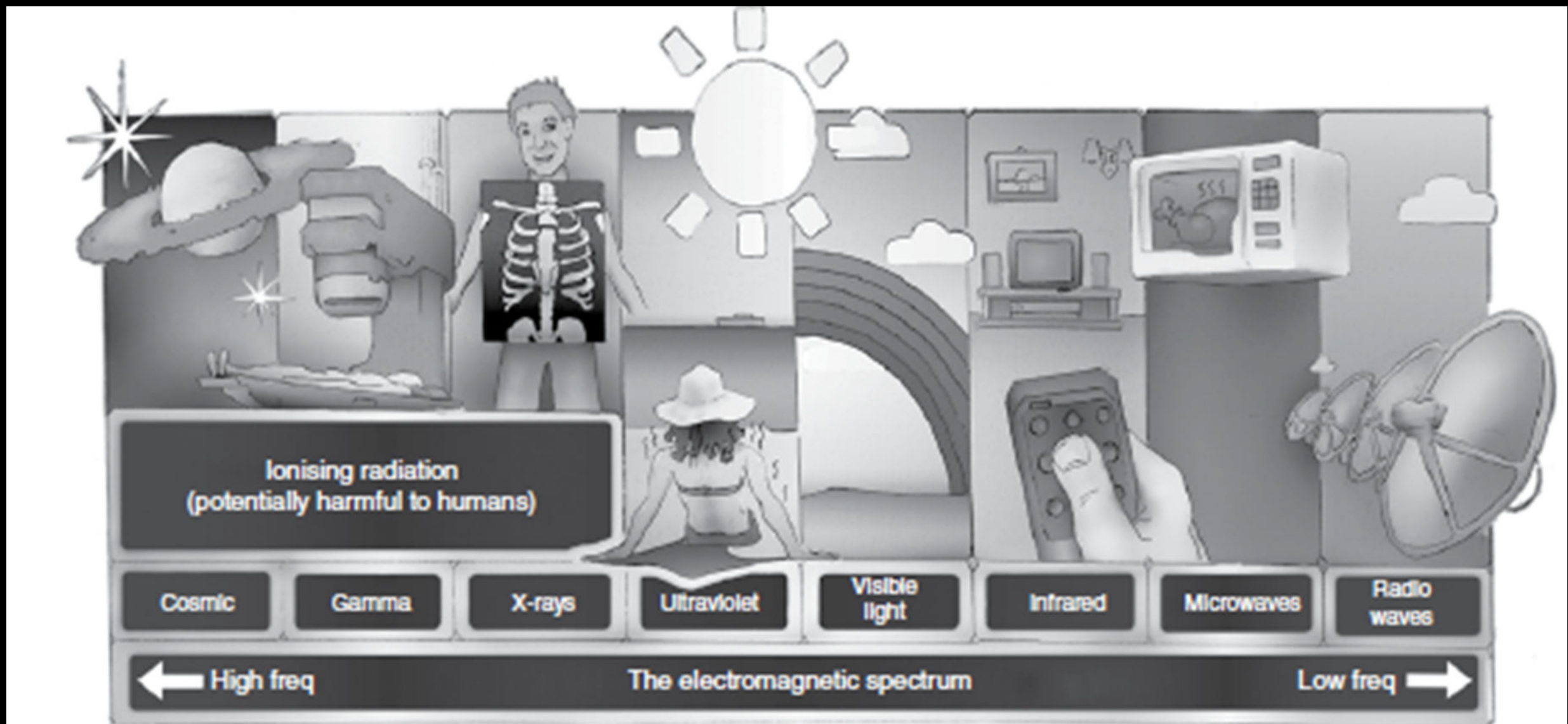


How to Read KUB Radiographs?

d

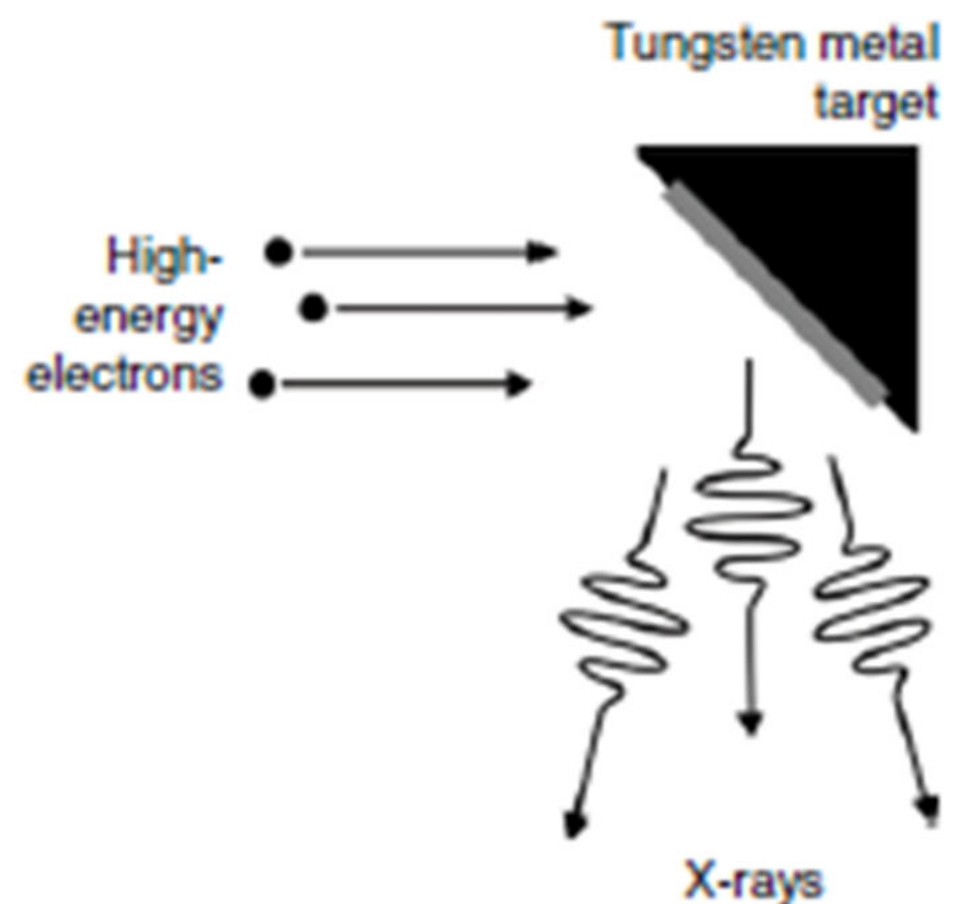
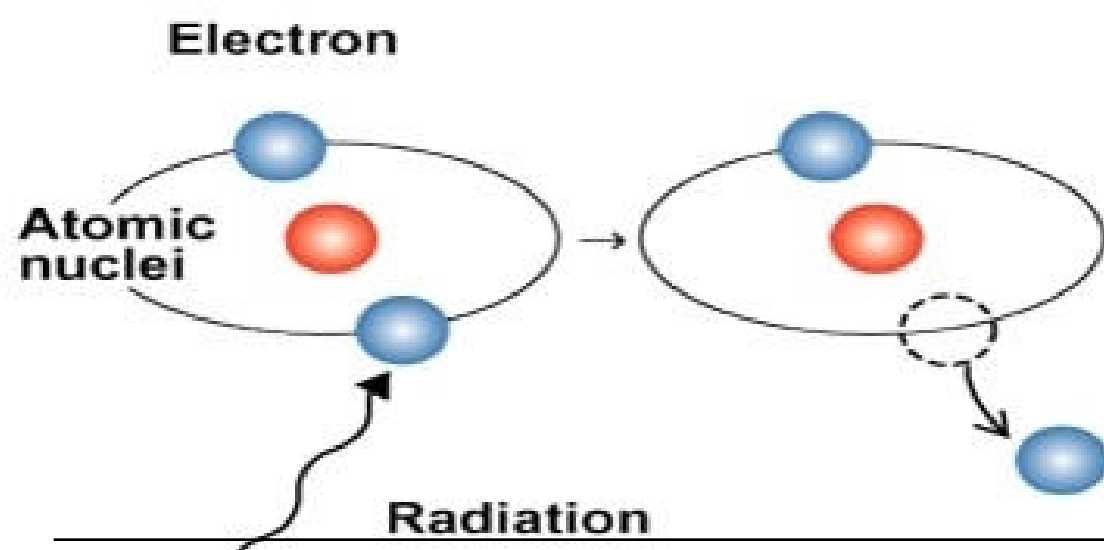
Outline

- Introduction
- Technique
- Normal anatomy
- Evaluation



How are X-rays produced?

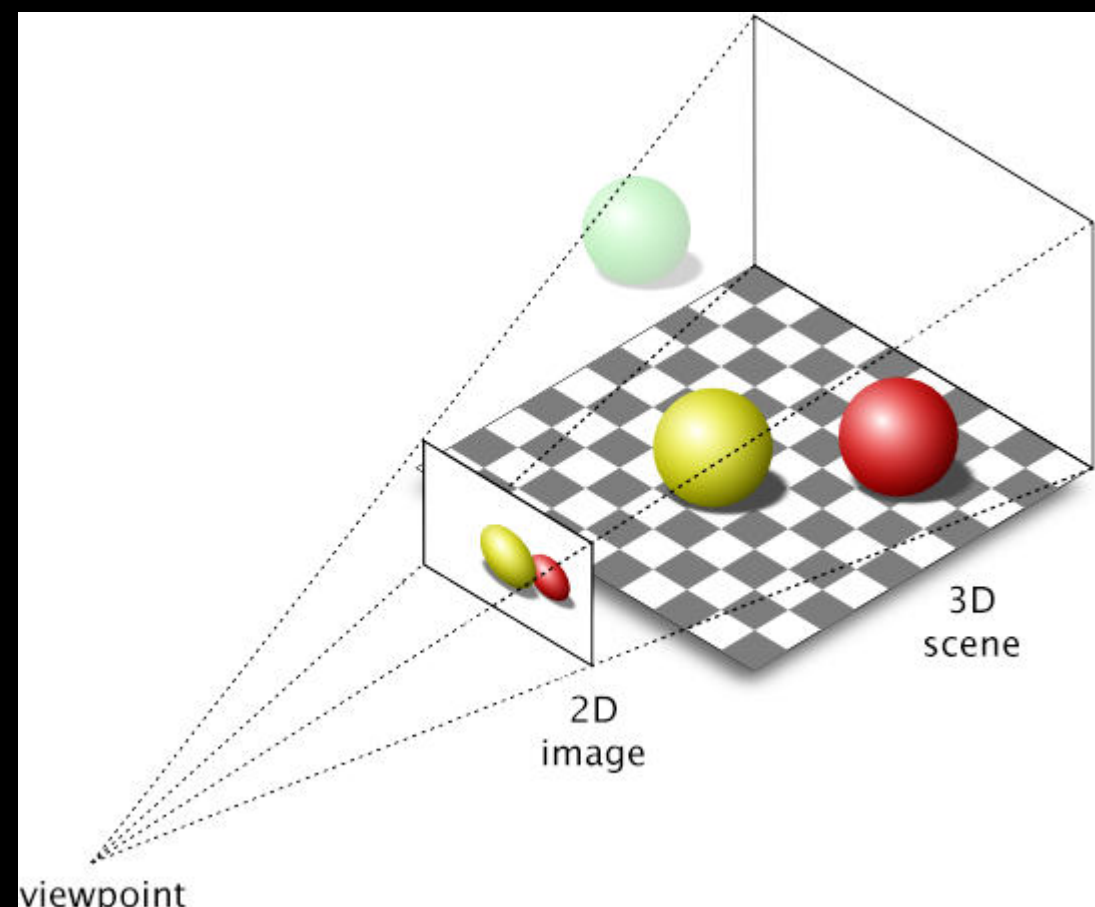
- What is radiation?
- Ionizing radiation



