

# **GIT Radiological investigations and anatomy**




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# Objectives:

- To know various radiological investigations used for GIT.
  - To understand step wise approach in requesting GIT radiology investigations.
  - To be familiar with radiological appearance (anatomy) seen in various imaging modalities.
  - To interpret plain x-ray radiograph of abdomen with common pathologies.
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What are radiological investigations that you know ?





# IMAGING MODALITIES:

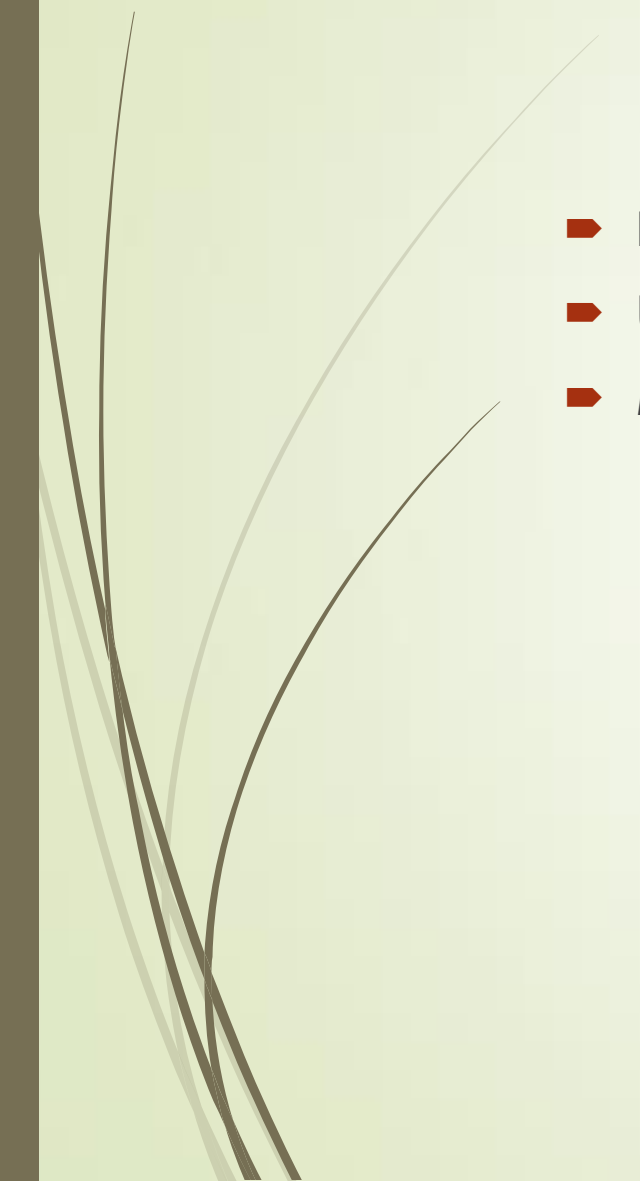
- X-RAY.
  - FLUOROSCOPY ( CONTRAST STUDY).
  - ULTRASOUND.
  - CT.
  - MRI.
  - NUCLEAR MEDICINE.
  - ANGIOGRAPHY.
- 



What is peculiar about GIT?



# GIT characteristics:

- ▶ Hollow viscus ( not solid).
  - ▶ Usually filled with gas.
  - ▶ Motility.
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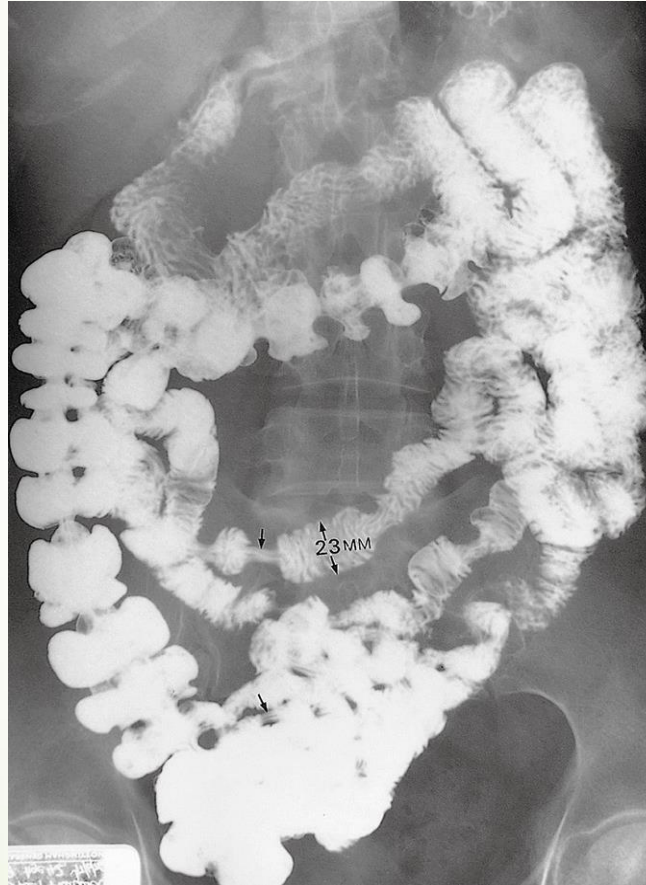
# X-ray ( plain radiography)

- Often used as first imaging modality.
- Cheap.
- Fast.
- Can be done bedside (portable)
- Useful for free gas or bowel obstruction.



# Fluoroscopy (contrast study)

- Can be used as first imaging modality.
- Cheap.
- Use of contrast.
- Recently replaced by CT and MRI
- Useful for intraluminal pathology.
- Can give clue about the motility (function)





# Ultrasound

- Relatively cheap.
- No radiation.
- Limited uses (gas filled structures).
- Used in pediatrics and pregnant ladies

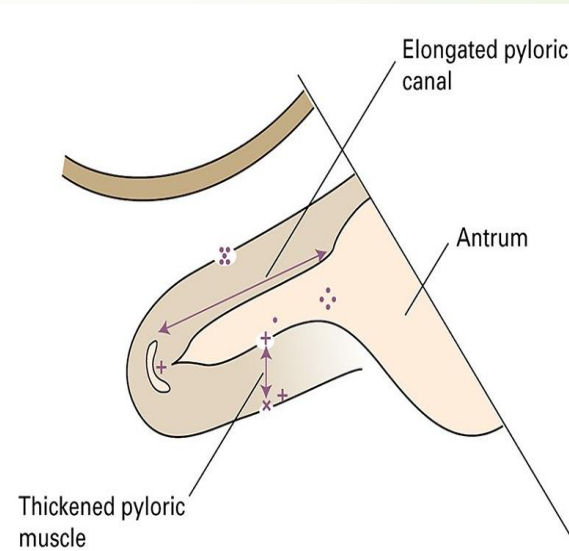
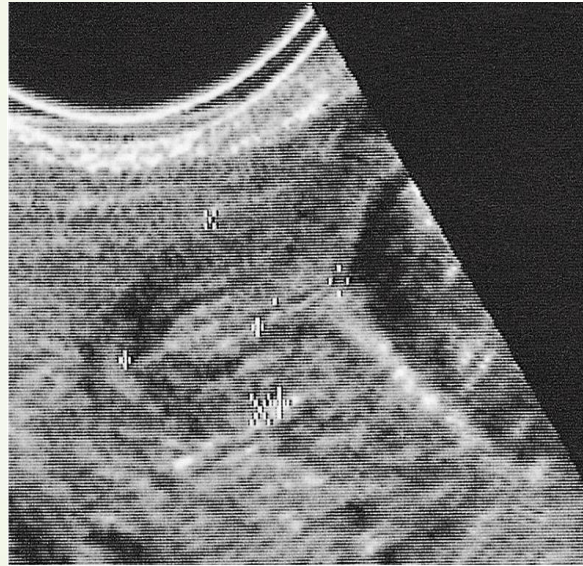


Fig. 6.29 Pyloric stenosis. Ultrasound scan in a neonate showing a thickened, elongated pyloric canal.



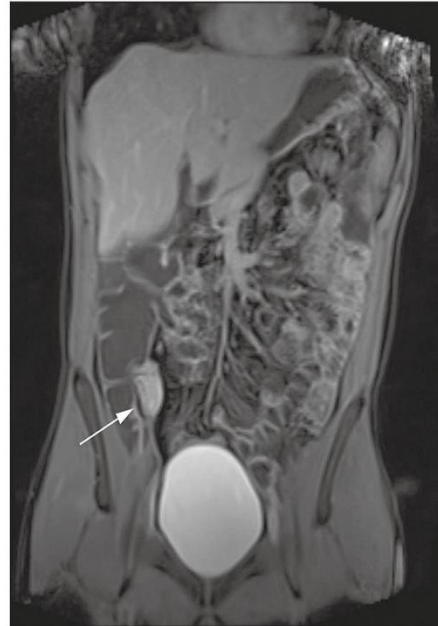
# CT ( computer tomography)


- Expensive.
- More radiation.
- Fast.
- Contrast (iv, oral &rectal) usually used.
- Used in emergency department.



# MRI (Magnetic resonance imaging)

- More expensive than CT.
- No radiation.
- Slow and affected by artifacts.
- Excellent for soft tissue.

