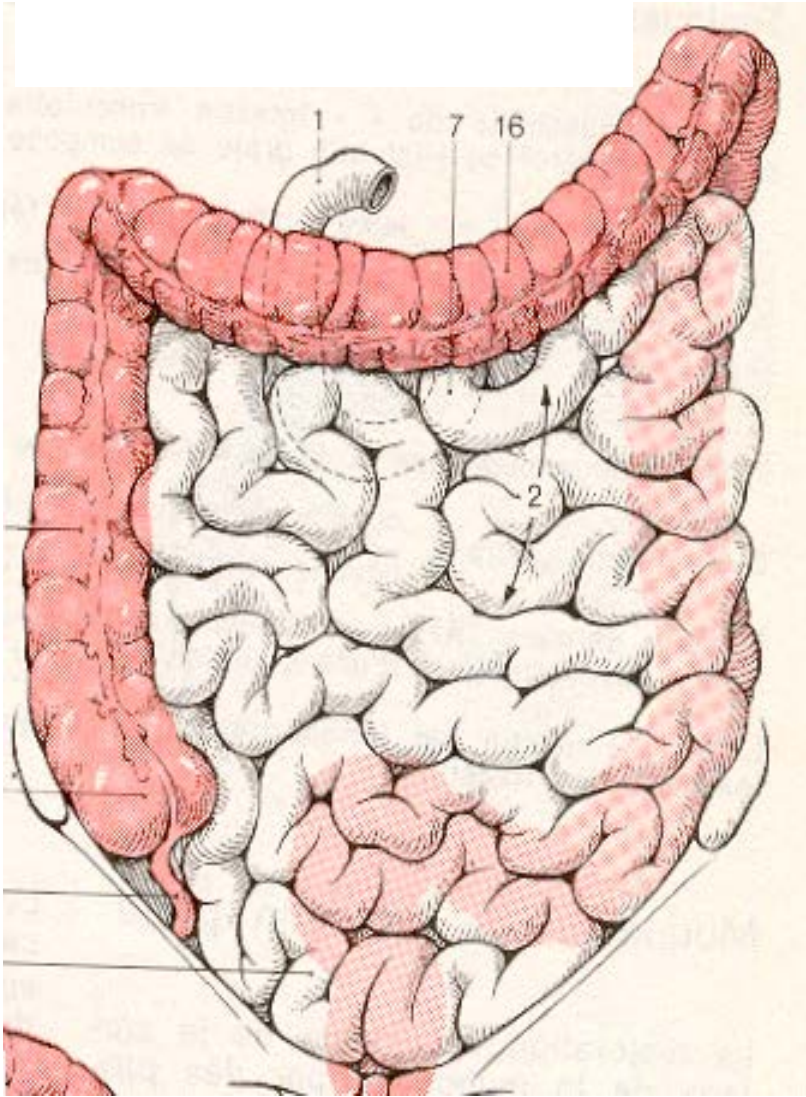


# Intestin grêle

- RX, US, CT , IRM

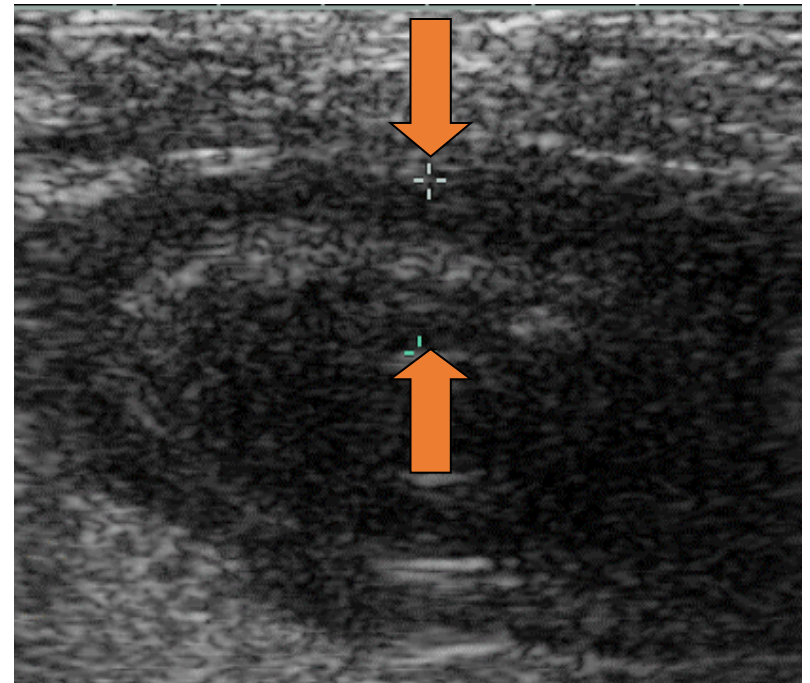
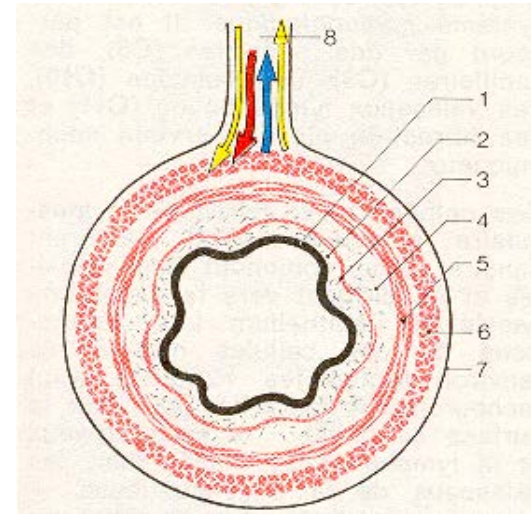
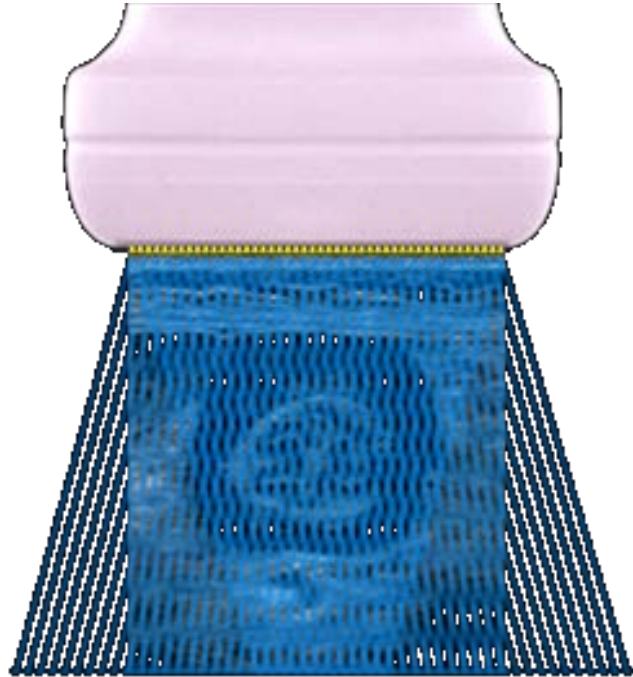




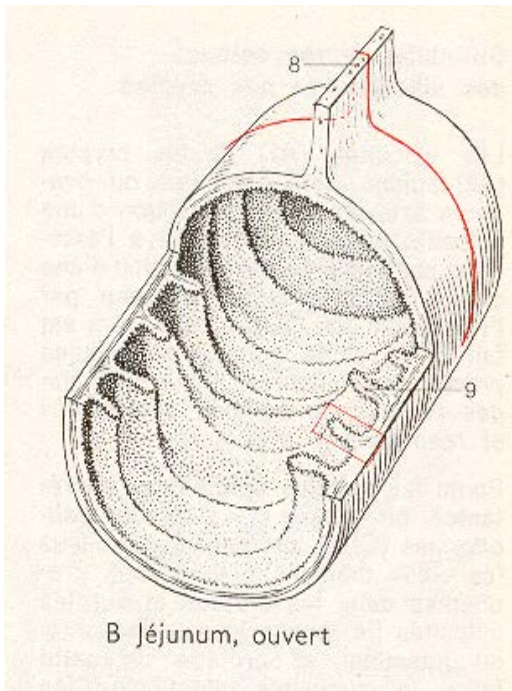


In Kahle W et al, Anatomie, tome 2,  
Flammarion, Médecine-Sciences, 1979

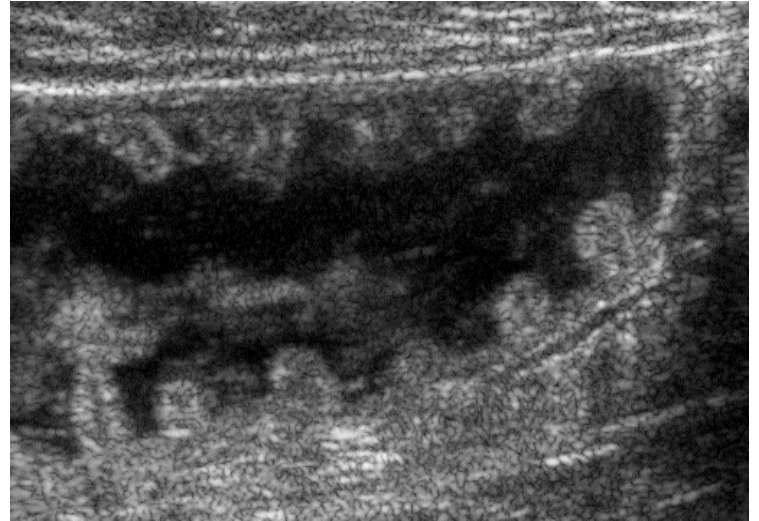
In Kahle W et al, Anatomie, tome 2,  
Flammarion, Médecine-Sciences, 1979





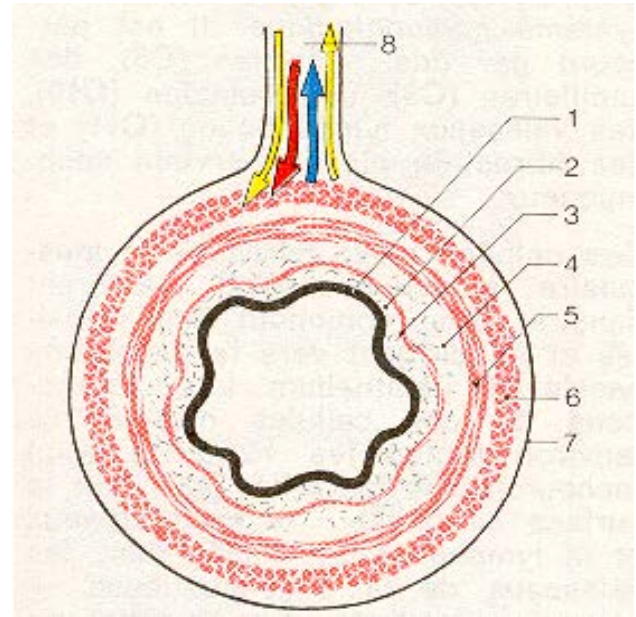


Jejunum



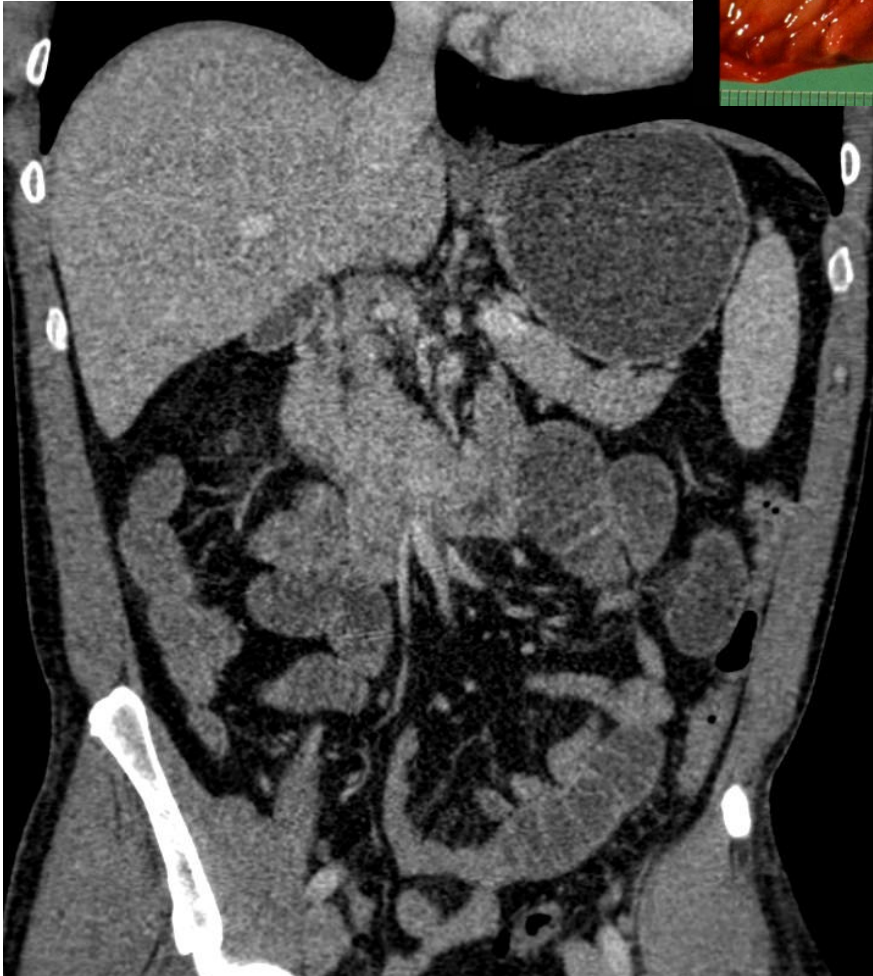
Ileon

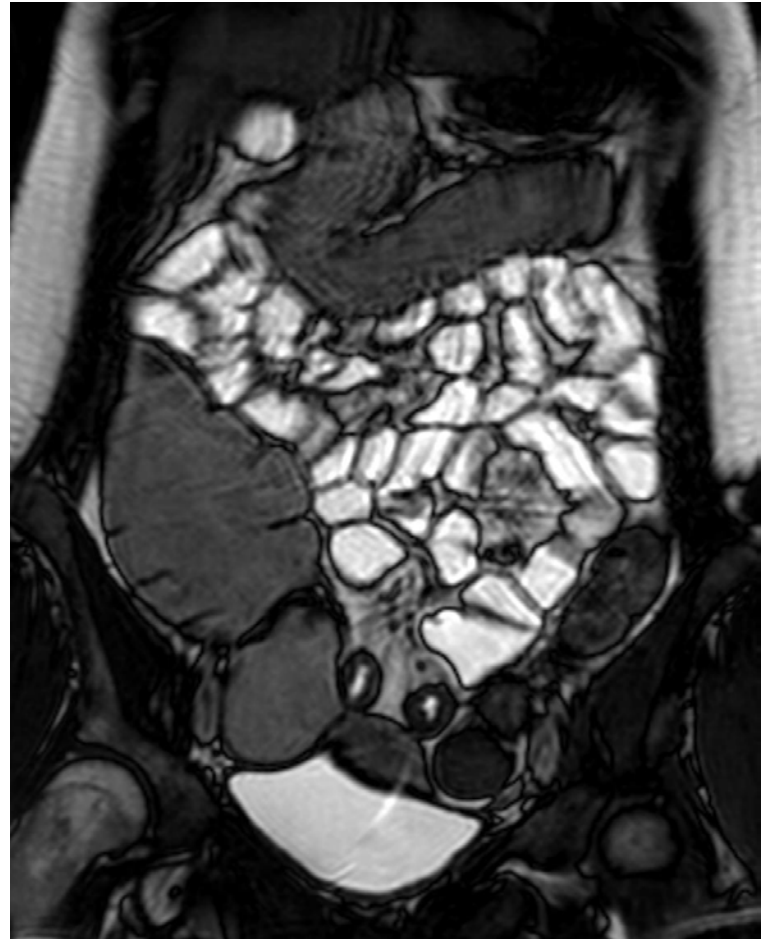




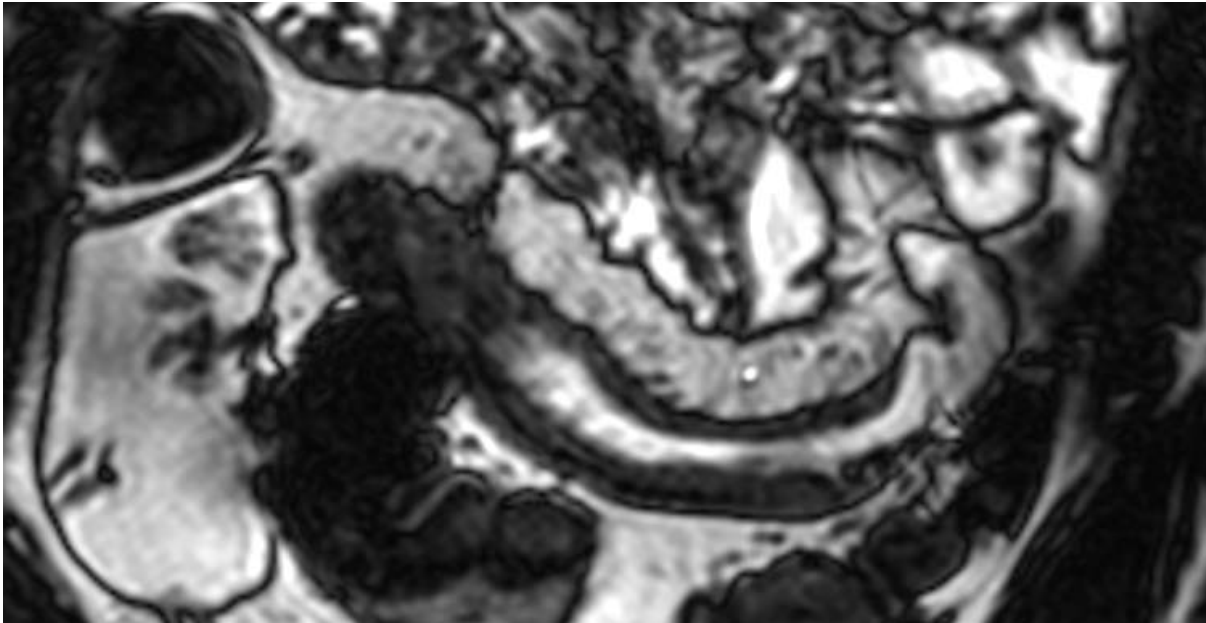
In Kahle W et al, Anatomie, tome 2, Flammarion, Médecine-Sciences, 1979



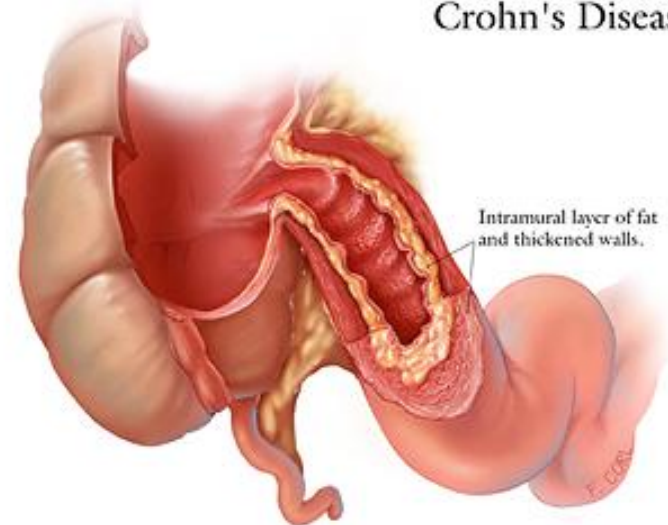








## Crohn's Disease

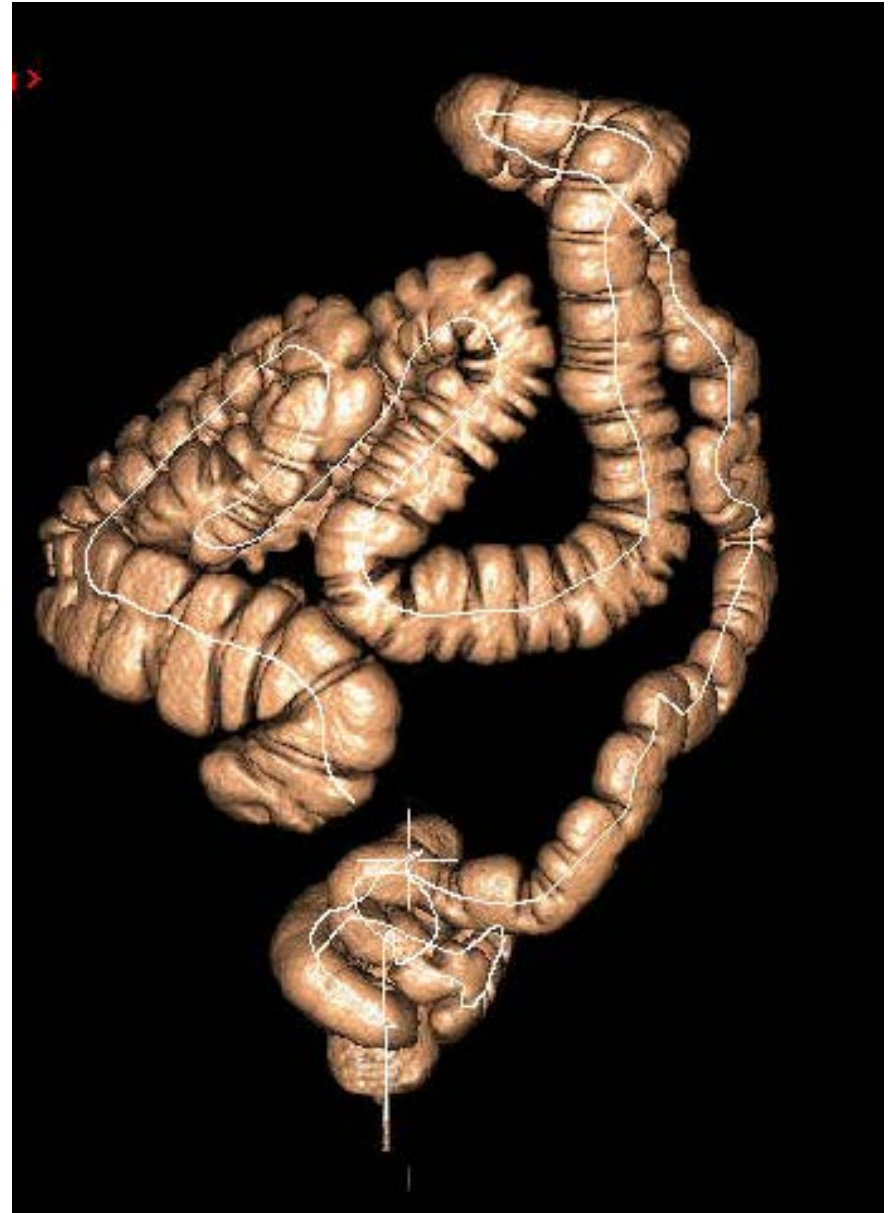


# Colon (& rectum)

- Radiologie
  - Sans contraste
  - Par voie rétrograde
  - Par voie prograde
- Echographie
- Scanner
  - Colono CT
  - CT + Iode IV
- IRM

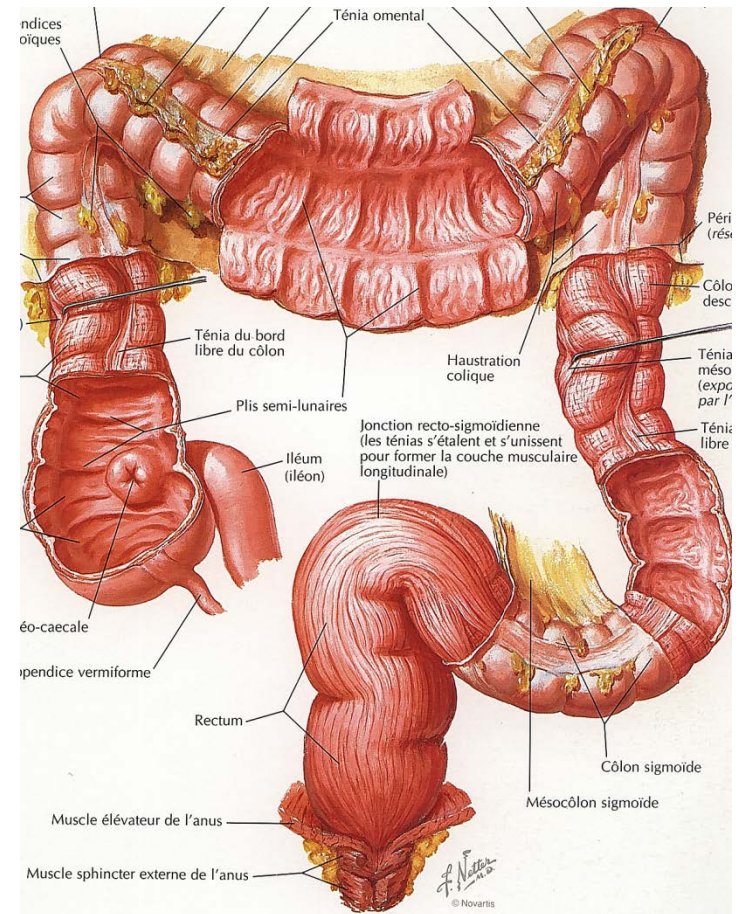
# Gros intestin

- Caecum
- Appendice vermiforme
- Côlon ascendant
- Côlon transverse
- Côlon descendant
- Côlon sigmoïde
- Rectum



