Supracondylar/ Intercondylar Humerus Fxs

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I. Incidence

1. 2-6% of all fxs & 30% of elbow fxs
2. Bimodal: Incidence of these injuries continues to rise
    a. Young: high energy trauma, good bone quality
    b. Elderly: low energy fall, fragility fx , typically highly comminuted

II. Anatomy

1. Complex anatomy
    a. triangular/ arch concept: 2 diverging columns supporting the articular bridge
    b. trochlear axis: valgus & externally rotated (carrying angle)
    c. trochlea has relative poor blood supply

III. Imaging

1. Plain films: standard AP & lat
    a. *Traction views* can be helpful
2. CT scan +/- 3D recon

IV. Classification

1. Extra-articular, Predominantly intra-articular, Predominantly articular
2. OTA classification

V. Operative Mgmt: GOAL= stable fixation to allow early mobility

1. Extra-articular: ORIF w/ posterior approach, no olecranon osteotomy
    a. paratricipital vs triceps-splitting
2. Intra-articular: ORIF w/ posterior approach with olecranon osteotomy
    a. +/- ulnar nerve transposition
    b. TEA reserved for inreconstructable injury, low demand elderly patient

    *** ORIF should only be undertaken by "experienced" surgeon
    - salvage surgery extremely difficult

VI. Fixation Technique:

1. 90-90 vs parallel plating
2. Technique as described by O'Driscoll
    Eight (8) Technical Objectives
3. Stable fixation through plate to allow mobilization

VII. Pitfalls

1. Placement of screws outside plate
2. K wire placement: can block screw placement into articular segment
3. Excessive soft tissue stripping

VIII. Complications

1. Neurological:
    a. ulnar nerve palsy: often neuropraxia, usually restored in few months
        * neuritis: hardware irritation or adhesions
    b. radial nerve: must be mindful with proximal extensile approach
2. Wound necrosis: utilize thick skin flaps
3. Stiffness: main complication
    a. prolonged immobilization d/t lack of confidence in fixation
    b. degree of soft tissue injury major factor: adhesions/ contractures
    c. heterotopic ossification
4. Nonunion/ Malunion