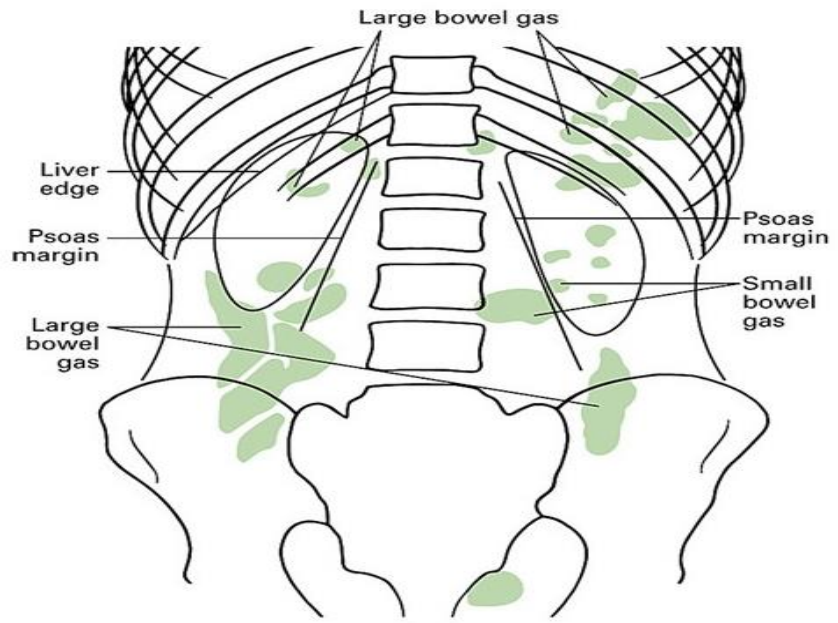


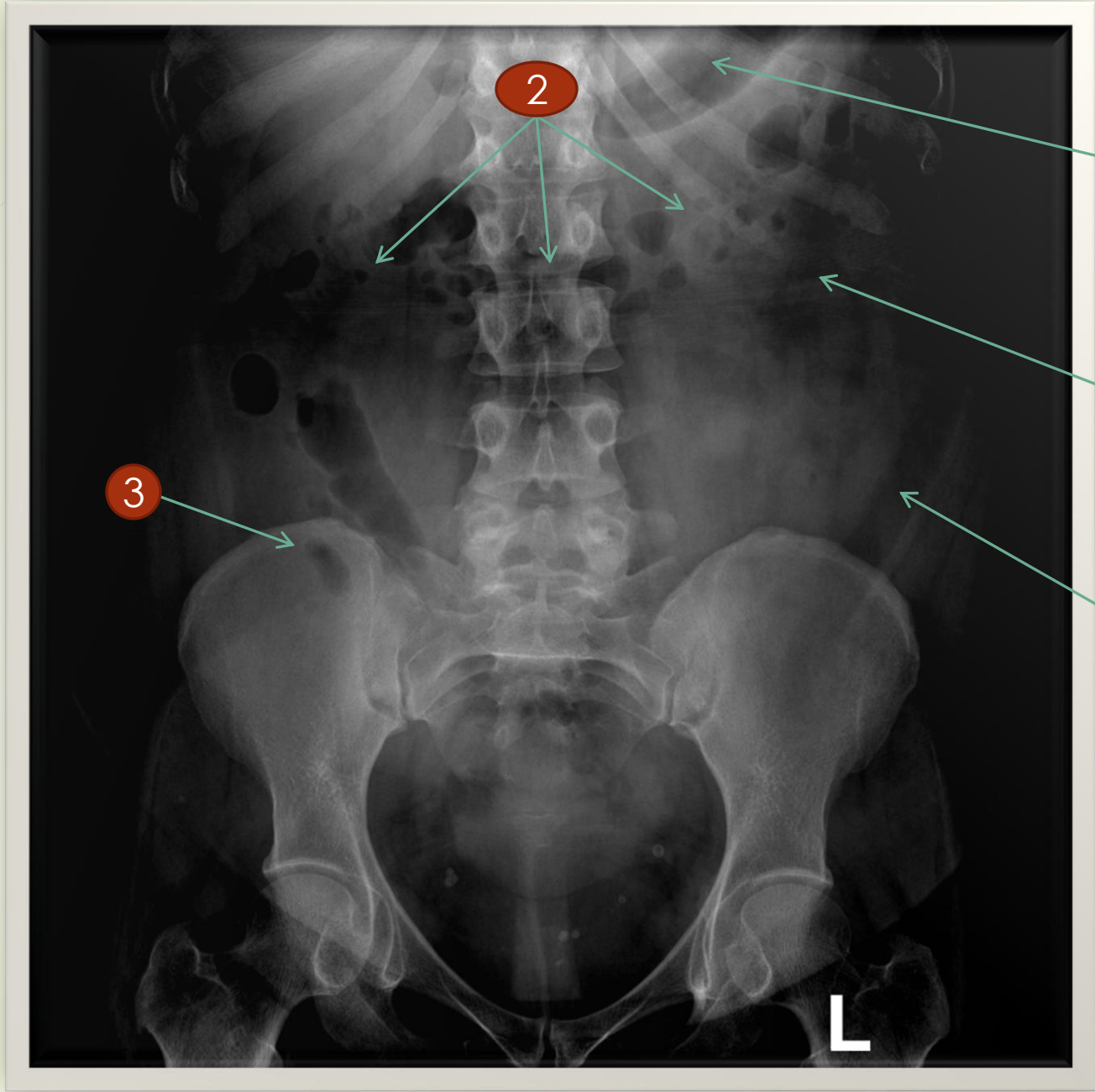


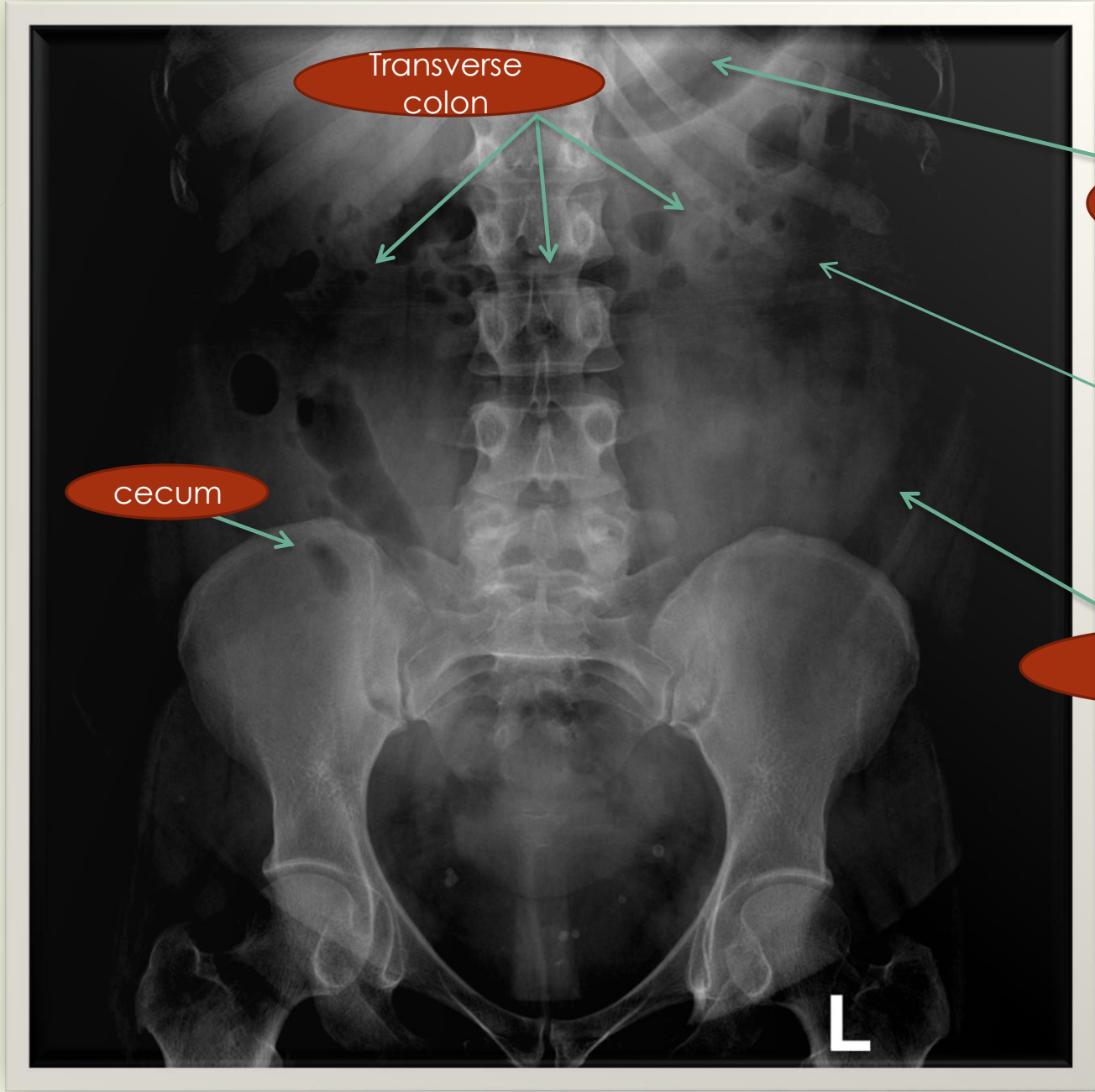
# Radiological appearance of GIT



(a)







Transverse colon

stomach

Small bowel

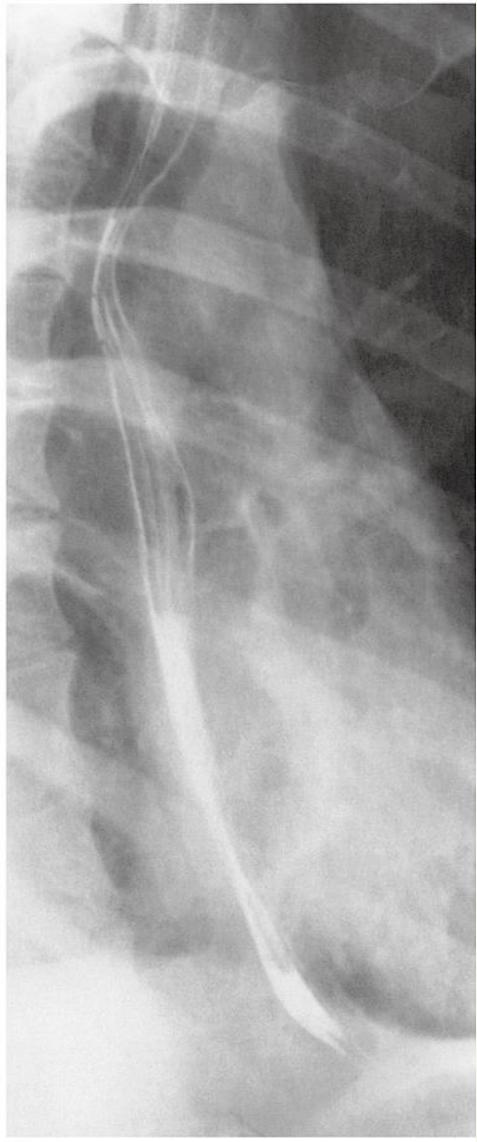
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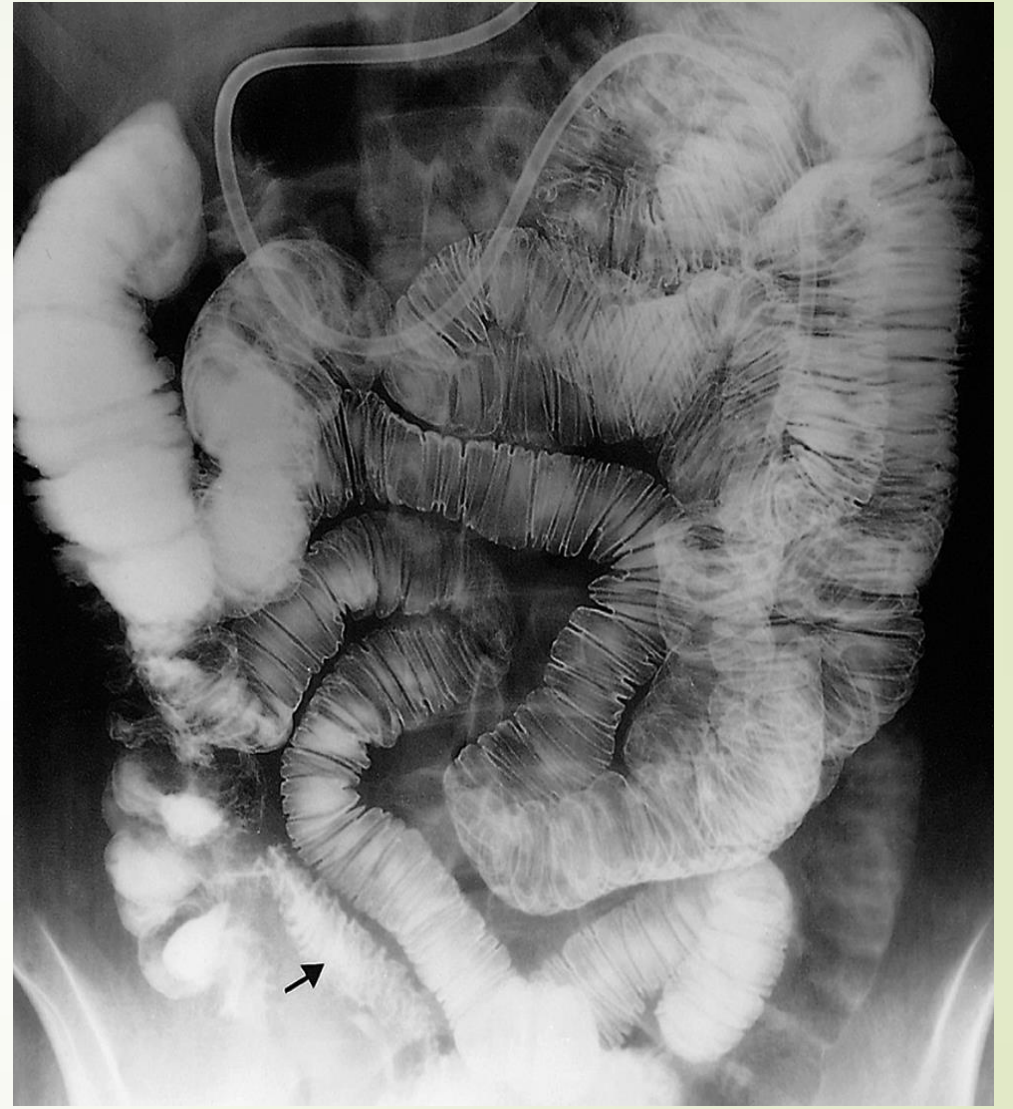
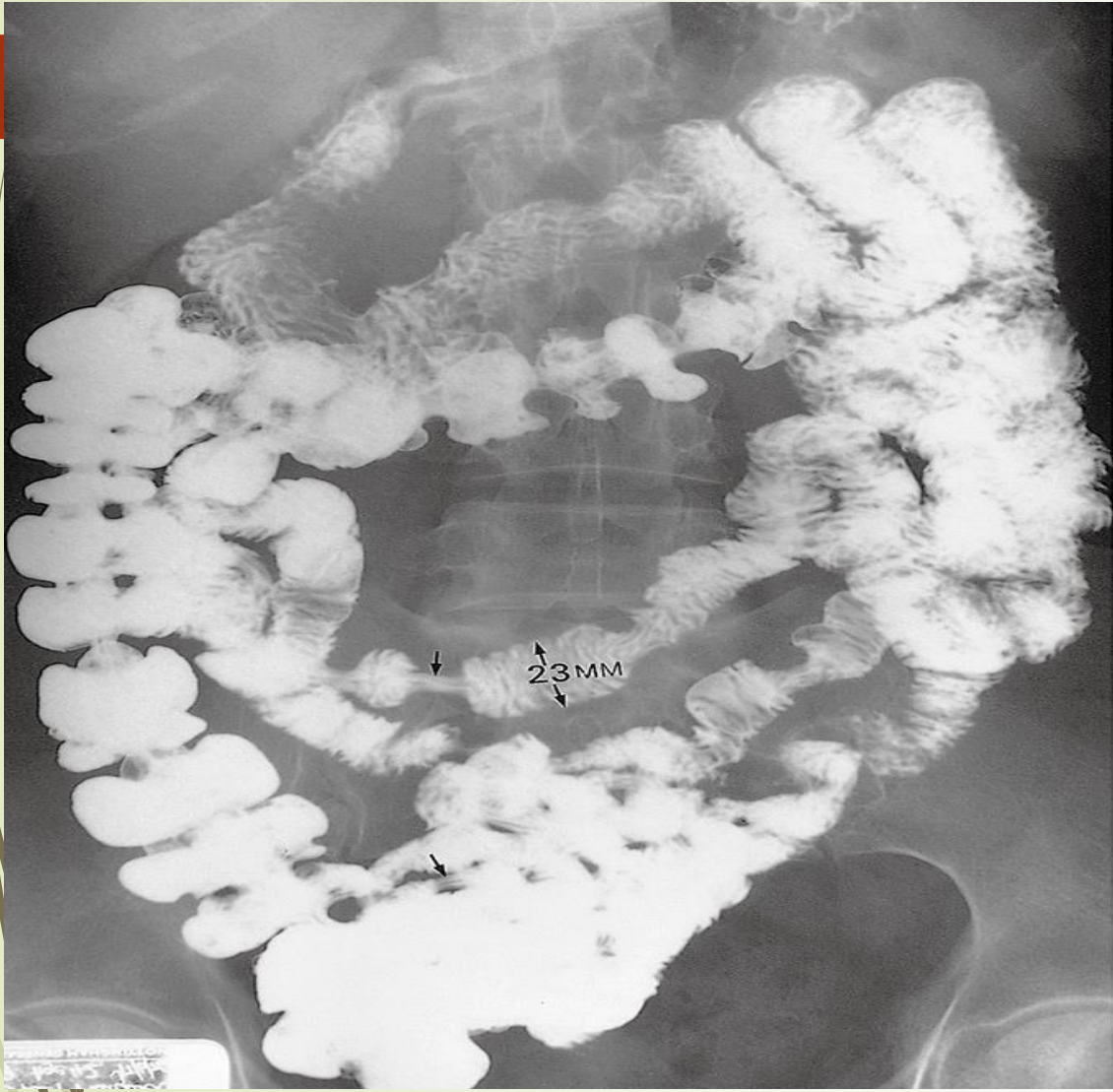
Descending colon

