Radial neck fractures

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Classification
Closed Reduction

• Patterson maneuver: hold the elbow in extension and apply distal traction with the forearm supinated and pull the forearm into varus while applying direct pressure over the radial head.

• Israeli technique: pronate the supinated forearm while the elbow is flexed to 90° and direct pressure stabilizes the radial head.

• Elastic bandage technique: tight application of an elastic bandage beginning at the wrist continuing over the forearm and elbow may lead to spontaneous reduction.
Joy stick method
Arthrogram assisted
Unstable reduction

Trans capitellar K wire

Advance reduction K wire

Metazeau Technique
Case discussion
Rush rod
5 yr. old child with h/o fall
Joystick and arthrogram
TENS for stabilizing the radial head
Post operative X ray
1 yr. follow up
Radiographs at 1 yr.
Accetable Reduction:
- younger child:
  - < 10 deg of residual neck angulation will correct w/ growth;
  - up to 30 deg of residual angulation can be accepted;
  - angulation is > 30 deg
    - closed manipulative reduction or percutaneous pin to manipulate frx;
- age > than 10 yrs:
  - poor results w/ angulation > 30 deg, or translocation > 3 mm;
    - inability to reduce angulation < 45 deg, requires ORIF
      - crossed K-wire fixation of the proximal radius is preferred;
    - inability to pronate and supinate the forearm more than 60 deg, is another sign that the reduction is not adequate;
15 deg of angulation is acceptable; if passive supination and pronation is 60-70 deg in both directions:

- **reduction maneuver;**
  - elbow is completely extended & forearm is then fully supinated;
  - determine direction of displacement of radial head;
  - firm digital pressure is applied to achieve reduction;

- **displaced frx:**
  - may require open reduction;
  - closed manipulative reduction is attempted under GET
    - manipulation should achieve < 30 deg of angulation to be acceptable;
    - attempt reduction by applying a valgus stress and simultaneous direct manipulation w/ the surgeon's thumbs;
    - percutaneous K-wire manipulation may be attempted before resorting to open reduction;
      - pronating the forearm moves the posterior interosseous nerve away from the radial head;
  - note that the residual intact periosteum / capsule will provide some intrinsic fracture
Thank you