3 cardinal principles

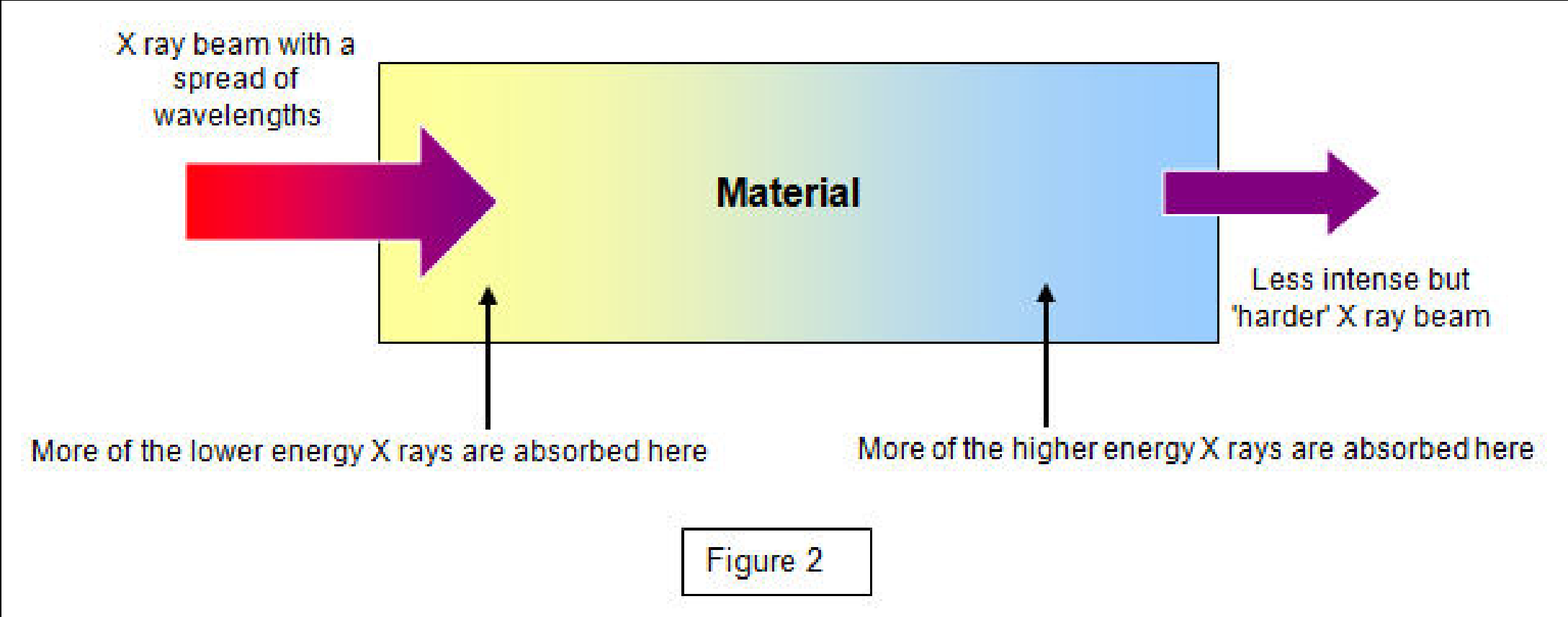
- Dimensional flattening
- Attenuation
- Contrast

Dimensional flattening

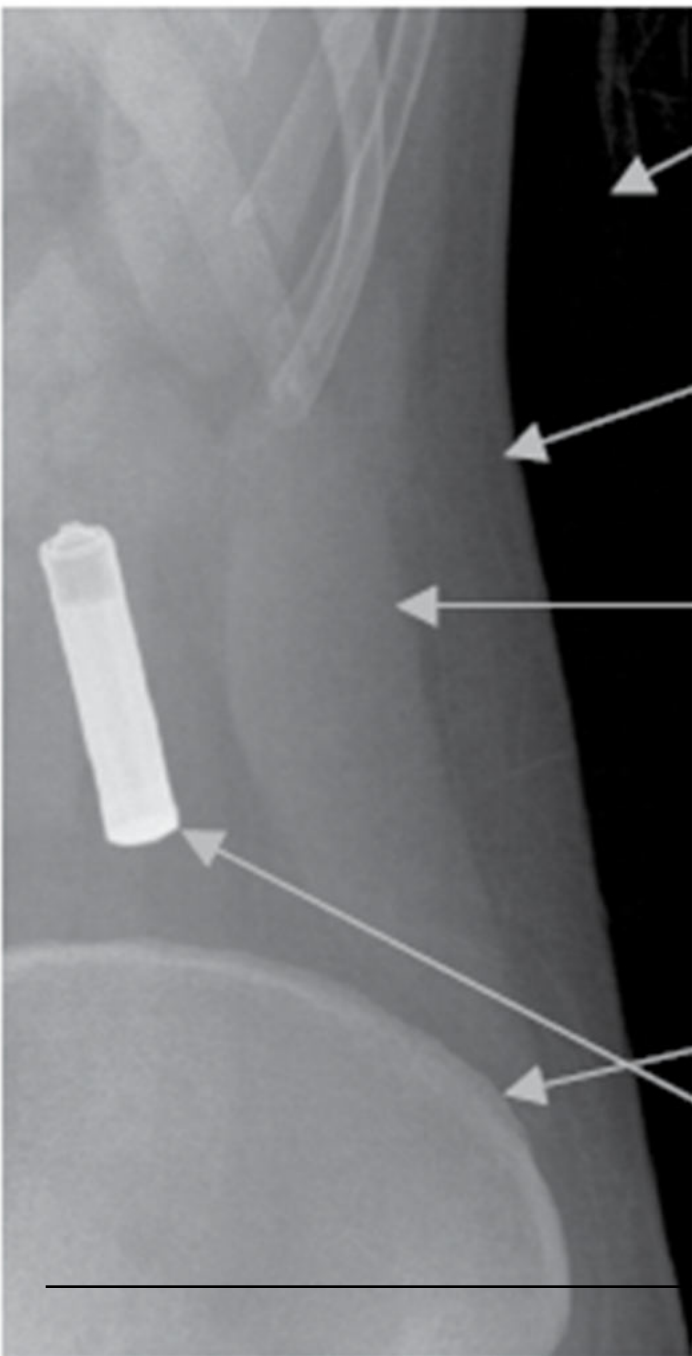


Two-dimensional (2D) representation of a three-dimensional (3D) structure.

Attenuation



Absorption of x-rays by the material



1. Air/gas:

Black
(air in the lungs, stomach or bowel)

2. Fat:

Dark grey
(subcutaneous fat, peritoneal fat)

3. Soft tissues/
fluid:

Light grey
(solid organs e.g. liver/spleen/kidneys, muscle,
bowel wall, blood, fluid-filled organs e.g.
gallbladder/urinary bladder)

4. Bone:

Off-white

5. Contrast material/
metals:

Bright white
(surgical clips, joint prostheses, batteries, etc.)

Image contrast

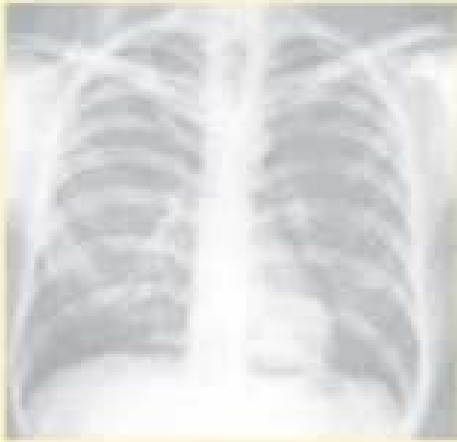


Structures can only be seen if there is sufficient contrast with surrounding tissues (contrast is the difference in absorption between one tissue and another).