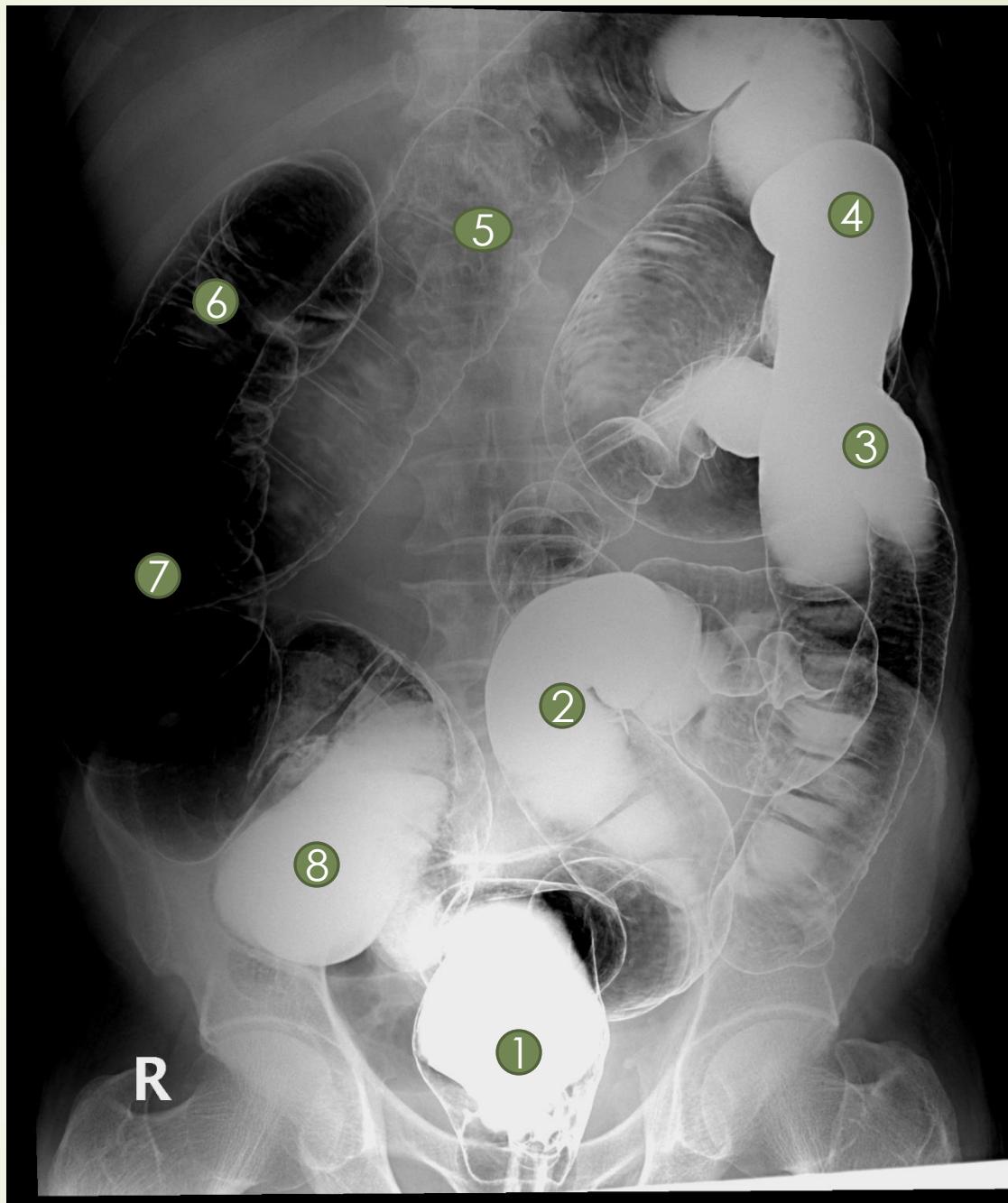
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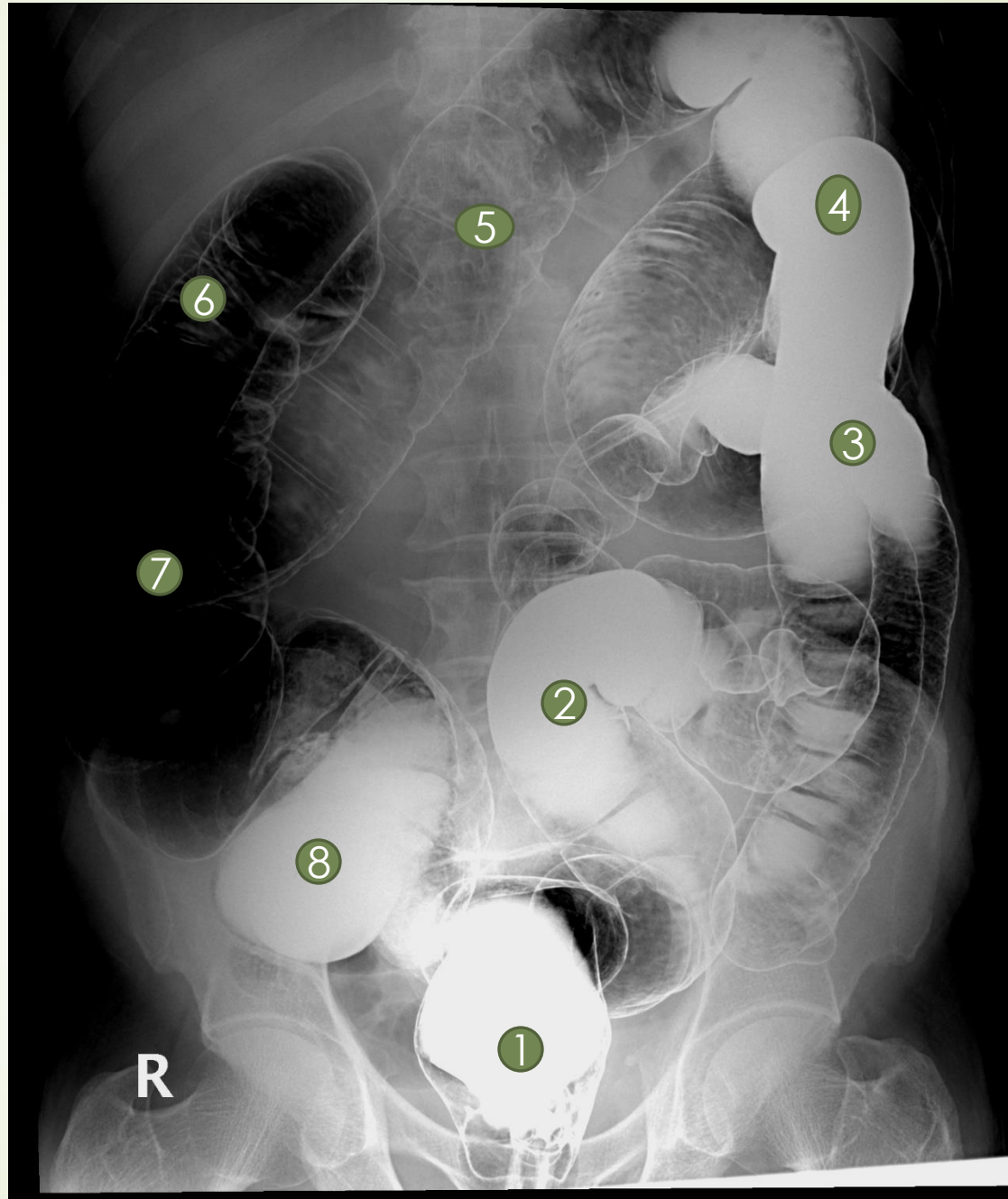