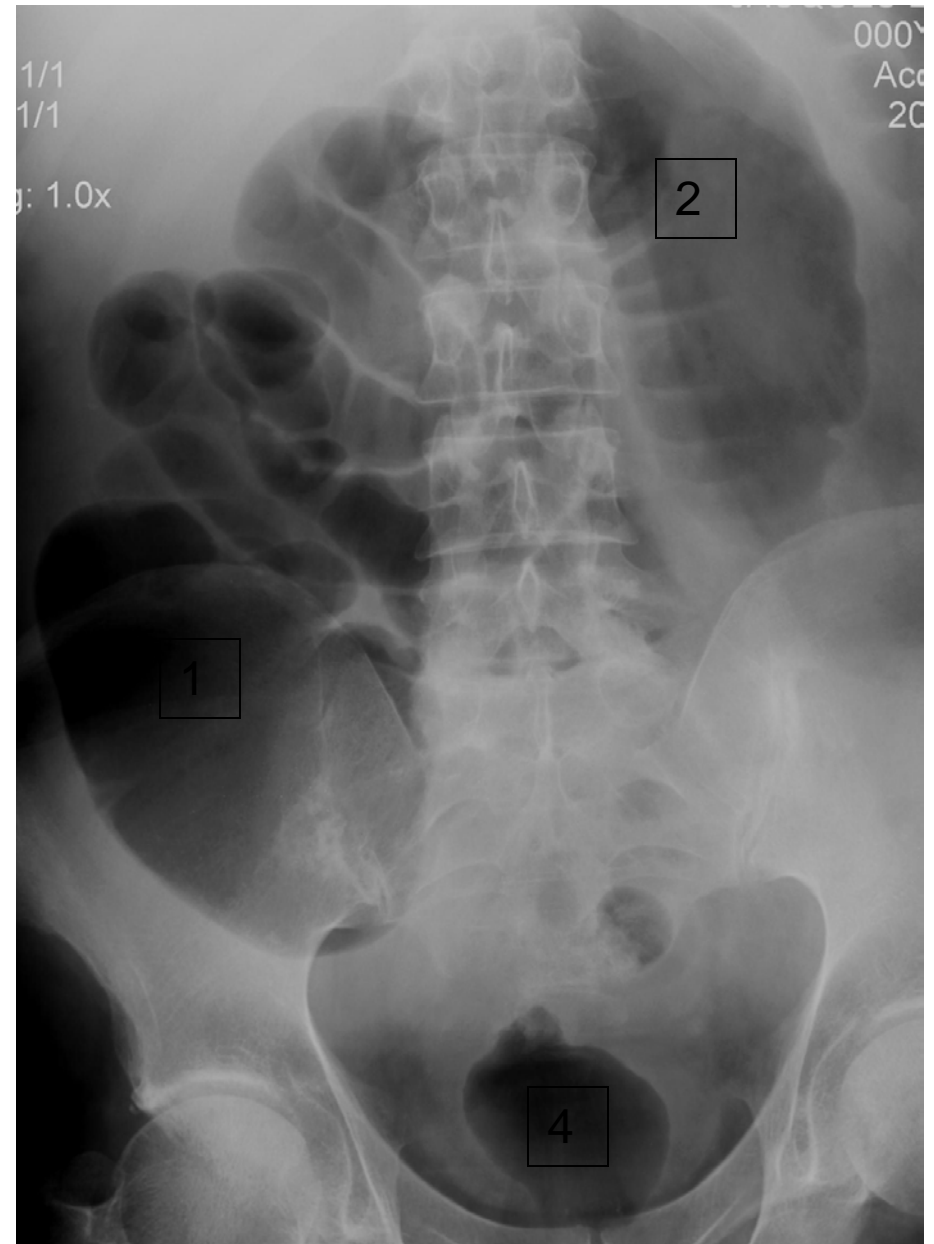
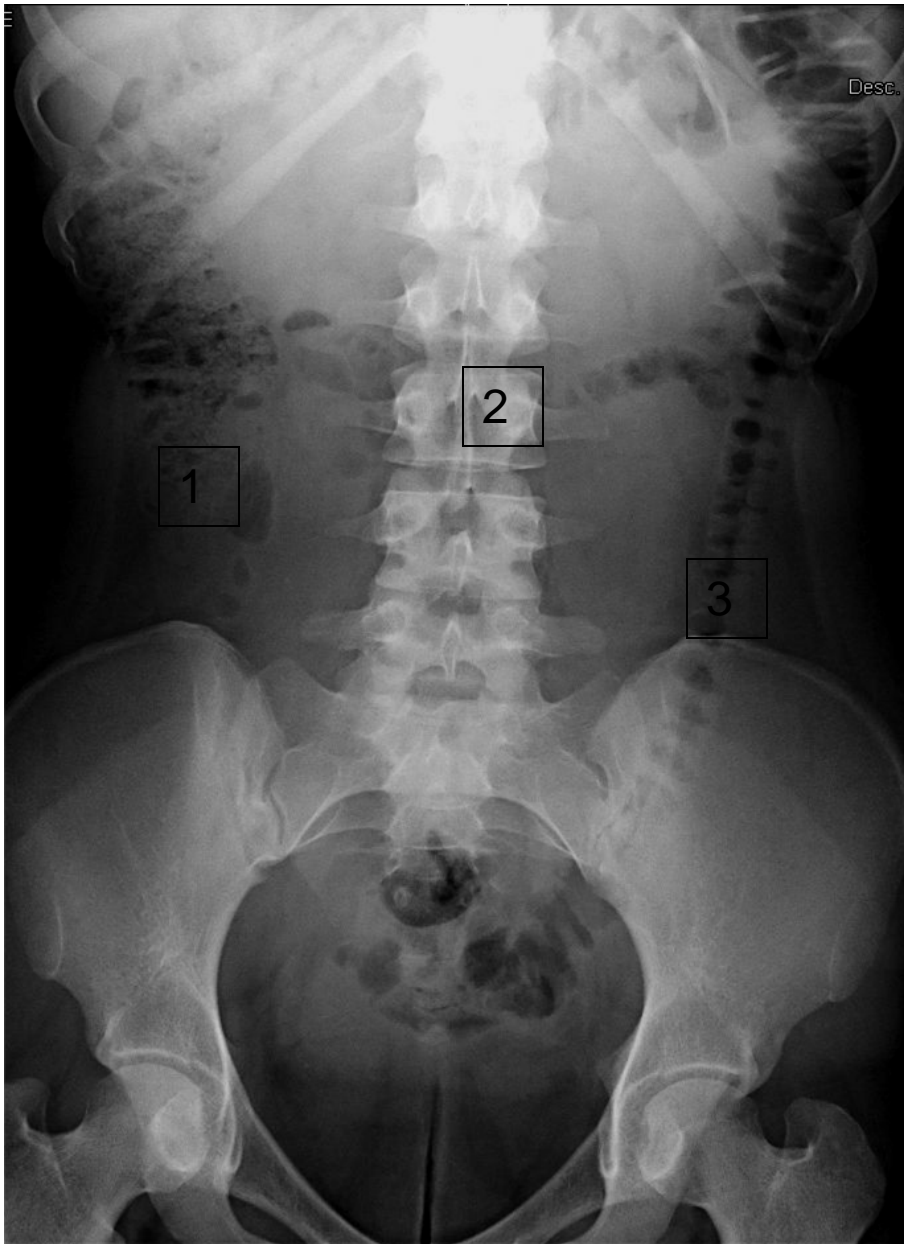
# Muscle longitudinal du gros intestin

- Trois bandelettes longitudinales ou ténias
  - Ténia du bord libre
  - Ténia omental
  - Ténia mésocolique
- Deux bandelettes au niveau du côlon sigmoïde
- Muscle longitudinal continu au niveau du rectum

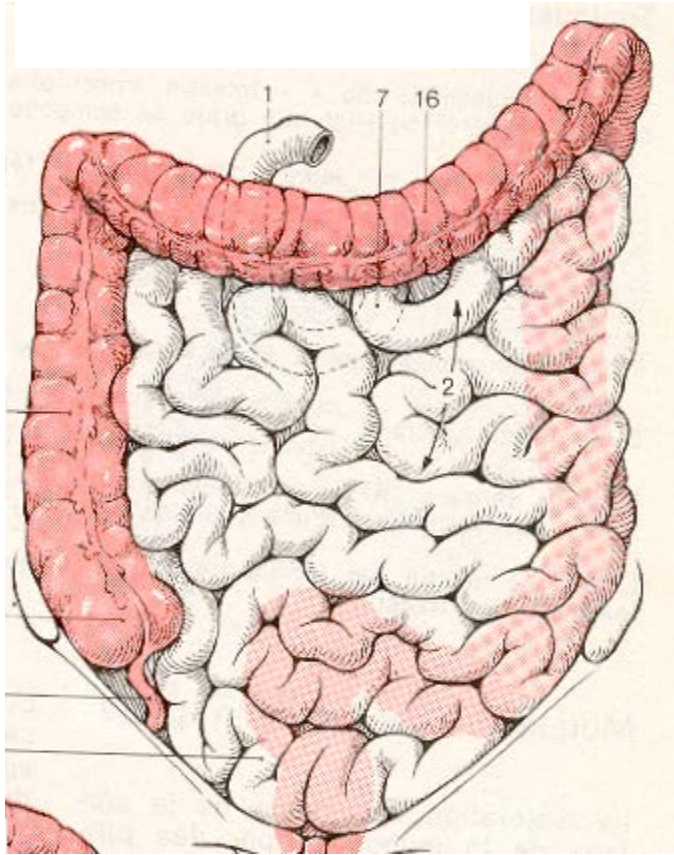


In Kahle W et al, Anatomie, tome 2,  
Flammarion, Médecine-Sciences, 1979





1. Colon droit 2. Colon transverse 3. Colon gauche 4. Rectum



In Kahle W et al, Anatomie, tome 2,  
Flammarion, Médecine-Sciences, 1979

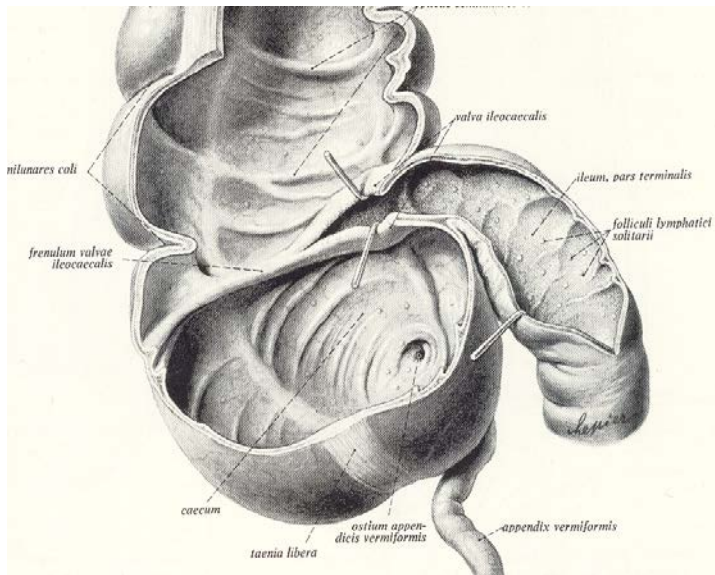
# Gros intestin : aspect RX

- Aspect bosselé
  - Sillons (plis) transversaux : sillons interhaustaux
  - Haustrations
- Franges graisseuses le long des ténias : appendices épiploïques

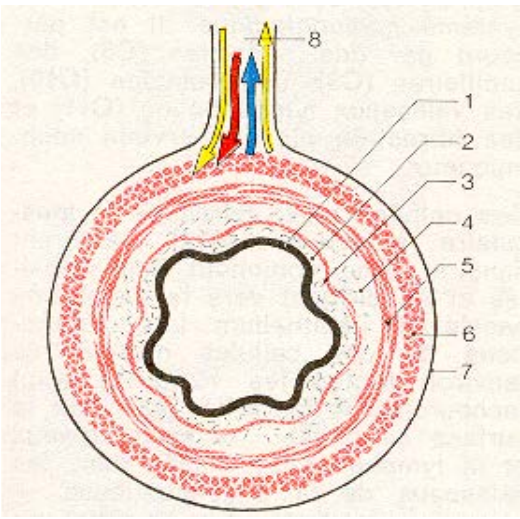


# Caecum

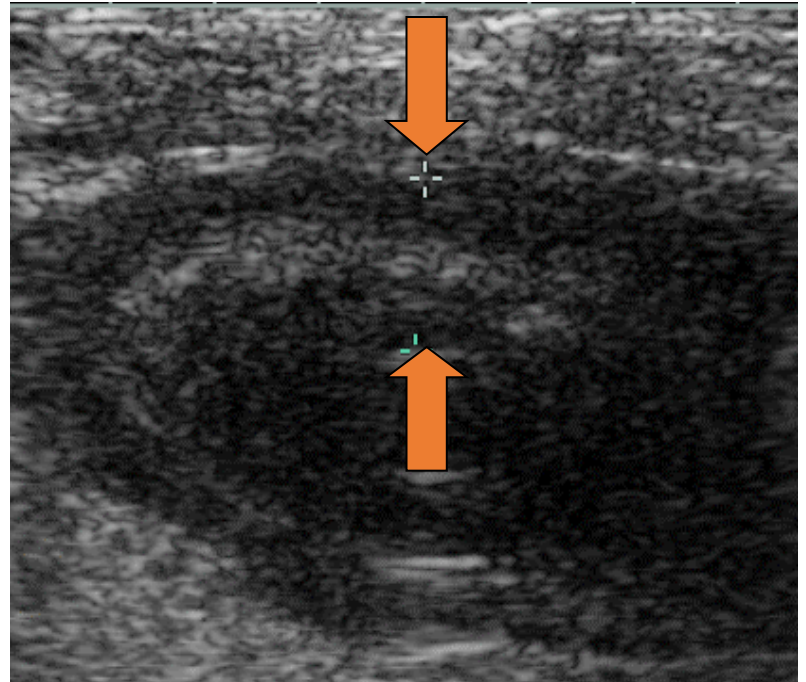
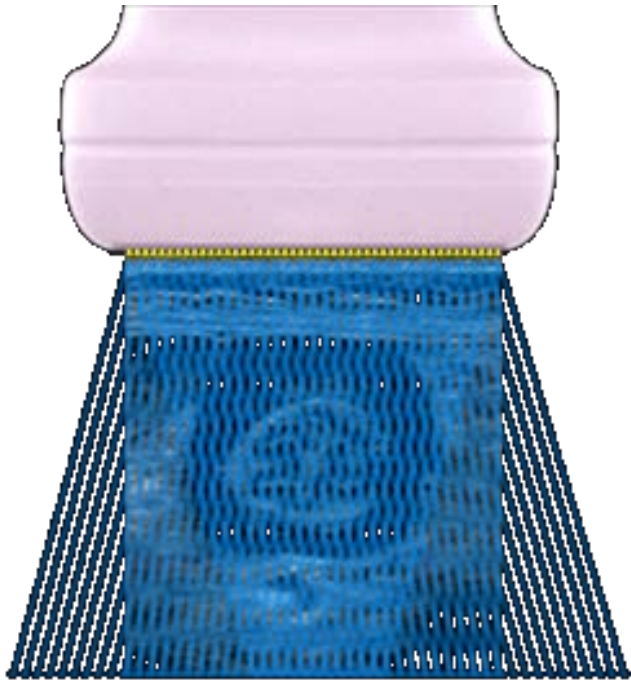
- Entouré de péritoine sur toutes sa surface
- Limite supérieure : plan passant par la valvule iléocaecale ou valvule de Bauhin
- Valvule de Bauhin : fait protrusion dans la lumière du gros intestin



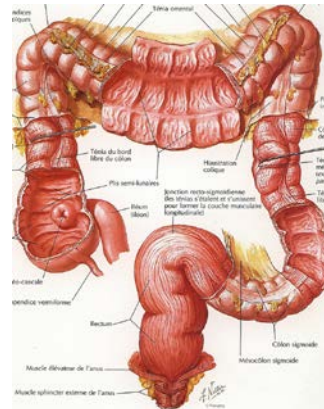
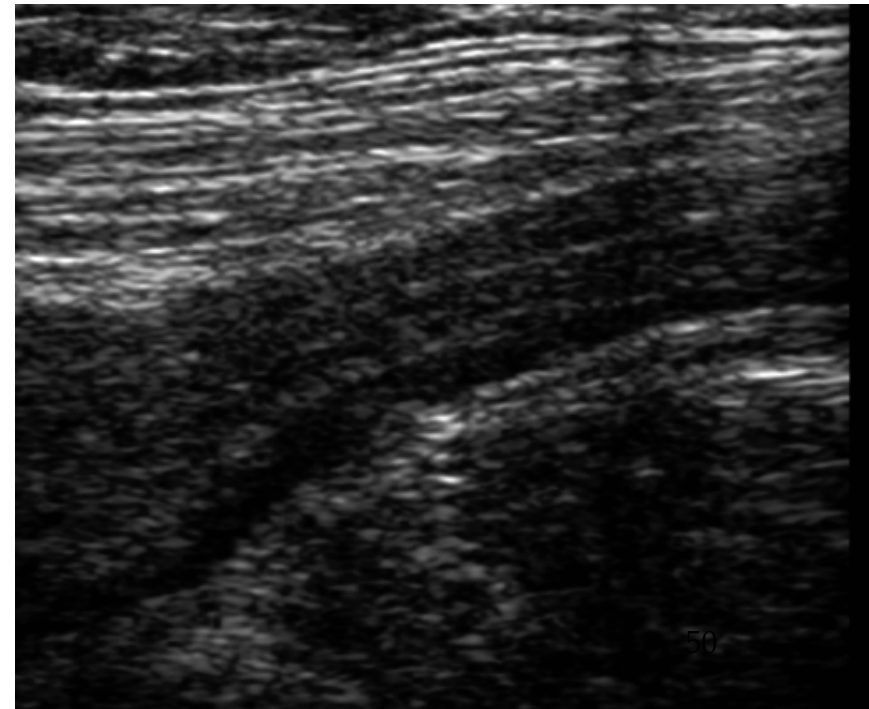
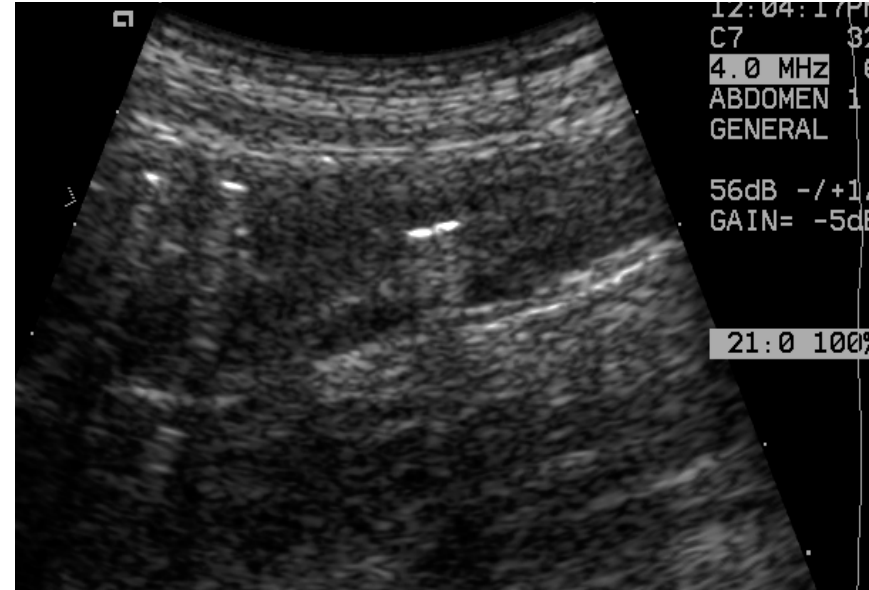
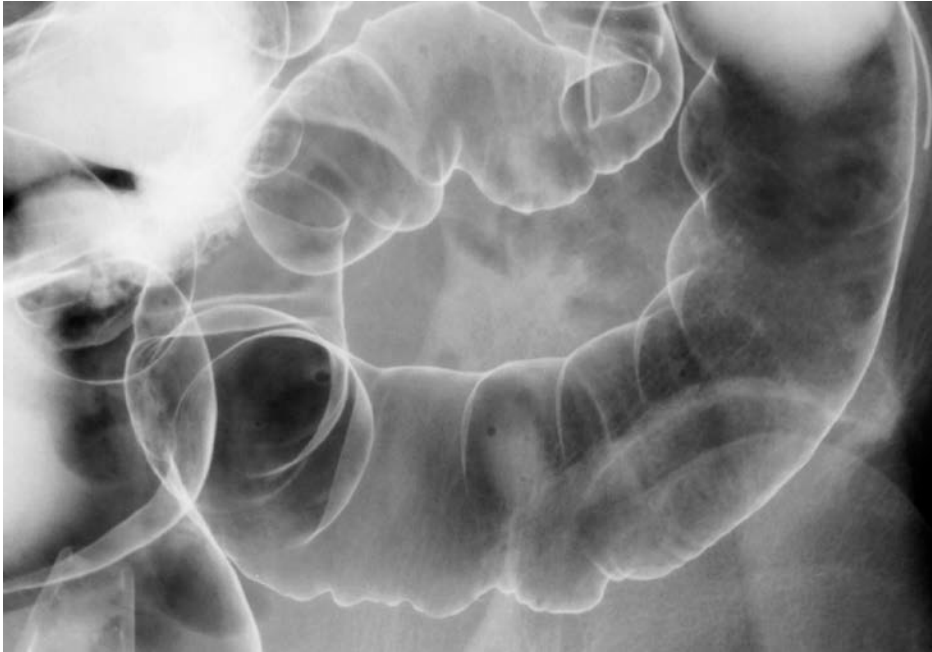