IMAGE CONTRAST

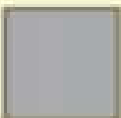
LOW



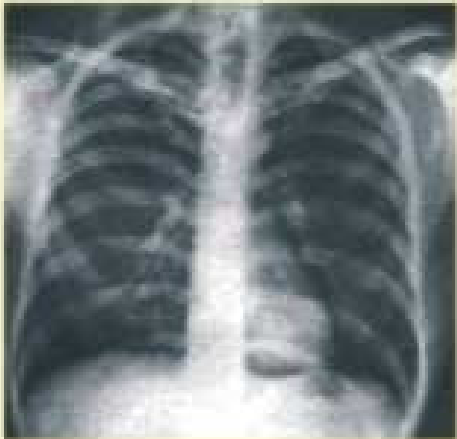


OPTIMUM



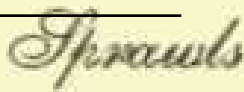


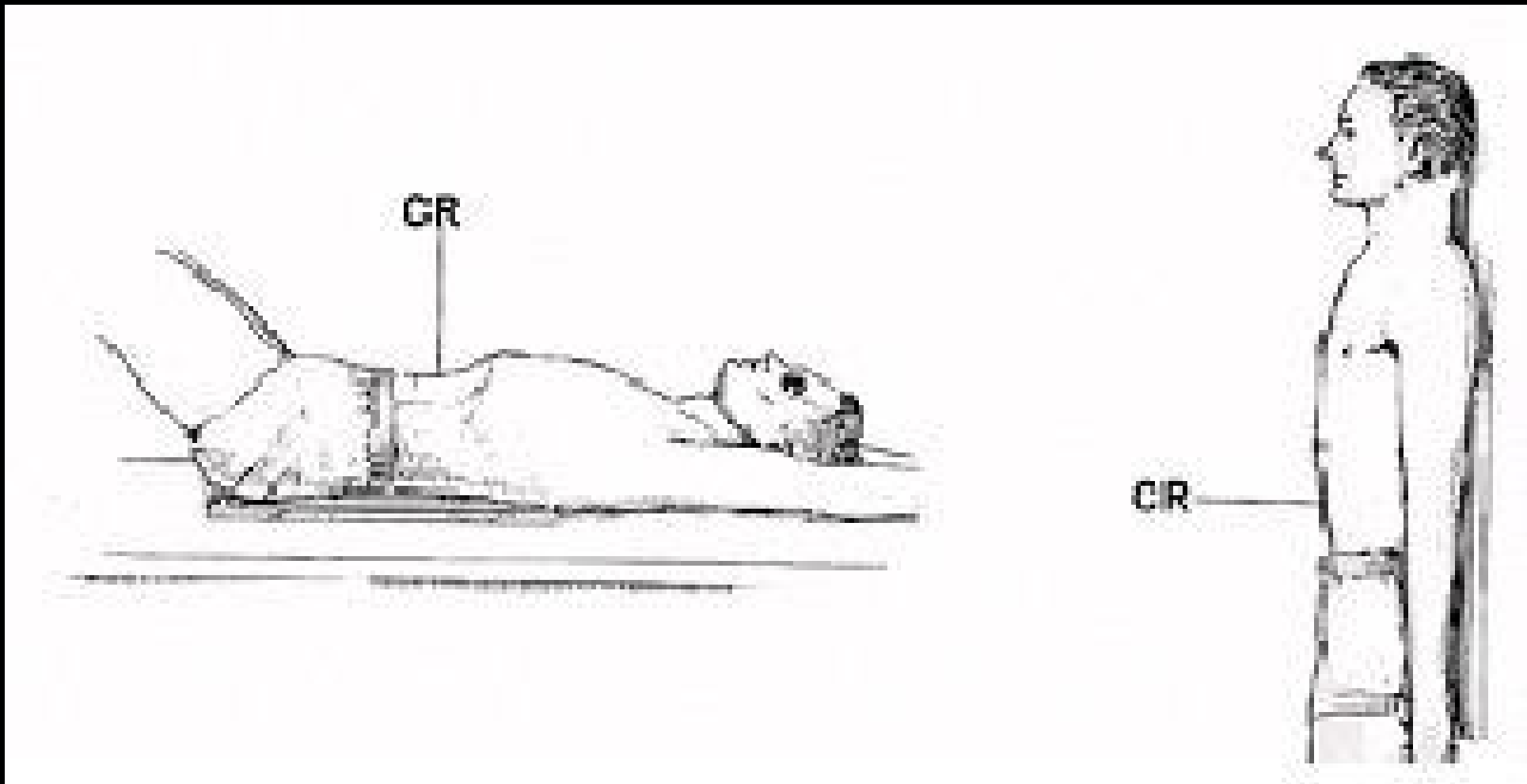
HIGH



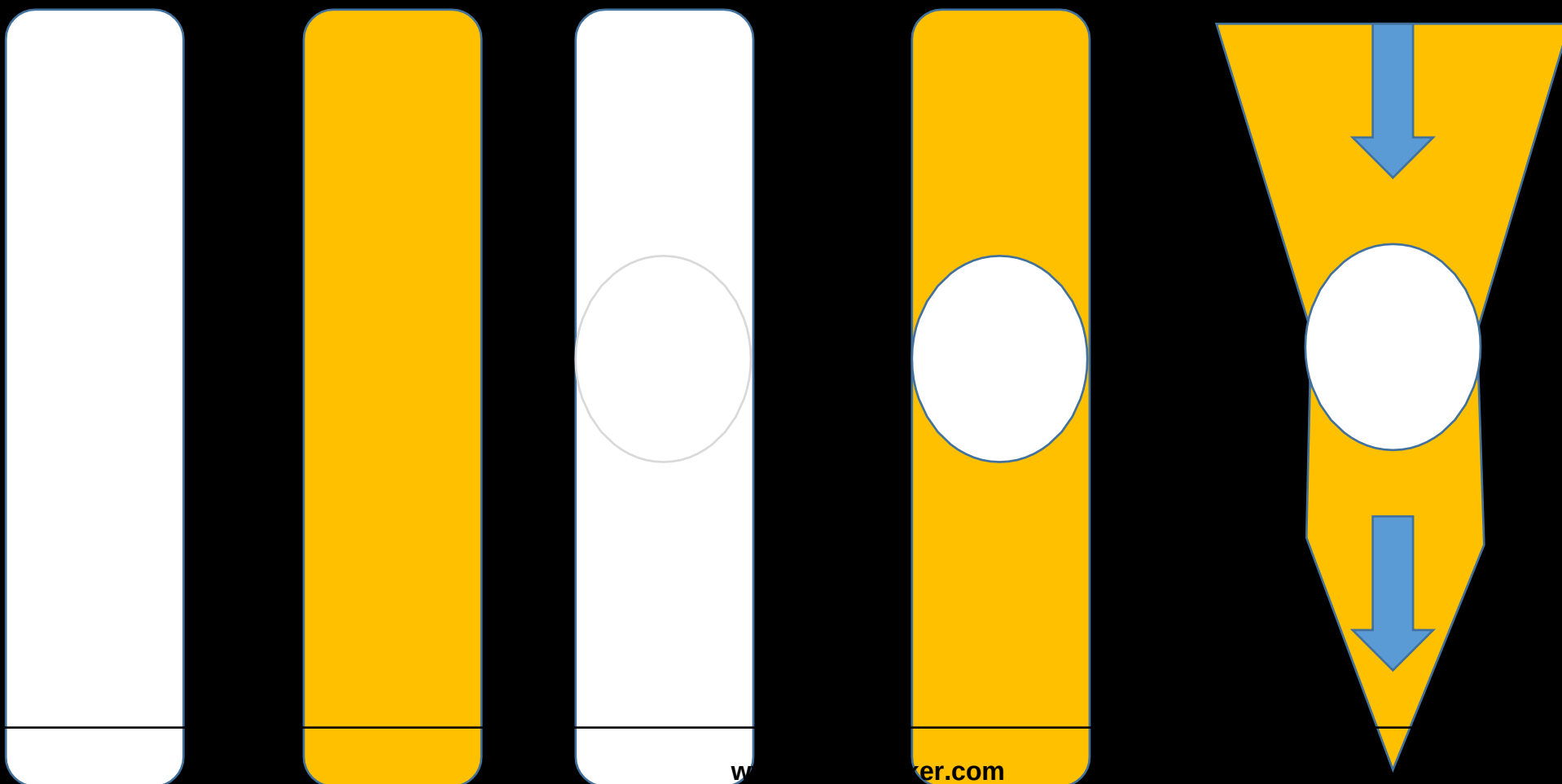


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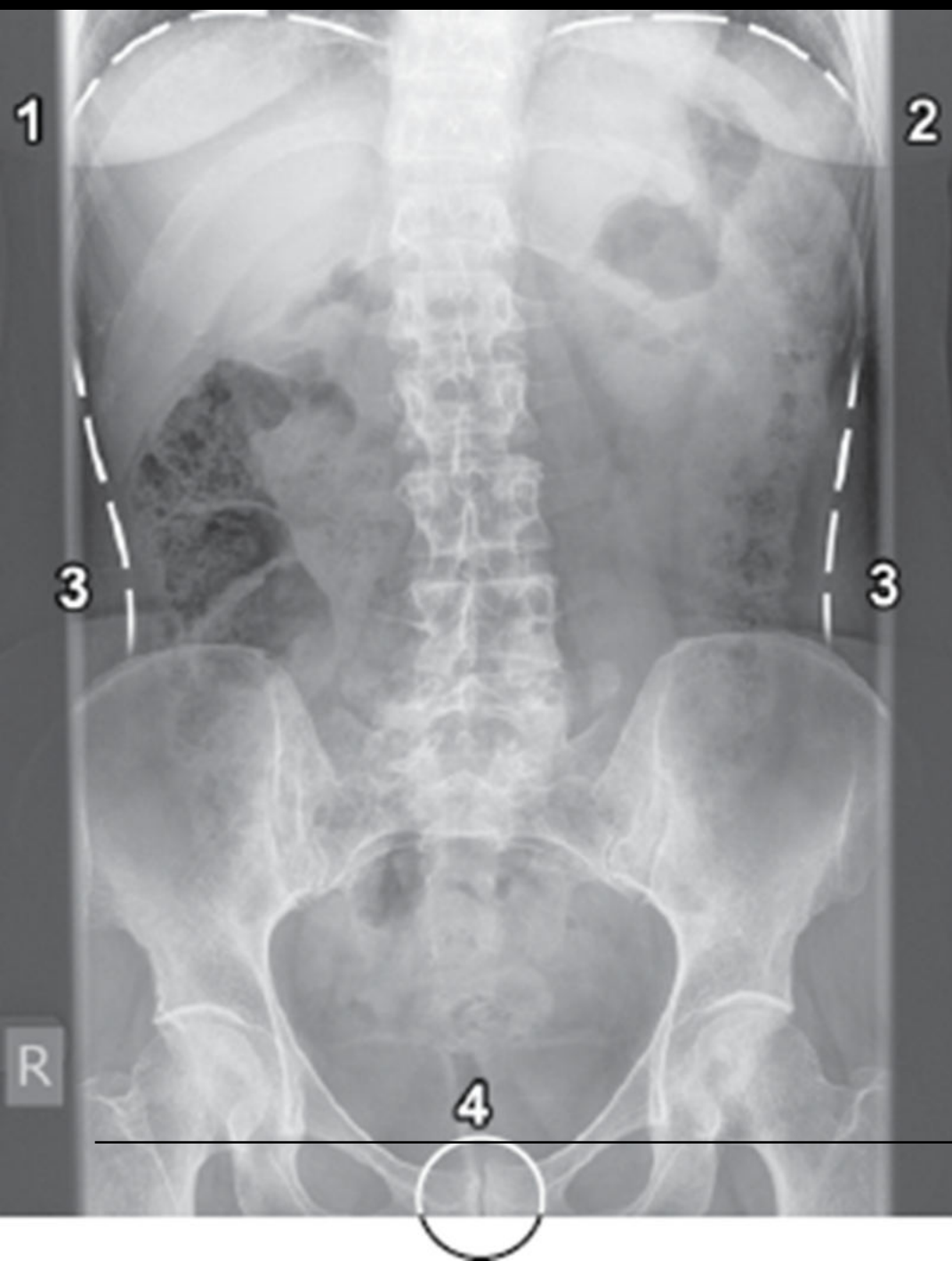


What is a filling defect?

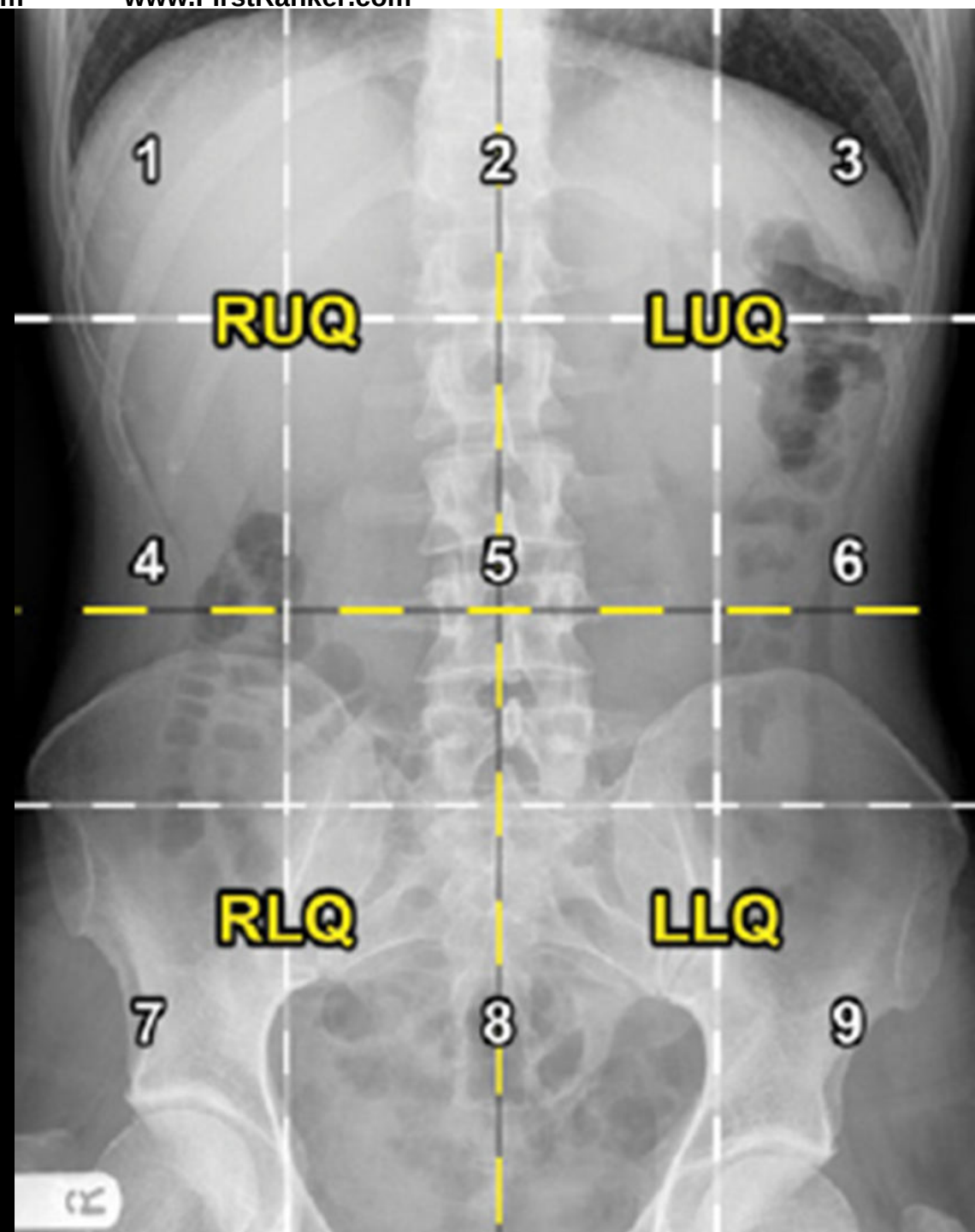


How will you read a radiograph?