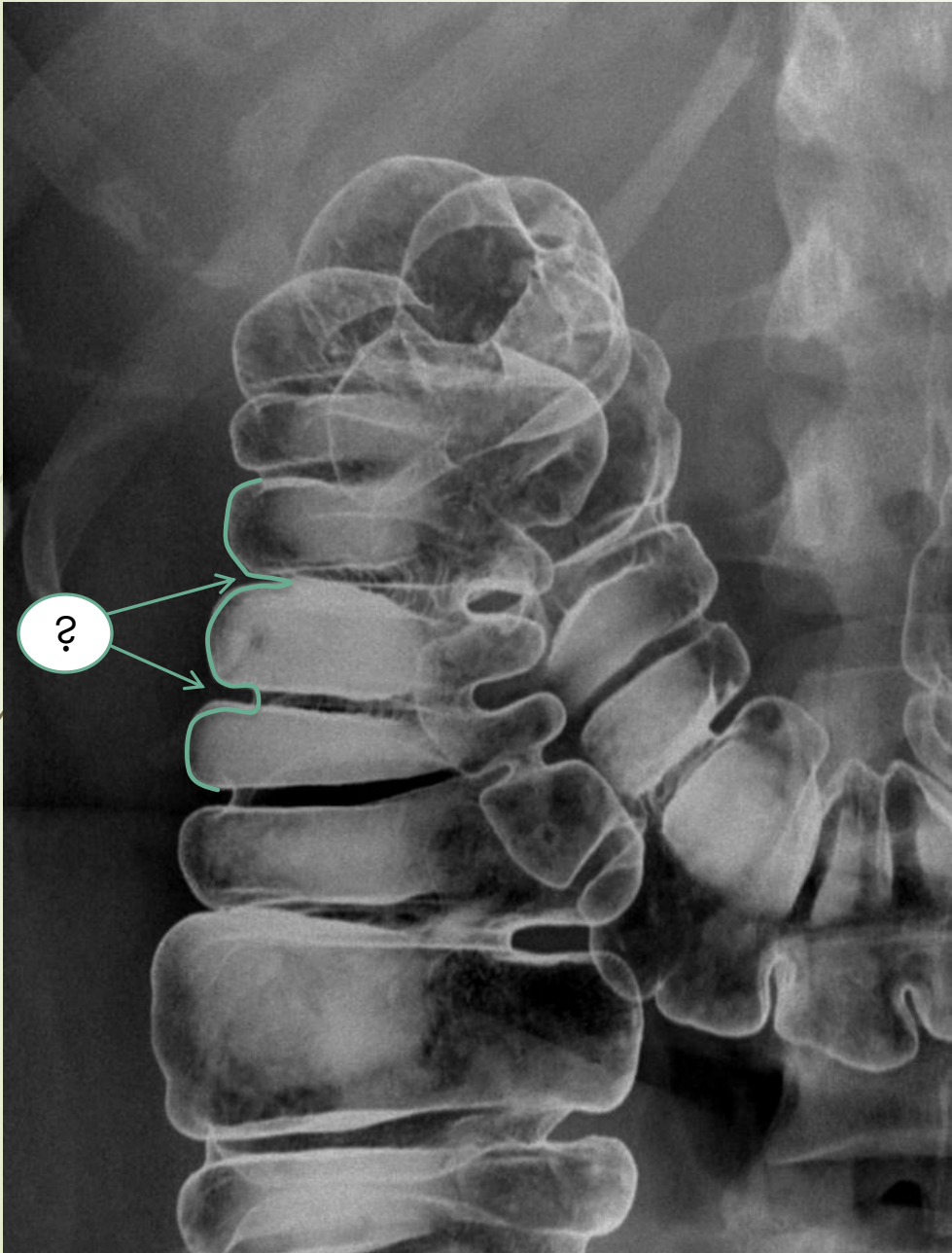


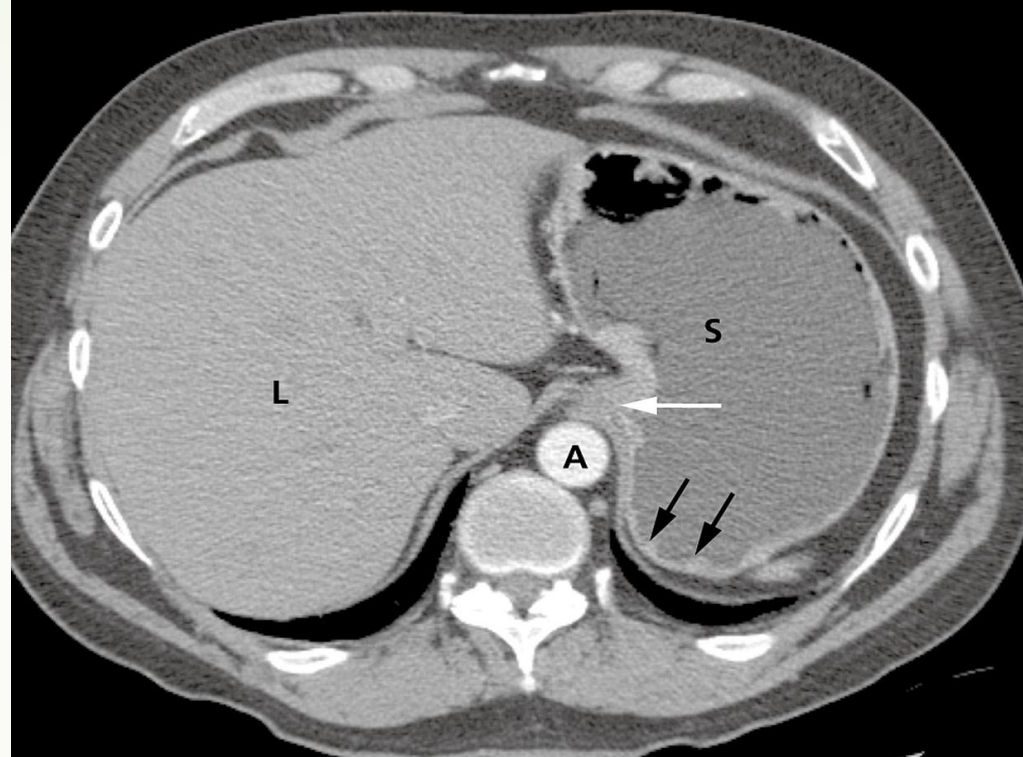




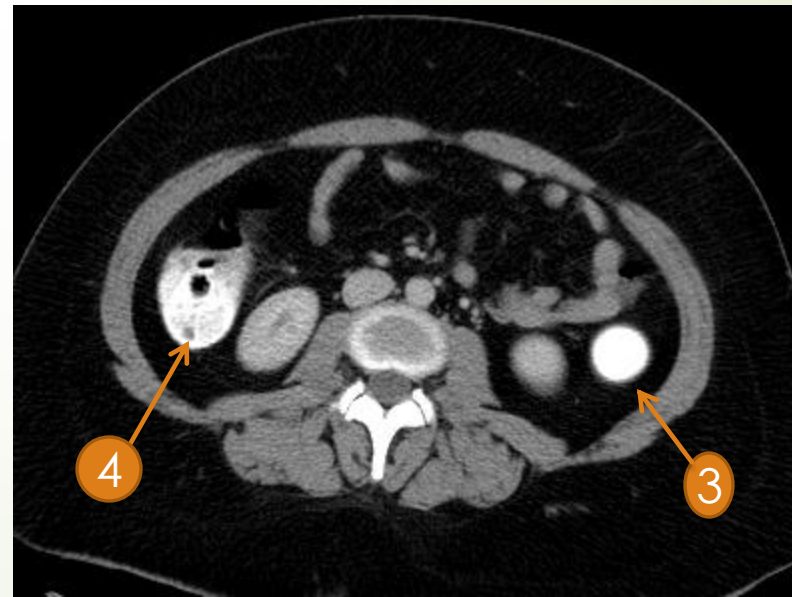
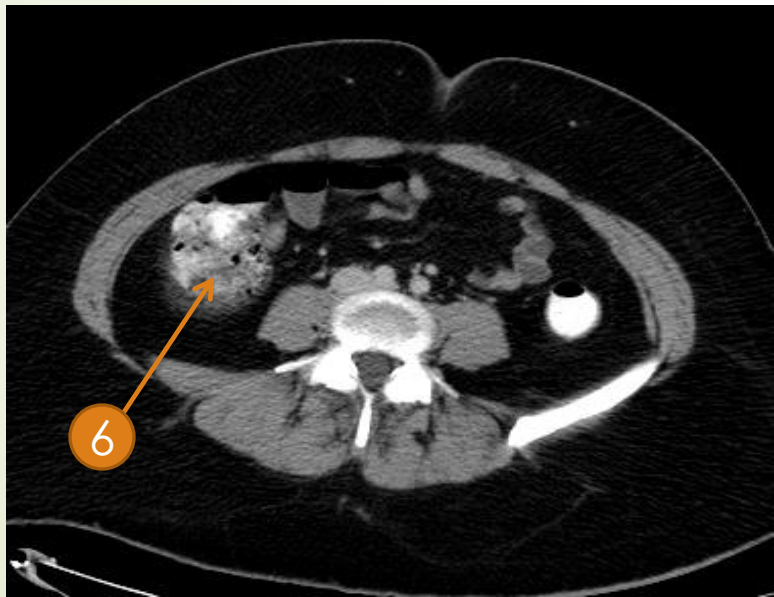
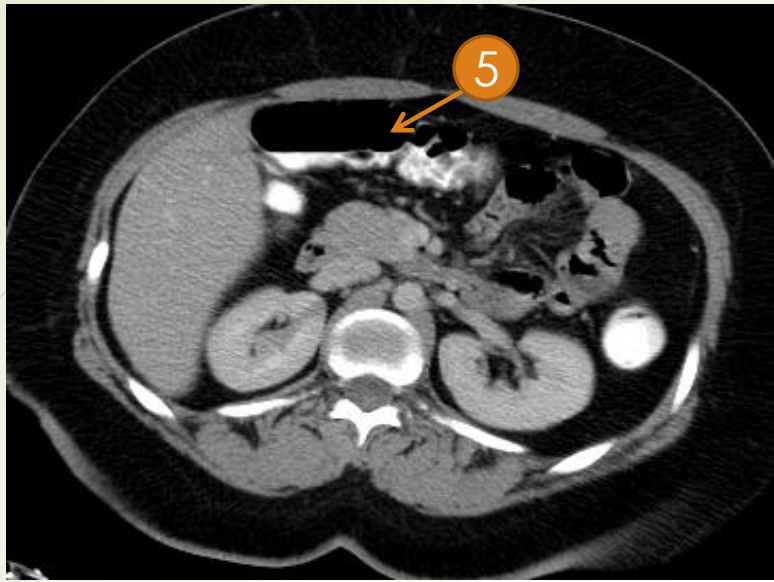
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1. Rectum
  2. Sigmoid colon
  3. Descending colon
  4. Splenic flexure
  5. Transverse colon
  6. Hepatic flexure
  7. Ascending colon
  8. cecum

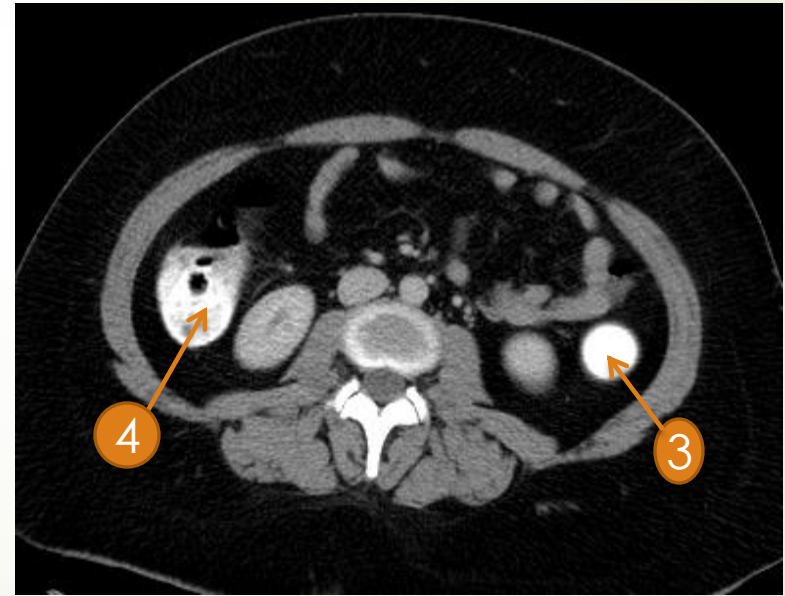
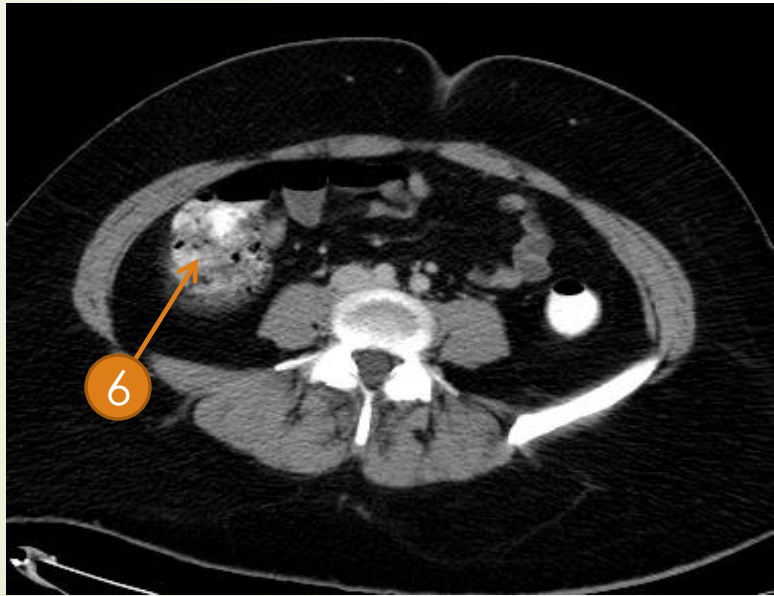
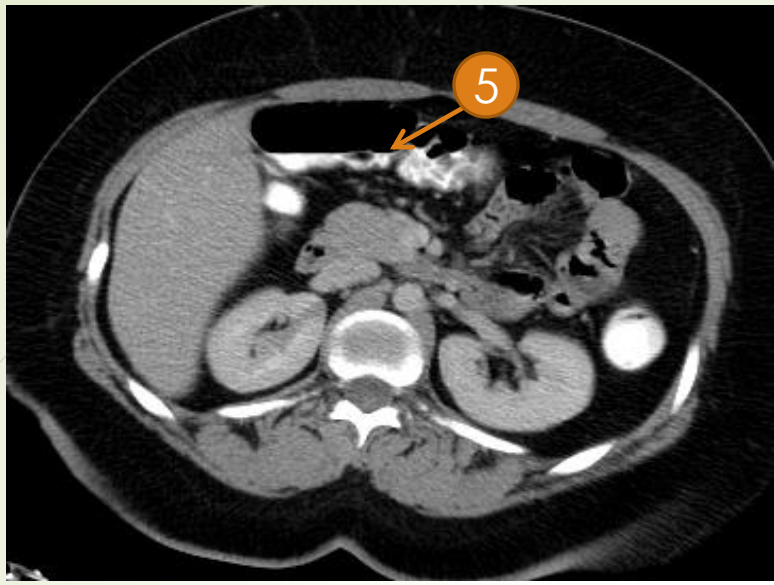






S stomach.  
L liver.  
A aorta.