In Kahle W et al, Anatomie, tome 2, Flammarion, Médecine-Sciences, 1979

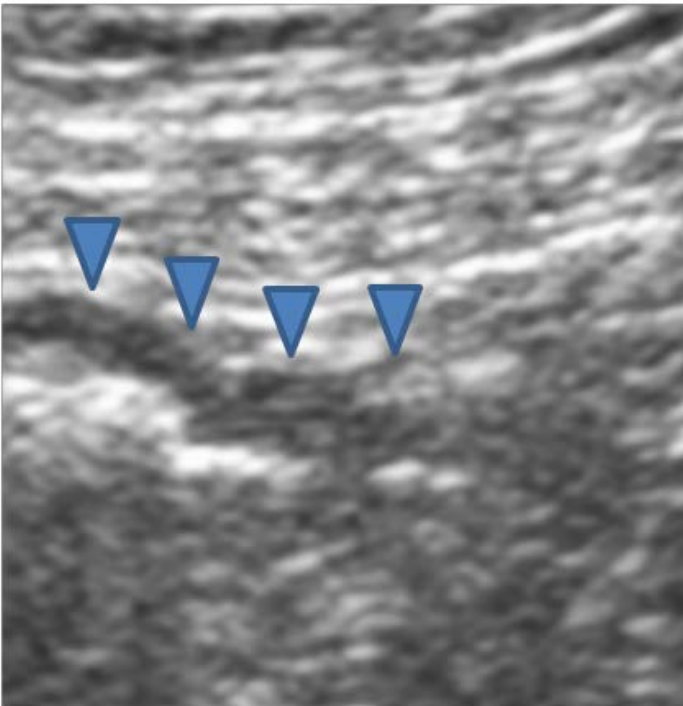


# Le colon normal

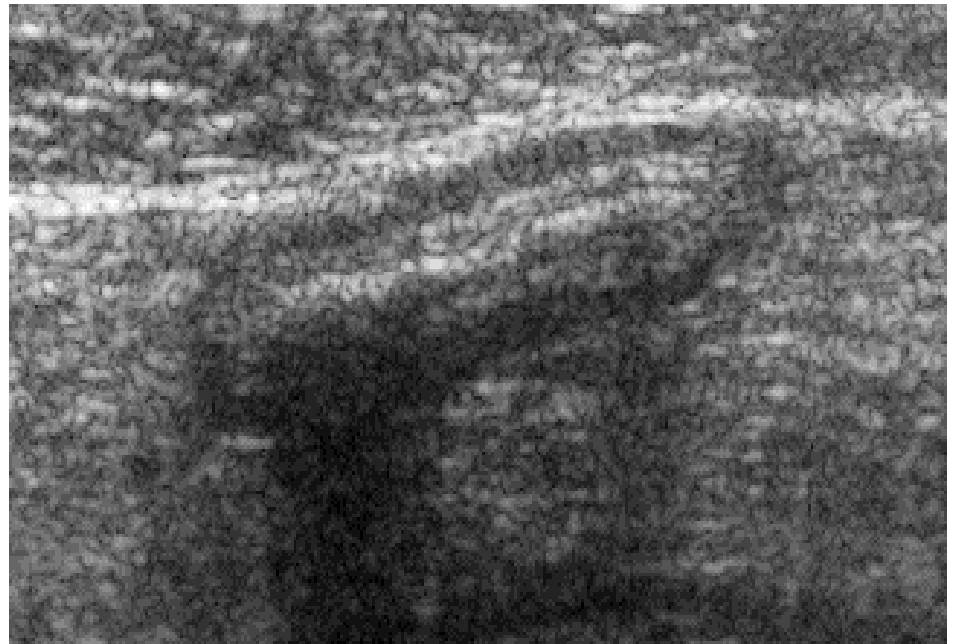


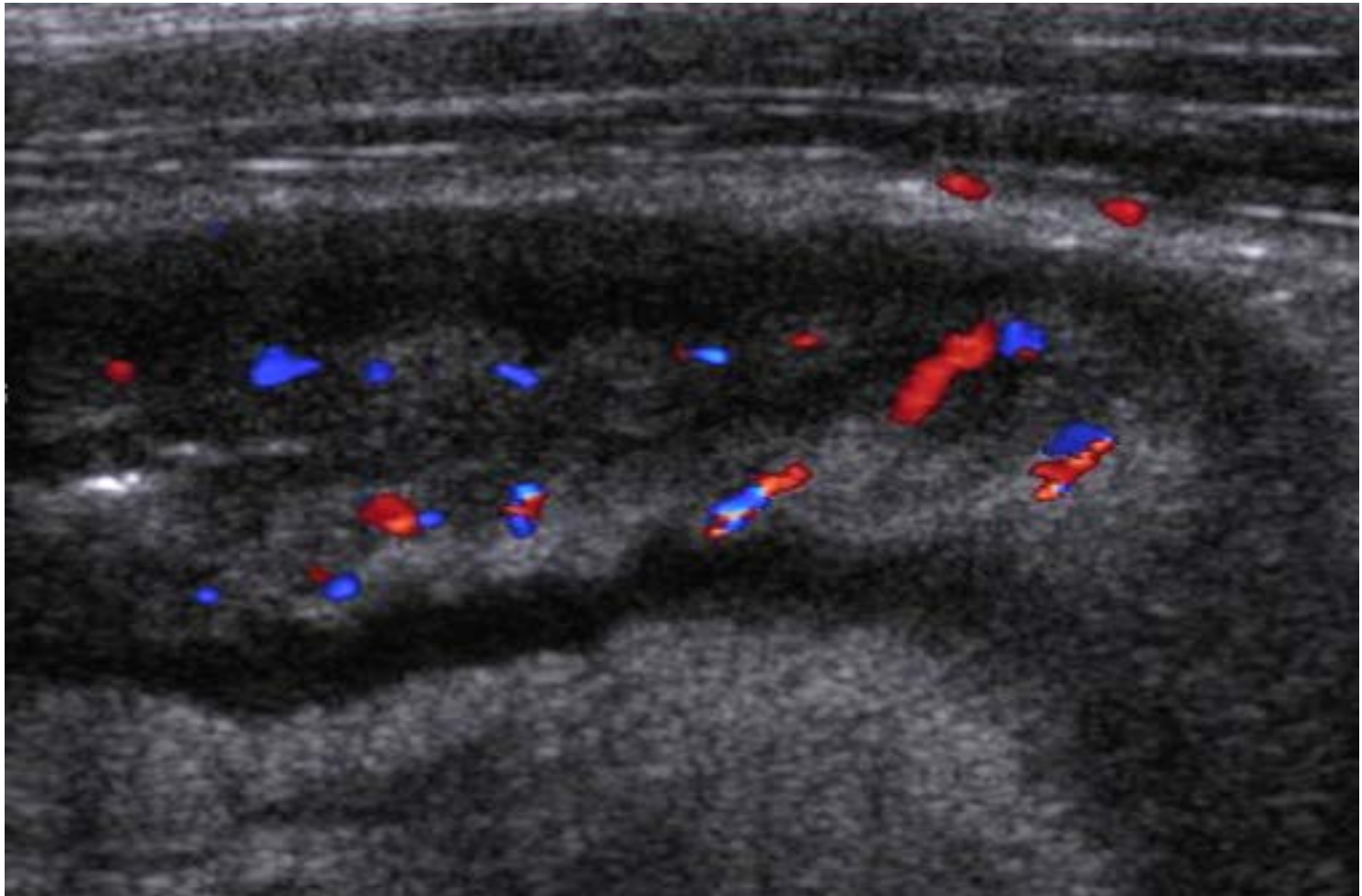
# Le colon normal

Epaisseur < 5 mm

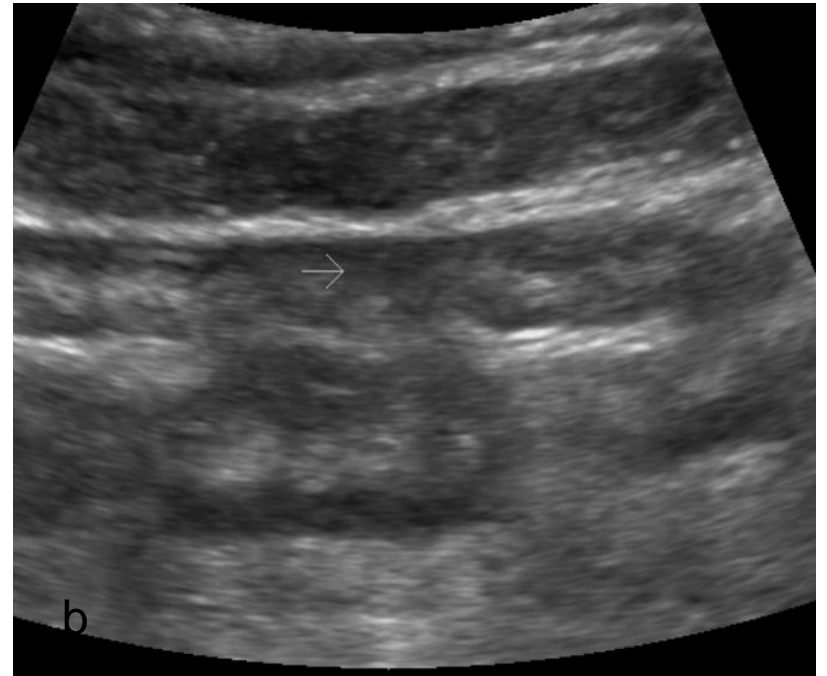
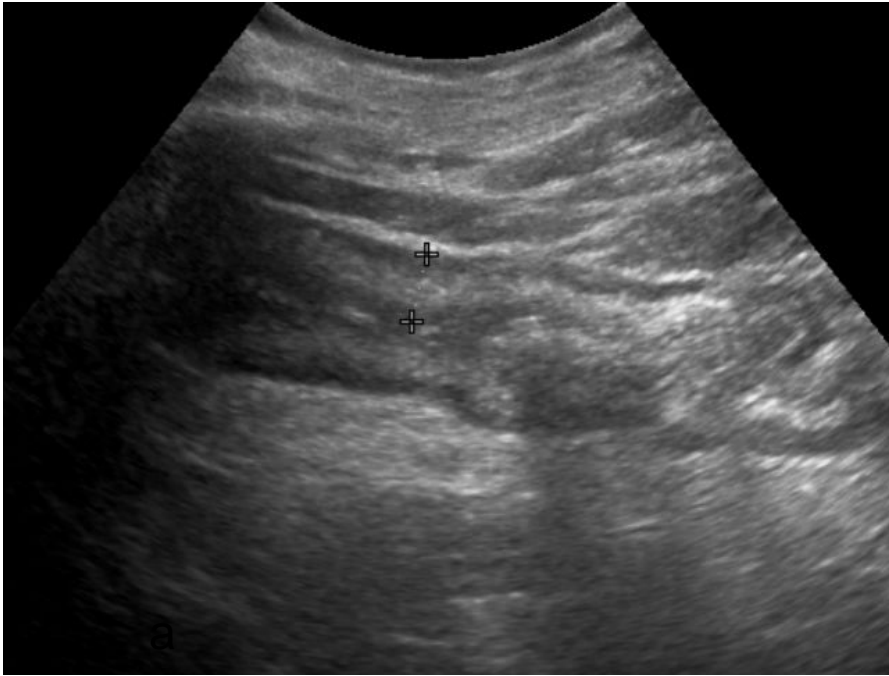


# Stratification



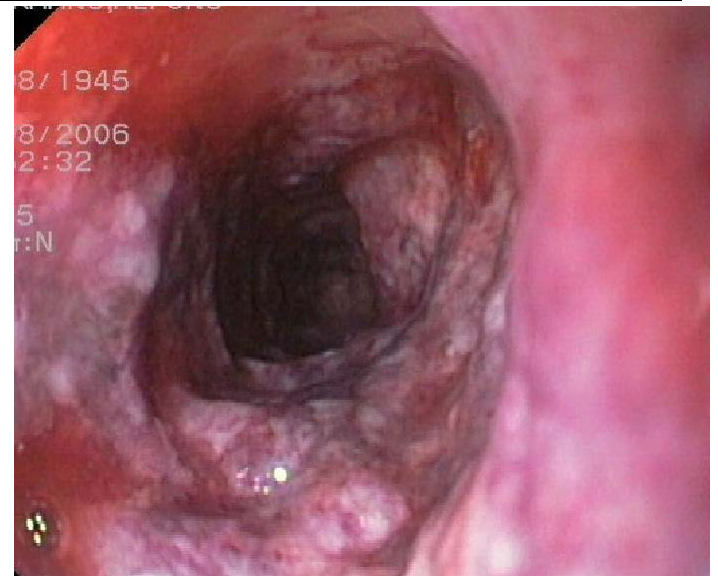






Colon normal :  $< 5$  mm

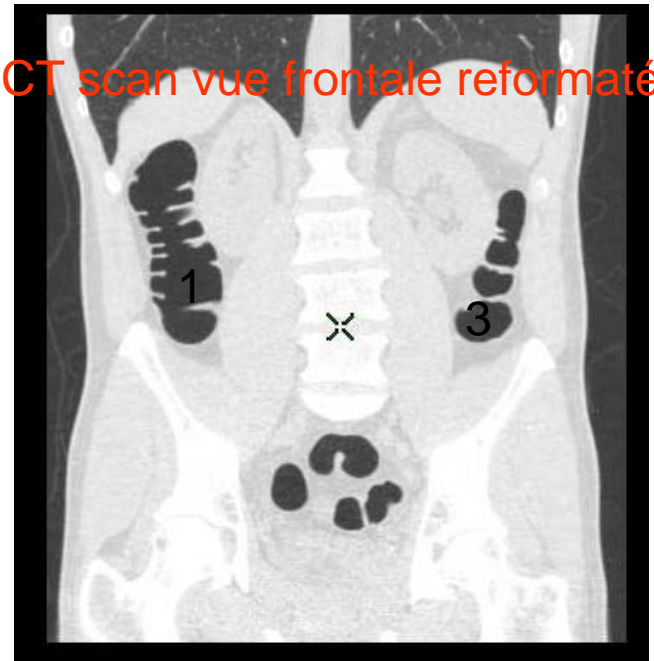
c





1. Colon droit 2. Colon transverse 3. Colon gauche

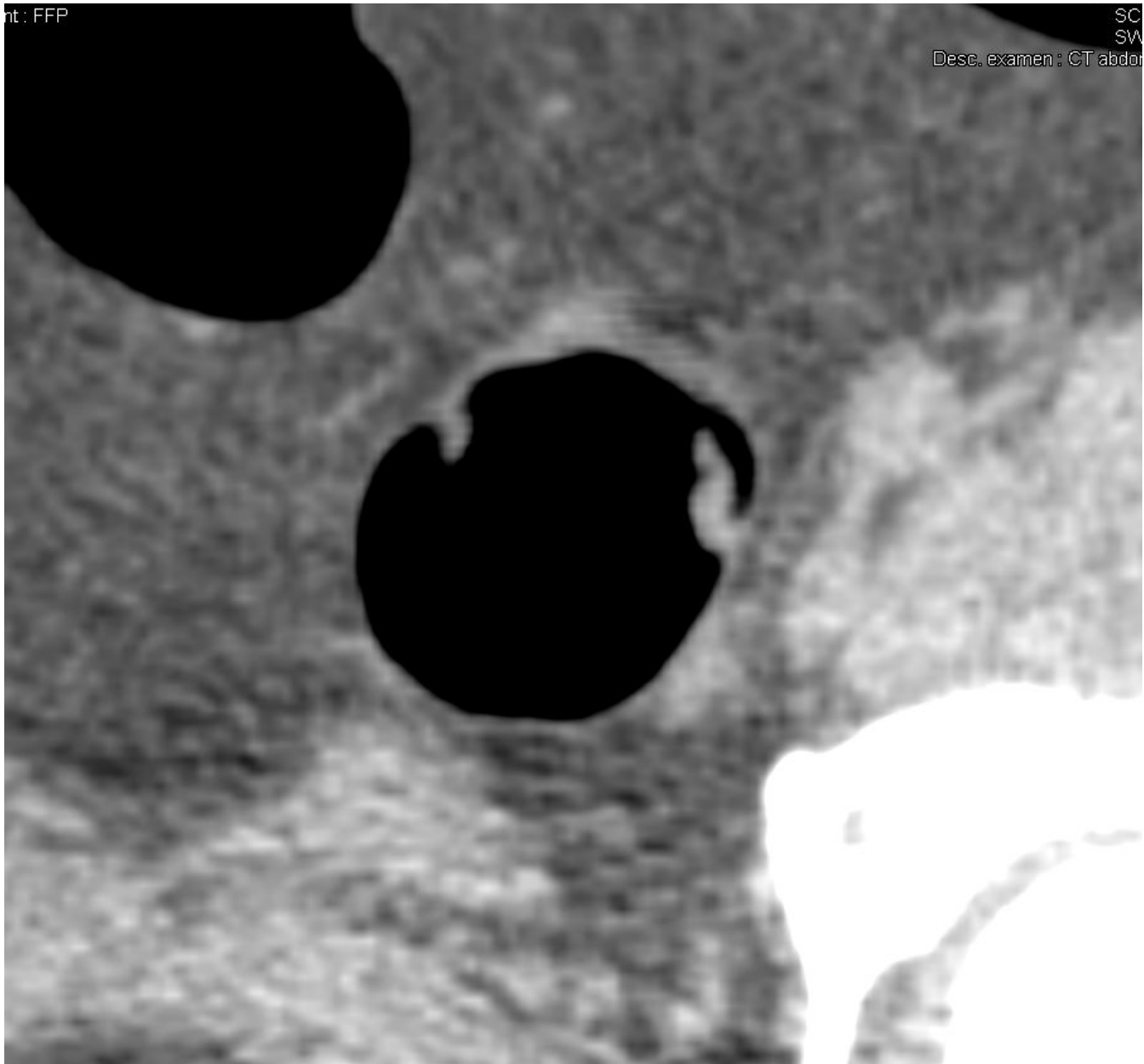
CT scan vue frontale reformatée



nt: FFP

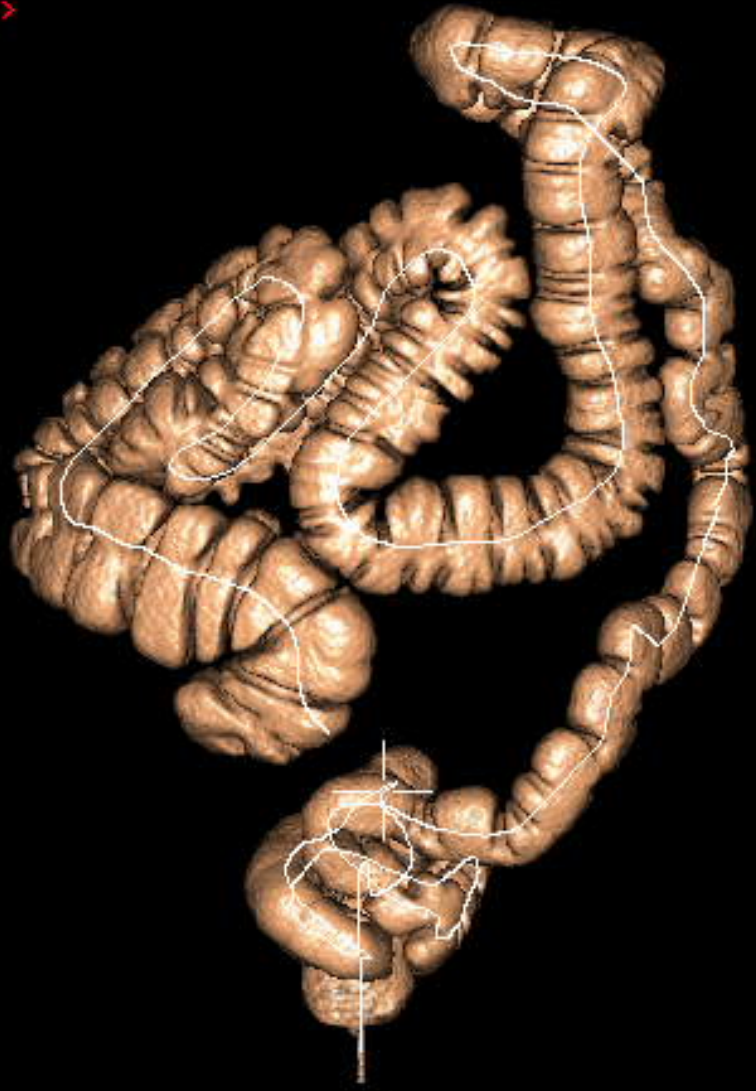
SC  
SW

Desc. examen : CT abdom

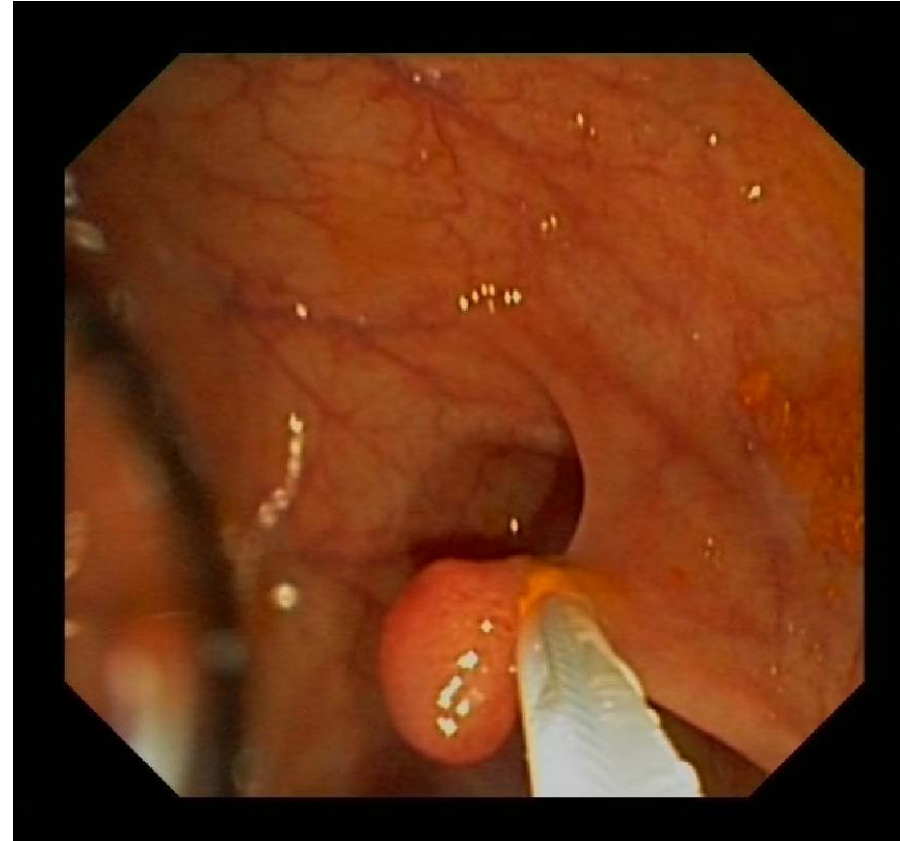


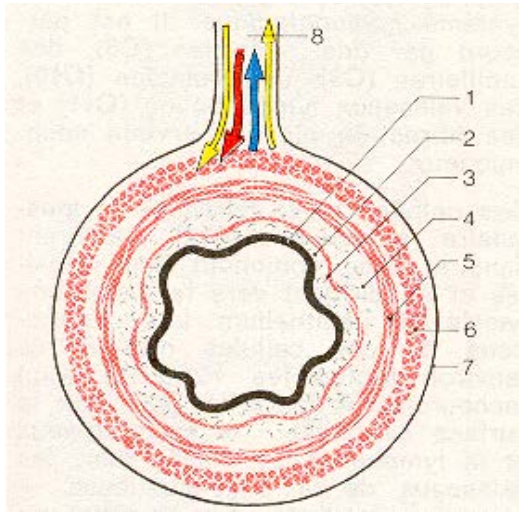
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R

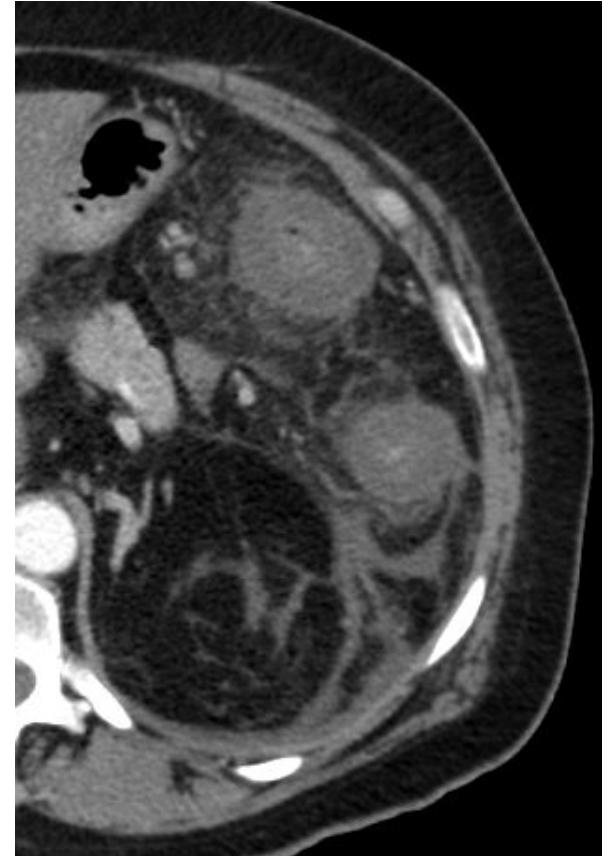




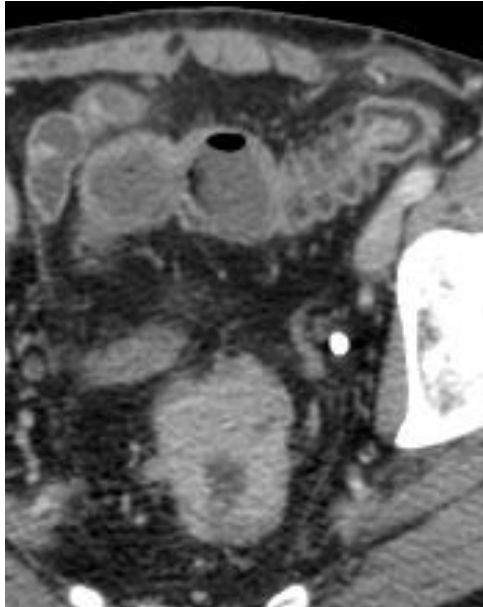




In Kahle W et al, Anatomie, tome 2, Flammarion, Médecine-Sciences, 1979



**Colon normal : < 5 mm**



Épaississement:

- < 5 mm,
- Homogène
- Sous-muqueuse grasseuse



Environnement:

- diverticules
- GGLS

# INTESTIN NORMAL

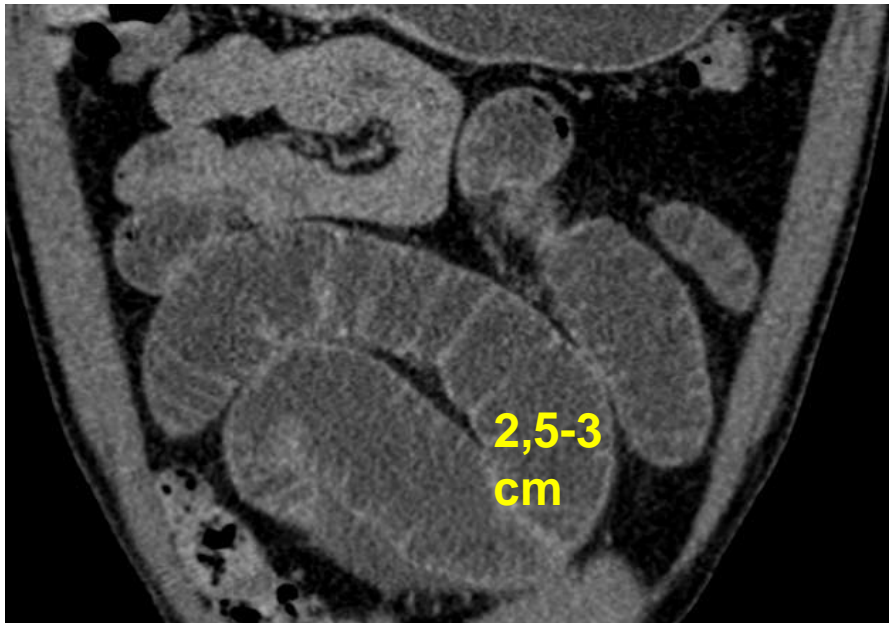
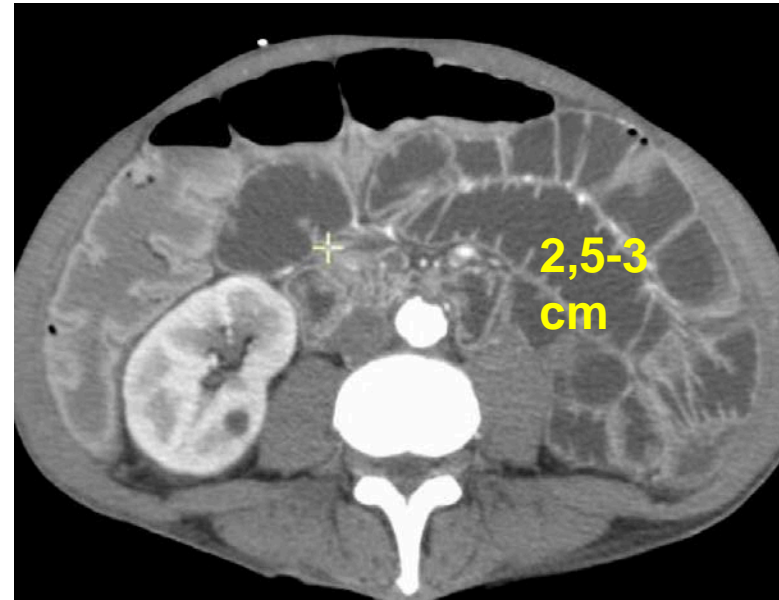


**GRELE**

**Colon**







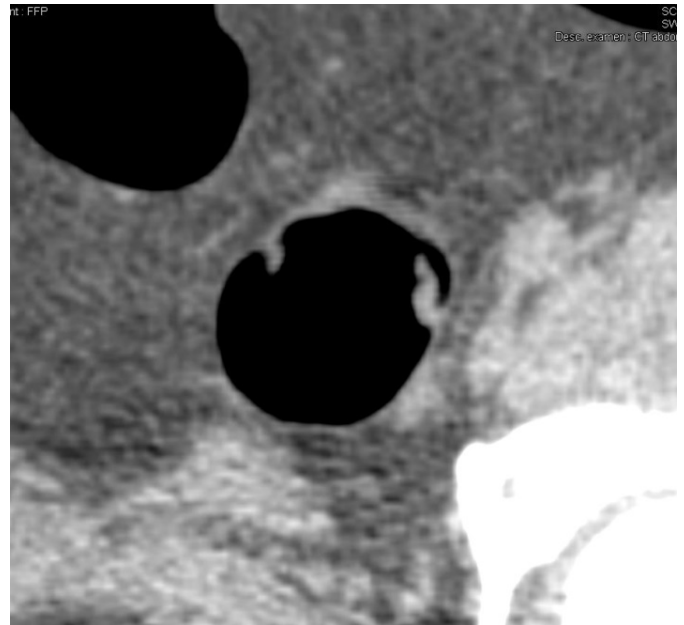
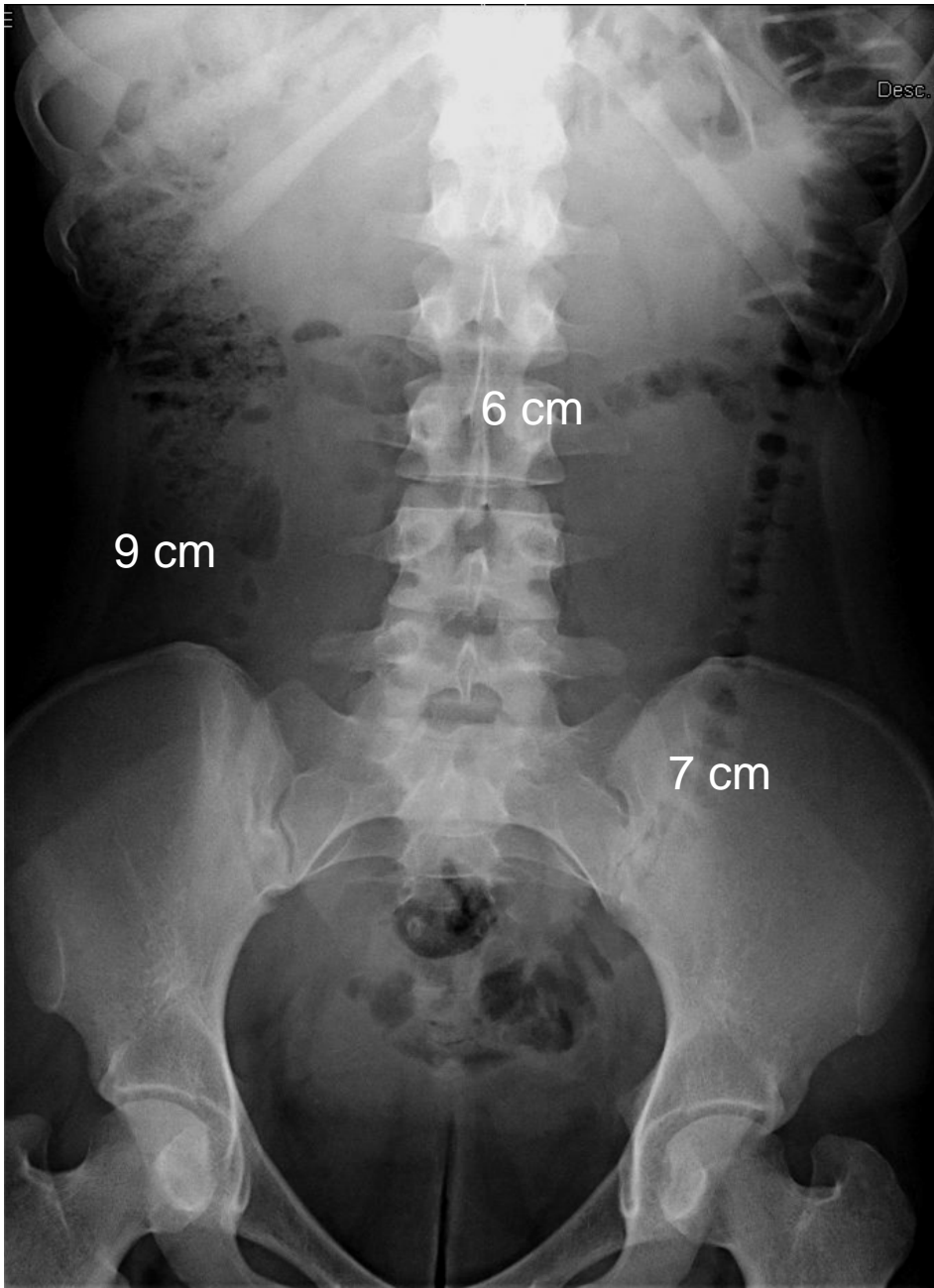
Normal Small Bowel < 3 mm

# INTESTIN NORMAL

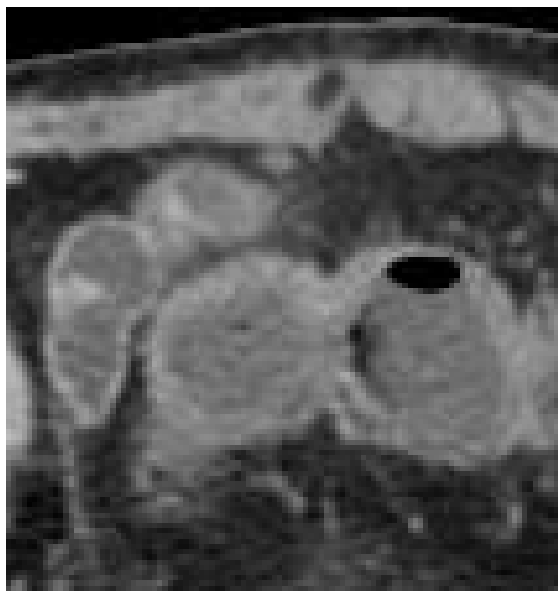
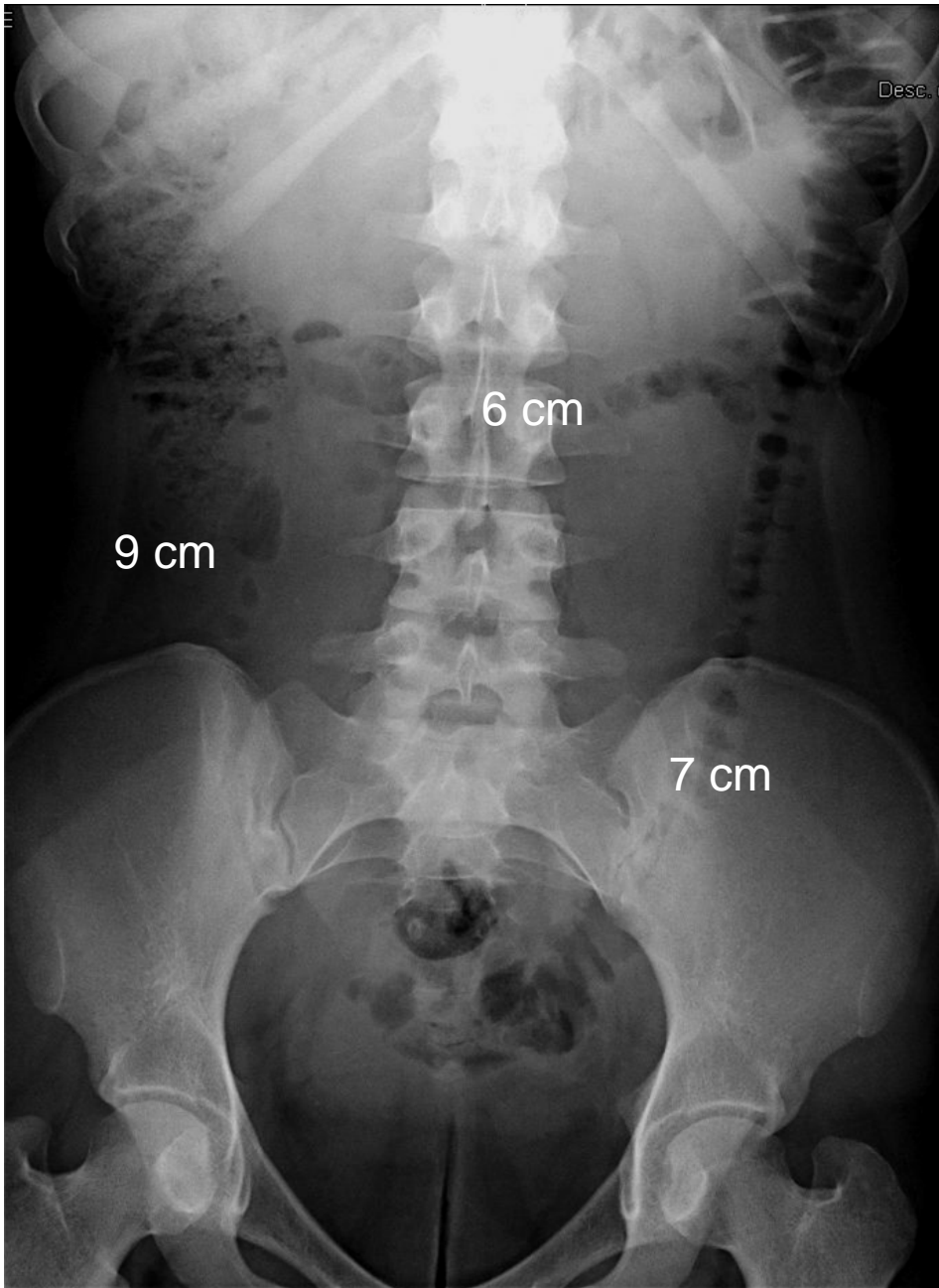


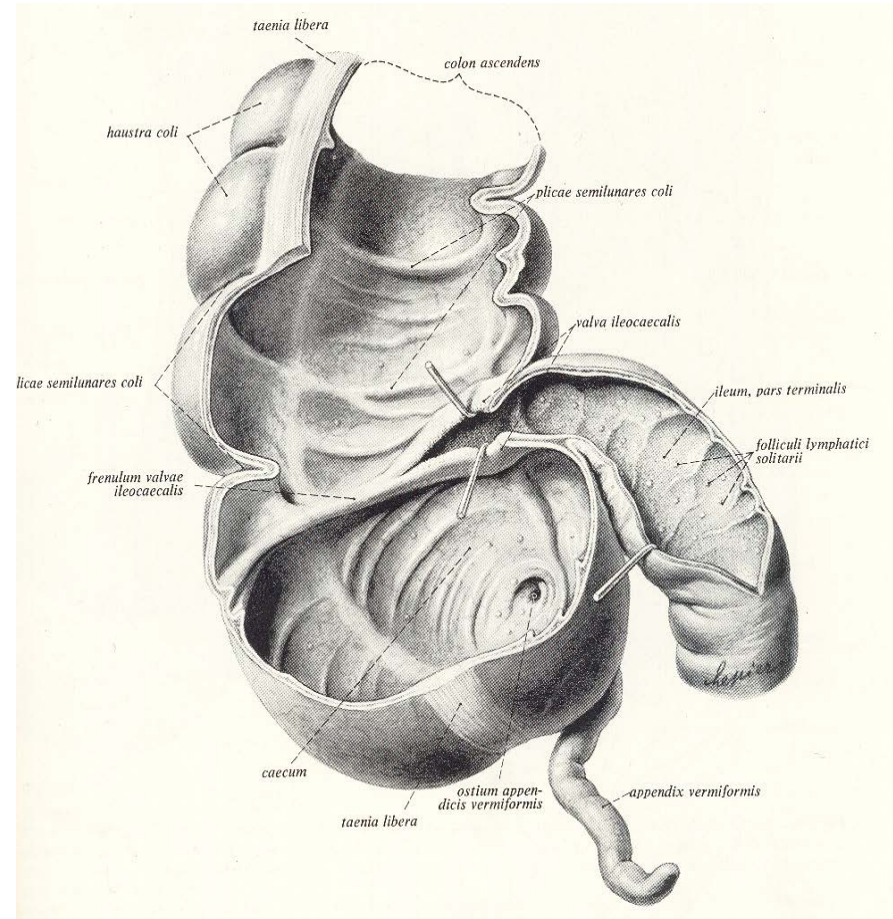
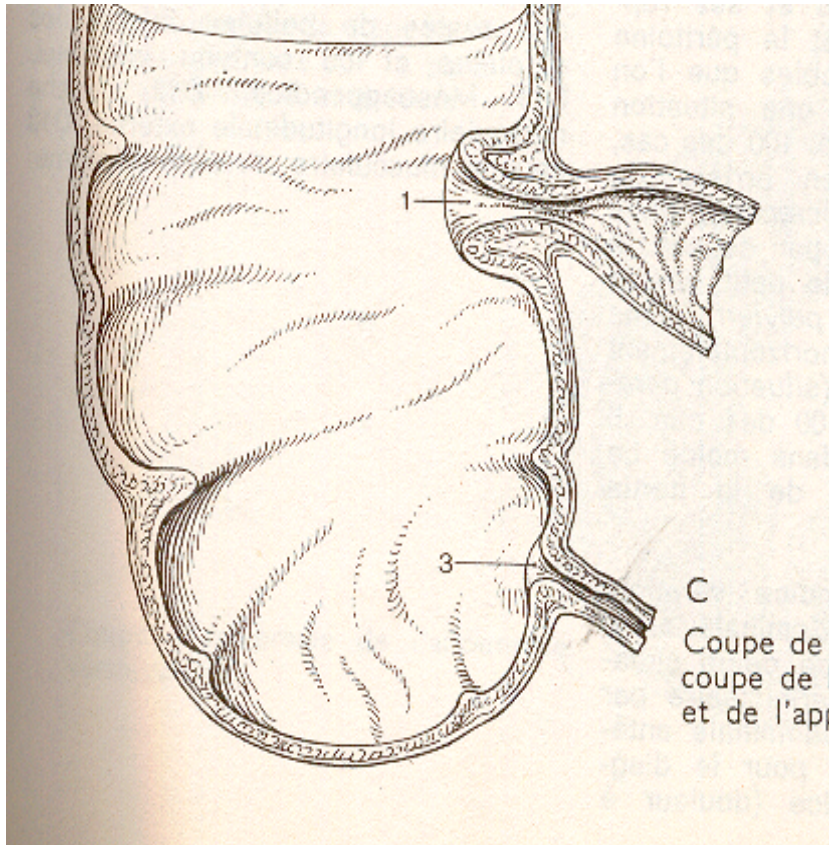
**GRELE**

**Colon**







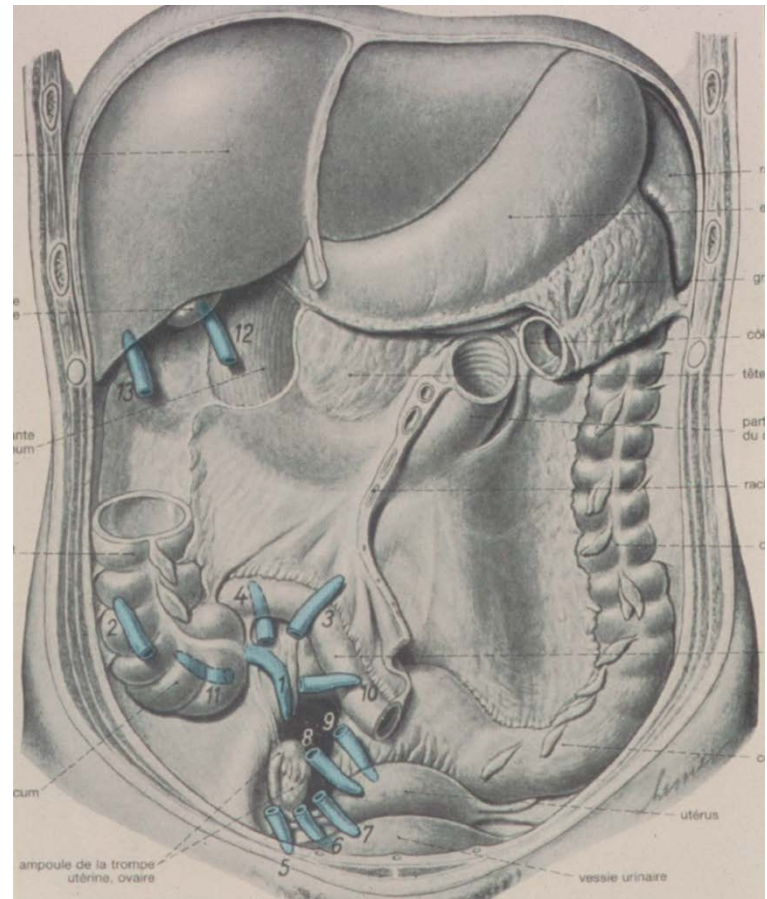


In Kahle et al, Anatomie, 2, Flammarion médecine Sciences, 1979

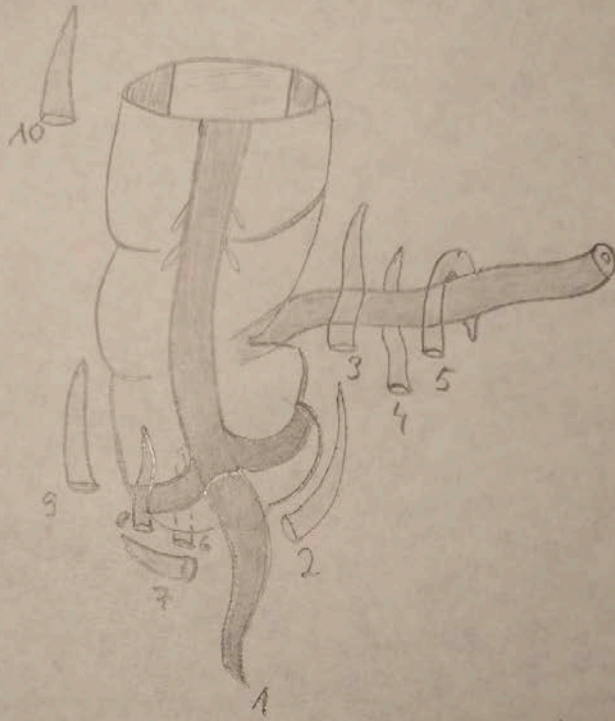


# Appendice vermiforme

- Longueur : 6-12 cm
- Largeur : 6 mm
- Topographie variable
  - Descendant
  - Ascendant (rétrocaecal)
  - Latéral
  - Médial



In Netter, Atlas d'anatomie humaine, Masson, 2007



- 1: pelvienne
- 2: medio-caecale
- 3: pré-iléale
- 4: rétro-iléale
- 5: péri-iléale

- 6a: rétro-caecale
- 7: infra-caecale
- 8: pré-caecale
- 9: latéro-caecale
- 10: infra-hépatique

6b: rétrocolique  
(au dessus de la  
valve iléocaecale.)