- Give the type of the radiograph:
 - Erect
- Check patient details
- Date of the radiograph
- Quality and technical adequacy

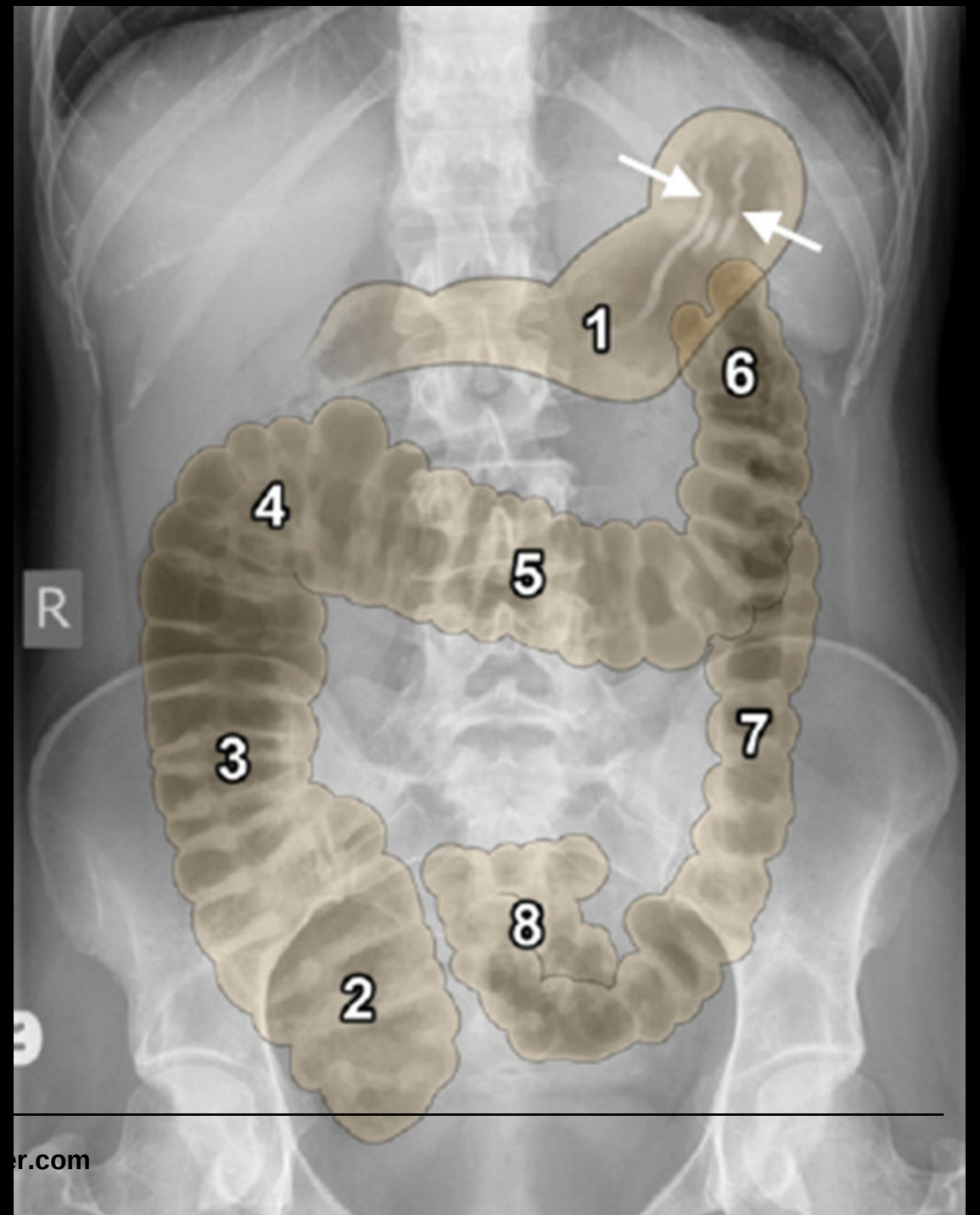
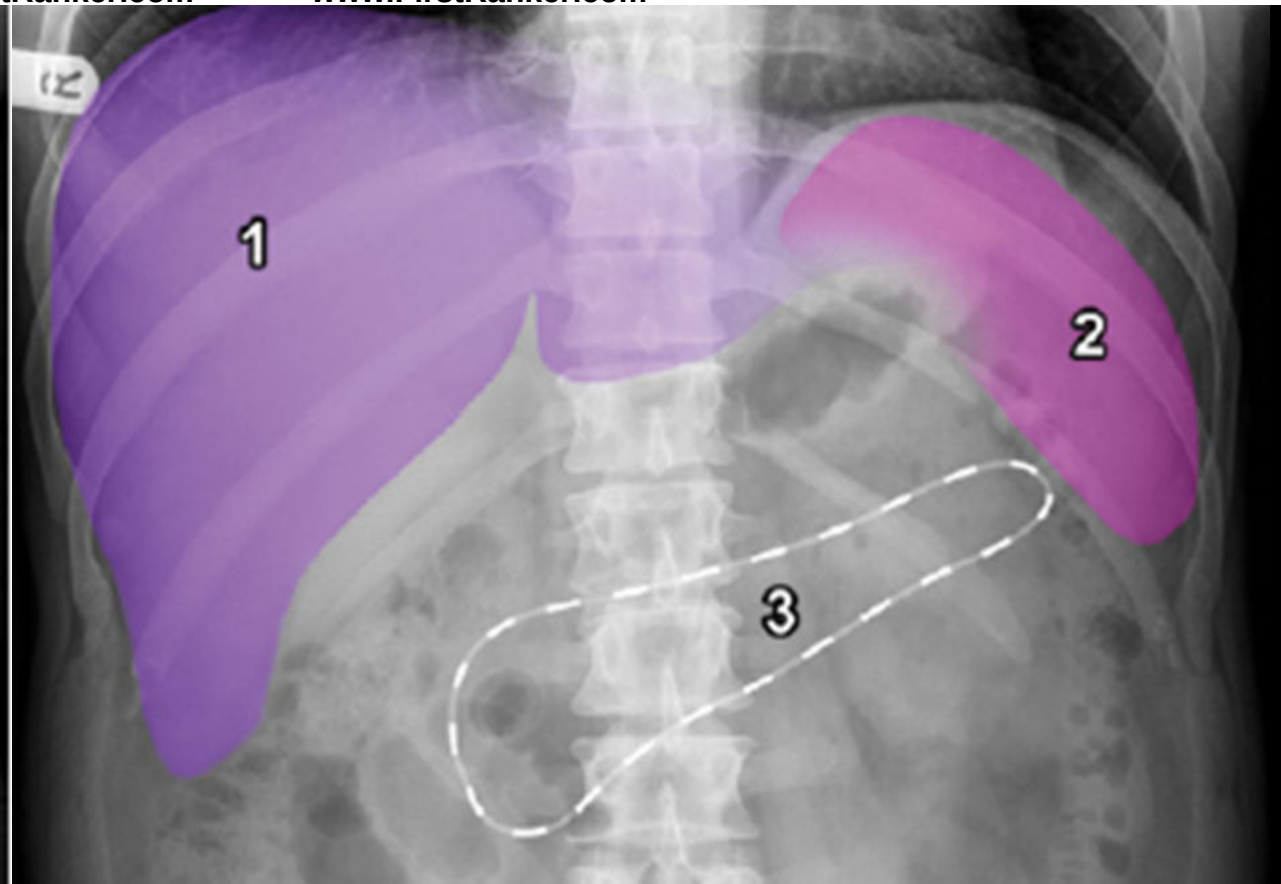


