Imaging in Upper Extremity Trauma

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Upper extremity Injury is a common traumatic injury. The range of injuries can vary from simple sprains to life changing and debilitating injuries. The upper extremity is a complex piece of anatomy. It is made up of supporting nerves, arteries, and veins that support the muscles, ligament, tendons, and joints of the upper extremity. Upper extremity joints are not weight-bearing, but they do have complex anatomy to allow wide range of movement. High-velocity trauma now often results in complex injuries to the upper extremity. A complex injury is defined as a fracture and/or dislocation of the joint in association with possibly a serial injury of the upper extremity, a severe soft tissue trauma, or concomitant injury to vessels or nerves. Upper extremity injuries may also result from workplace accidents, or accidents at home. In sports, the number of upper extremity injuries are in total inferior to lower extremity injuries (30 and 50%), however, in certain disciplines the upper extremity injuries (overhead sports, contact sports) may dominate. Falls are a common cause of upper extremity trauma.

In this presentation imaging in upper extremity injuries will be discussed. Upper extremity injuries vary in presentation, and may occur on the basis of penetrating versus blunt trauma. Upper extremity injuries are a frequent cause of disability, both work-related as well as a cause of persistent pain. Regardless of the experience of the individual interpreting images in patients with upper extremity trauma, accurate detection and evaluation of musculoskeletal trauma is a challenge. Plain radiographs remain pivotal in the initial assessment of patients with a suspected fracture or dislocation. The radiographic approach should be tailored to the patient's history and physical examination. The possibility that an unusual or unexpected finding may represent a normal physical variant should always be considered. Routine use of comparison films of the contralateral, asymptomatic side is not appropriate, although this technique may be useful in selected cases in the evaluation of skeletally immature patients with a suspected physeal injury or when a normal variant is being considered.

This presentation reviews key diagnostic features of some commonly missed fractures and dislocations. The mechanism of injury, appearance of radiographic projections, plain film signs and advanced imaging techniques that are useful for further evaluation are discussed. The entire spectrum of upper extremity injury will be discussed, including overuse injuries. The pertinent anatomy of the upper extremity associated with injury is discussed in these selected cases. The

presentation reviews imaging findings, including CT and MR imaging where appropriate. It presents imaging strategies for diagnosing these injuries, also for subtle fractures.