Nonoperative Proximal Humerus Fracture Rehabilitation Protocol

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Stable Proximal Humerus Fractures (impacted or minimally displaced 2-part fractures)

Phase I: Week 2-4 (Passive Range of Motion)

General Guidelines and Precautions:

- Sling immobilization at all times except therapy (home or clinic) and personal hygiene
- No active use of the involved arm
- NO rotation of the involved arm (internal or external)
- PAIN-FREE PROM– forward elevation max 90 degrees

Goals:

- Protect fracture site from movement to optimize healing environment
- Decrease risk for stiffness associated with immobilization
- Promote distal circulation of hand and forearm
- Educate patient about activity guidelines and rehab progression/expectation

Exercises:

- Active grip, wrist flexion/extension, forearm pronation/supination, elbow flexion/extension, scapular retraction/protraction as tolerated
- Small circle pendulum clockwise and counterclockwise
- Passive forward elevation to 90 degree maximum

Criteria to Progress to Phase II:

- Pain not increased with passive elevation to 90 degrees AND
- Clearance based on radiographic evidence of lack of fracture fragment displacement at 4-week radiographic assessment

Phase II: Weeks 4-6 (Active Range of Motion)

General Guidelines and Precautions:

- Remain in sling at all times other than PT (home or clinic) and personal hygiene
- No active motion or active use of the arm
- **PAIN-FREE** Passive elevation - max to 140; ER max to 40
- No internal rotation (vertebral or at 90).

Goals:

- Protect fracture site with immobilization to optimize healing environment
- Encourage motion in pain free range up to stated limits to prevent stiffness while healing in immobilization

Exercises:

- Passive forward elevation up to max 140 (supine well arm assisted; table top step back; table top supported

using well arm to slide)

- Passive external rotation with arm at neutral (alongside of body) up to max 40 (seated well arm assisted; supine cane assisted with arm supported into scapular plane)
- May begin aquatics for Basic UE program with slow speed of motions; avoid hook and rotate exercise and cross body adduction (hug yourself)
- Continue pendulum, elbow, wrist, hand and scapular retraction
- Ice after exercise.

Criteria to Progress to Phase III:

- Pain-free passive forward elevation to 140; ER to 40
- Clearance by MD based on evidence of early callus at 6 week radiograph assessment

Phase III: Weeks 6-12

General Guidelines and Precautions:

- Wean from sling gradually at home first, then in community
- Avoid lifting more than 5 lbs
- Avoid weight bearing on affected arm

Goals:

- Emphasis on restoring passive range of motion.
- Restore full passive motion of the glenohumeral joint first, then progress to active assisted, then active motion through the full range
- Restore functional use of the arm for ADL's below shoulder level (feeding, grooming…)
- Protect healing fracture from stress overload

Exercises:

- **PAIN-FREE** Passive range of motion without range limits for elevation, ER(0); ER(90) and IR toward full motion in all planes
- Continue aquatic program in all planes and may gradually increase speed of motion
- Forward elevation progression: supine active assisted, active, to incline, to vertical supported, to vertical unsupported (after full passive range is established)
- ER/IR AROM against gravity when full passive range is established
- Scapular protraction and retraction
- Active motion through short arc from balanced position and rhythmic stabilization in balanced position (90 deg elevation in supine)

Criteria to Progress to Phase IV:

- Per MD clearance based on demands of such, status of fracture healing, status of motion and strength – determined on a case by case basis

Phase IV: Weeks 12+

General Guidelines and Precautions:

- AROM to equal PROM for elevation with normalized mechanics and no pain against gravity (in vertical position) and also for ER at neutral and 90 degrees
- Strength to equal opposite UE in all major muscle groups
- Functional return to work/sport; GFR > 90%; DASH <10%

Goals:

- AROM to equal PROM for elevation with normalized mechanics and no pain against gravity (in vertical position) and also for ER at neutral and 90 degrees
- Strength to equal opposite UE in all major muscle groups
- Functional return to work/sport; GFR > 90%; DASH <10%

Exercises:

- Continue stretching to end range as tolerated in all planes until full motion is achieved if this has not already been accomplished
- Begin strength progression with light band/hand weight resistance for all major upper extremity muscles, including rotator cuff and scapular stabilizers
- Begin functional progression as needed specific to sport and work demands

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UNSTABLE Proximal Humerus Fracture Management:

The progression for unstable proximal humeral fractures differs in that these fractures require 4 weeks of complete shoulder immobilization in a sling, followed by initiation of the rehab process at Phase 2 if cleared following radiographic assessment.

- For **UNSTABLE** fractures
  - Phase 1 above is not included
  - Phase 2 covers weeks 4-8
  - Phase 3 covers weeks 8-12
  - Phase 4 is as above

KEY CLINICAL CONCEPTS

1. **Rehabilitation activities should not ever create a feeling of motion at the fracture site; any pain with rehab activities should be less than 3/10 and transient with resolution within one hour of such activity**
2. **Full passive motion should be restored in all planes prior to beginning the active assisted to active**
3. **Full active motion with good mechanics should be restored prior to strengthening exercises**