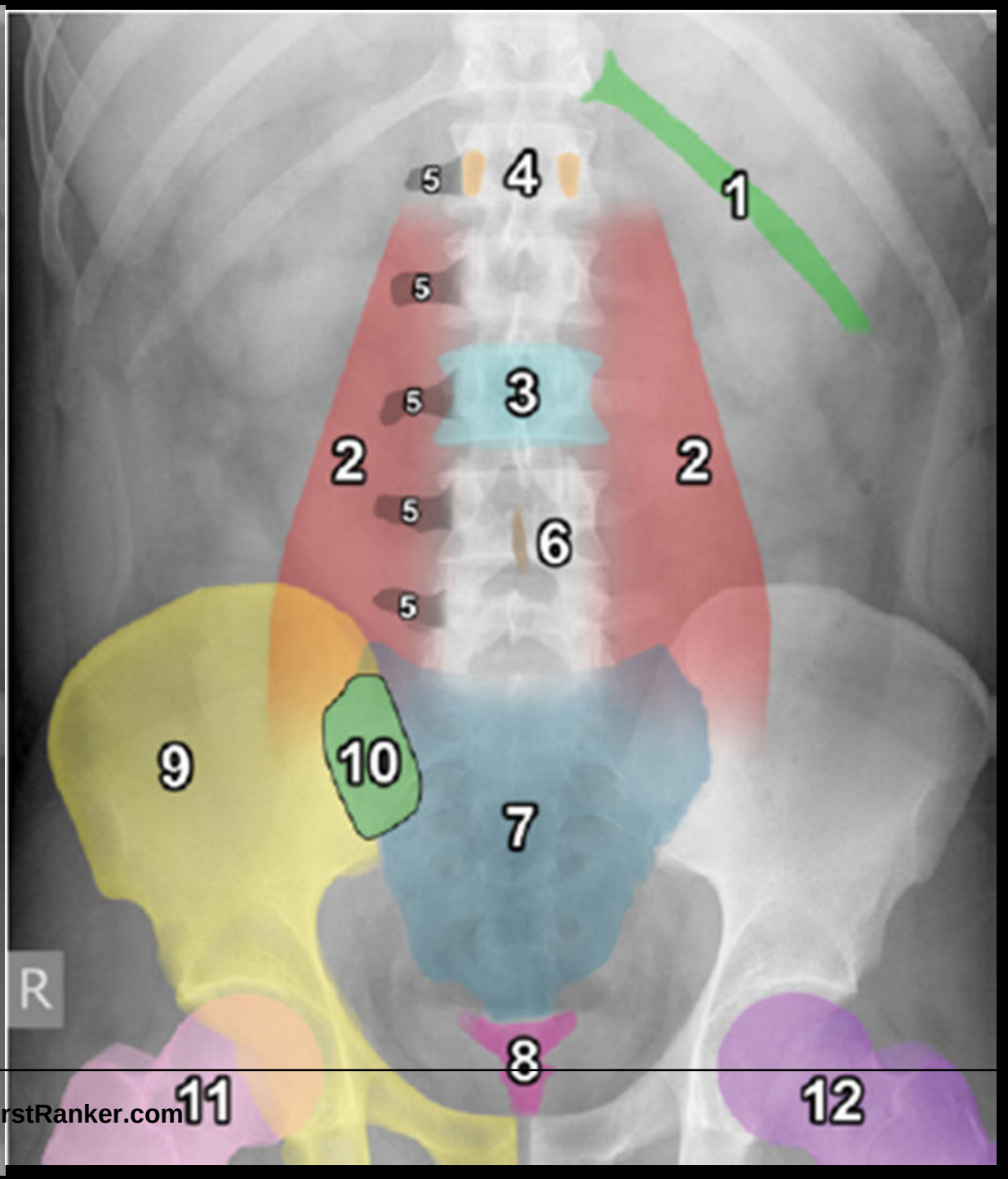
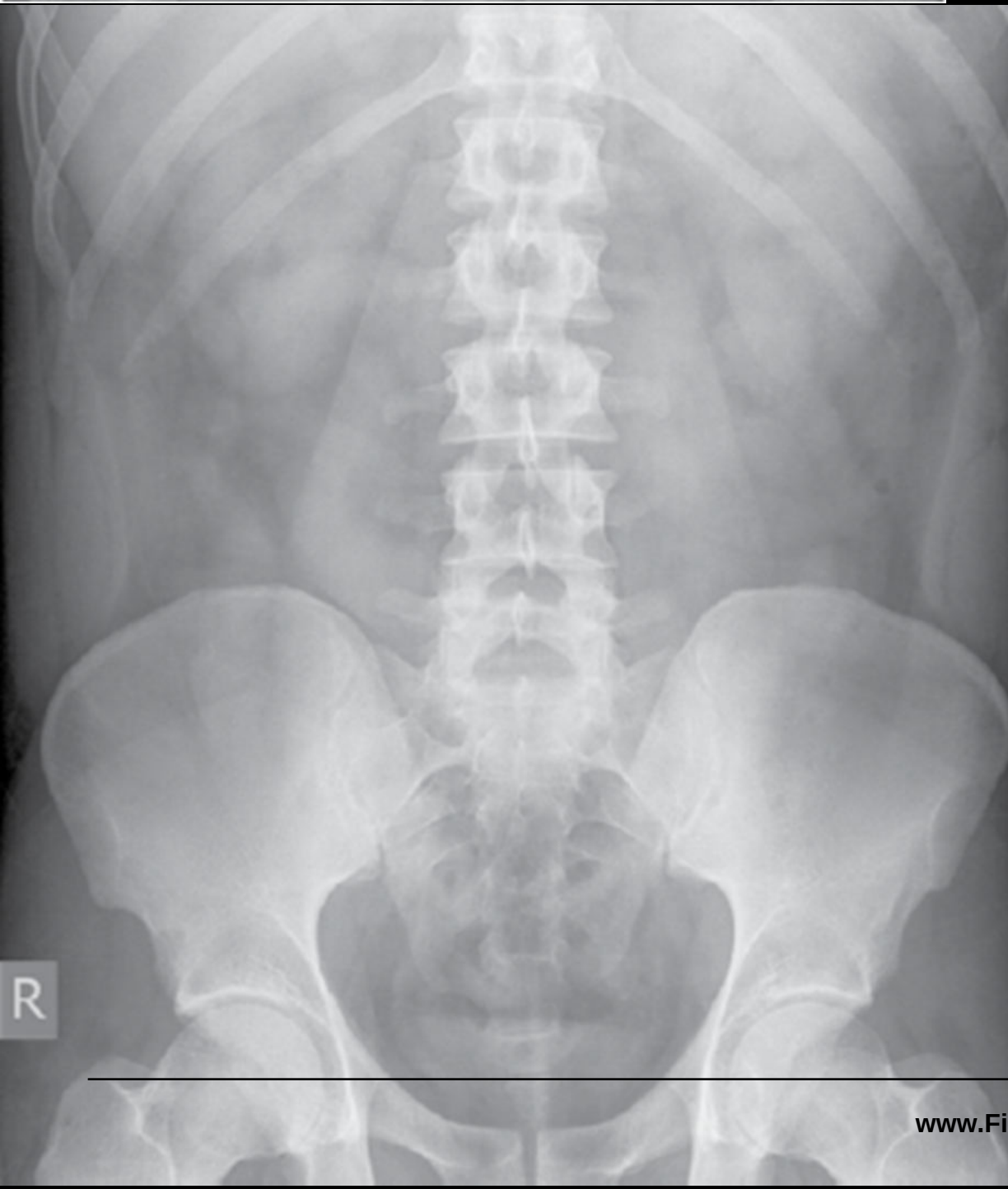
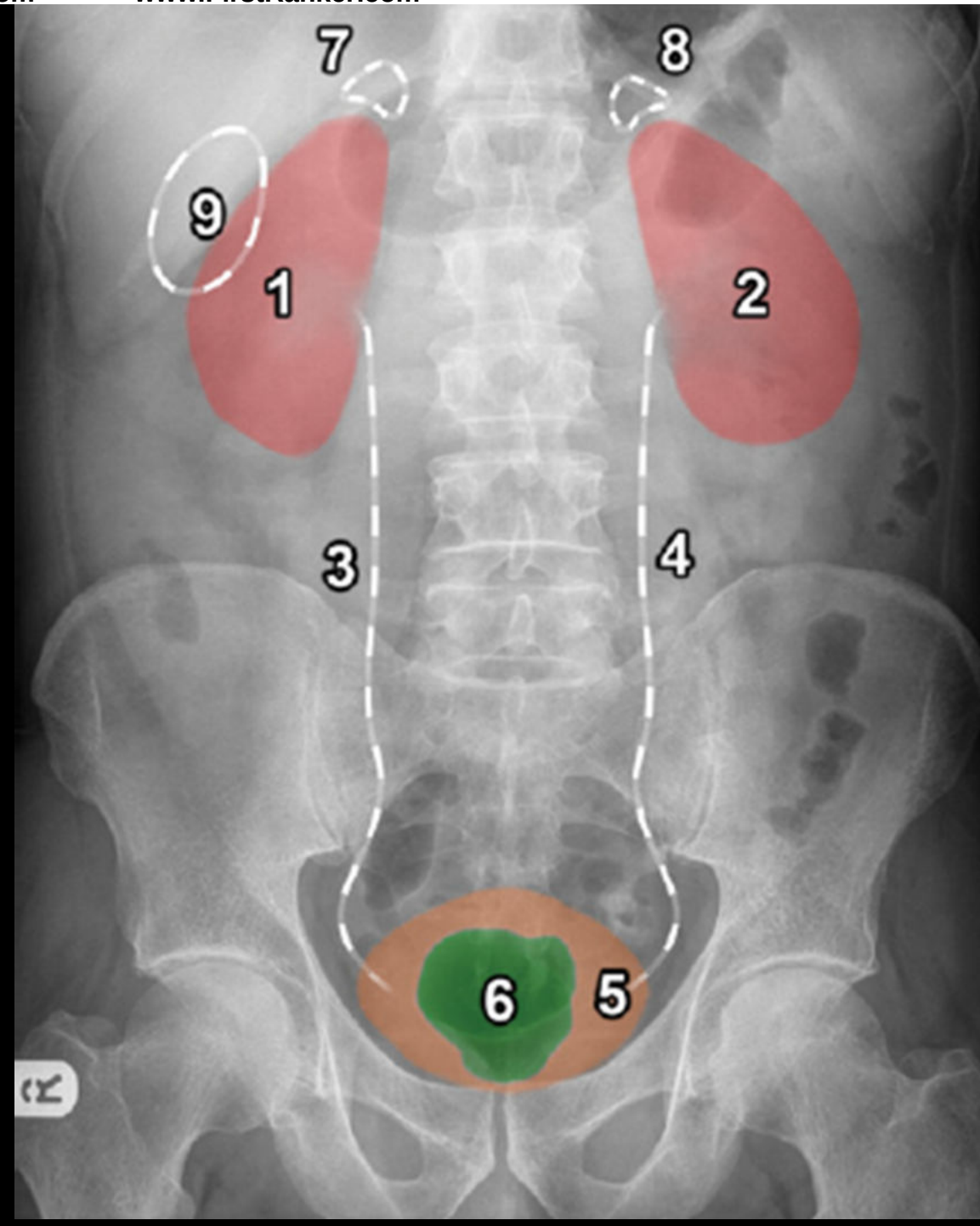
Normal Anatomy