Topographies appendiculaires, Dr Binsfeld, 2017



# Appendice normal et US

- Topographie
- Taille et Diamètre
  - 2 à 25 cm de long
  - Paroi < 3 mm
  - Diamètre < 6 mm
- Contenu
  - Hyper ou hypoéchogène
- Doppler couleur

*In Williams, 1994*

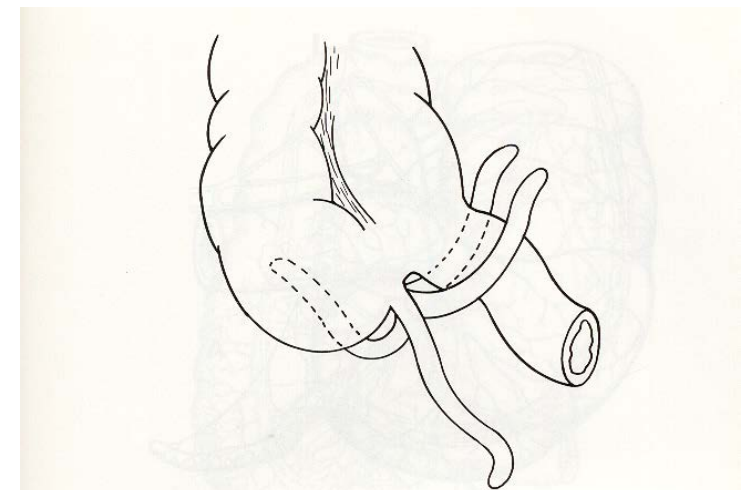
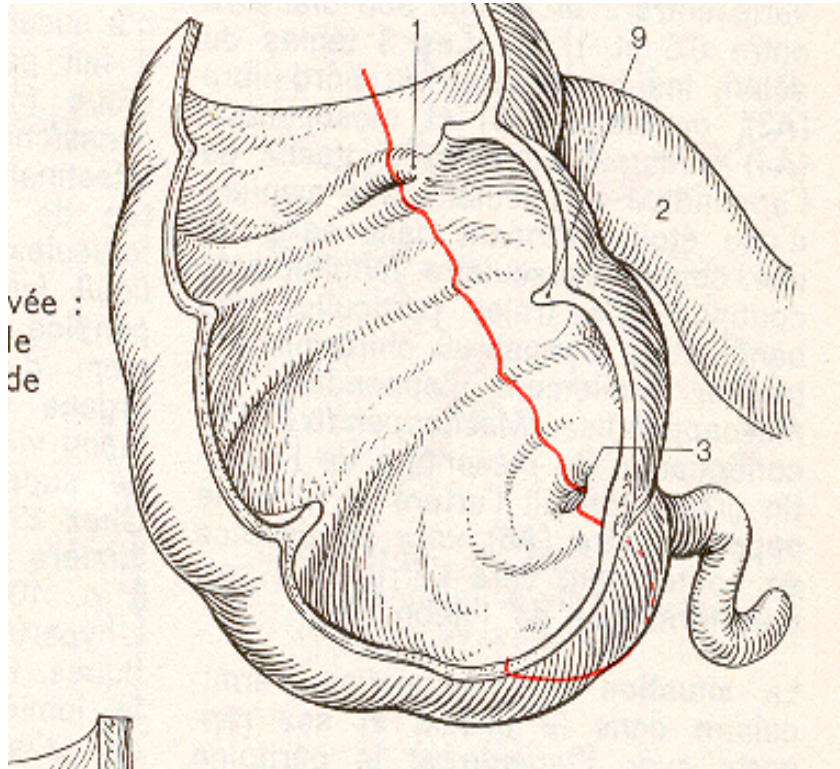


Figure 2.2 The diagram illustrates the four most common positions of the vermiform appendix.

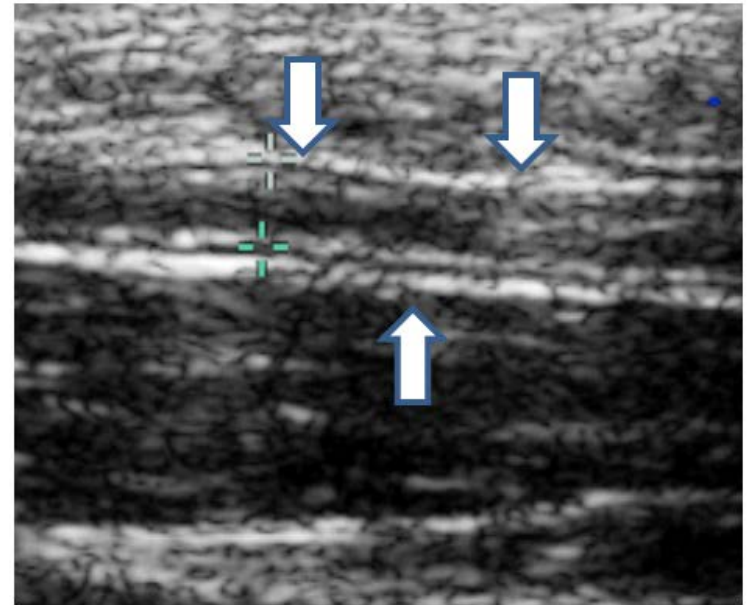
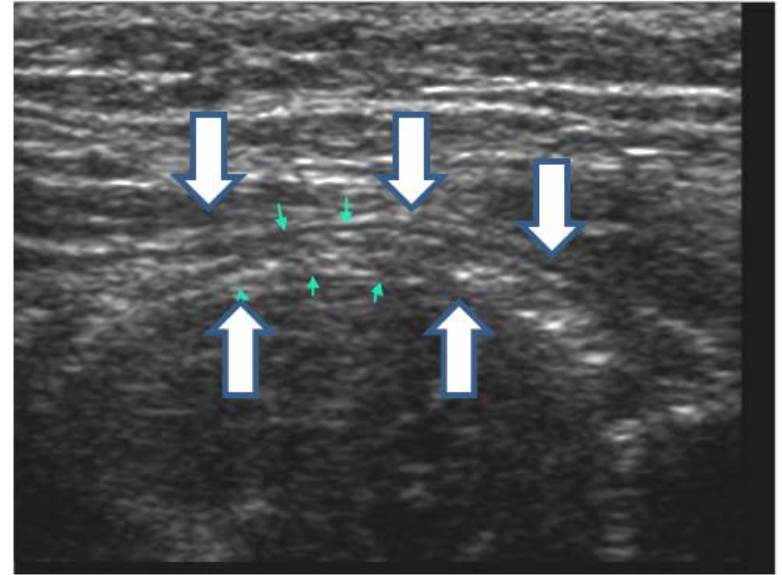
**44.6 à 82 %**

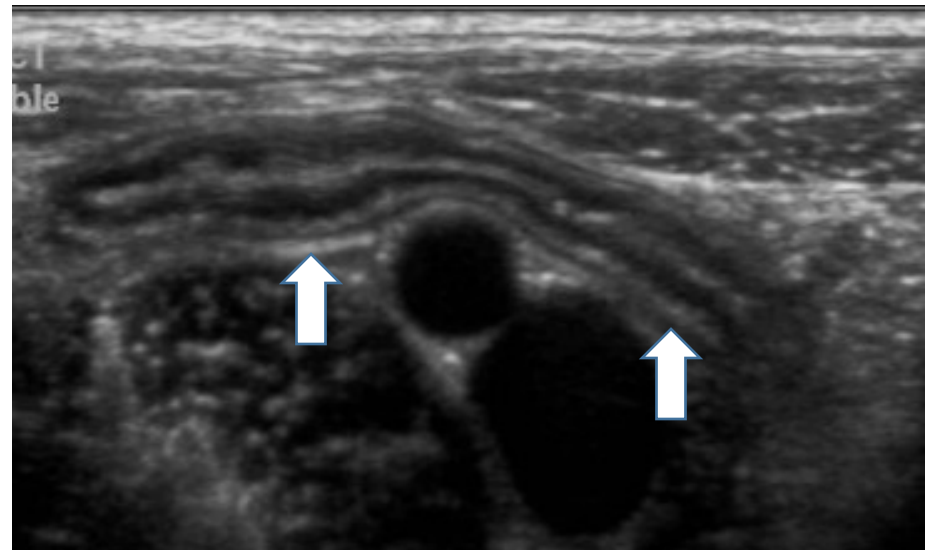
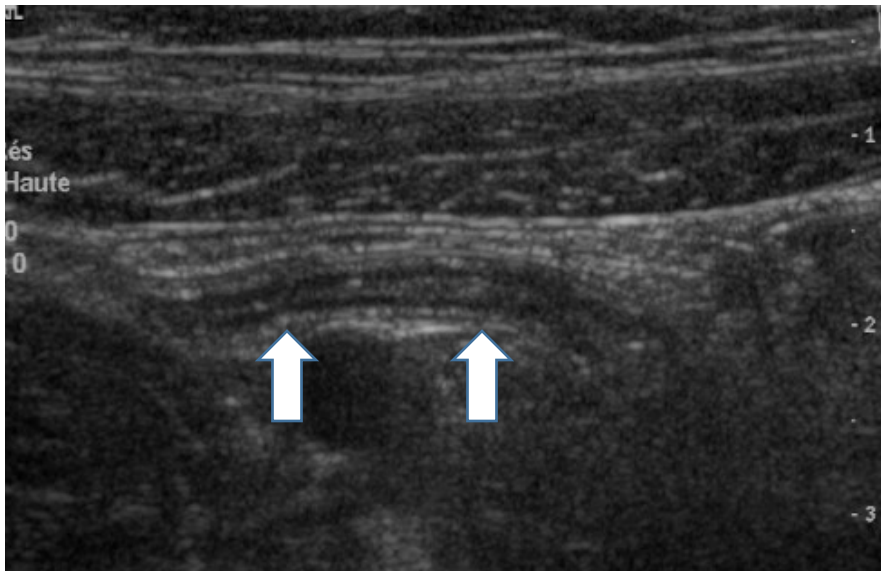
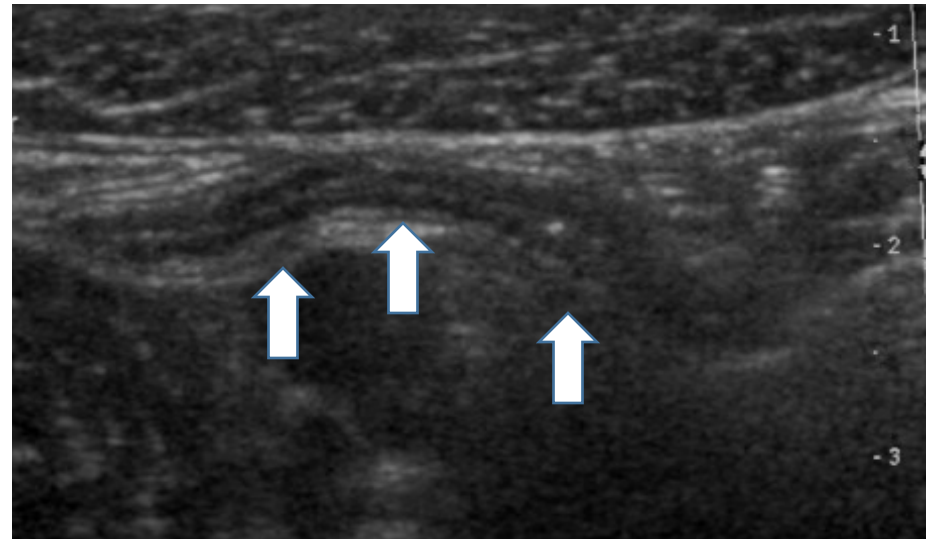
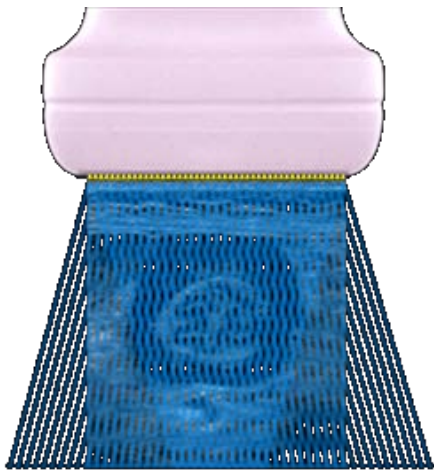


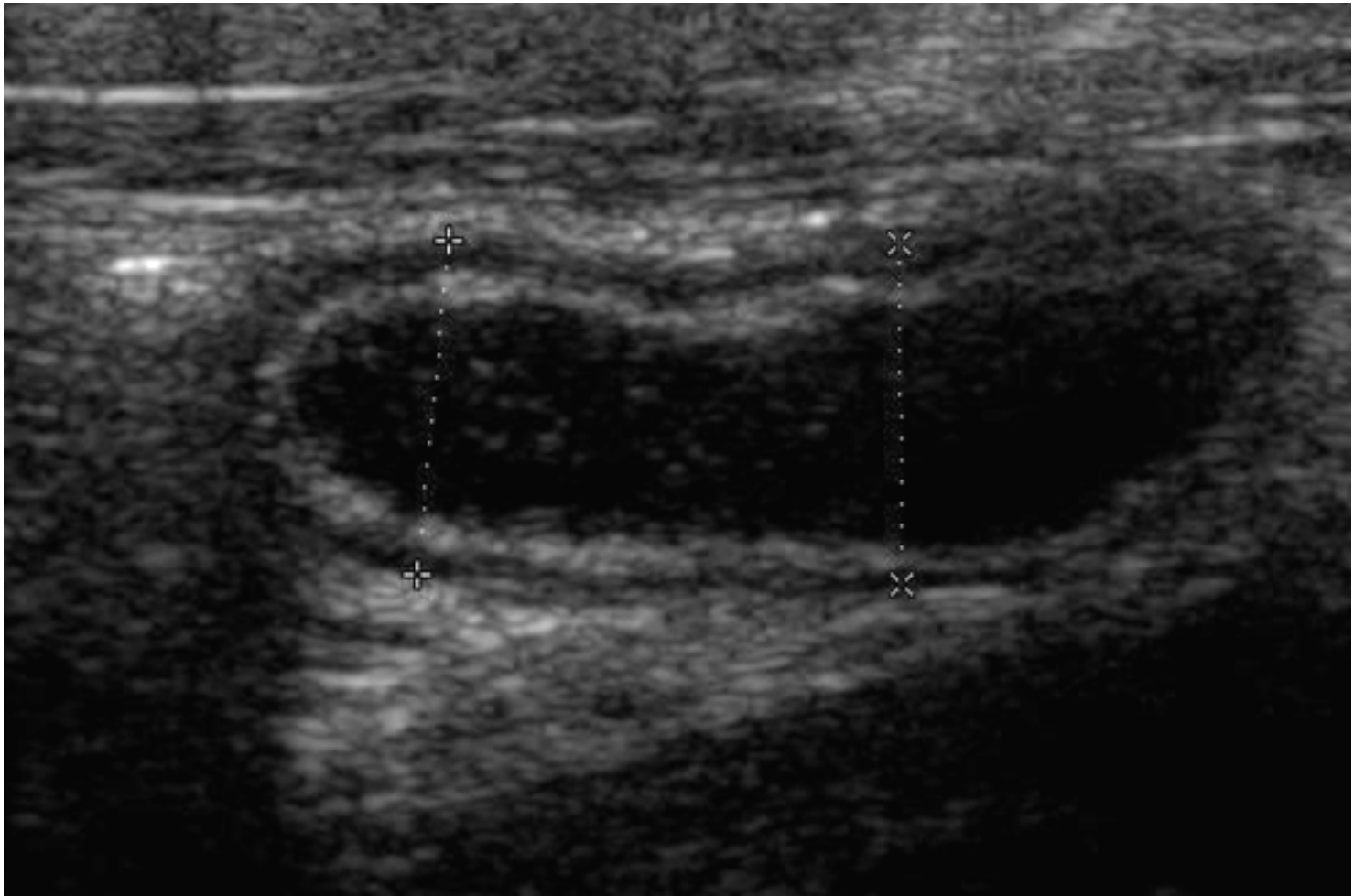
vée :  
le  
de

In Kahle et al, Anatomie, 2, Flammarion médecine  
Sciences, 1979

# appendice









# Appendice et TDM

- TDM :
  - Examen focalisé
  - Examen global
    - Opacifications
      - Orales
      - Rectales
    - Injection intraveineuse
      - 100 à 150 ml
        - » 70/270 sec; 2.5/2 ml/sec

# Appendice normal et TDM

- Appendice normal:
  - Rempli de matériel et/ou de gaz
  - Paroi < 2 mm
  - Graisse normale
  
- < 6 mm

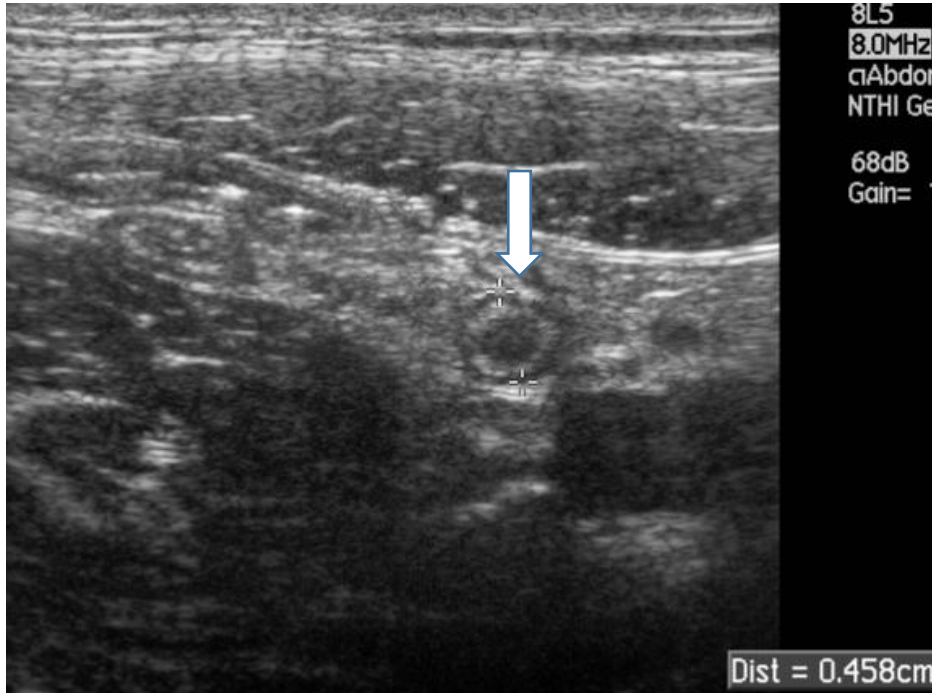
} [6 - 8] mm

**77 à 81 %**



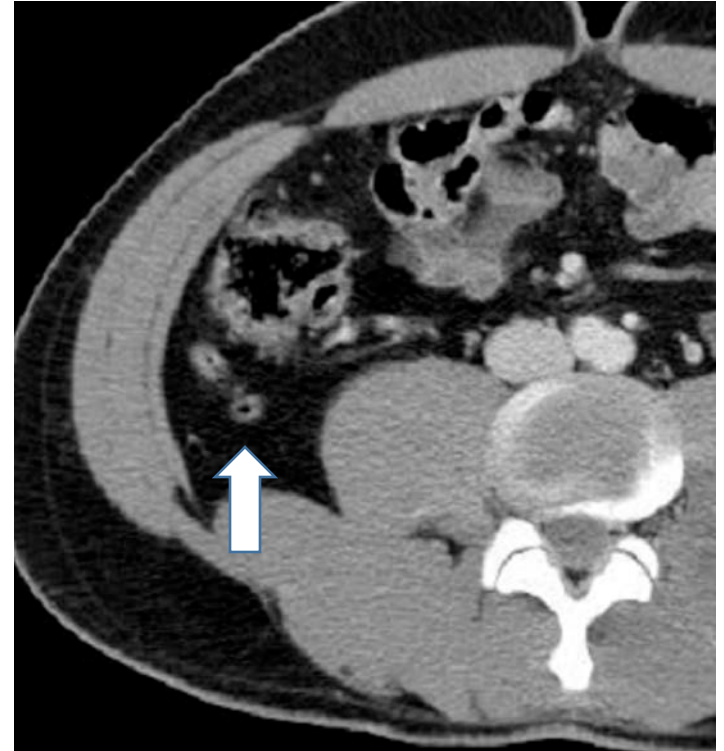
Appendice normal

En échographie



**44.6 à 82 %**

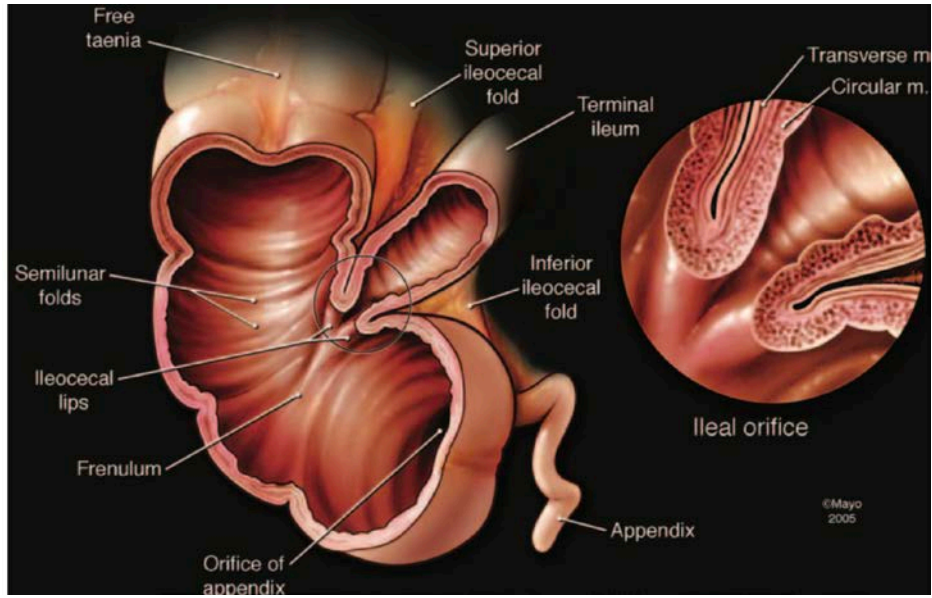
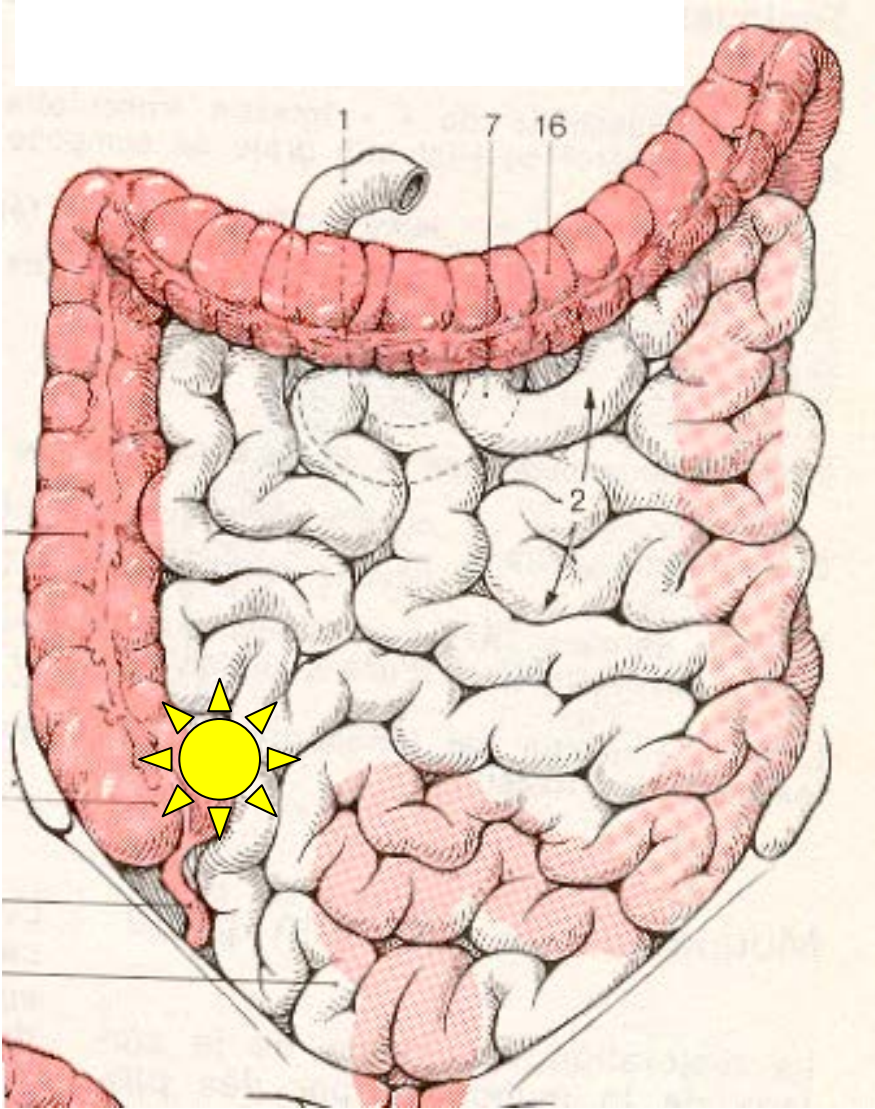
au scanner