4-Ascending colon

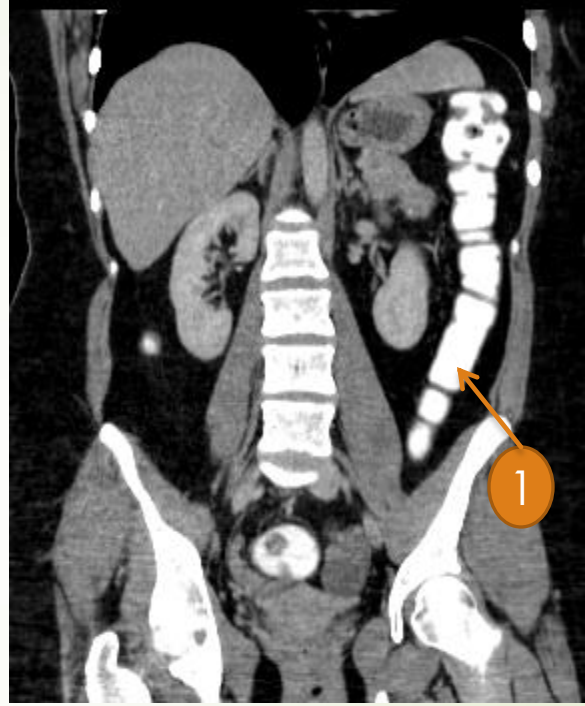
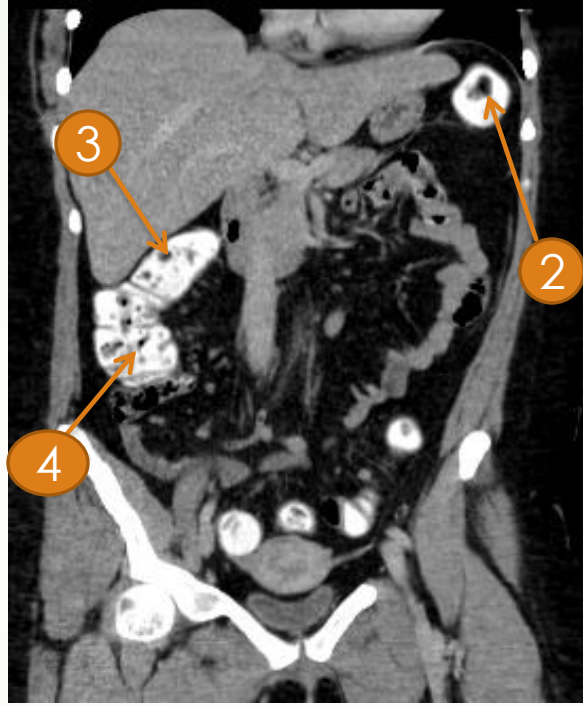
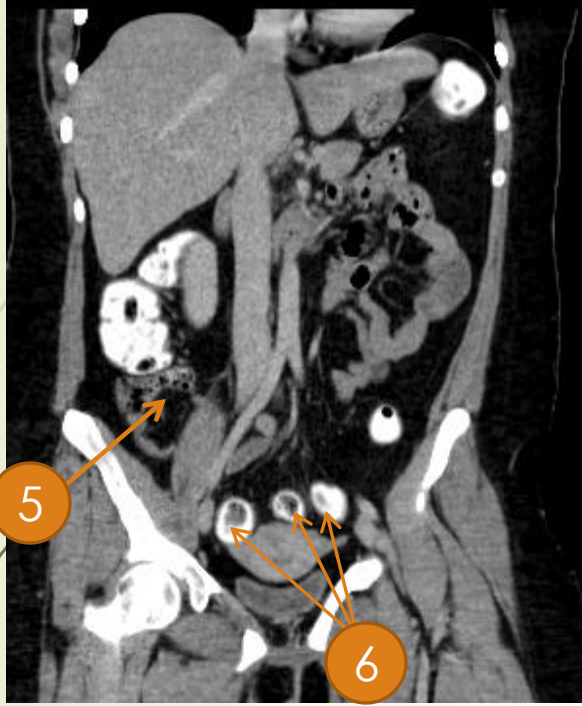
3-Descending colon  
6-Cecum

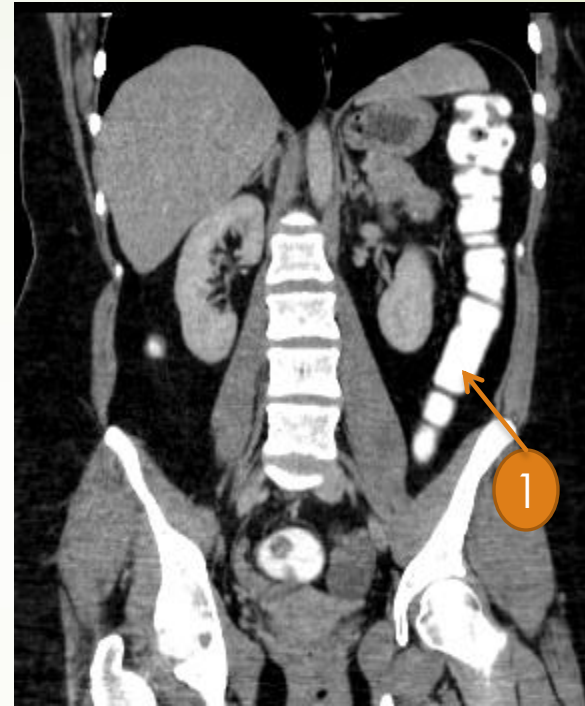
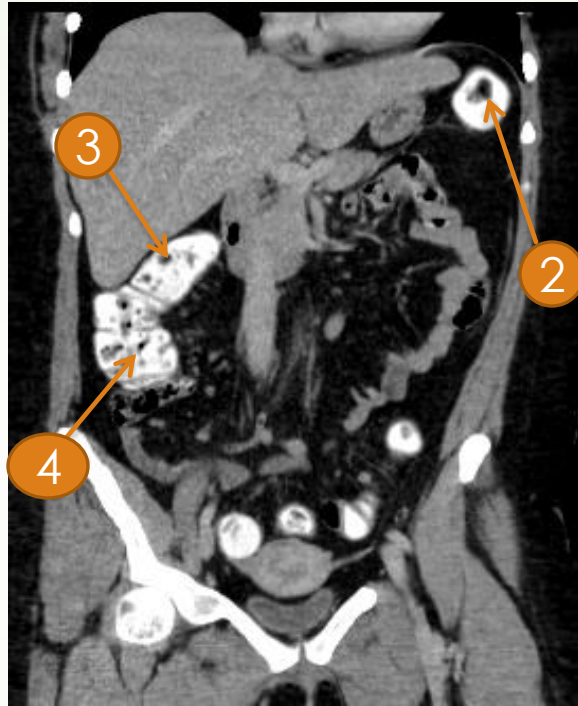
2-Sigmoid colon

1- Rectum

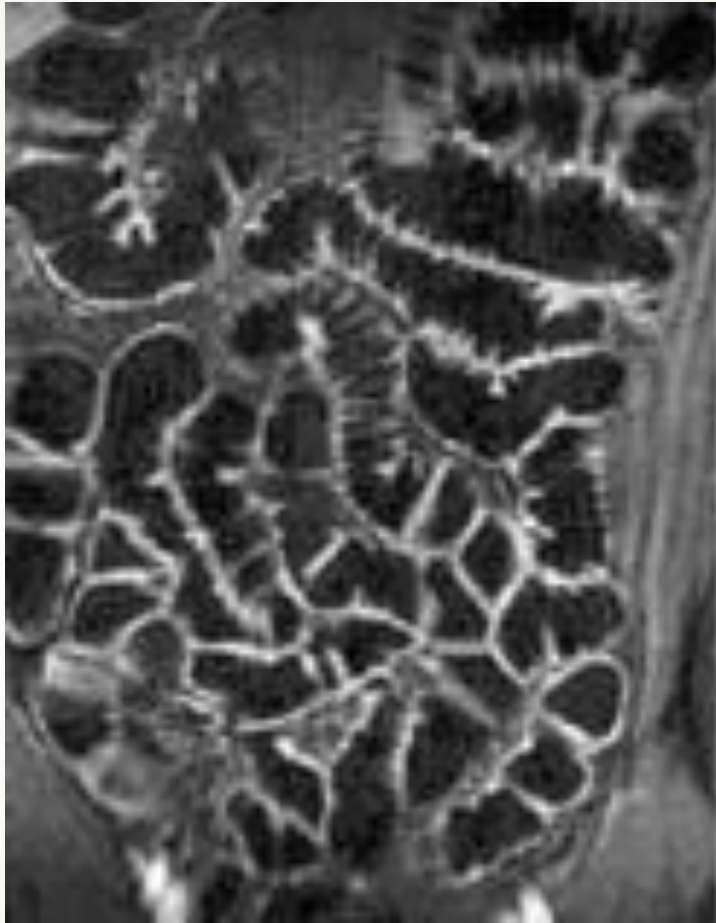
5-Transverse colon







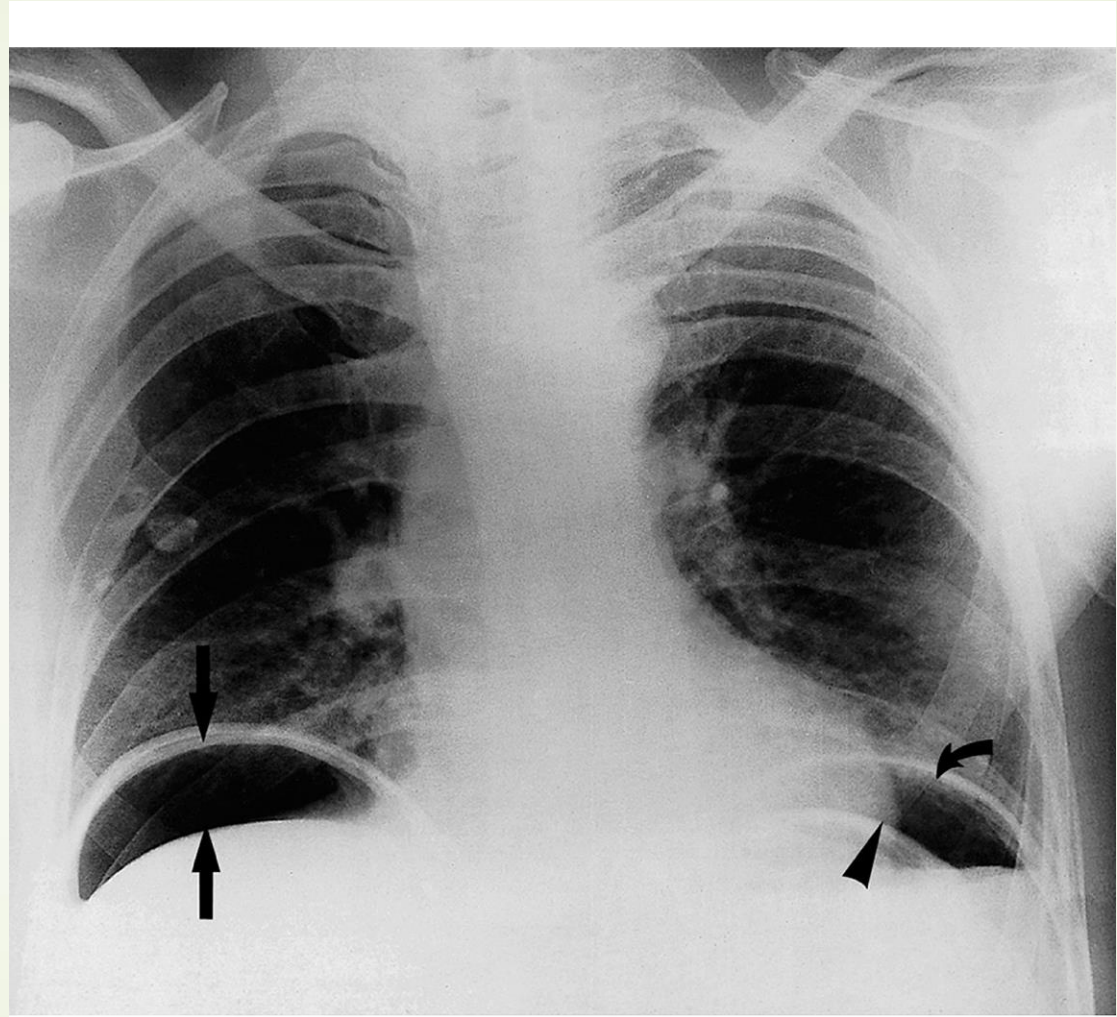
1. Descending colon
2. Splenic flexure
3. Hepatic flexure
4. Ascending colon
5. cecum
6. Sigmoid colon