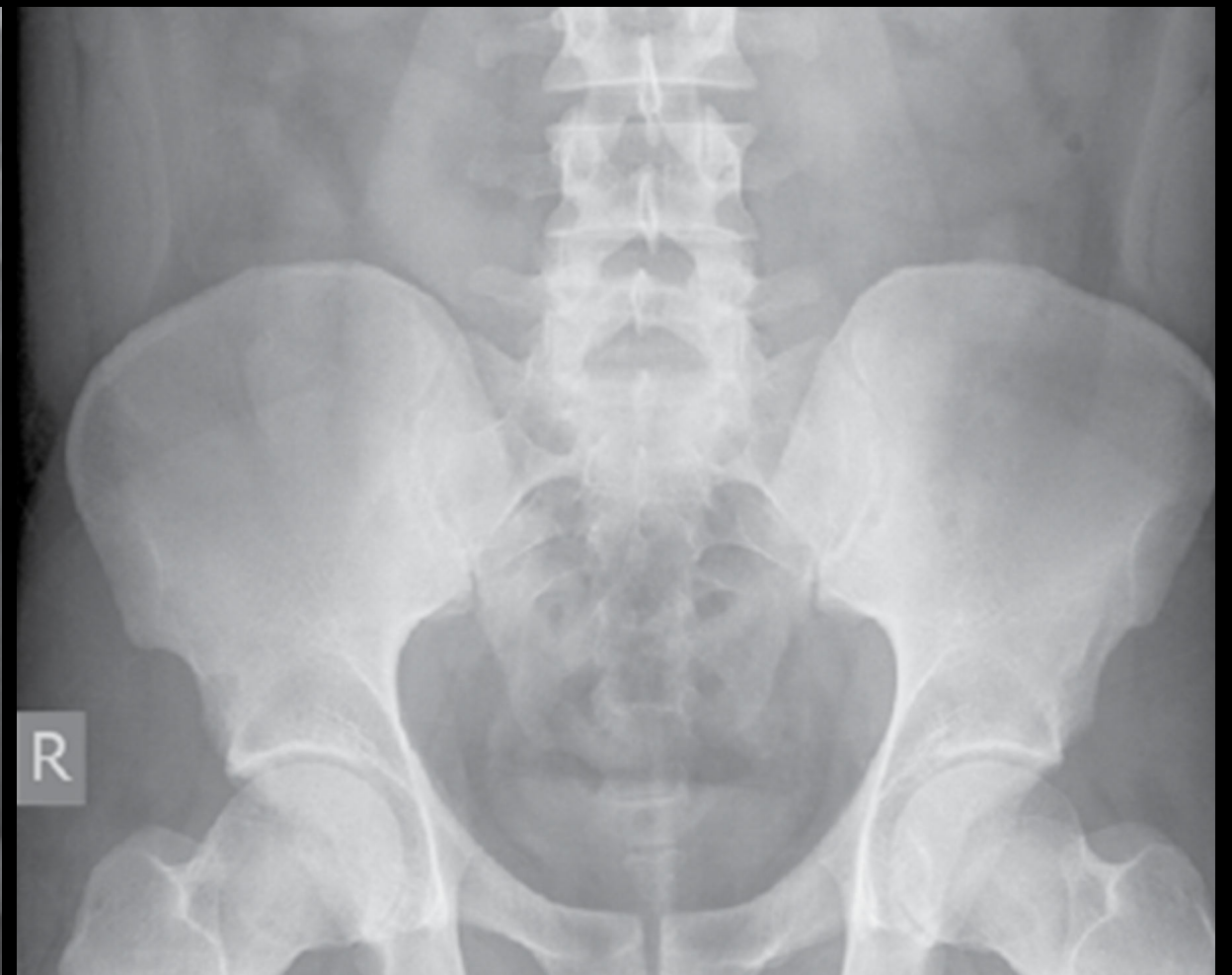
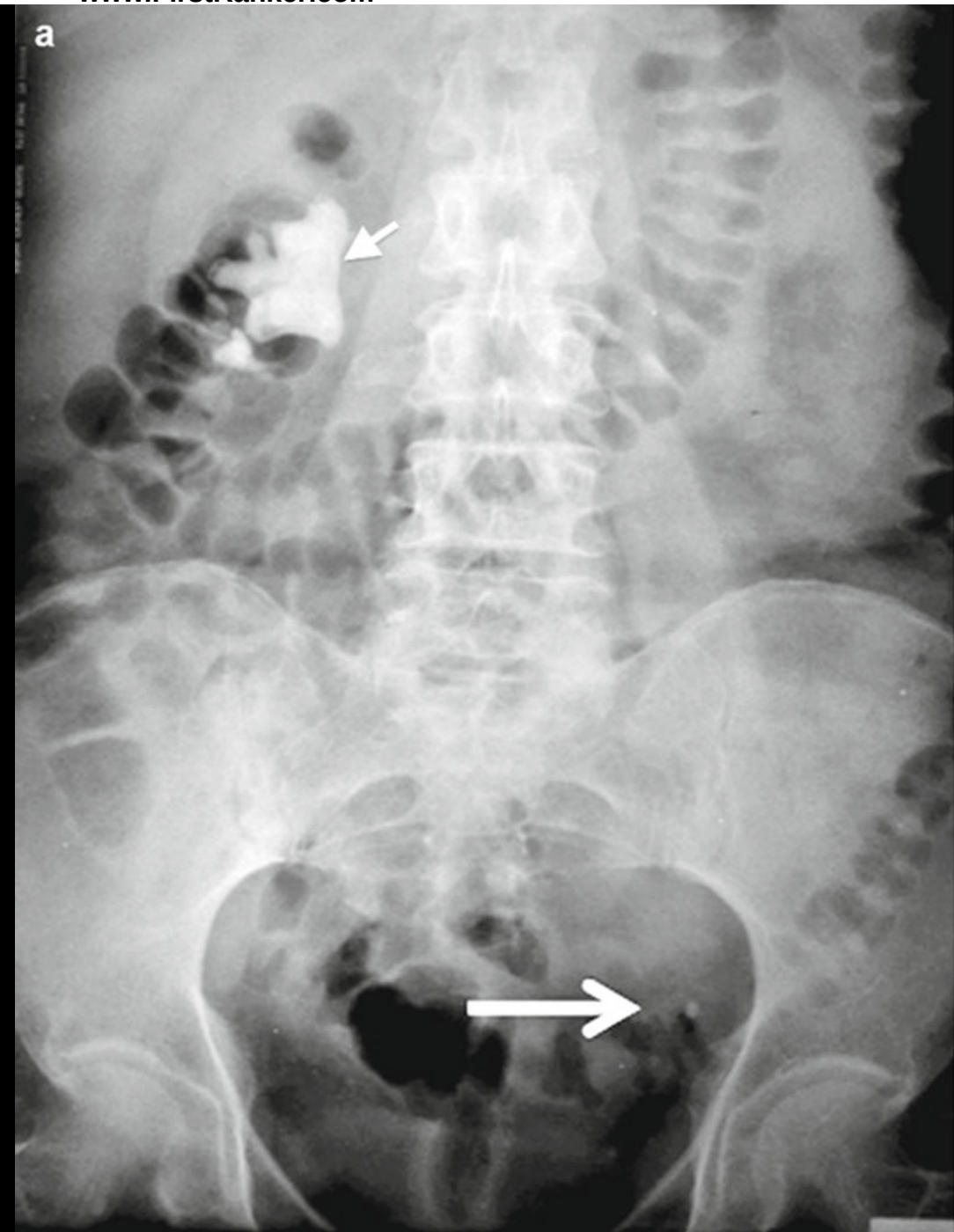


Abdominal viscera

- Solid
 - Liver
 - Spleen
 - Kidneys and adrenals
 - Pancreas
- Hollow
 - Stomach
 - Small bowel
 - Large bowel
- Musculoskeletal parts







The most useful tip for radiographs

- For a moment, forget that you are facing the examiner.
- Describe as if you are describing the radiograph to a colleague, over the phone.
- Speak what you are seeing, but systematically.



