Describing trauma

- Type

Complete: Transverse, Oblique, Spiral/Comminuted

Incomplete: Greenstick/Torus

Salter Harris: Growth Plate f#

- Where

Diaphysis, Metaphysis, Epiphysis

-Displacement

Angulation, Translation, Rotation

-Joint involvement?

Definitions

Open/Closed F#

Closed: Does no Break Skin

Open: Breaks Skin

Comminuited F#

Has 2 or more bony fragments separated from the bone

Non-comminuited F#

Through the bone from one cortical surface to another- separates the bone into 2 fragments

Avulson F#

A portion of bone is torn away by forceful muscle/tendon/ligamentous pulling

Impaction f#

Portion of bone is driven into the adjacent bone - two types, depressed and compression

Depressed: Inward bulging of an outer cortex

Compressed: Trabecular compaction resulting in decreased size of involved bone

Chip/corner f#

A type of avulsion fracture - seperation of a small chip of bone form the corner of a short tubular bone

Stress f# - Fatigue = F# caused by repetitive stress - microtraumas

Insufficiency f# stress f# through bone weakened by disease

Occult f# Clinical signs of f# without radiological evidence can show up within 7-10 days

Bone Bruise Trabecular micro f# with oedema and haemorrhage seen on MRI

Pseudo-f# Not a true f# - linear lucencies caused by metabolic disorders such as Osteomalacia, Rickets and Pagets

Incomplete f# Only one cortex broke, leaving a buckling/deformity - Greenstick f#

Greenstick f# - <10 years old - horizontal f# through the convex side of a long bone, concave side remains intact

Torus - Bulging of a cortex

Types of F#

Oblique: Across the shaft of a long bone @ 45 degree angle

Spiral: Torsion and compression - ends of the bones are sharp/pointed

Transverse: At a right angle to the shaft of a long bone - usually caused by bone weakened by disease

Spatial Relationships of f#

Alignment: Position distal fragment in relation to the proximal fragment - angulation + rotation

Apposition: Amount of bony contact at the fracture site

Traumatic Articular Lesions

Subluxation - Partial loss of contact between articular components of a joint

Dislocation Complete loss of contact between articular components of a joint

Diastasis Displacement or full separation of a syndemosis - most common @ pubic symphysis and distal tibio-fibular syndesmosis

Osteochondral Defect: F# at a joint surface that may involve only the cartilage and underlying bone

F# Complications

Immediate

Arterial Injury

Compartment Syndromes

Gas Gangrene

Fat embolism

Thromboembolism

Intermediate

Osteomyelitis

Hardware Failure

CRPS

Post-Traumatic osteolysis

Re-fracture

Synostosis (union/fusion of adjacent bones)

Delayed Union

Delayed Complications

Osteonecrosis

DJD

Osteoporosis

Non-union

Malunion

Salter-Harris

Type I Through the growth plate only

Type II: Seperates off a small portion of the metaphysis and then traverse along the growth plate

Type III: F# is through the growth plate then turns into the epiphysis - intraarticular f#

Type IV F# separates off a portion of the metaphysis and the epiphysis, also an intra-articular f#

Type V: Rare - Compression injury of epiphyseal plate - worst prognosis

Fractures and Dislocations

- Cx (**C4-C7** vertebral bodies most fractured) occurs with axial loading of the neck in flexion

- Compression f# - axial compression + forced flexion, usually below T6.

In elderly/osteoporotic patients, minimal trauma can cause these fracture, occurs at any level

Rule out conditions such as bony mets , multiple myeloma + Paget's

S&S

- Local spasm + swelling

Tenderness

Local flexion deformity can occur

Pain on percussion/vibration

Management:

Healing time = 8-10 weeks, longer in elderly

Refer to f# unit at hospital

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