MEDAVIE HealthEd ÉduSanté

Diagnostics – CT and MRI

Primary Care Paramedicine

Module: 13

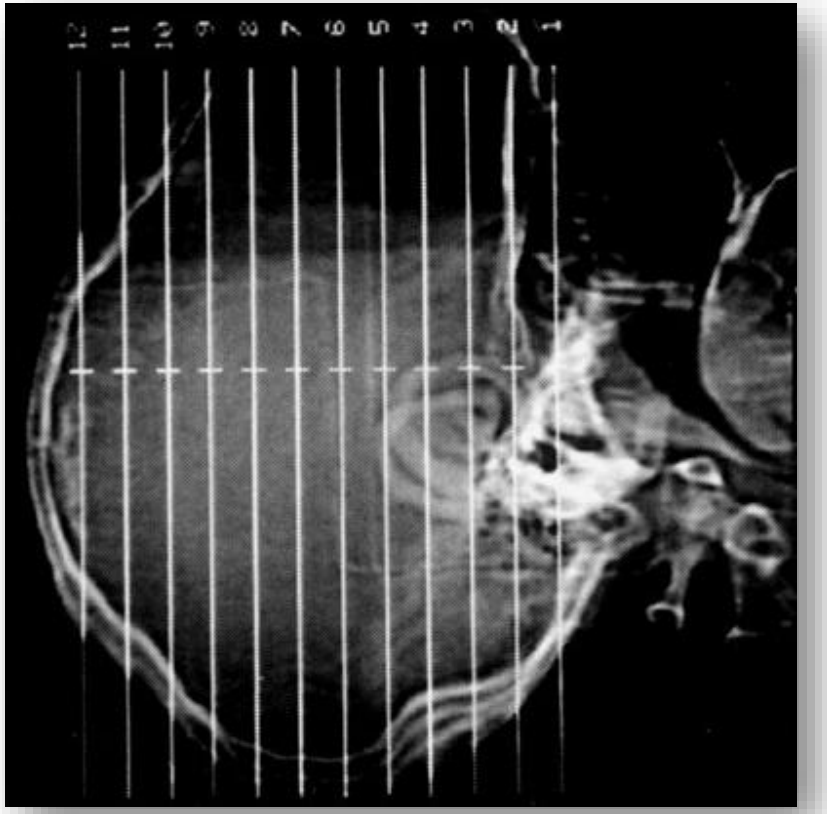
Section: 10

Diagnostics

COMPUTERIZED TOMOGRAPHY (CT)

Computerized Tomography (CT)

- Combines a series of X-ray images taken from different angles and uses a computer processor to create cross-sectional images of the body
- Variation in density of each tissue allows for a variable penetration of the x-rays (represented as variable shades of grey)
- Are more detailed than x-rays alone