ABC of abdominal radiographs

- A for Air
- B for Bowel
- C for Calcification

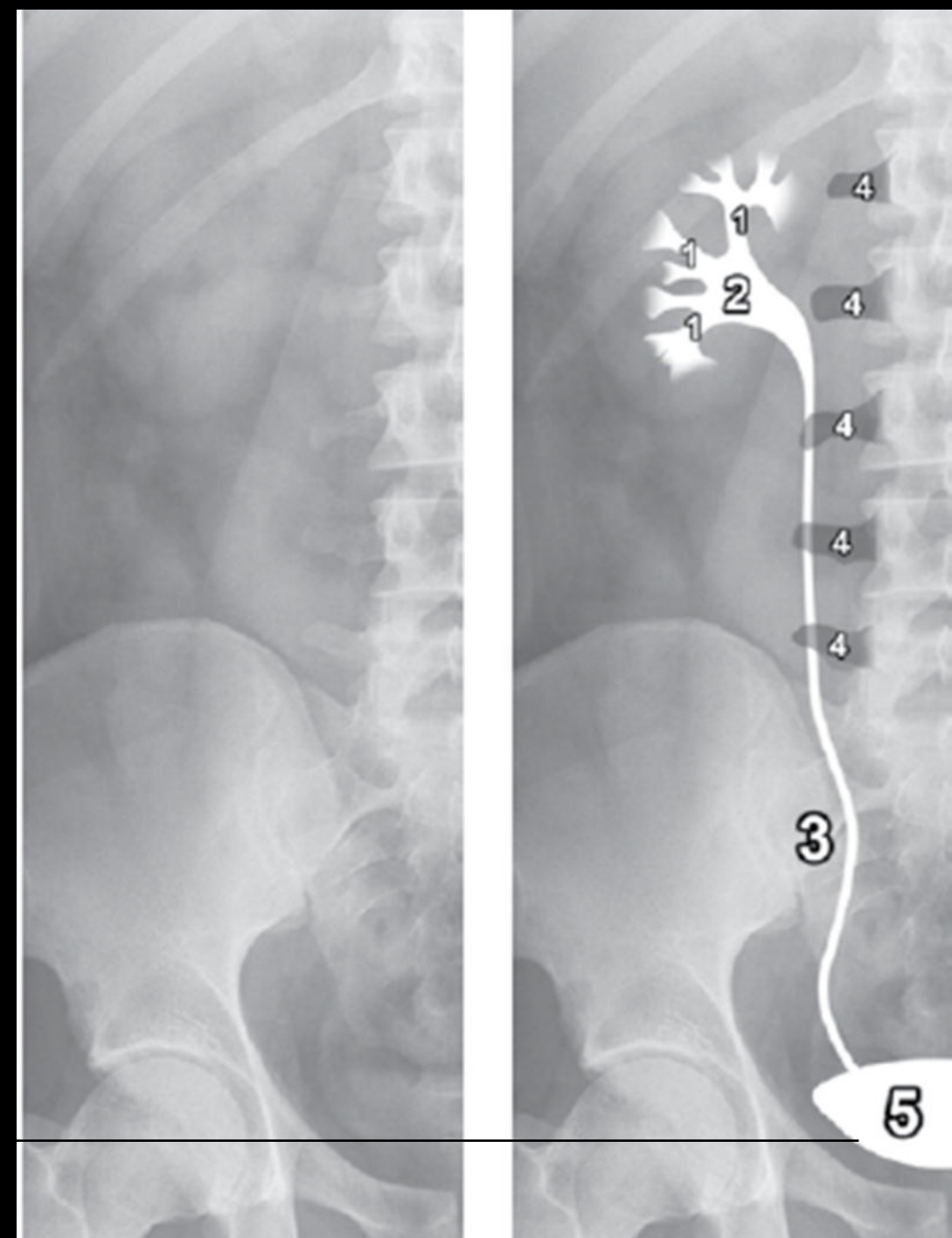
C for calcifications

- Calculi – here, there and everywhere
- Organ calcifications

Urolithiasis

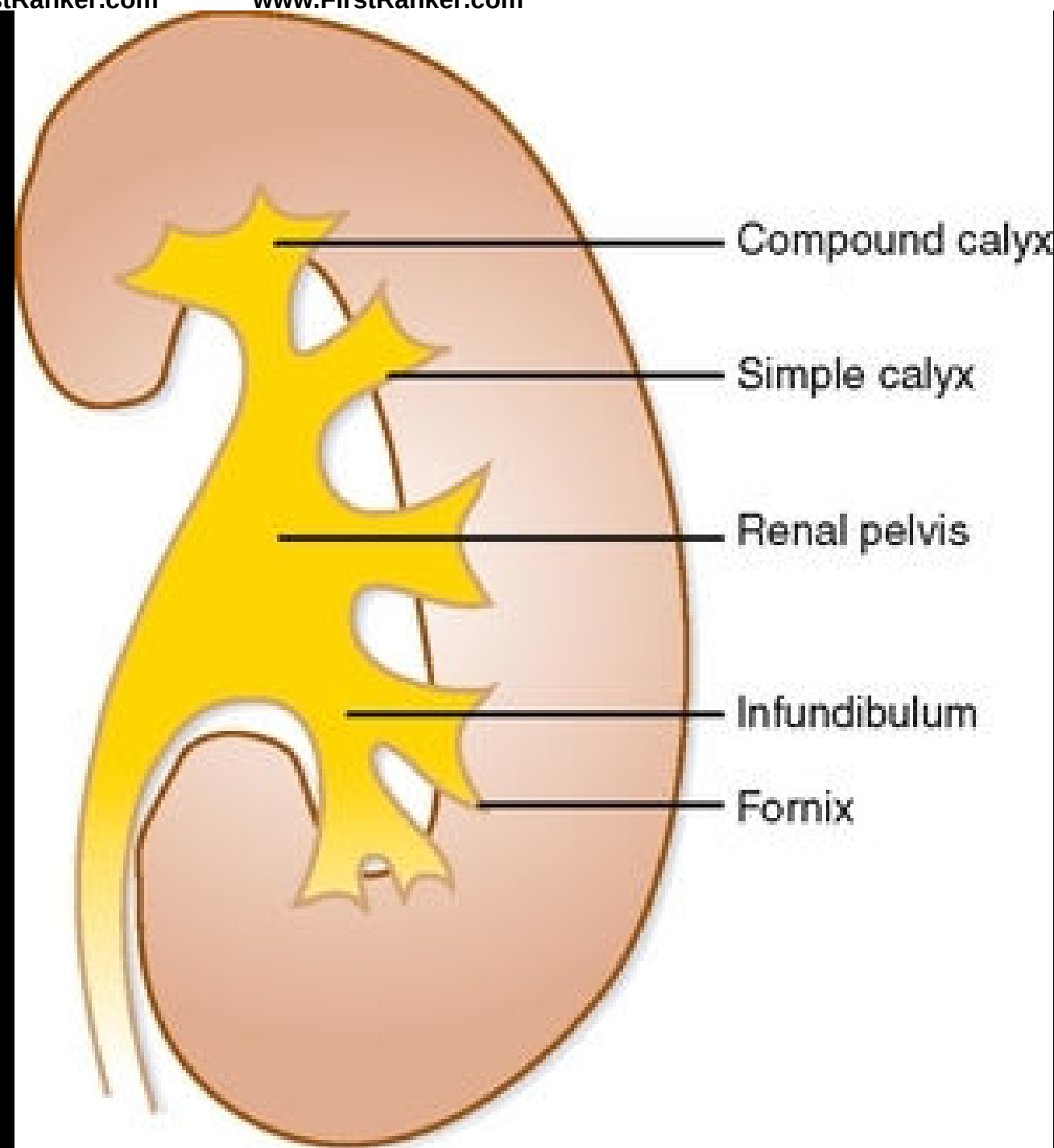
Calculi along urinary tract

- Anywhere
- Kidney
- Ureter
- Bladder



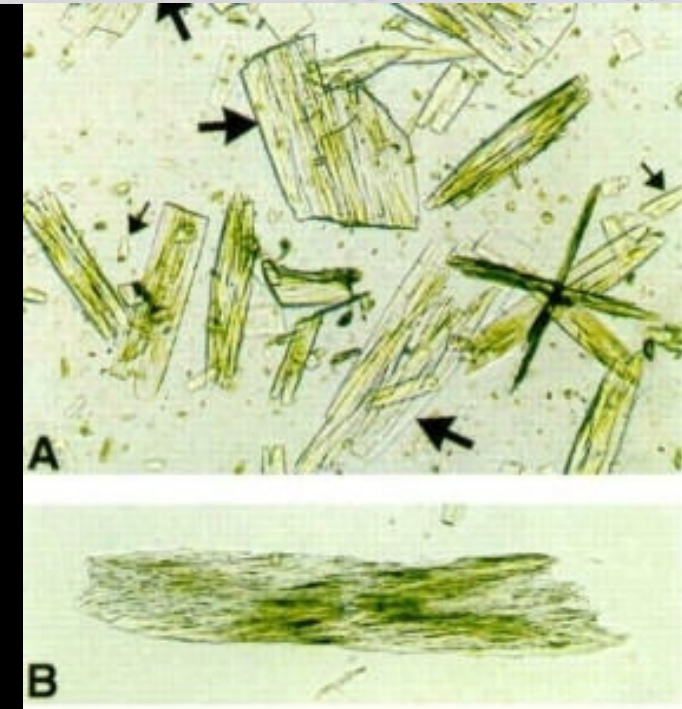
Predisposing factors

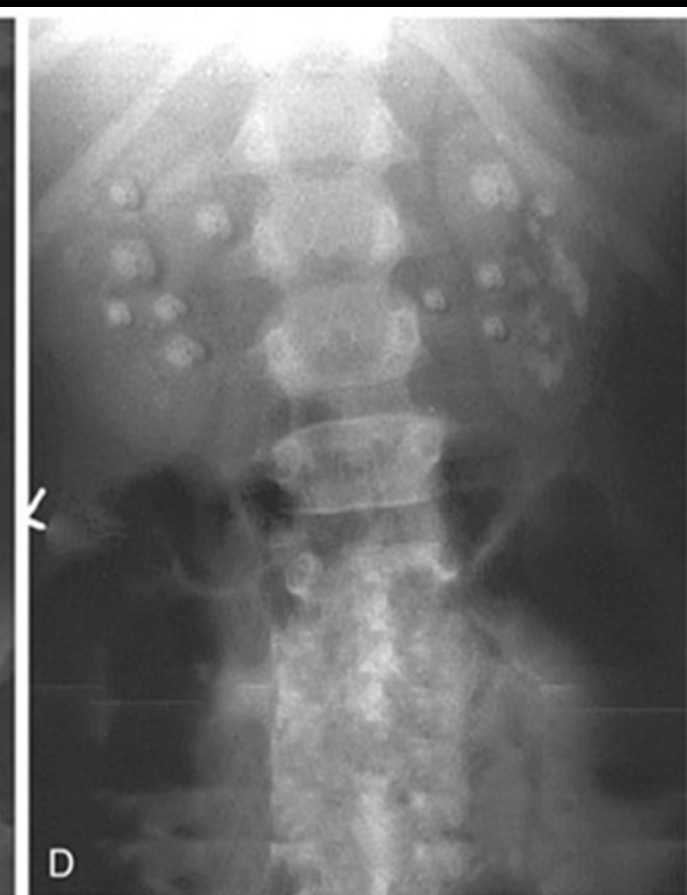
- Stagnations
- Hypersaturation
- Bacterial infections
- Receptor modulation
- Epithelial injury
- Nephrocalcin, uropontine



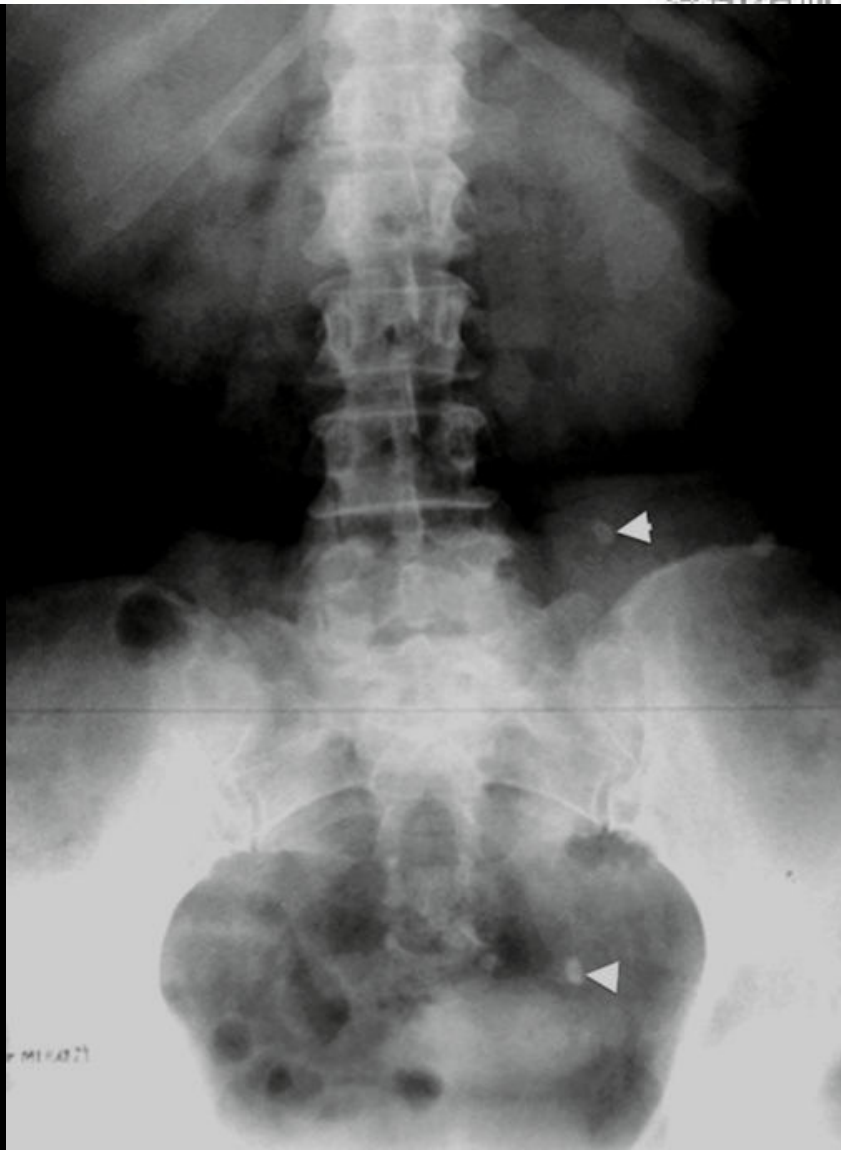
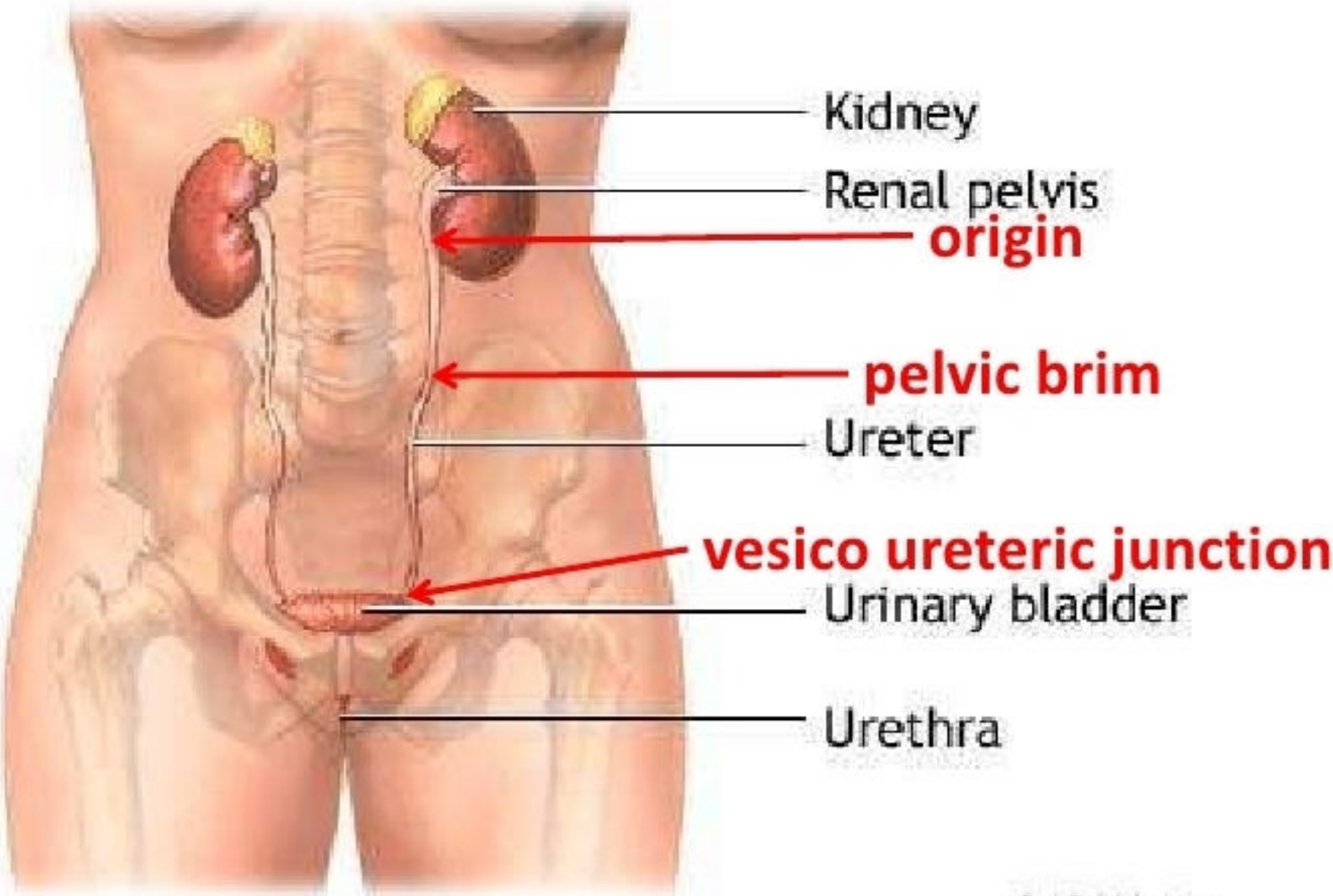
Chemical composition of calculi

