256 shades of gray: Exploring your body with medical imaging

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Learning objectives

1. Review radiologic imaging planes and projections.
2. Identify major structures in medical images of the human body.
3. Examine how disease processes affect normal anatomy and their impact on medical images.
ANATOMIC PLANES AND PROJECTIONS
Anatomic planes

Axial

Coronal

Sagittal
Radiographic projections

Posteroanterior (PA)

Left lateral (LL)
Radiographic projections

Anteroposterior (AP)  
Right posterior oblique (RPO)  
Left posterior oblique (LPO)
Radiographic projections

Left decubitus

Right decubitus

AP
Cross-sectional conventions
• Apex
• Cardiac shadow
• Aortic arch
• Hilum
• Carina
• Costophrenic angle
• Mediastinum
• Thoracic inlet
• Apex
• Aortic arch
• Trachea
• Retrosternal space
• Retrocardiac space
• Raider’s triangle
• Hilum
• Mediastinum
SKELETAL ANATOMY
VASCULAR ANATOMY
Coronary arteries

- Left main trunk (LCA)
- Left anterior descending
- Circumflex
- Right coronary artery (RCA)
- Posterior descending artery (PDA)
- Coronary sinus
- Tricuspid valve
- Mitral valve
- Aortic valve
- Papillary muscles
• Aortic arch
• Brachiocephalic a.
  • R common carotid a.
  • R subclavian a.
• L common carotid a.
• L subclavian a.
  • L vertebral a.
- Celiac a.
- L. gastric a.
- Common hepatic a.
- GDA
- Proper hepatic a.
- Splenic a.
- Ileocolic a.
- Right colic a.
- Middle colic a.
- Intestinal a.
- Inferior pancreaticoduodenal a.

ABDOMINOPELVIC ANATOMY
- Liver
- Spleen
- Stomach
- Pancreas
- Colon
- Small intestine
- Kidneys
- Portal vein
- IVC
Corticomedullary

Nephrographic

Excretory (delayed)
What radiographic projection is this?

45%  1.  Left decubitus
21%  2.  Right decubitus
34%  3.  AP
4.  PA
What radiographic projection is this?

1. Left decubitus
2. Right decubitus
3. AP
4. PA
What structure is identified?

7% 1. Olecranon
    18% 2. Greater tuberosity
    4% 3. Greater trochanter
    4% 4. Diaphysis
71% 5. Lesser trochanter
What structure is identified?

1. Olecranon
2. Greater tuberosity
3. Greater trochanter
4. Diaphysis
5. Lesser trochanter
What vessel is identified?

1. Celiac a. 4%
2. Jugular v. 16%
3. Portal v. 20%
4. Brachiocephalic a. 8%
5. L common carotid a. 52%
What vessel is identified?

2. Jugular v.
5. L common carotid a.
What region of the kidneys is enhanced in this image?

63%  1.  Cortex
27%  2.  Medulla
  3%   3.  Renal pelvis
  7%   4.  Capsule
       5.  Pole
What region of the kidneys is enhanced in this image?

1. Cortex
2. Medulla
3. Renal pelvis
4. Capsule
5. Pole
Bonus: What is depicted in this image?