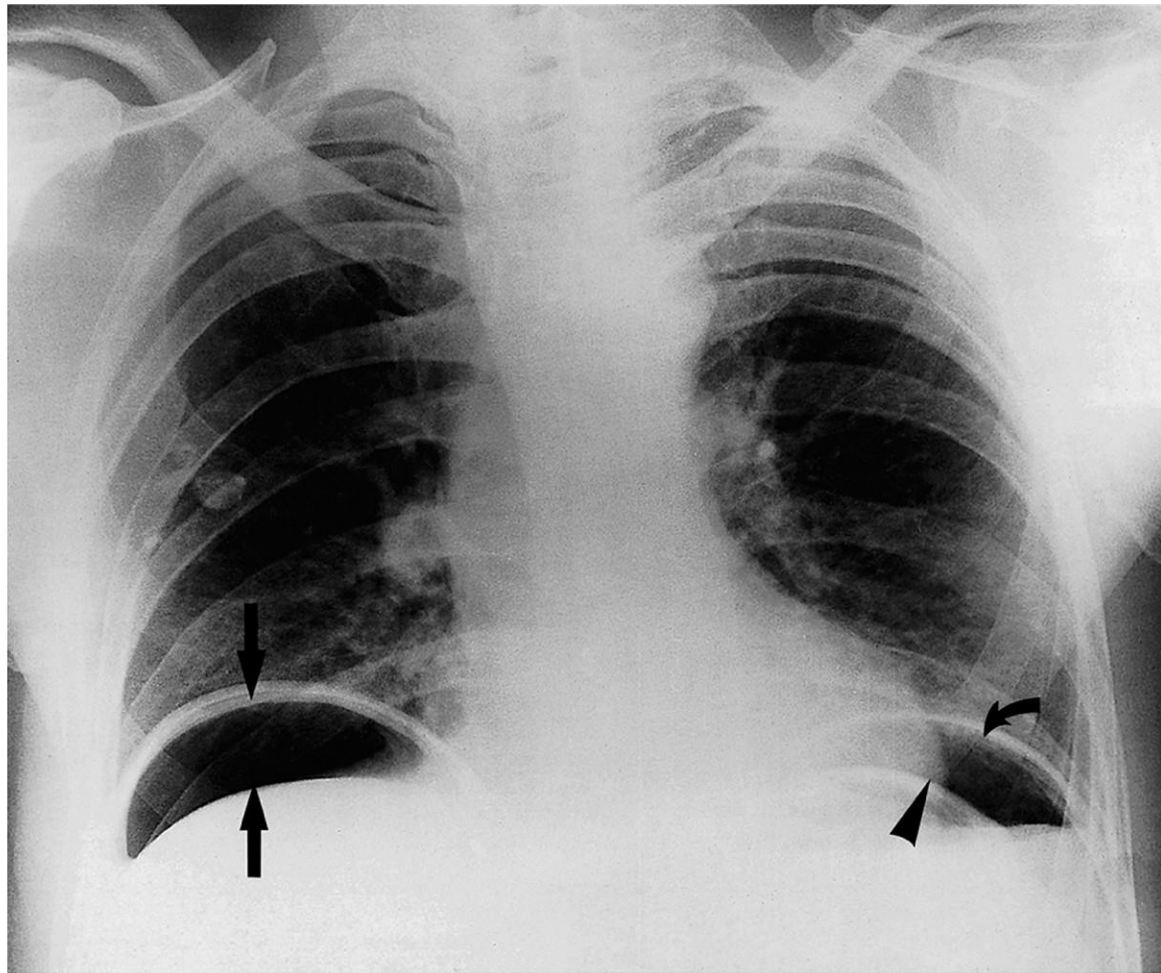


MRI enterography



# Common plain x-ray abdomen radiograph findings

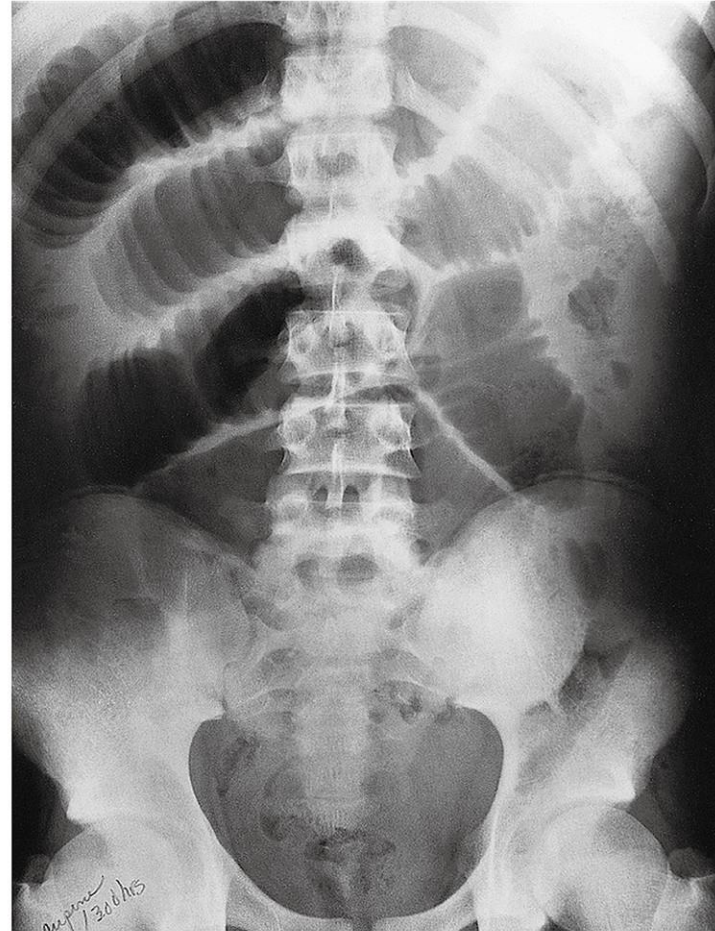




**Fig. 5.7** Free gas in the peritoneal cavity. On this chest radiograph, air can be seen under the domes of both hemidiaphragms. The curved arrow points to the left hemidiaphragm and the arrow head to the wall of the stomach. The two vertical arrows point to the diaphragm and upper border of the liver.



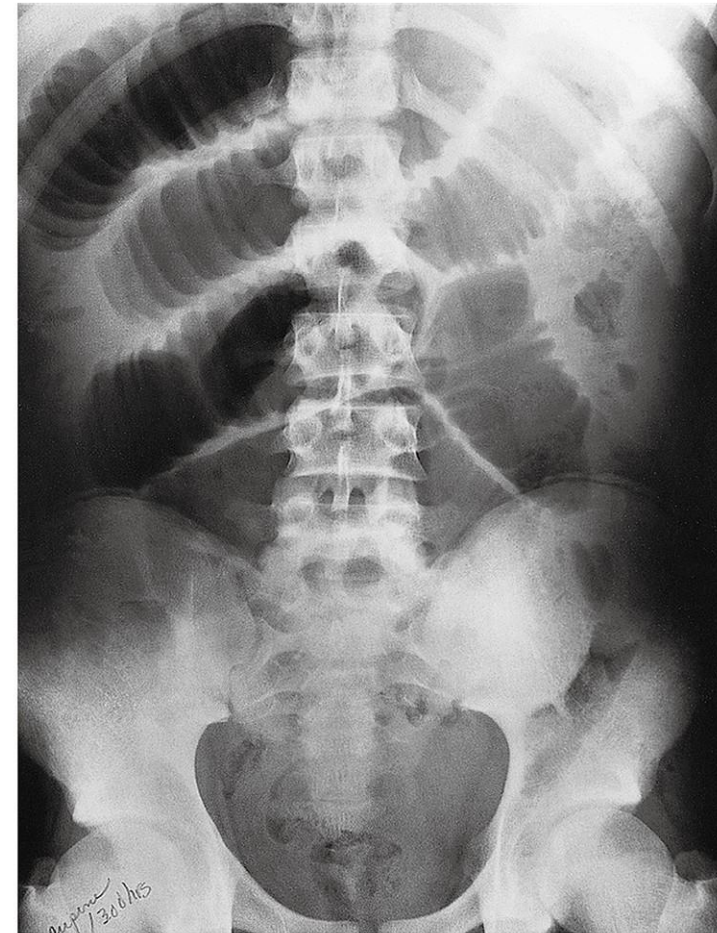
(a)



(b)



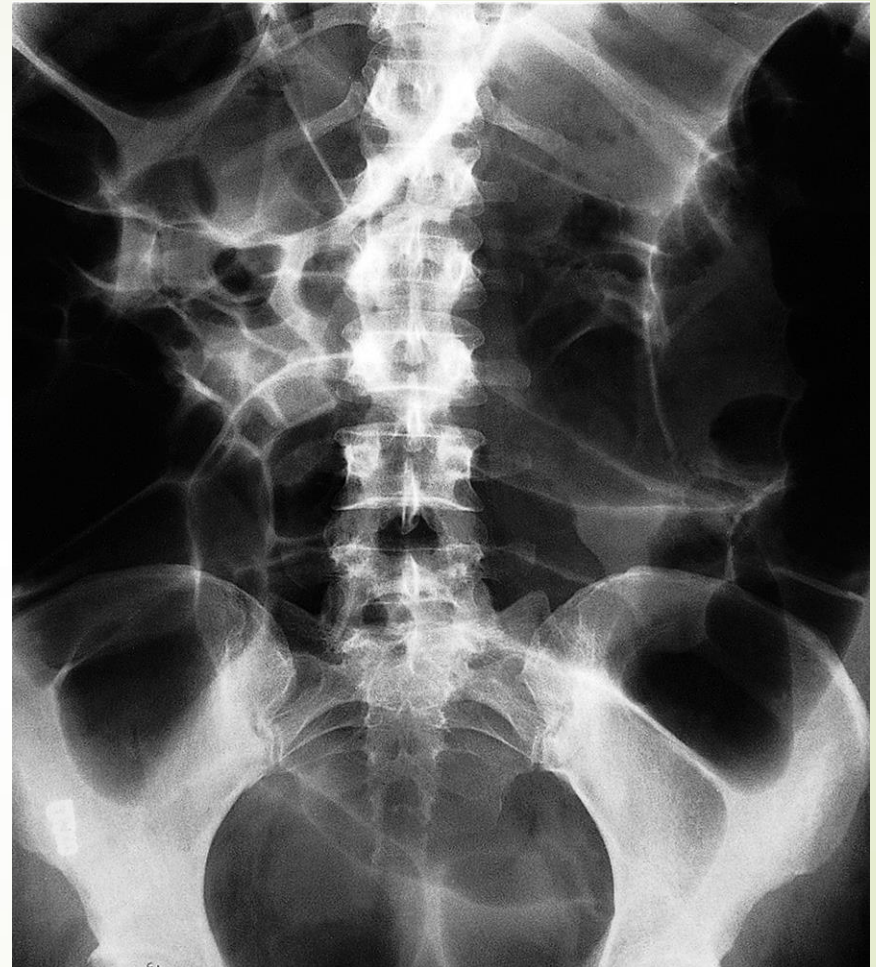
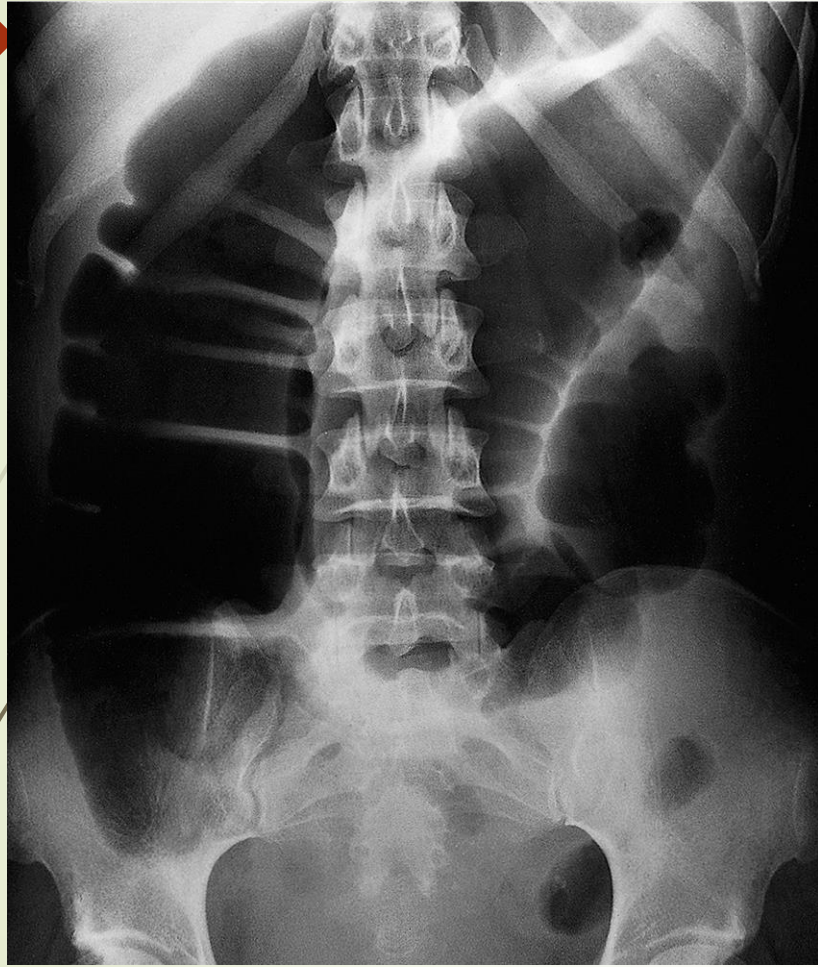
(a)

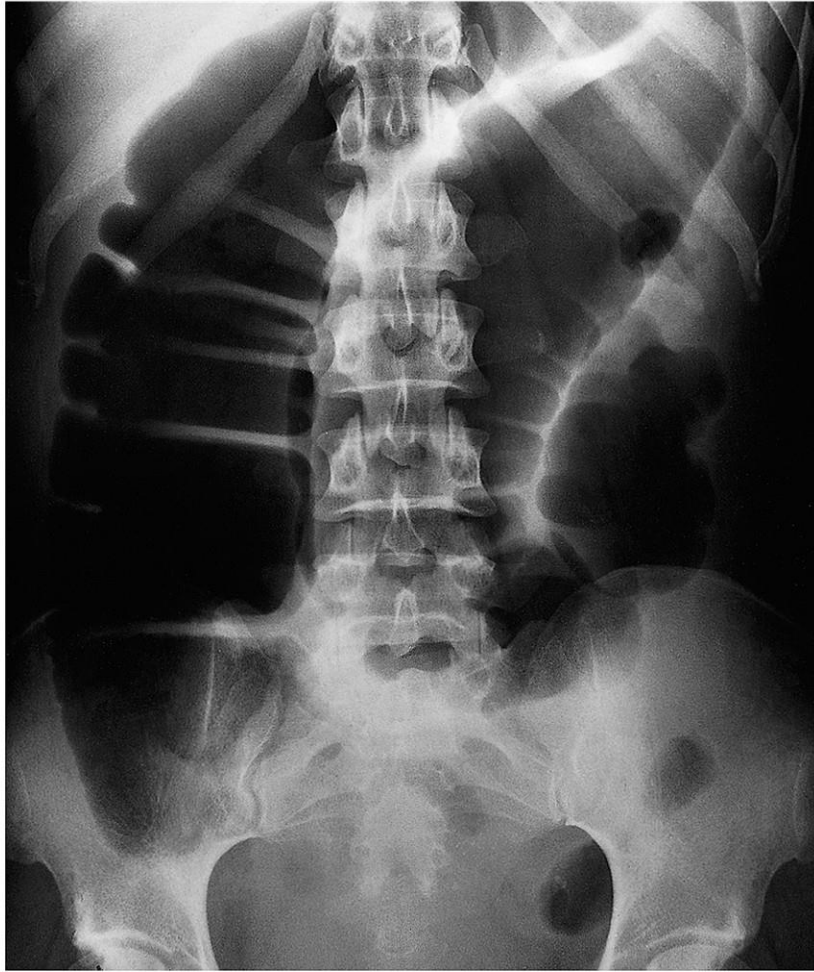


(b)

**Fig. 5.2** Small bowel obstruction due to adhesions. (a) The jejunal loops are markedly dilated and show air–fluid levels in the erect film. The jejunum is recognized by the presence of valvulae conniventes. (b) The ‘stack of coins’ appearance is well demonstrated in the supine film. Note the large bowel contains less gas than normal.