- | | |
|--|---------------------|
| • Calcium containing | • Devoid of calcium |
| Calcium Oxalate – metabolism derangement | Cystine |
| Struvite – UTI with urea splitting organisms | Uric acid |
| | Protease inhibitors |





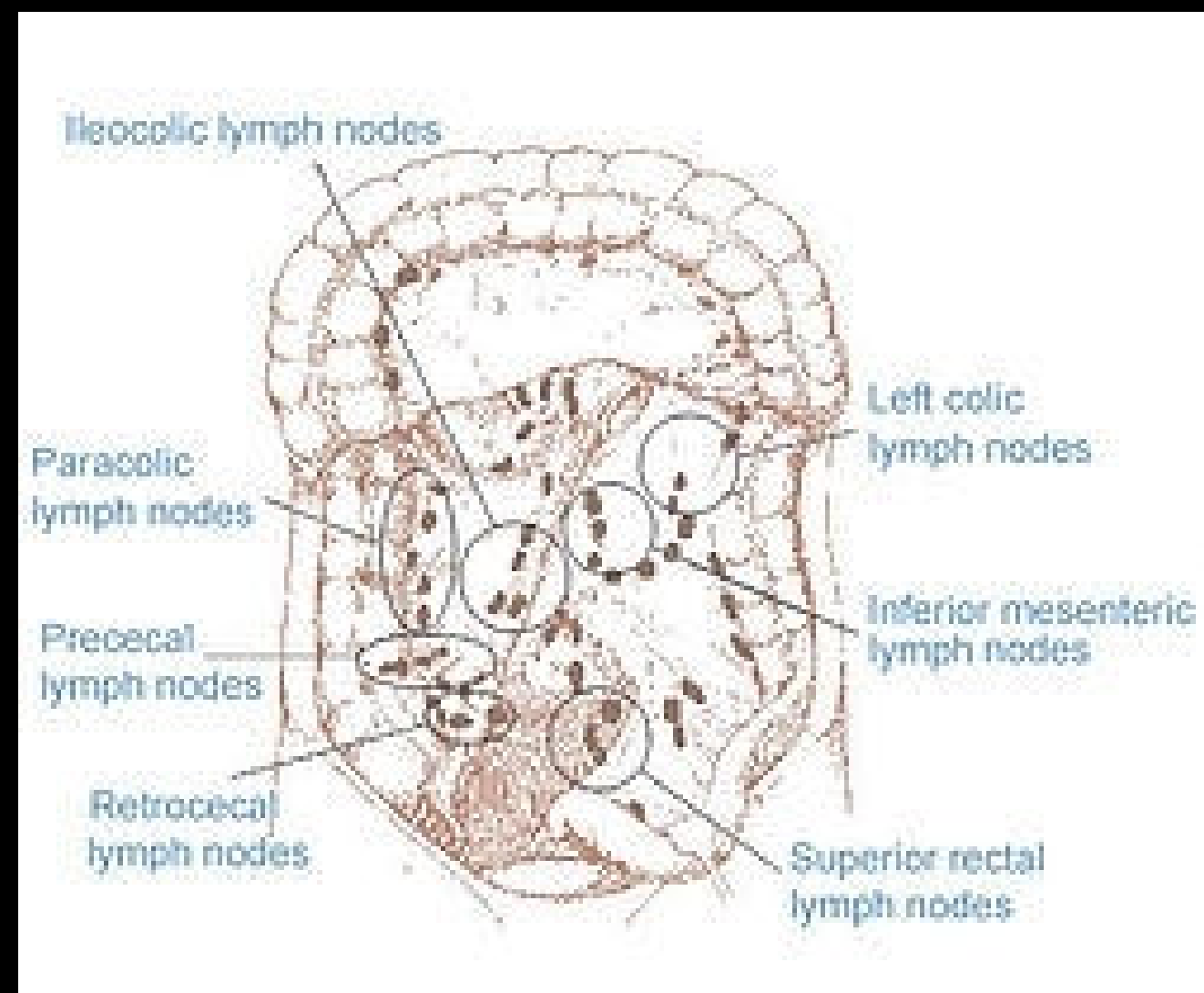
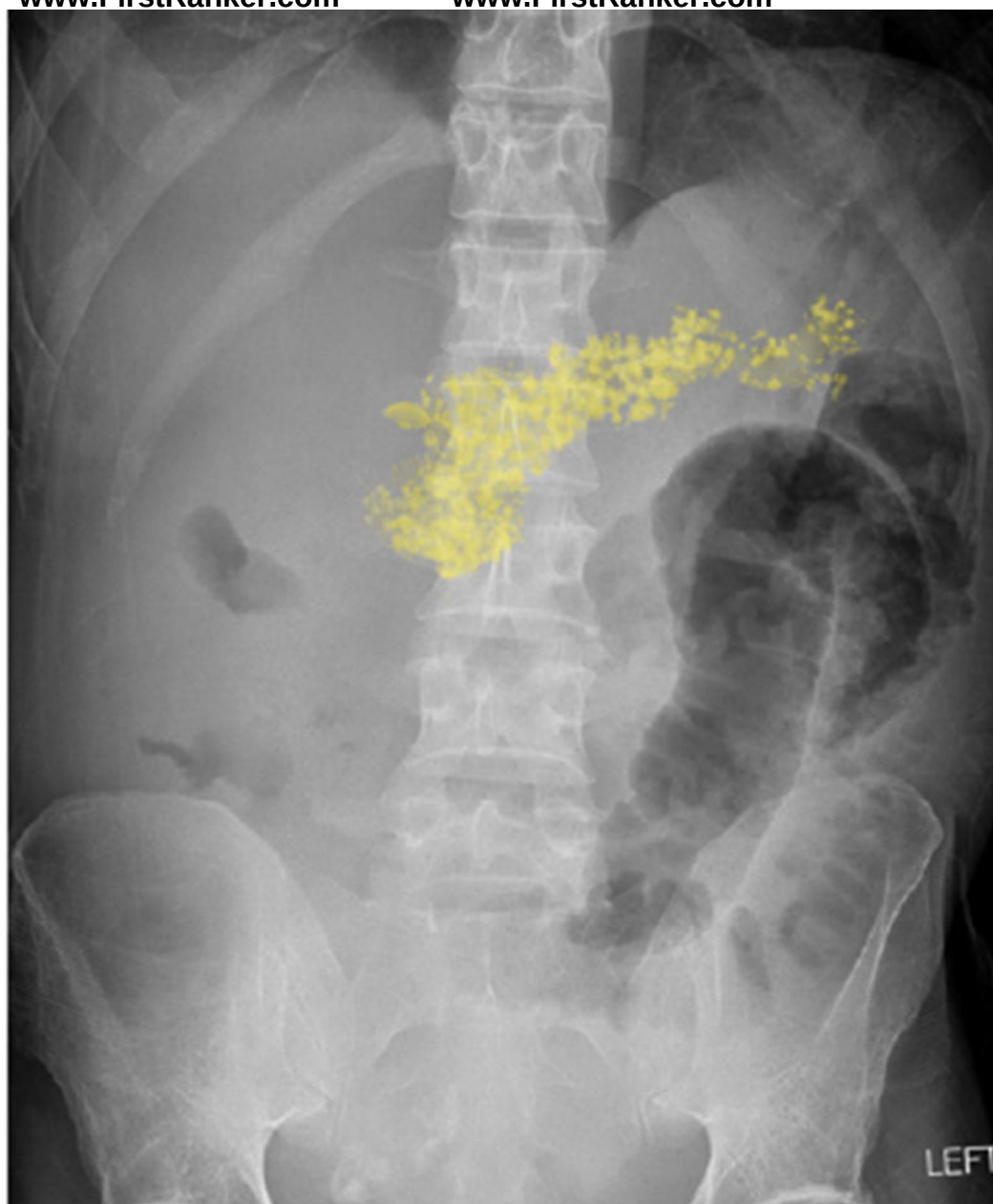
CONSTRICTIONS

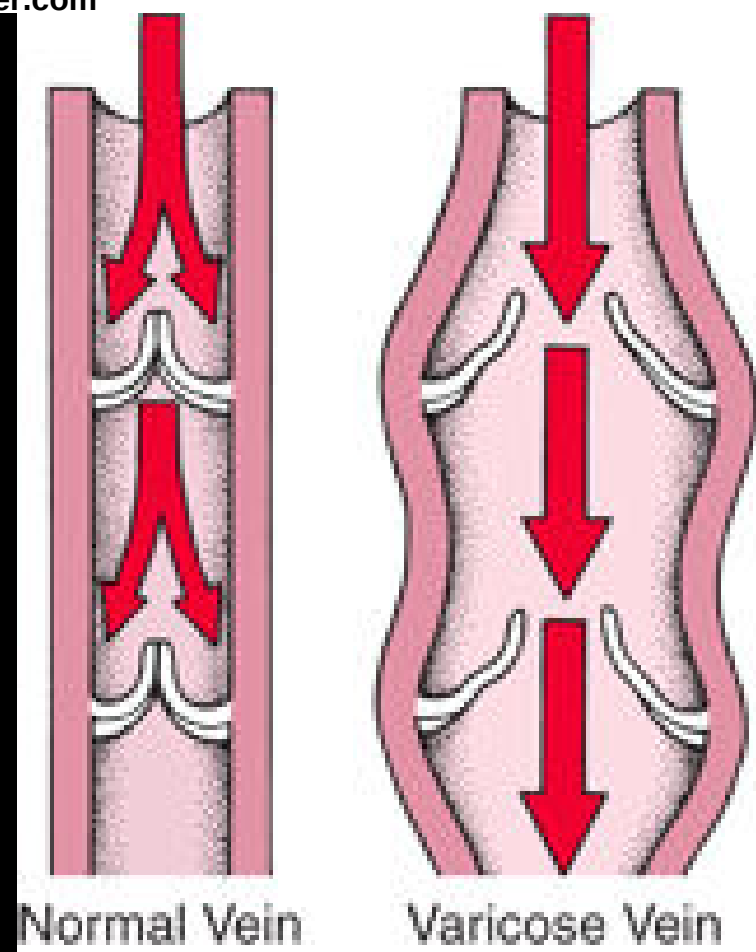




Mimics

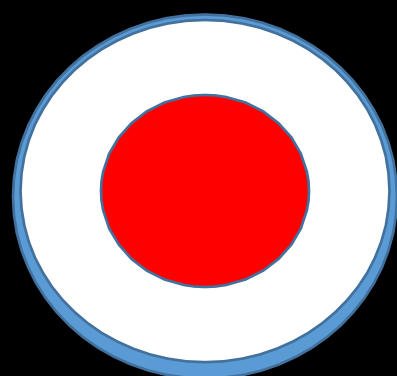
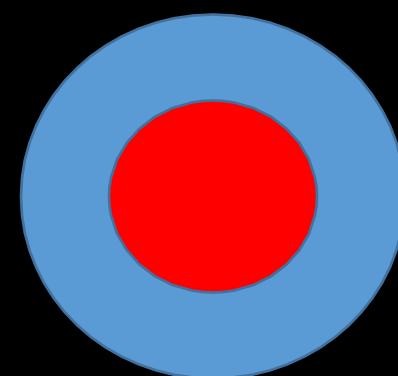






Normal Vein

Varicose Vein



Thank you

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