29.3B: Fractures

A bone fracture is a medical condition in which there is damage to the continuity of a bone.

Learning Objectives

• Describe the different types of bone fractures

Key Points

• A spinal fracture is a fracture of the vertebral column. A compression fracture is the collapse of vertebrae, while a cervical fracture is a fracture of any of the vertebral bones in the neck.
• A rib fracture is a break or fracture in one or more of the bones making up the rib cage.
• A hip fracture is a fracture that occurs in the proximal end of the femur, near the hip.
• A clavicle fracture is a bone fracture in the clavicle, or collarbone.

Key Terms

• fracture: Damage to the continuity of a bone.

A bone fracture is a medical condition in which there is damage to the continuity of a bone. A bone fracture can be the result of high force impact or stress, or a minimal trauma injury as a result of certain medical conditions that weaken the bones, such as osteoporosis or bone cancer. Although broken bone and bone break are common colloquialisms for a bone fracture, “break” is not a formal orthopedic term. Fractures can occur in bones throughout the body.
Fractures of the Vertebral Column

A spinal fracture (or vertebral fracture) is a fracture affecting the bones of the spinal column. They can affect the cervical vertebrae (a cervical fracture), the thoracic, or the lumbar regions.

Compression Fractures

A compression fracture is a collapse of vertebra. It may be due to trauma or a weakening of the vertebra. This weakening is seen in patients with osteoporosis or osteogenesis imperfecta, lytic lesions from metastatic or primary tumors, or infection. In healthy patients, it is most often seen in individuals suffering extreme vertical shocks, such as ejecting from an ejection seat. Seen in lateral views in plain x-ray films, compression fractures of the spine characteristically appear as wedge deformities, with greater loss of height anteriorly than posteriorly and intact pedicles in the anteroposterior view.

Cervical Fractures

Vertebral fracture: Lateral spine X-ray showing osteoporotic wedge fractures of the spine.

A cervical fracture is commonly called a broken neck. There are seven cervical vertebrae (neck bones) in the human...
neck, and the fracture of any can be catastrophic. The most common causes are traffic accidents or diving into shallow water. Abnormal movement of bones or pieces of bone can cause spinal cord injury resulting in loss of sensation, paralysis, or death. Considerable force is needed to cause a cervical fracture. Motor vehicle collisions and falls are common causes. A severe, sudden twist to the neck or a severe blow to the head or neck area can cause a cervical fracture. Sports involving violent physical contact carry a risk of cervical fracture.

Rib Fracture

A rib fracture is a break or fracture in one or more of the bones making up the rib cage. Fractures of the first and second ribs may be more likely to be associated with head and facial injuries than other rib fractures. The middle ribs are the ones most commonly fractured. Fractures usually occur from direct blows or from indirect crushing injuries. A rib fracture has the complication of potentially causing a pulmonary contusion. Rib fractures are usually quite painful because the ribs have to move to allow for breathing. When several ribs are broken in several places a flail chest results, and the detached bone sections will move separately from the rest of the chest.

Hip Fracture

A hip fracture is a serious femoral fracture that occurs in the proximal end of the femur (the long bone running through the thigh), near the hip. The term “hip fracture” is commonly used to refer to four different fracture patterns and is often due to osteoporosis; in the vast majority of cases, a hip fracture is a fragility fracture due to a fall or minor trauma in someone with weakened osteoporotic bone. Most hip fractures in people with normal bone are the result of high-energy trauma such as car accidents, falling from heights, or sports injuries.

Clavicle Fracture

A clavicle fracture is a bone fracture in the clavicle, or collarbone. It is often caused by a fall onto an outstretched upper extremity, a fall onto a shoulder, or a direct blow to the clavicle. Many research projects are underway regarding the medical healing process of clavicle fractures.

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