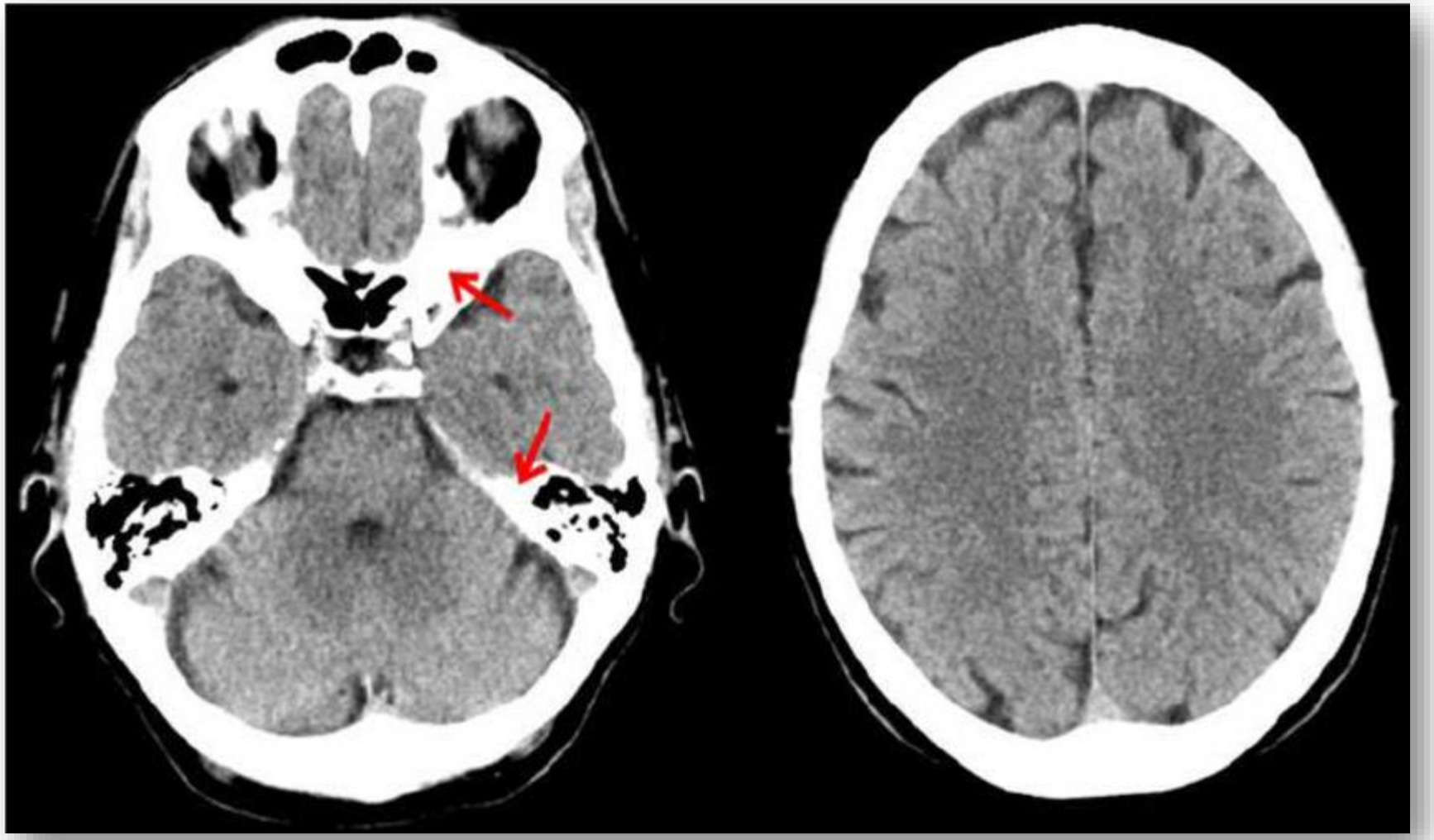
Computerized Tomography (CT)

- Has many uses:
  - Diagnose muscle and bone disorders, such as bone tumors and fractures
  - Pinpoint the location of a tumor, infection or blood clot
  - Guide procedures such as surgery, biopsy and radiation therapy
  - Detect and monitor diseases and conditions such as cancer, heart disease, lung nodules and liver masses
  - Monitor the effectiveness of certain treatments, such as cancer treatment
  - Detect internal injuries and internal bleeding

MEDAVIE HealthEd ÉduSanté

Computerized Tomography (CT)