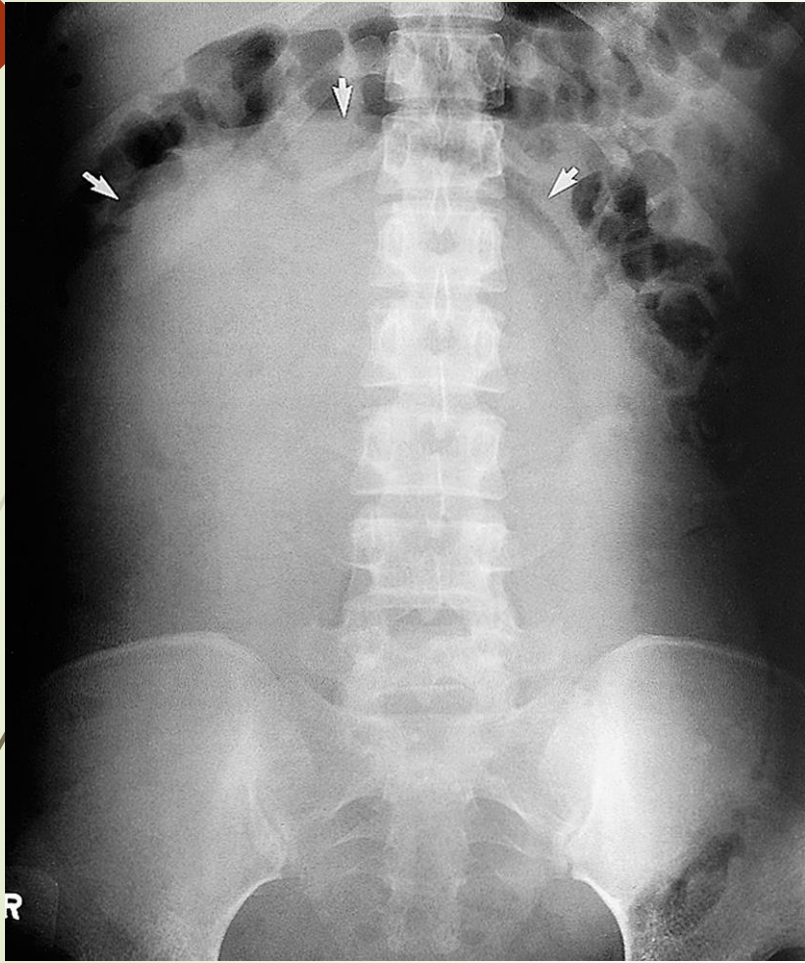




**Fig. 5.3** Large bowel obstruction due to carcinoma at the splenic flexure. There is marked dilatation of the large bowel from the caecum to the splenic flexure.

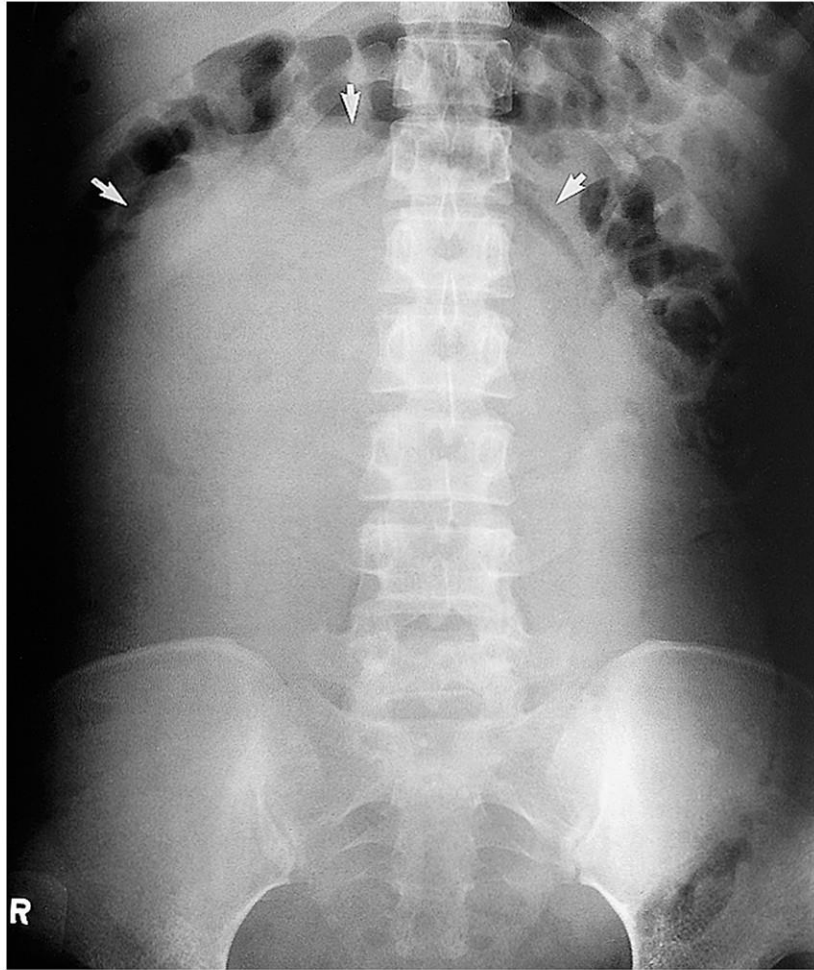


**Fig. 5.4** Paralytic ileus. There is considerable dilatation of the whole of the large bowel extending well down into the pelvis. Small bowel dilatation is also seen.

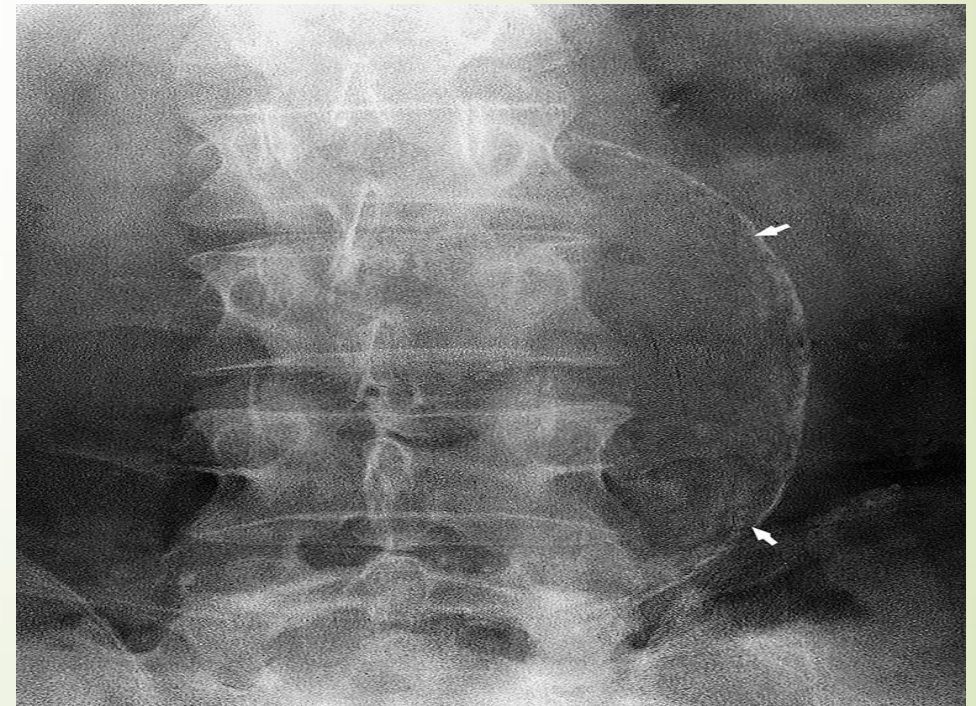
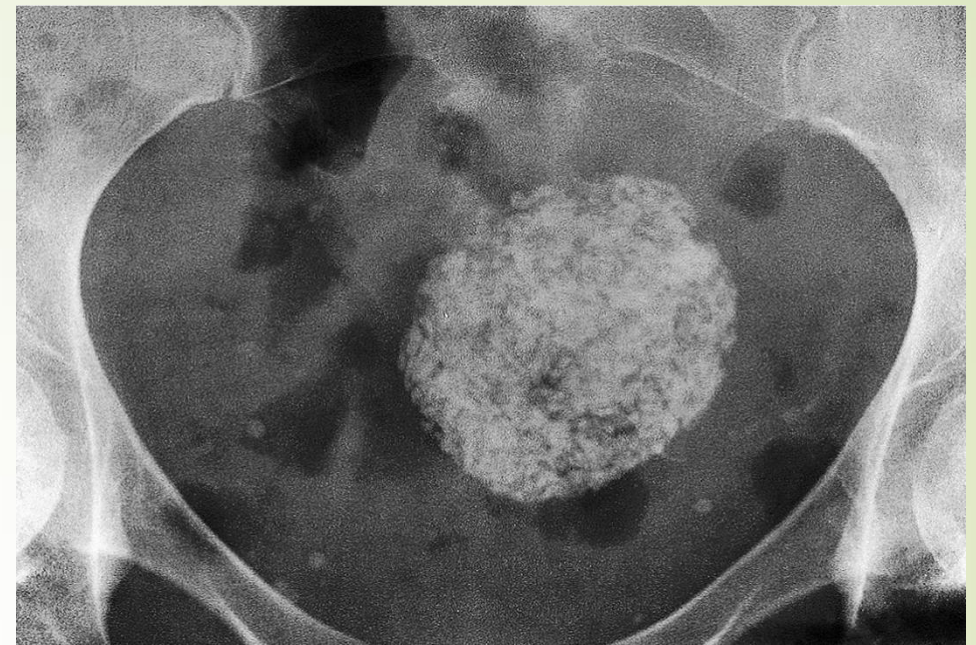
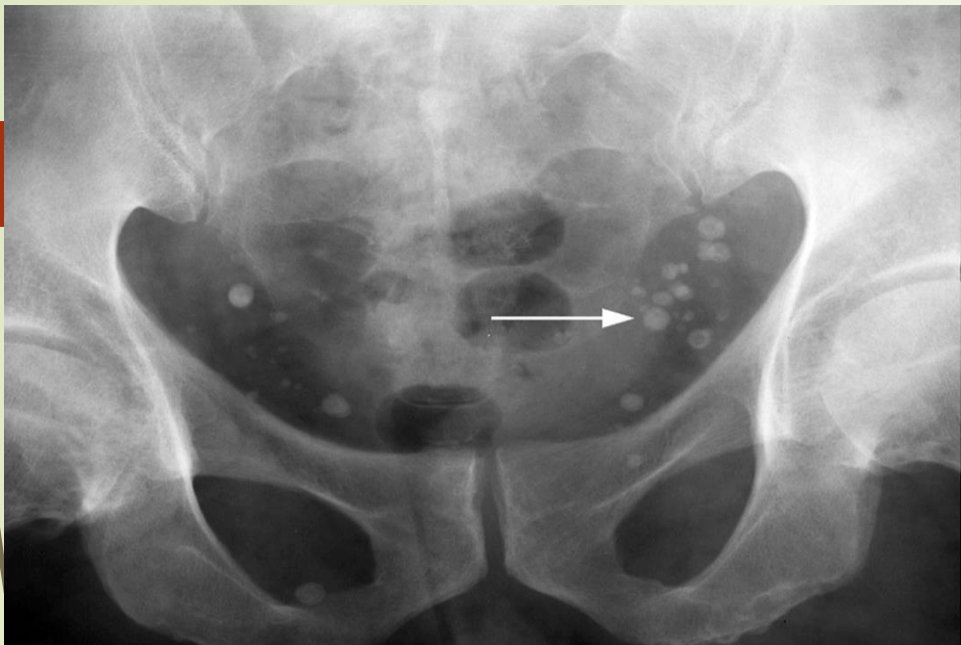