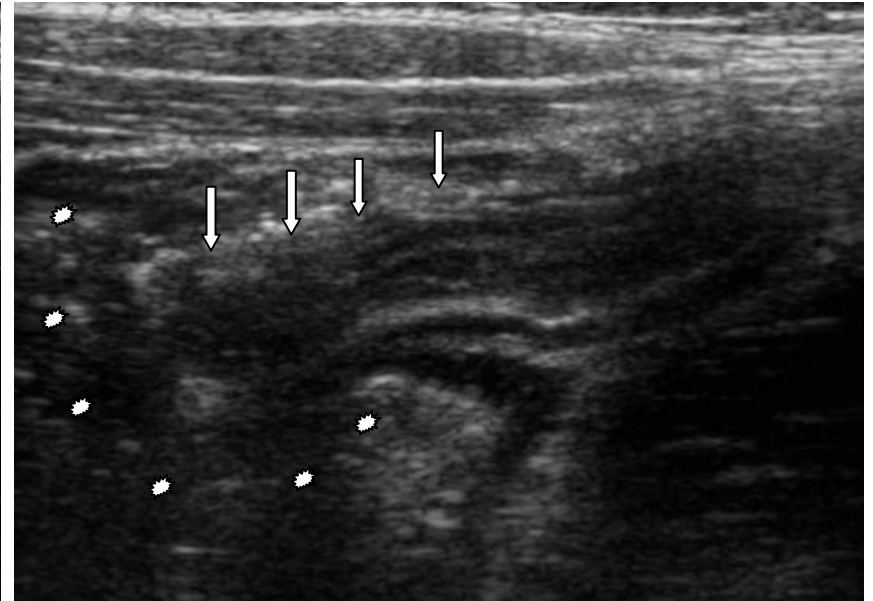
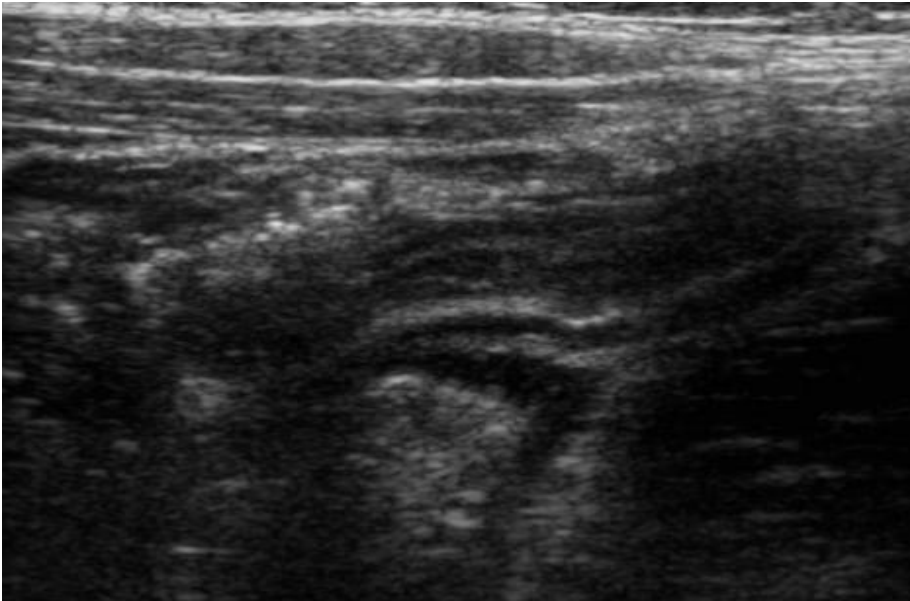
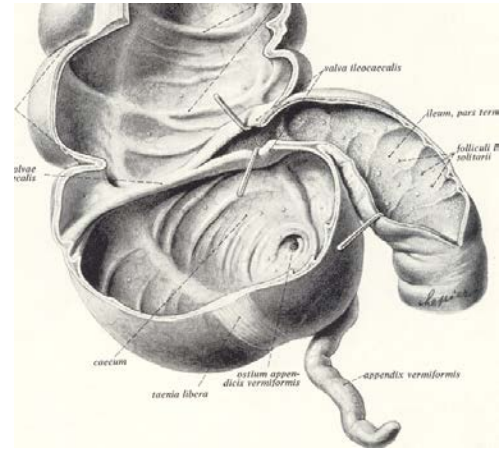
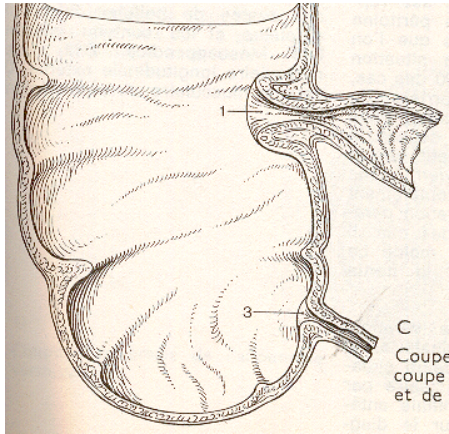
**77 à 81 %**



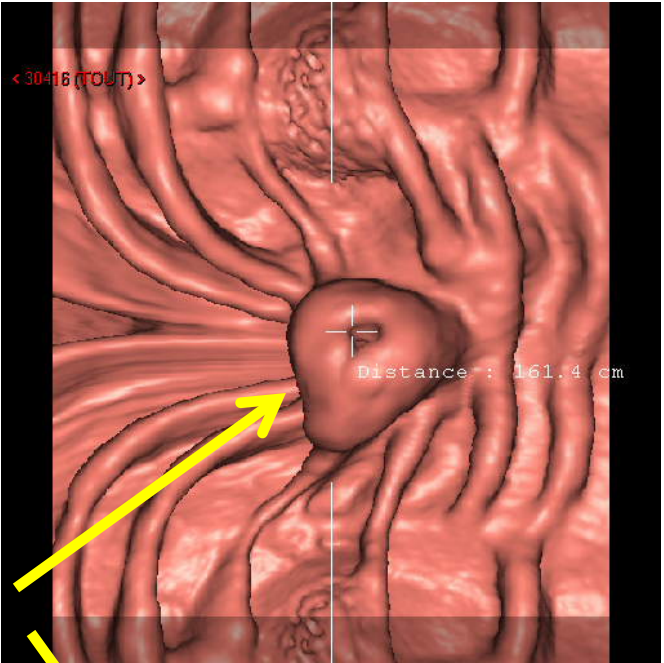
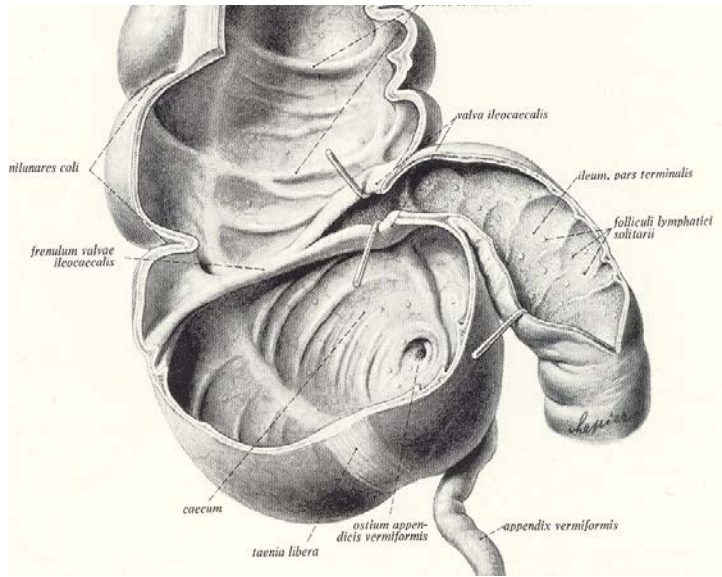
# CARREFOUR ILEO COECAL



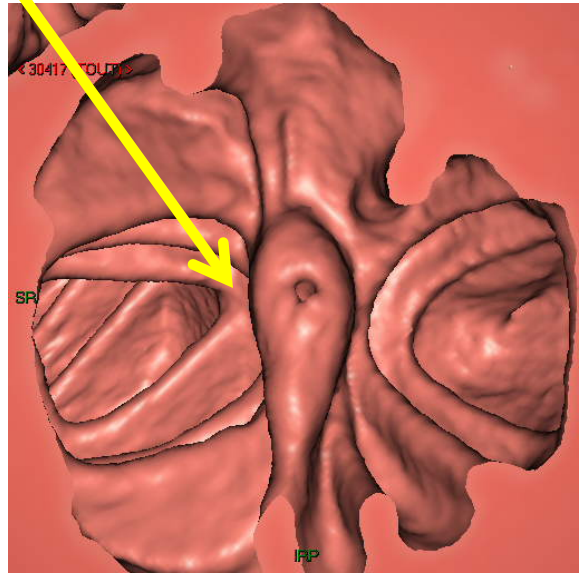
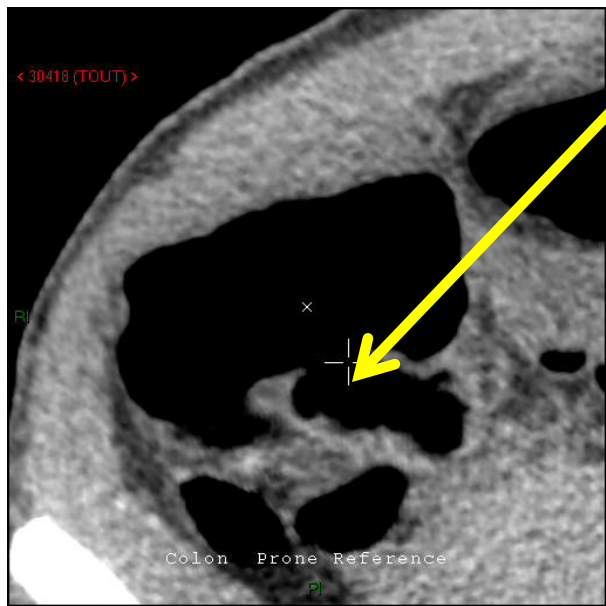
*Alvin C. Silva, MD • Sean D. Beaty, MD • Amy K. Hara, MD • Joel G. Fletcher, MD • Jeff L. Fidler, MD • Christine O. Menias, MD • C. Daniel Johnson, MD*

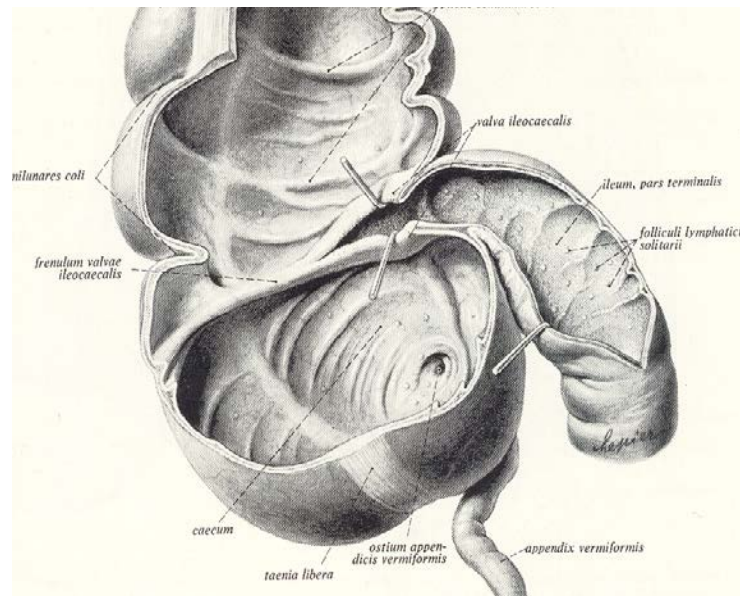
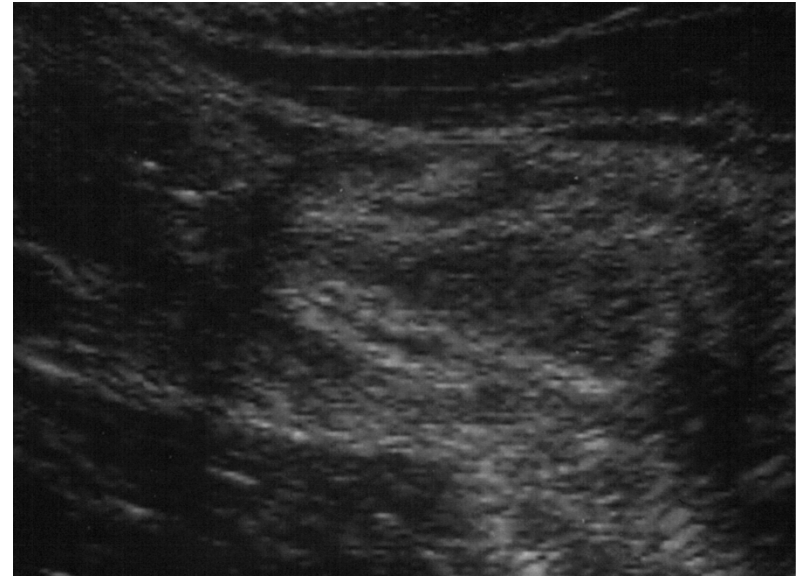
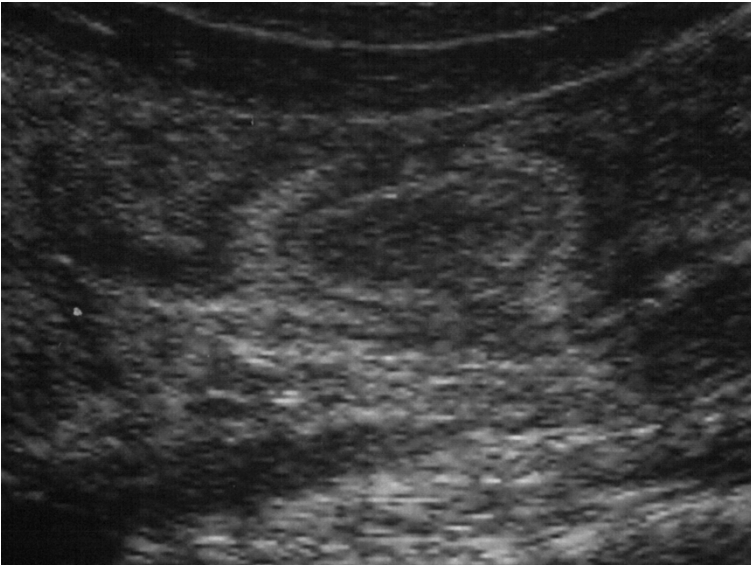




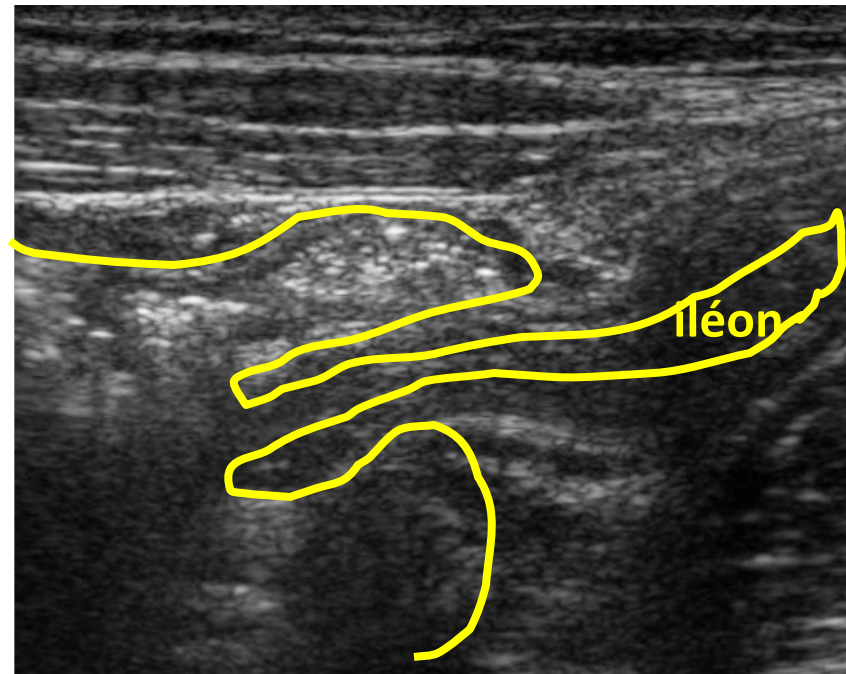
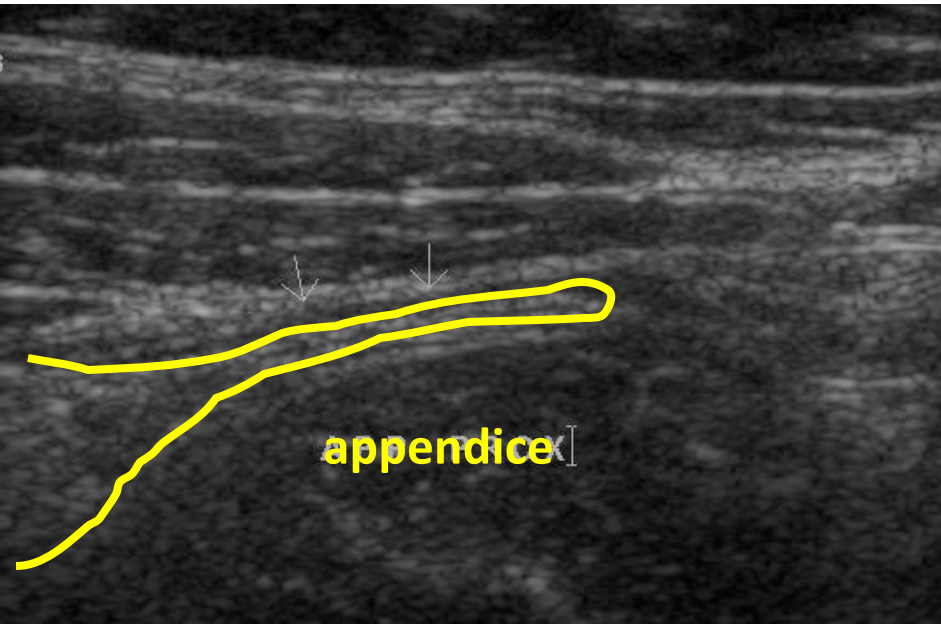
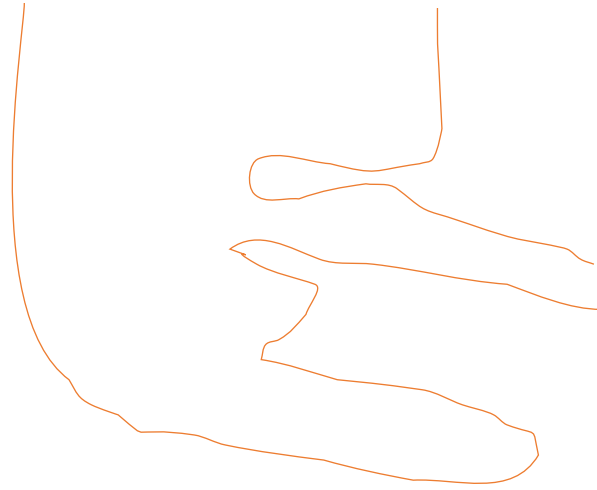


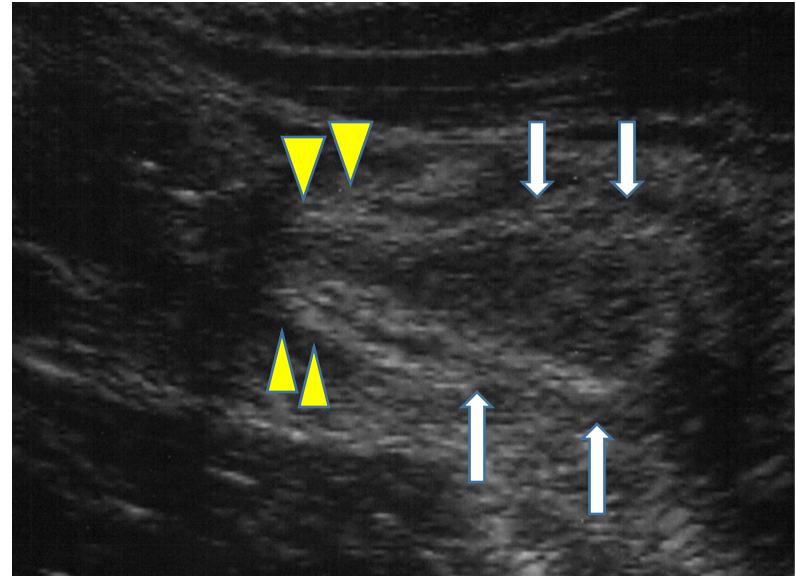
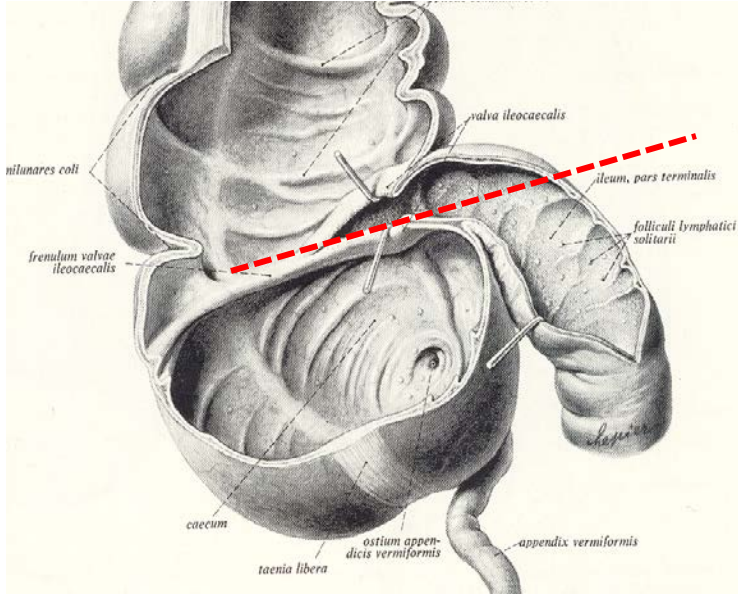
Valvule de Bauhin





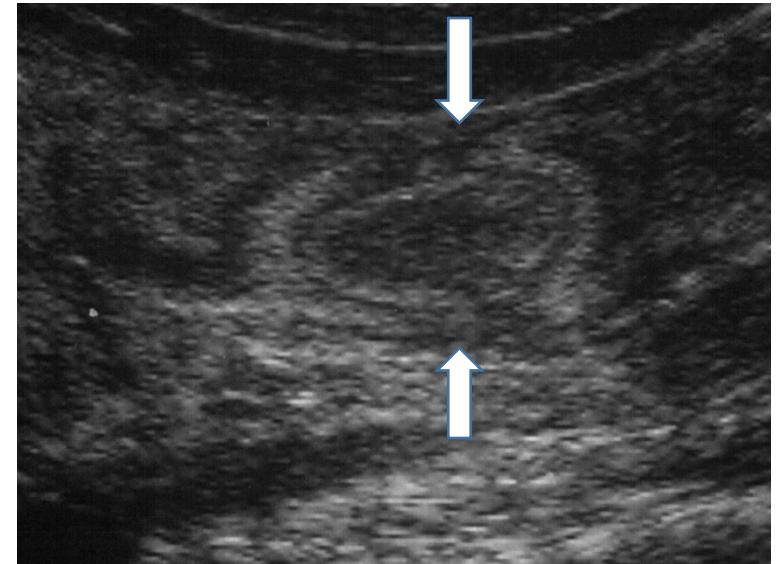
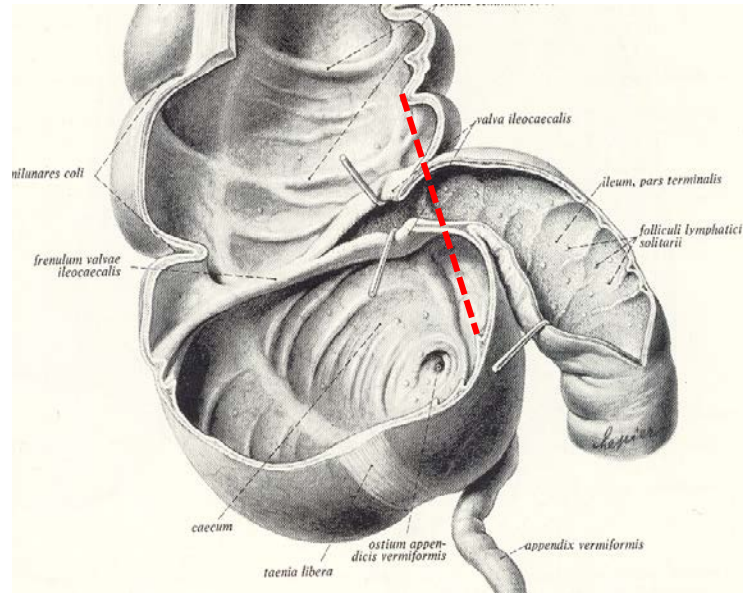