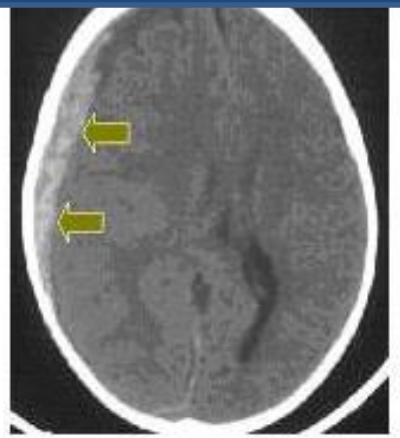
Normal Head CT



MEDAVIE HealthEd ÉduSanté

Abnormal Head CT Scans

Subdural Hemorrhage



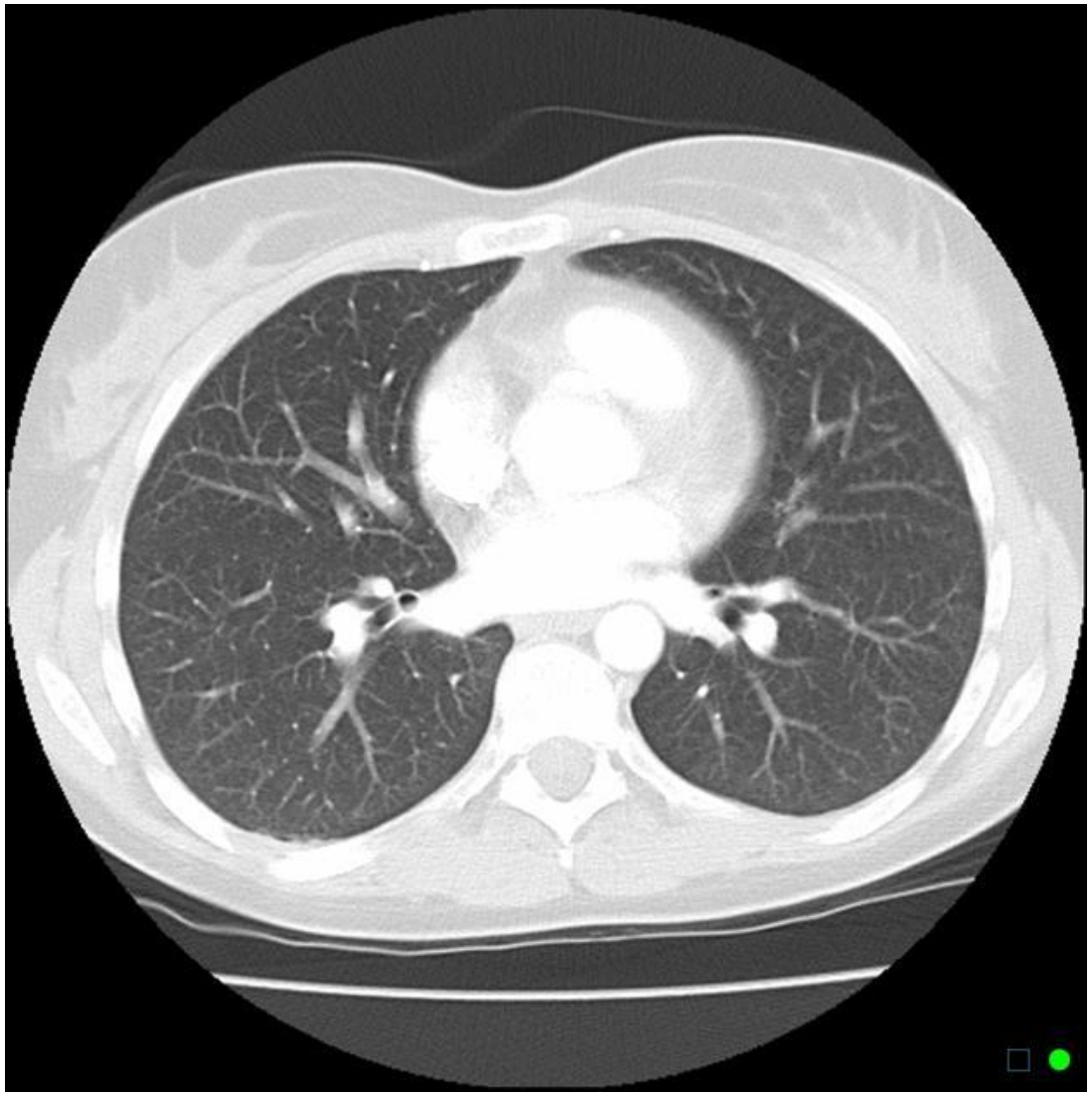
Epidural Hemorrhage

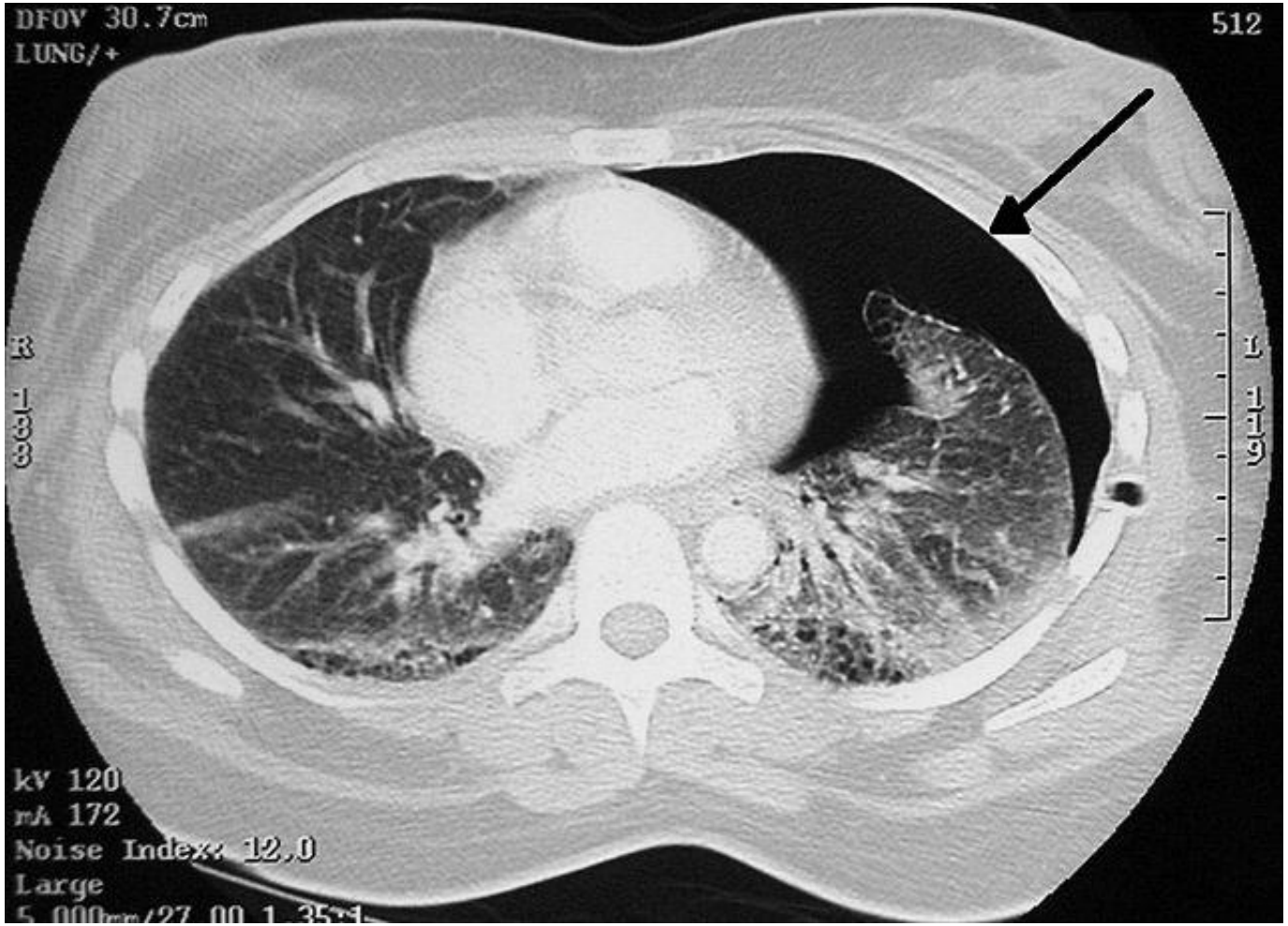
Hemorrhagic CVA

