Al-Mustaqbal University
College of Health and Medical Technologies
Radiological Techniques Department

Magnetic Resonance Imaging

First Semester

Lecture 29 : MRI of the trauma and suspected fractures

By

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Introduction :

It's important to note that while **MRI** is **excellent for soft tissue and certain types of fractures**, it may not be always the first-line imaging modality in acute trauma cases. In cases of suspected fractures, x-rays are typically used as an initial screening tool, and MRI may follow to provide additional information or assess soft tissue injury.

Scientific Content:

The term trauma (plural: traumas) or traumatic injury refers **to damage or harm of sudden onset caused by external factors or forces requiring medical attention.** **Polytrauma or multiple traumas** has been defined as a **pattern of potentially life-threatening injuries involving at least two body regions.**

-MRI can nicely depict the soft tissues, including **the brain, the spinal cord, the muscles, tendons and ligaments, and the myocardium and the parenchyma of abdominal organs.**

Due to the long acquisition times, MRI is **rarely** used in the hyperacute or acute setting and it might be even **contraindicated** in penetrating injuries, in which there is suspicion of retained metallic foreign bodies, e.g. shrapnel.

However, it plays an important role in the workup of **spinal cord injuries as well as musculoskeletal injuries such as joints, muscles tendons and ligaments. It might be also indicated in specific brain injuries, pancreatic or bile duct injuries.**

-MRI Sequences

T1WI	Provides anatomical details and helps assess fractures.
T2WI	Highlights differences in tissue water content and is sensitive to soft tissue injuries, edema and inflammation.
GRE sequence	Sensitive to blood products and haemorrhage.
3D sequence	Assessing of complex fractures, joint injuries, and spinal trauma.
MRI+con	Enhancement the visibility of vascular injuries, such as arterial or venous injuries.