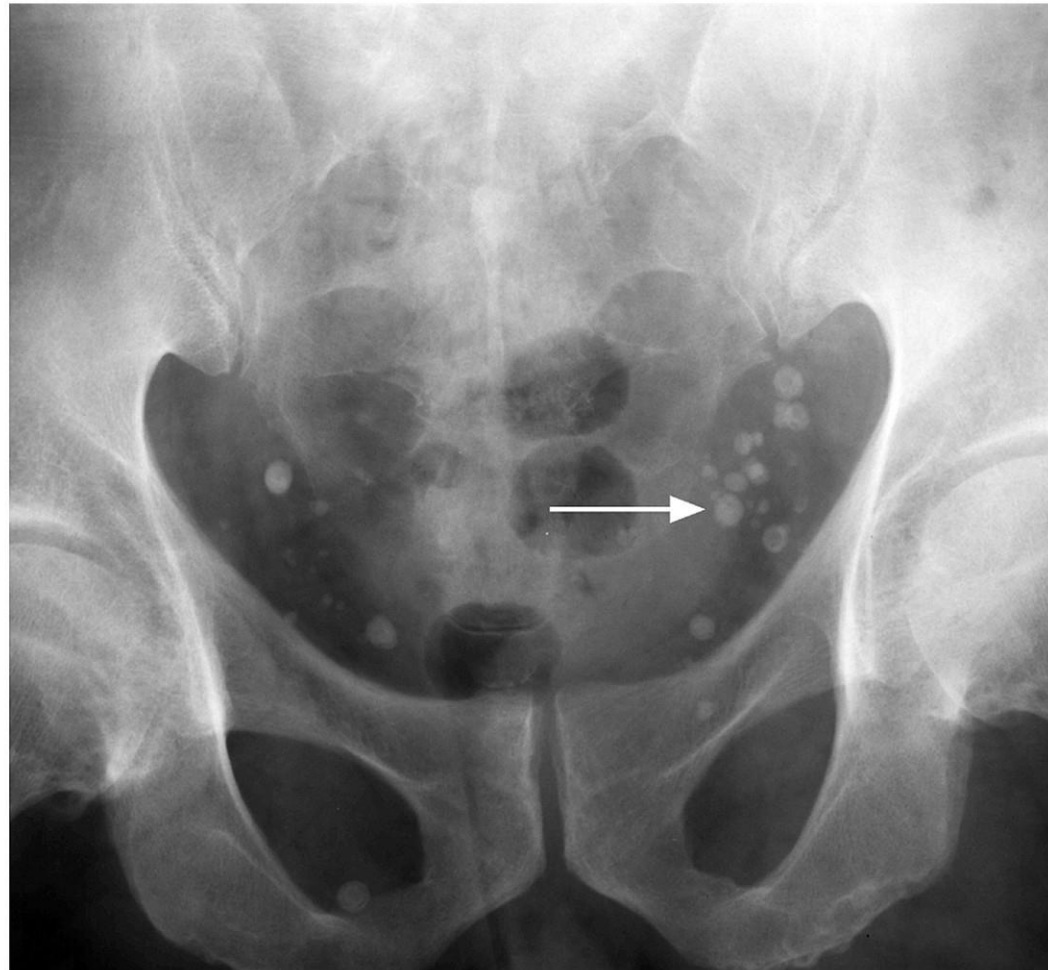


**Fig. 5.11** Ascites. Note how the gas in the ascending and descending colon (arrows) is displaced by the fluid away from the side walls of the abdomen.



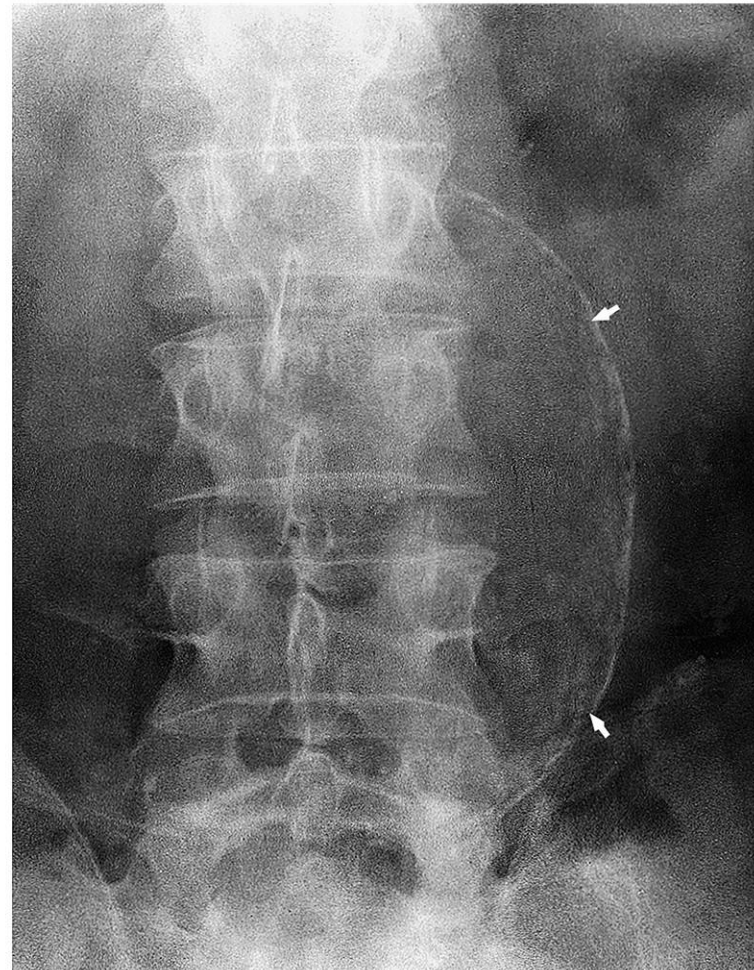
**Fig. 5.19** Mass arising out of the pelvis (arrows) displacing bowel to the sides of the abdomen. The mass was a large cystadenocarcinoma of the ovary.



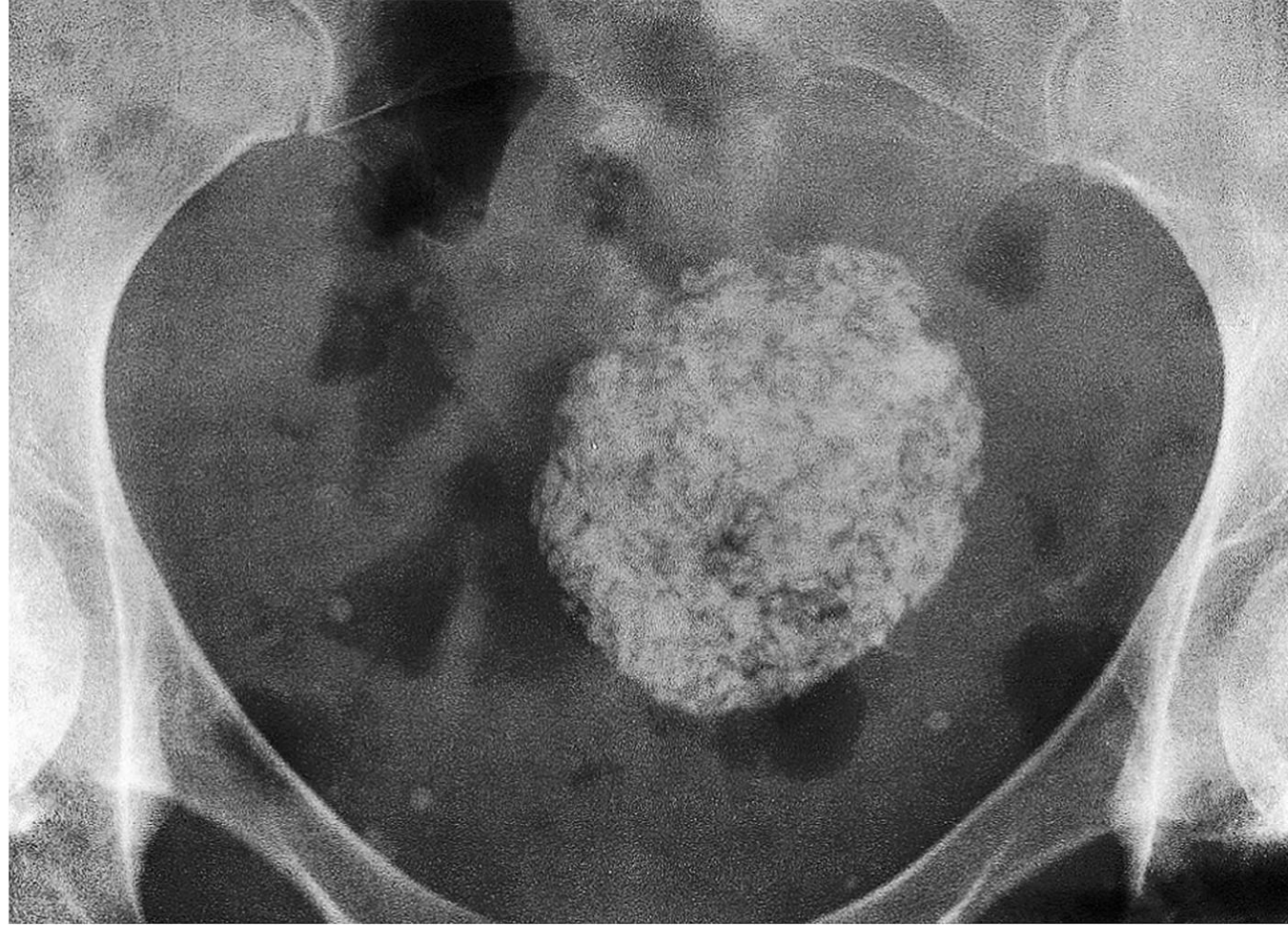


**Fig. 5.12** Calcified phleboliths in the pelvis. The arrow points to one of the phleboliths.

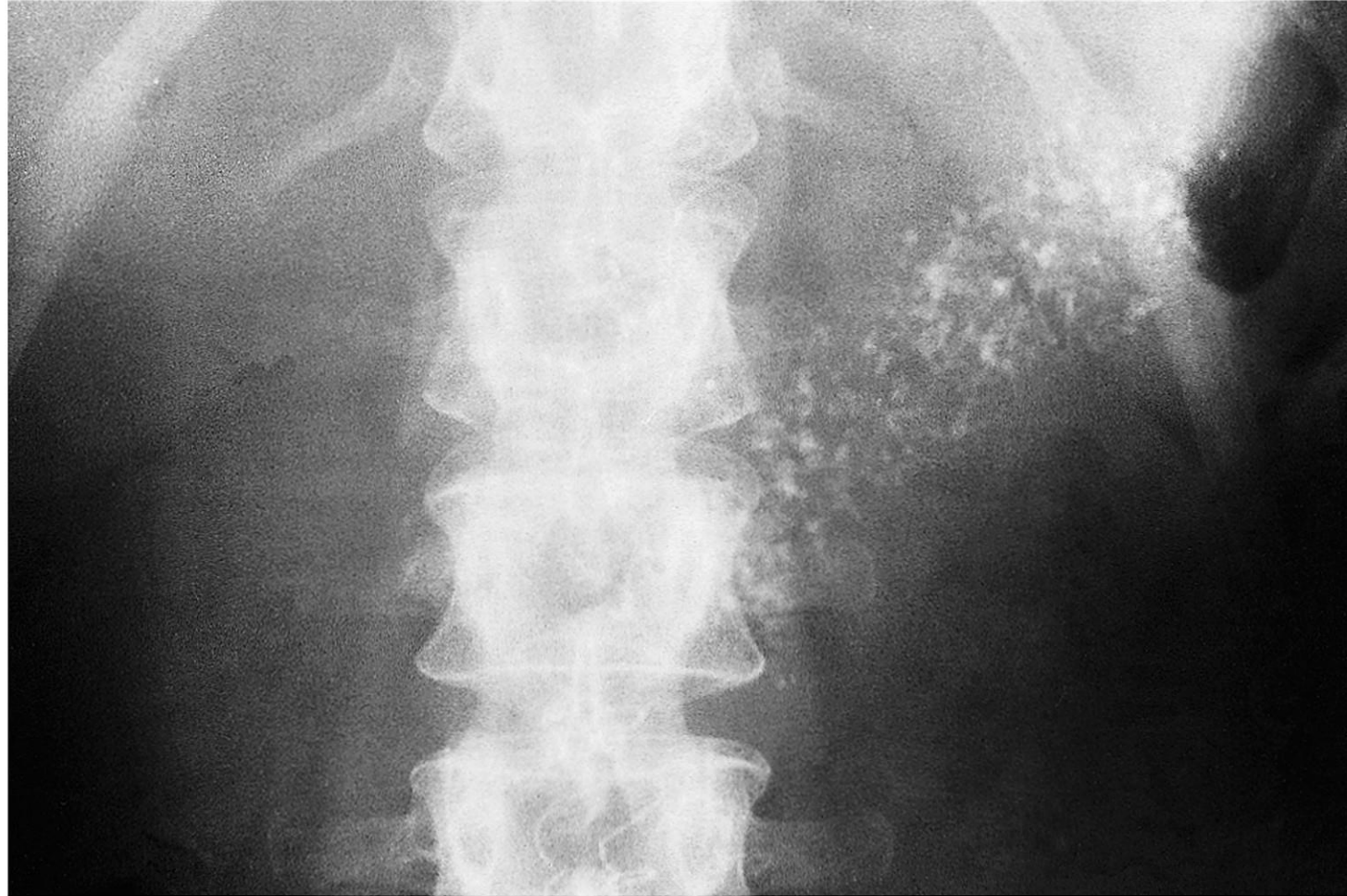




**Fig. 5.14** Calcified abdominal aortic aneurysm (arrows). The aneurysm measured 8cm in diameter on the lateral view.



**Fig. 5.15** Calcification in a large uterine fibroid.



**Fig. 5.17** Pancreatic calcification.



THE END

THANK YOU