Subarachnoid Hemorrhage

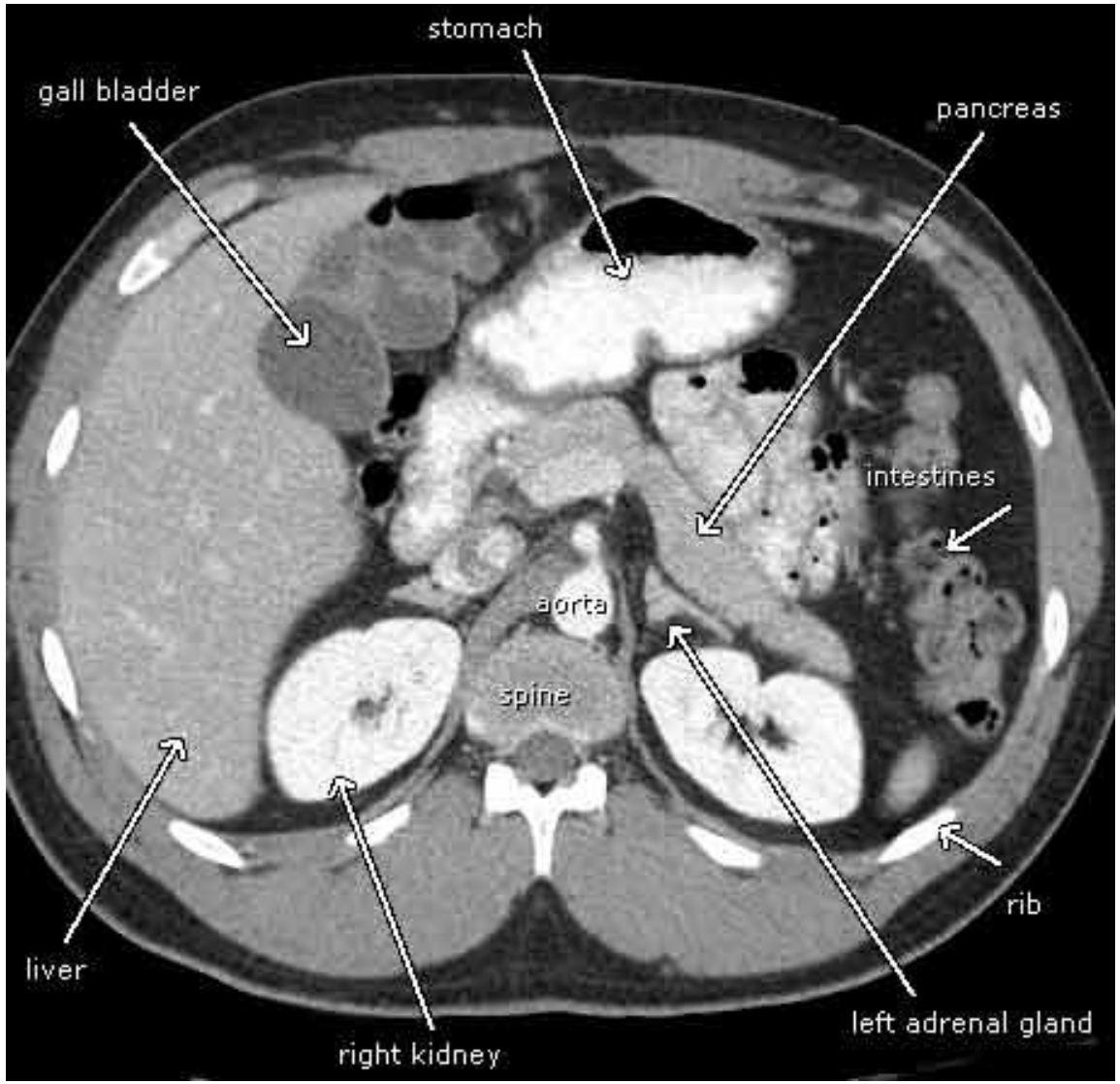
Ischemic CVA

Chest CT





Abdominal CT Scan



Diagnostics

MAGNETIC RESONANCE IMAGING (MRI)

MRI

- Uses strong magnetic fields and radio waves processed by a computer to provide pictures of the body and physiological processes
- Does not involve x-rays
- Concerns with patients that have pacemakers, metal implants, or clips because of the magnet (jewelry can be an issue as well)
  - Usually asked to remove it before entering the room