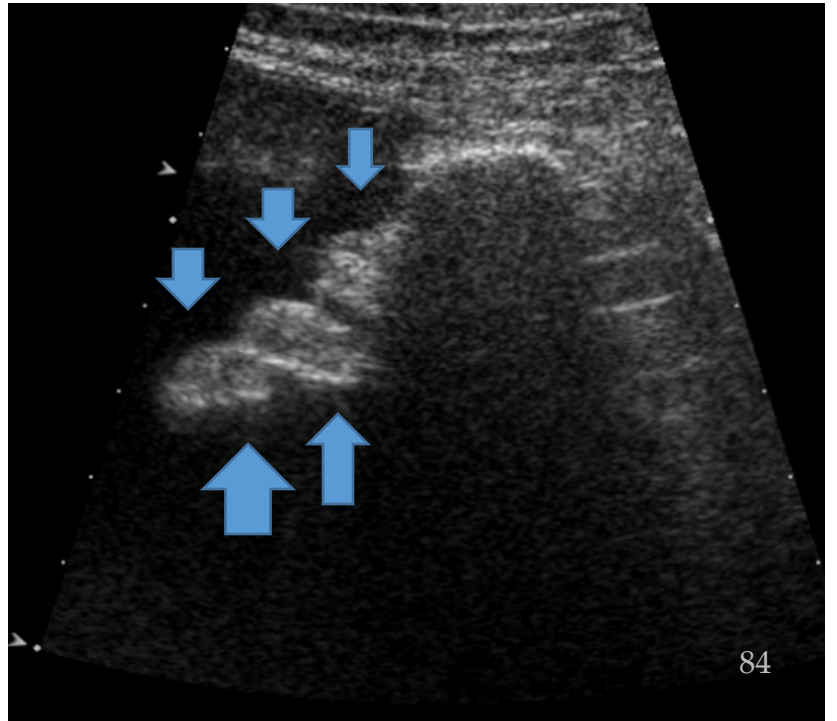
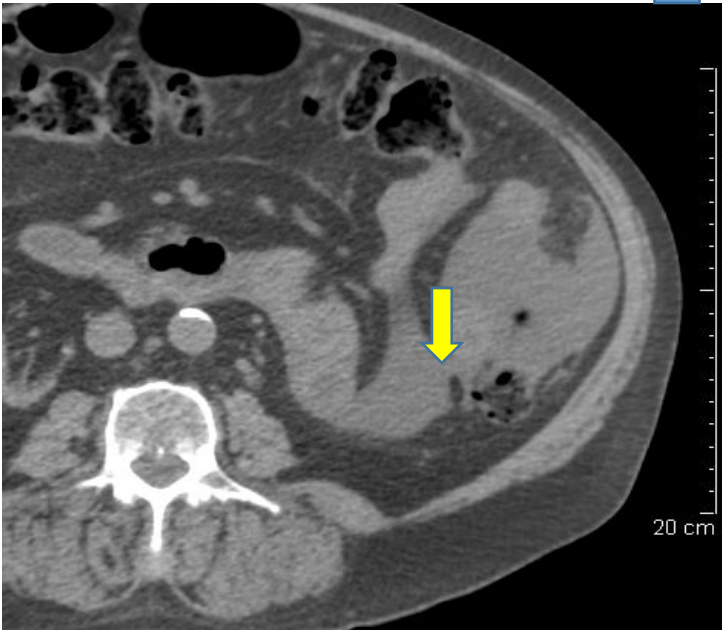
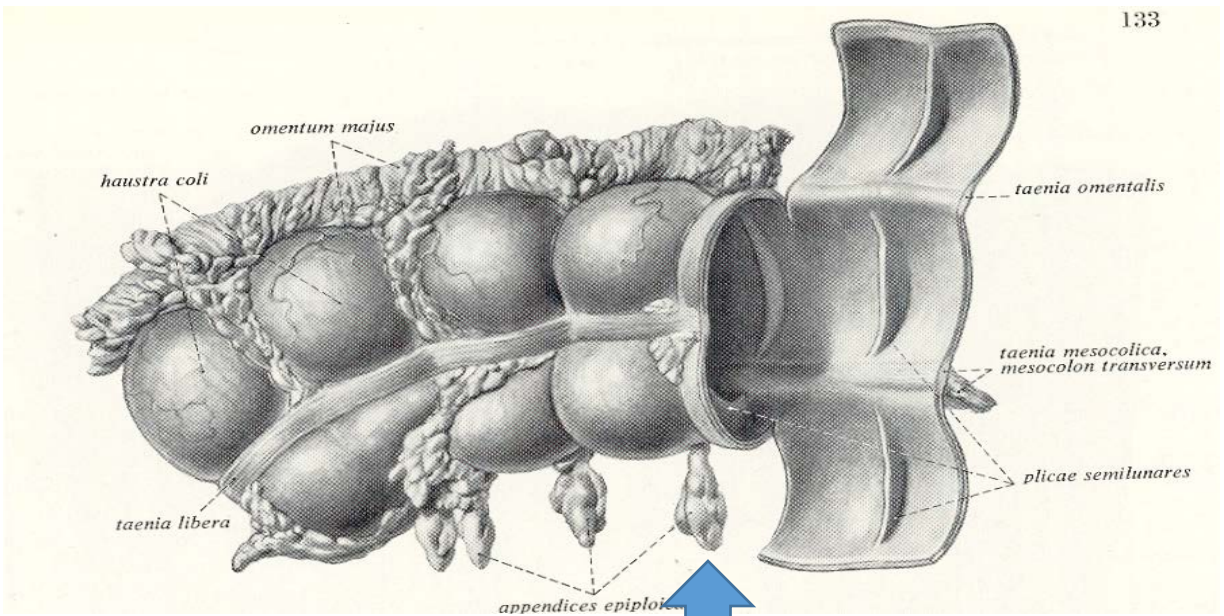
- La valvule de Bauhin, dans son grand axe
- Sur le dessin, le pointillé rouge montre le plan de l'image échographique
  - Sur l'image échographique,
    - les flèches délimitent l'iléon terminal
    - Les têtes de flèche se situent en regard de la valvule de Bauhin

In Kahle et al, Anatomie, 2, Flammarion médecine Sciences, 1979

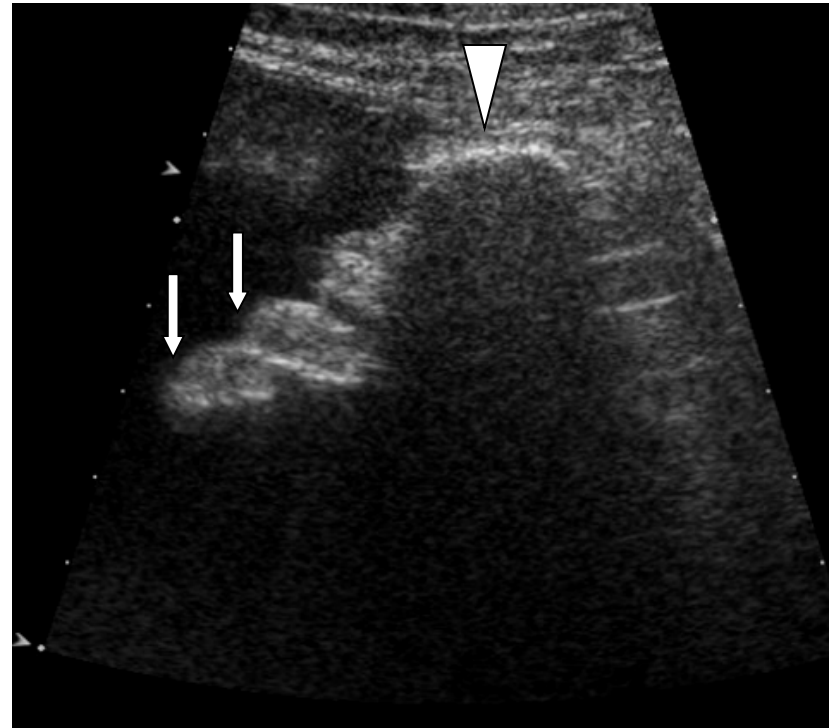
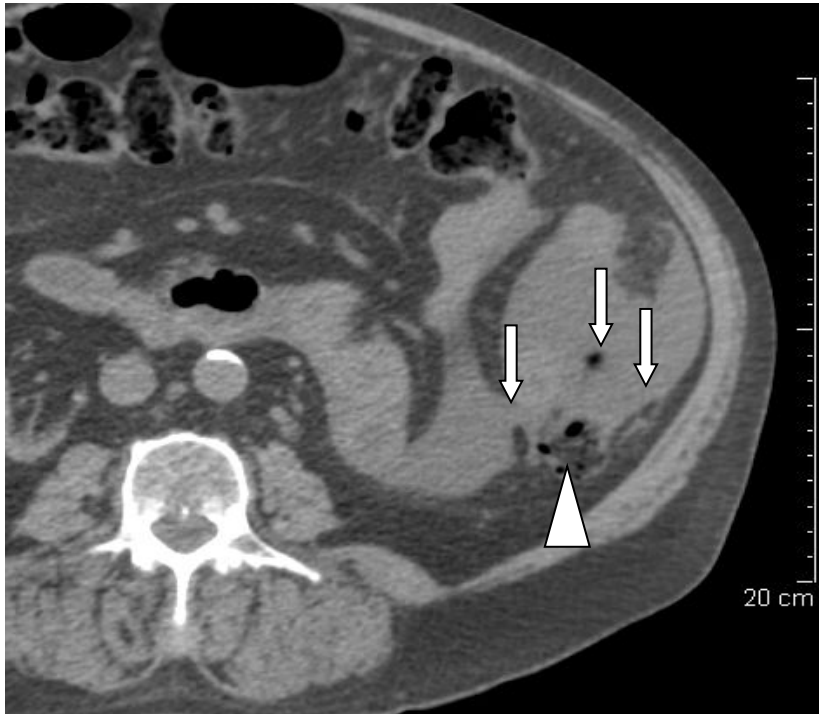


- La valvule de Bauhin, EN COUPE transverse
- Sur le dessin, le pointillé rouge montre le plan de l'image échographique
  - Sur l'image échographique,
    - les flèches délimitent l'iléon terminal

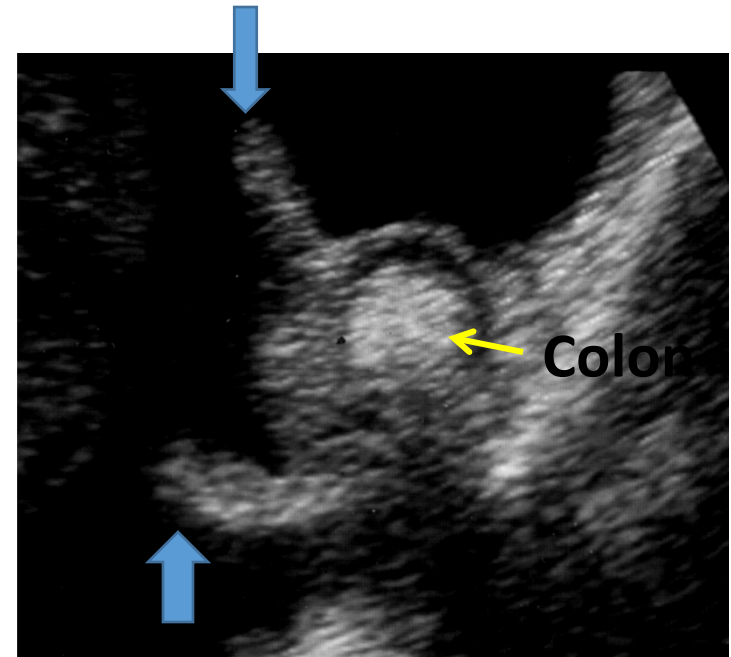
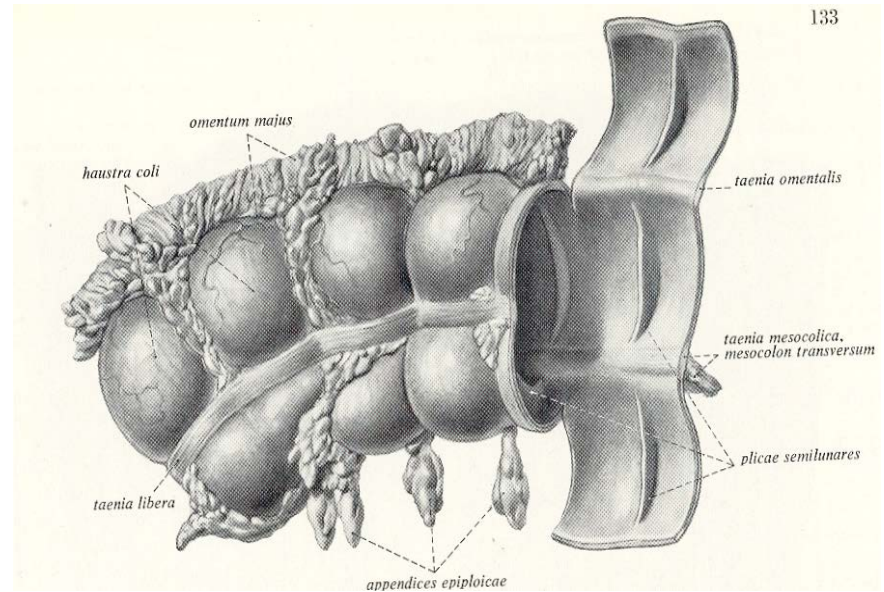
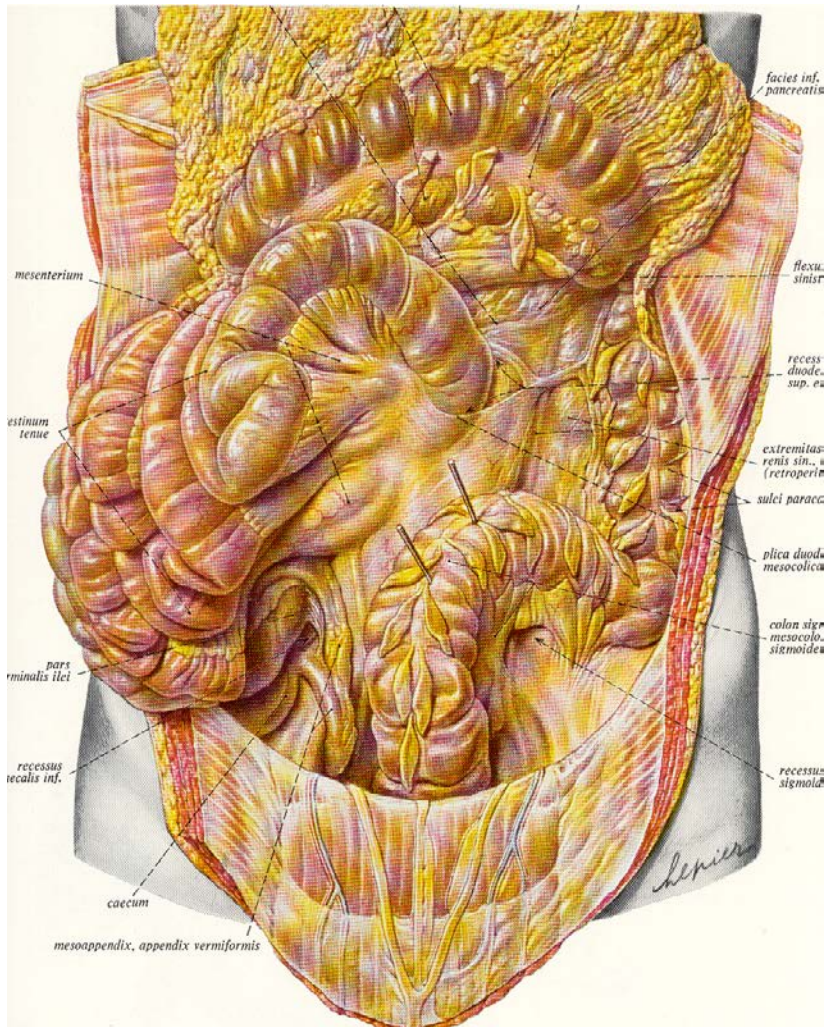








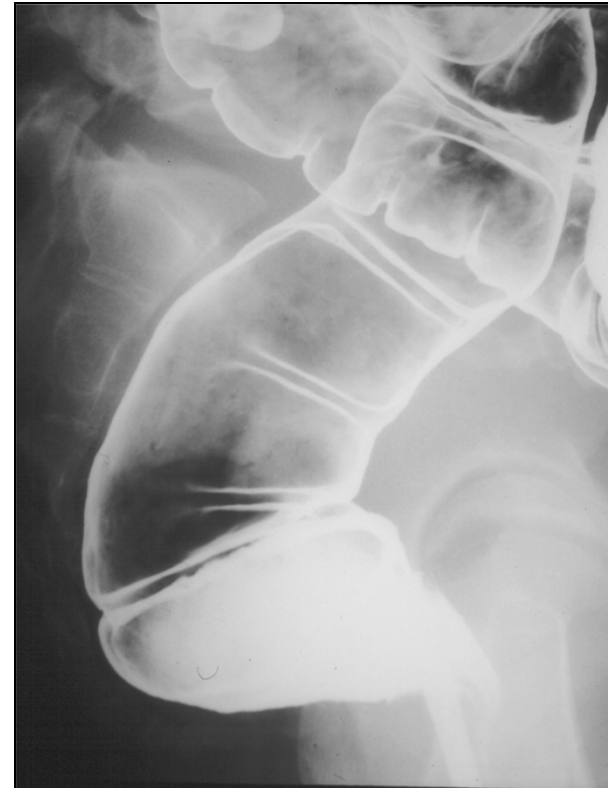
Colon : tête de flèche  
Appendice épiploïque : flèches



In Netter, Atlas d'anatomie humaine, Masson, 2007

# Rectum

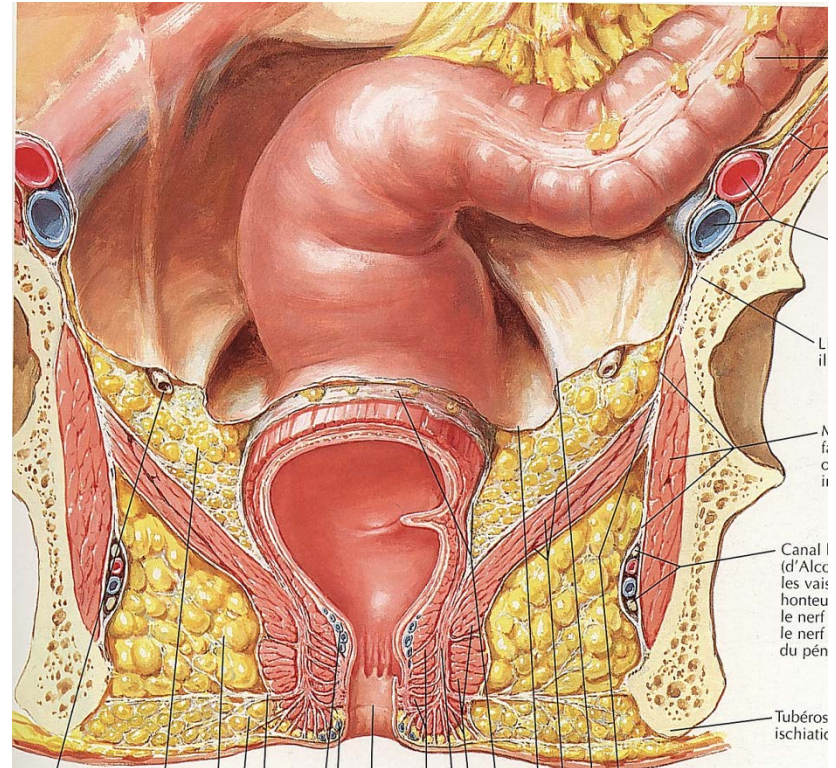
- Muscle longitudinal continu
- Incisures : valves de Houston
- Suit la courbure du sacrum : convexité postérieure





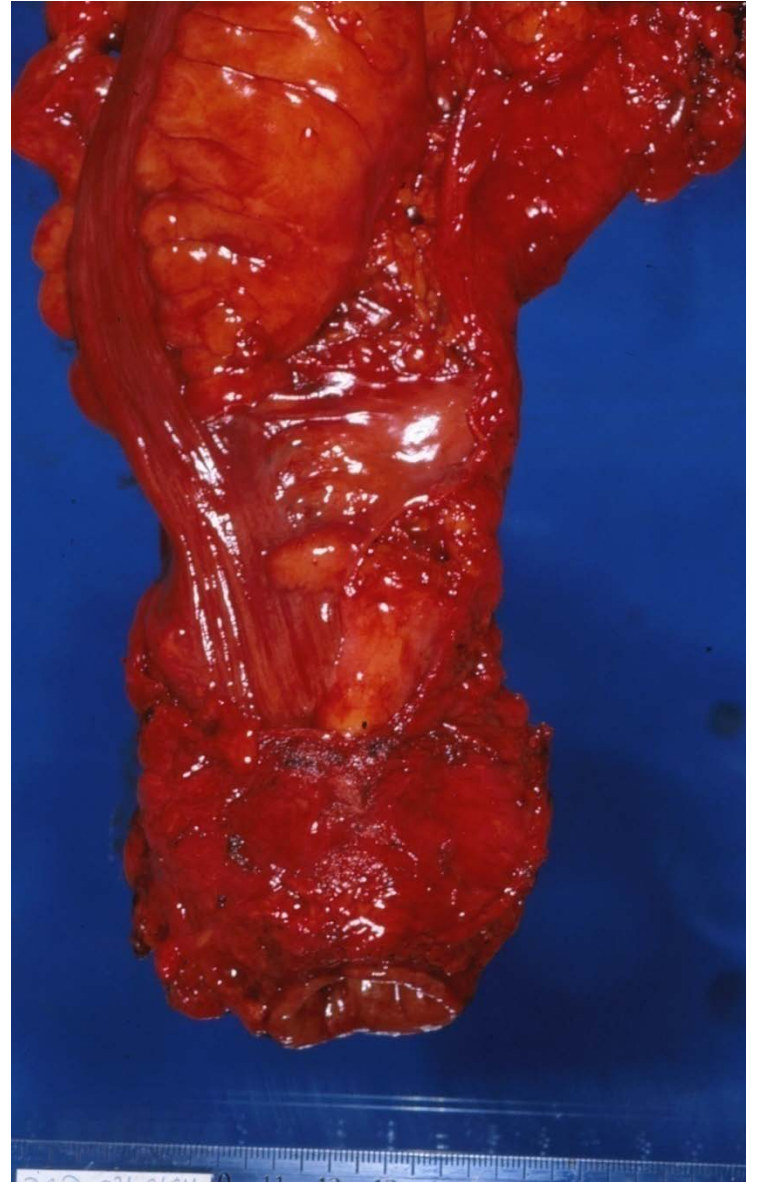
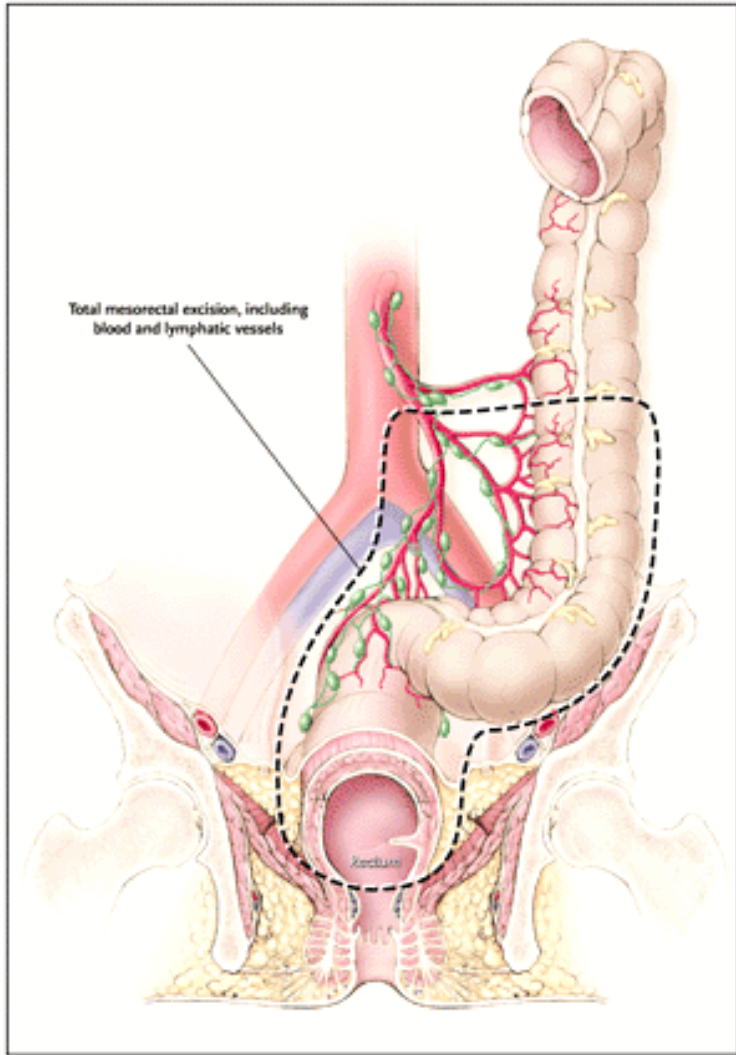
# Rectum

