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KARNATAKA RADIOLOGY EDUCATION PROGRAM



GREEN STICK FRACTURE AND ITS DIFFERENTIALS

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CLINICAL DETAILS

A 4-year-old little boy is suffering from pain in the arm after a fall. An X ray of the forearm is performed.

X RAY FOREARM

- ▶ The X ray reveals a central lucency running perpendicular to the bone cortex.
- ▶ Slight angulation of the radial diaphysis.
- ▶ The fracture involves one side of the radius and extends incompletely through the bone



DIAGNOSIS

▶ GREEN STICK FRACTURE

TORUS FRACTURE

- ▶ TORUS FRACTURE: also known as buckle fractures, are incomplete fractures of the shaft of a long bone that is characterized by bulging of the cortex. They are usually seen in children, frequently involving the distal radial metaphysis.
- ▶ FEATURES: distinct fracture lines are not seen
 - subtle deformity or buckle of the cortex may be evident (irregularity of cortex)
 - in some cases, angulation is the only diagnostic clue

BOWING FRACTURE

- ▶ Incomplete fractures of tubular long bones in pediatric patients (especially the radius and ulna) that often require no intervention and heal with remodeling.
- ▶ Radiographic features :

bowing of the bone can be visualized if view is in a different plane to the direction of bowing.

If the view is in the plane of the bow, the bone may appear completely normal

The bowing tends to be fluid and blend into the normal bone at either end.

There is no fracture line or visible cortical injury.

There is usually an accompanying fracture of a paired bone and this is usually diaphyseal .

In some cases, there may be dislocation of the paired bone

STRESS FRACTURE

Type of insufficiency fracture, is a term in general reserved for fractures occurring at the site of a focal bony abnormality.

Most common in adolescents

Positive findings can include:

- grey cortex sign: subtle loss of cortical density in early-stage stress injury
- increasing sclerosis or cortical thickening along the fracture site
- periosteal reaction/elevation
 - may take up to 2 weeks to be detectable
- fracture line

DISCUSSION

- ▶ Greenstick fractures are incomplete fractures of long bones and are usually seen in young children, more commonly less than 10 years of age. They are commonly mid-diaphyseal, affecting the forearm and lower leg
- Occur in tandem with angulation
- Incomplete fracture, with cortical breach of only one side of the bone

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THANK YOU