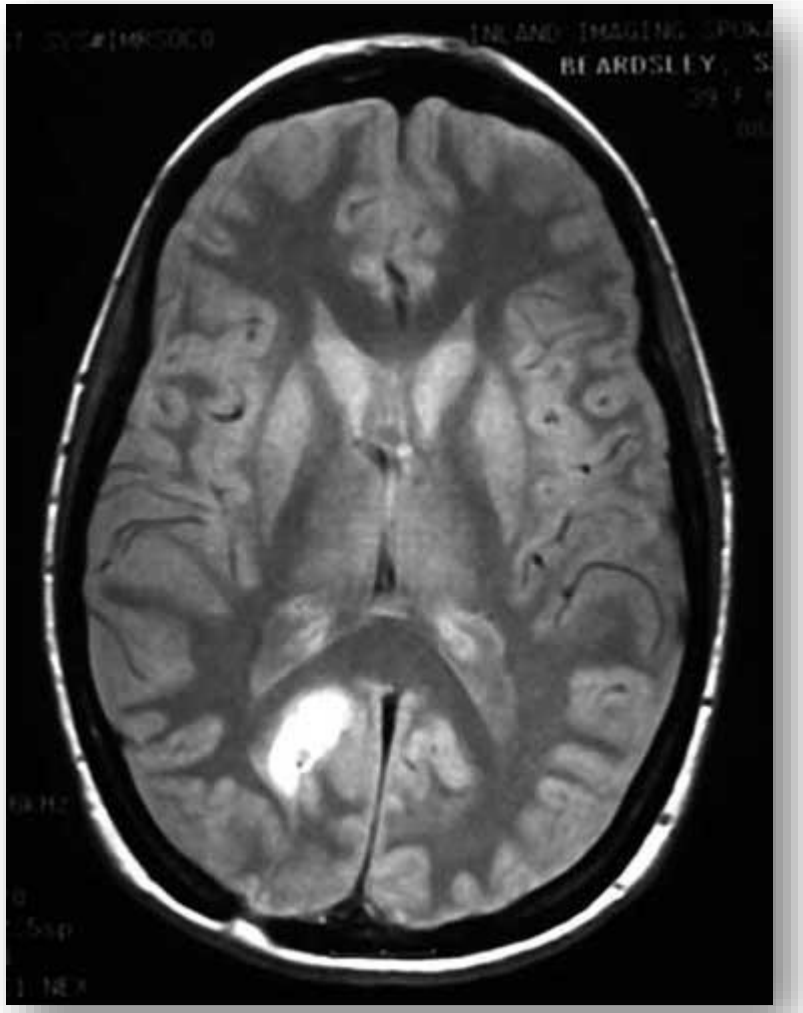
MRI

- Provides better visual contrast between normal and pathologic tissue
- Obscuring bone artifacts seen on CT do not occur on MRI
- Because rapid flowing blood appears dark, many blood vessels appear as dark lumens providing a natural contrast between other tissues and the vessels

MRI

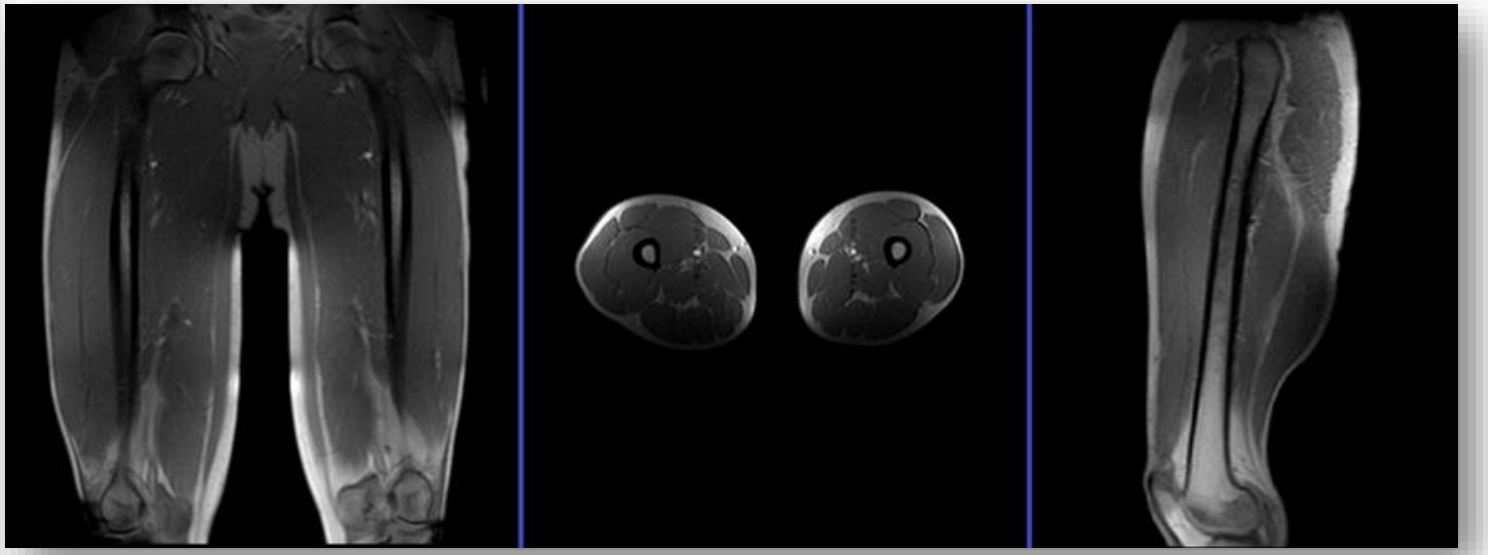
- Commonly used to evaluate:
  - CNS
  - Bony spine
  - Joints
  - Extremities
  - Breasts