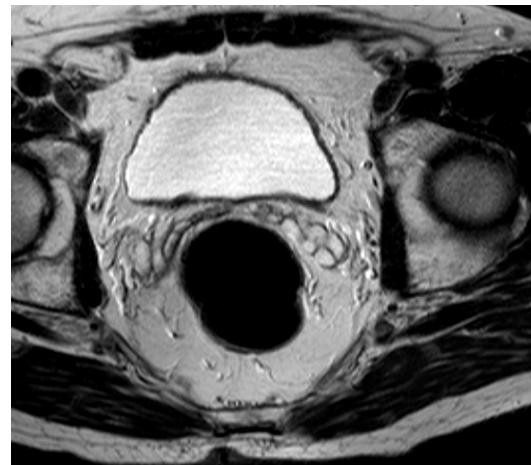
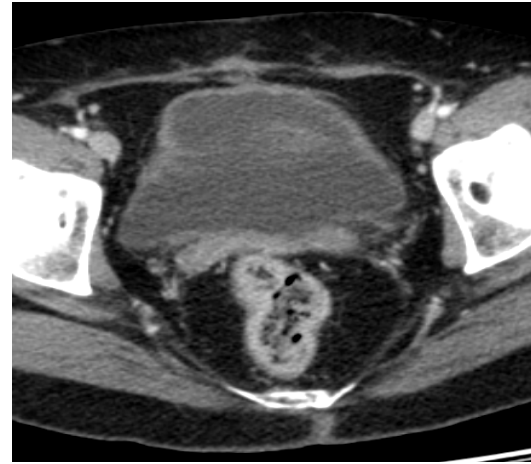
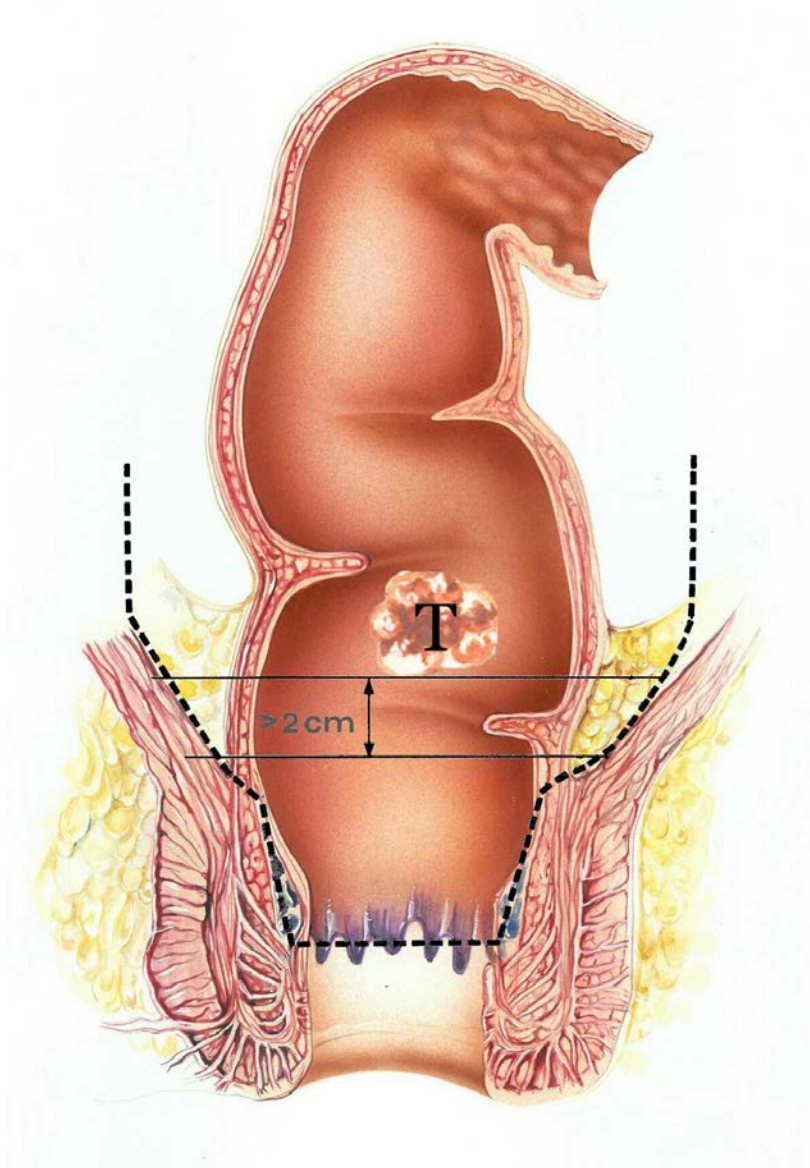
- Définition anatomique : s'étend jusqu'aux valvules anales de Morgagni
- Définition fonctionnelle : s'étend jusqu'au bord supérieur du sphincter externe



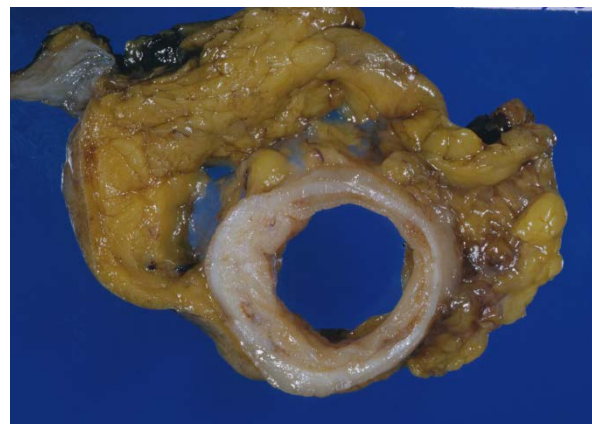
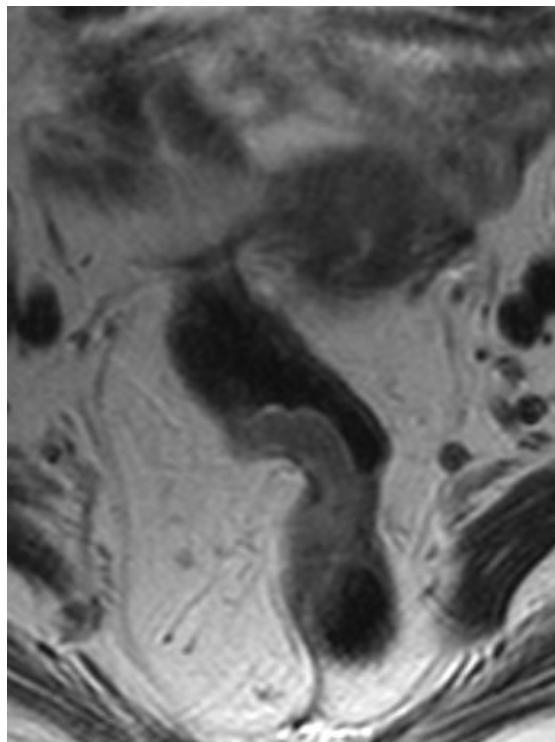
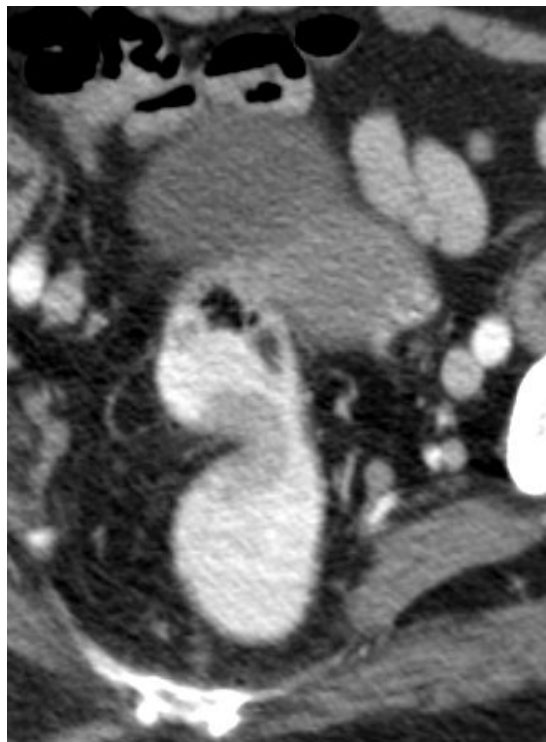
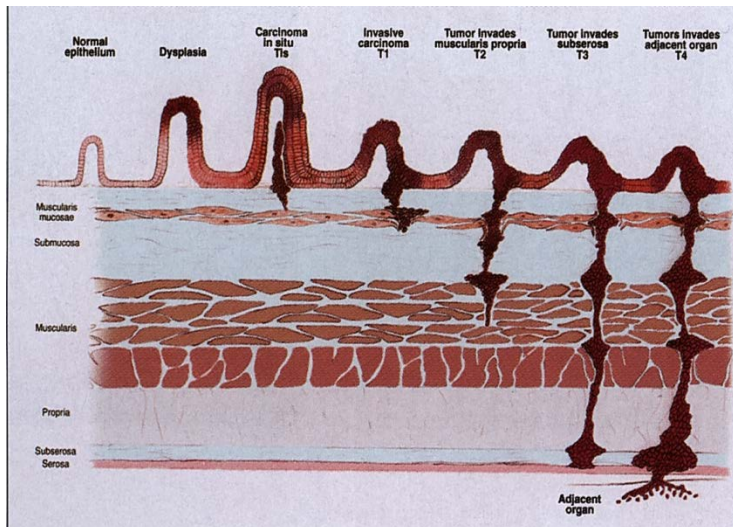
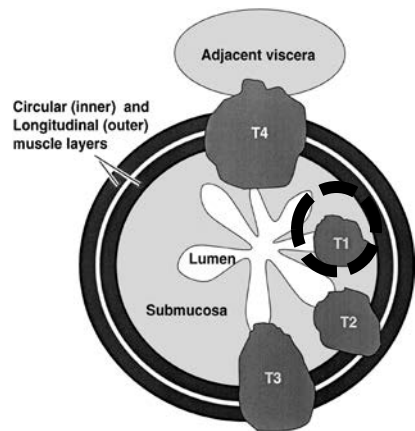
In Netter, Atlas d'anatomie humaine,  
Masson, 2007

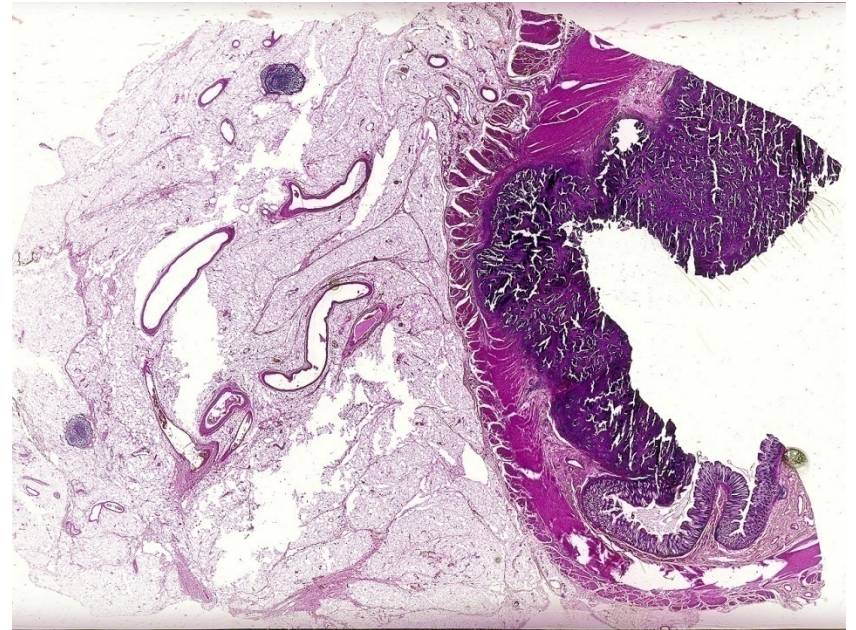
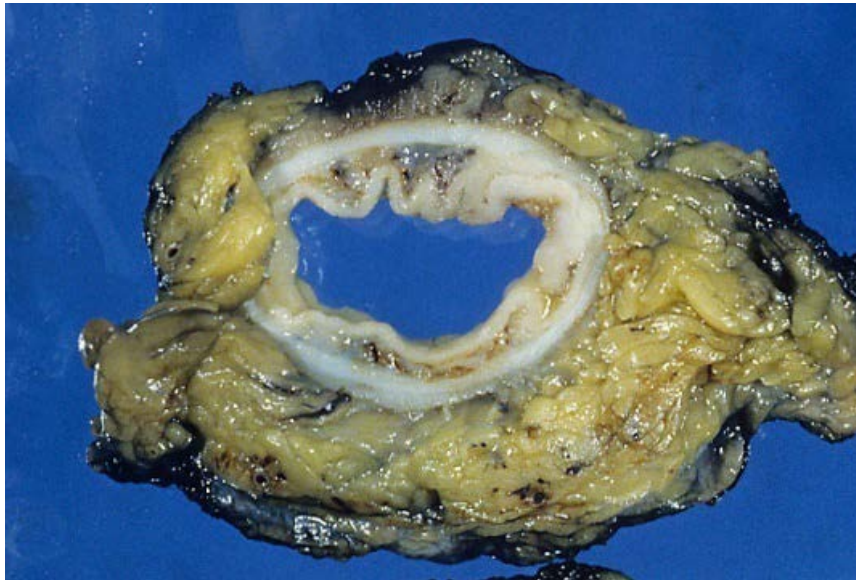
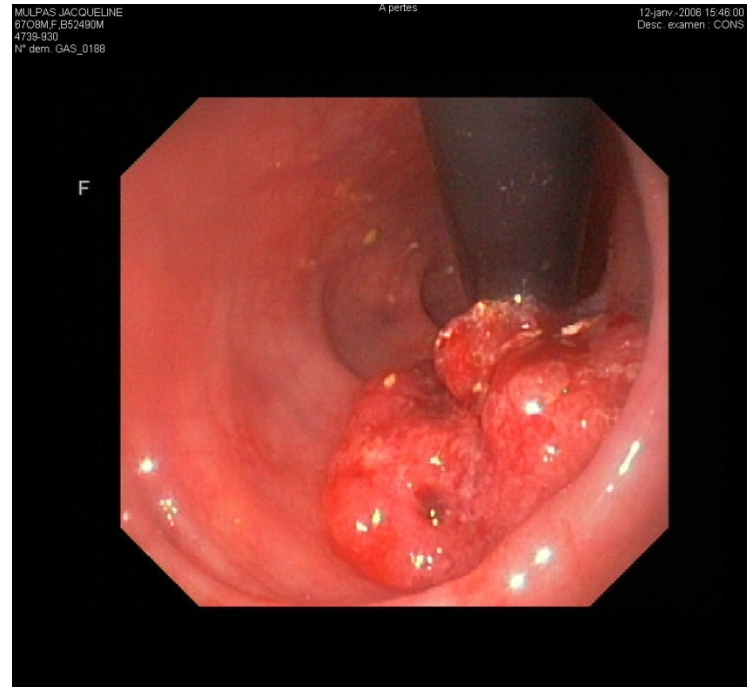












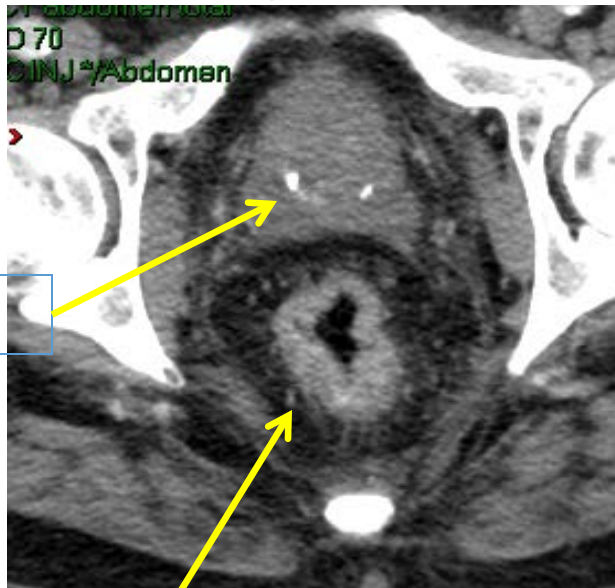


# Vue du rectum en CT et en IRM

## IRM

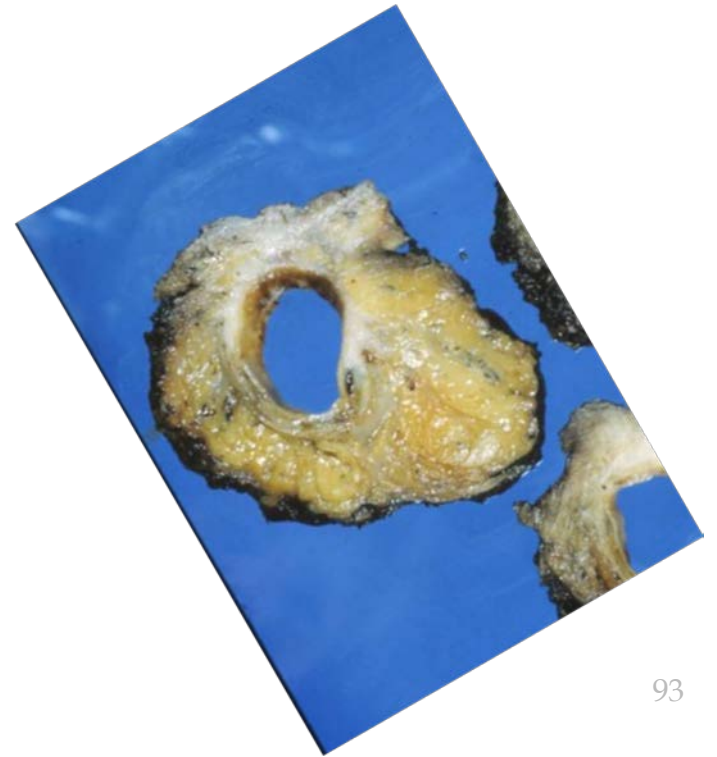


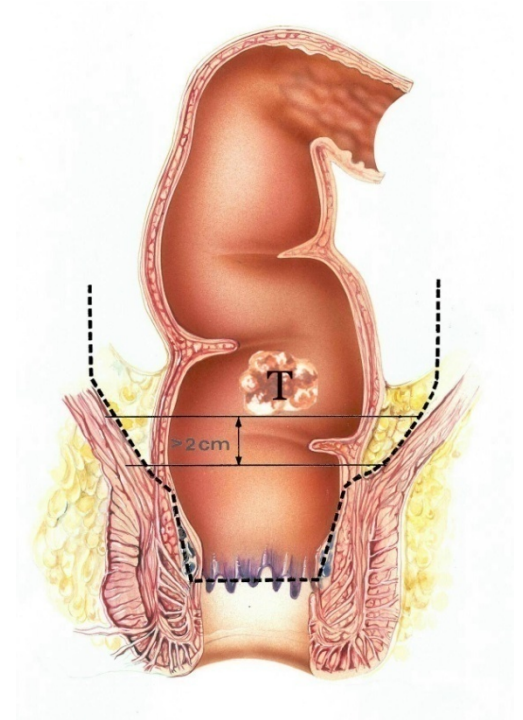
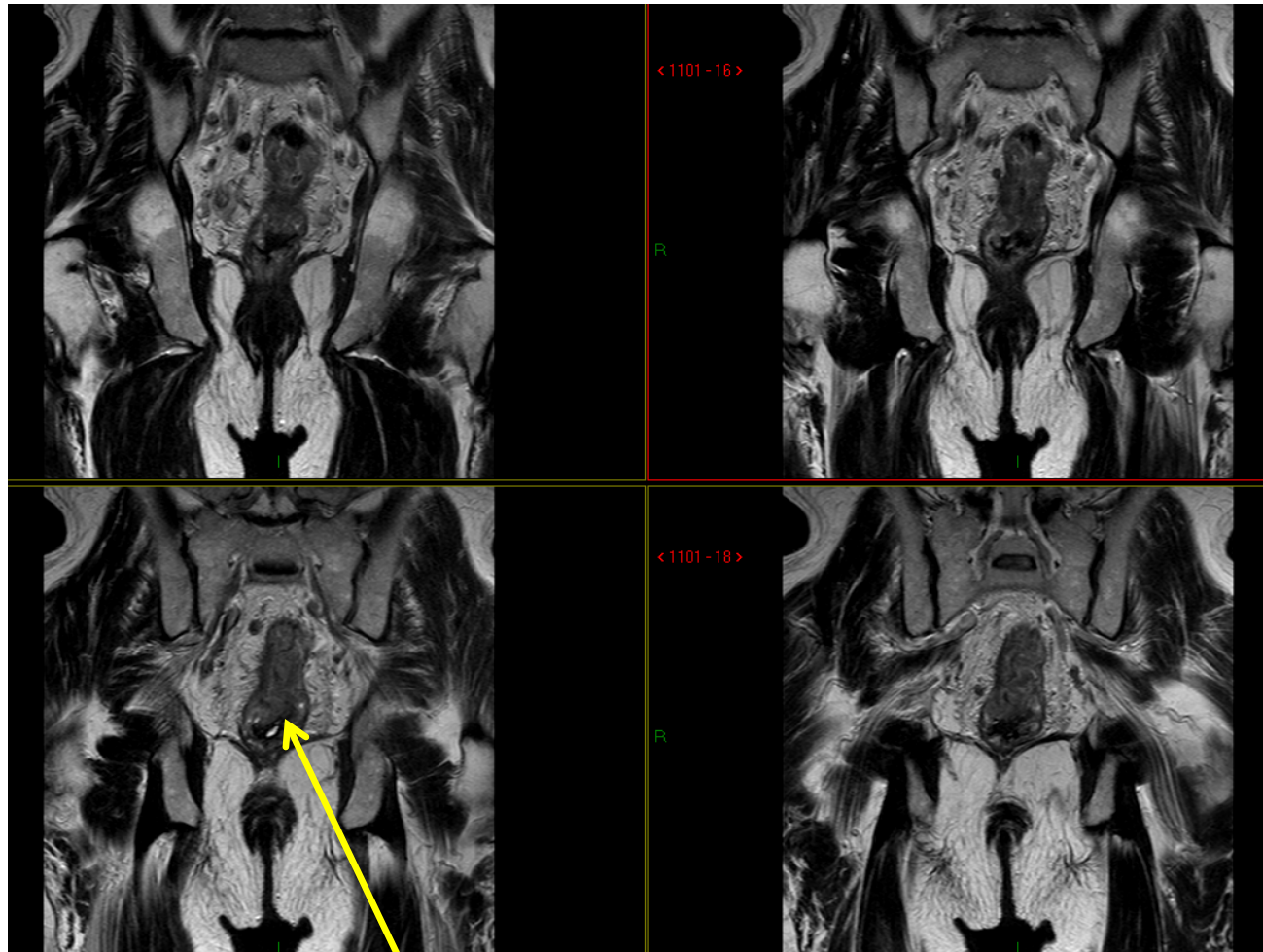
## CT



Prostate

Rectum





Rectum en coupe frontale

## Canal anal

- Sphincter interne : prolonge le muscle circulaire du rectum
- Sphincter externe : muscle strié
- Canal anal : concavité postérieure