CNS

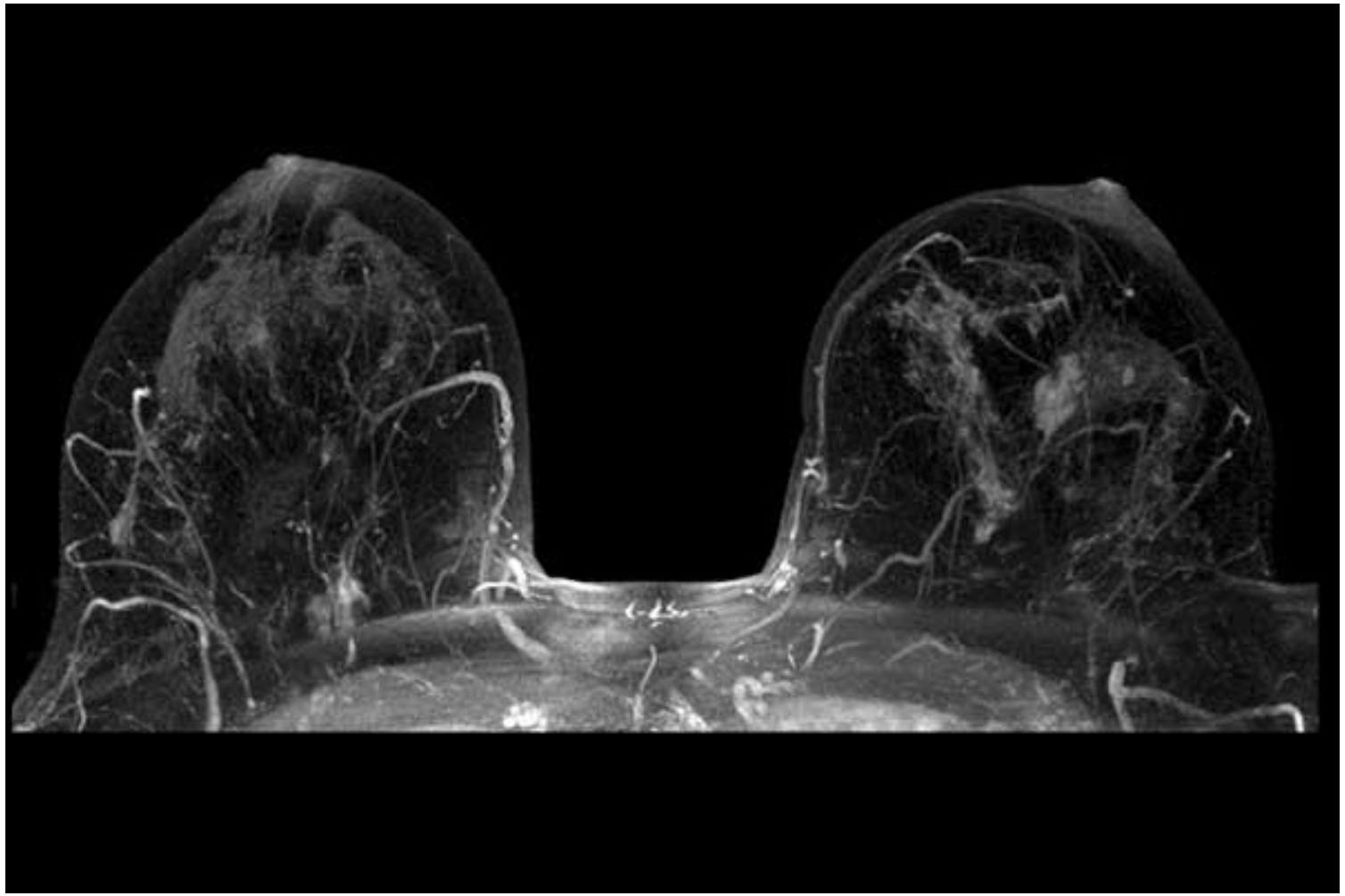


Neck and Spine

Joints and Extremities



Breasts



CT vs MRI

MEDAVIE HealthEd ÉduSanté

CT vs MRI