Advanced Orthopedics and Sports Medicine
Primary Total Shoulder Arthroplasty (RC deficient)
Treatment Guideline

Phase I: Immediate post Surgical Phase (IPSP) 0-4 weeks

Goals:

1. Maintain integrity of the repair (protect Subscapularis tendon and prevent dislocation)
2. Decrease pain and inflammation.
3. Gradually increase PROM.
4. Restore active range of motion of the elbow/wrist and hand.
5. ROM goals:
    a. week 2: 60 degrees forward flexion, 30 IR
    b. Wk 4: 90 forward flexion, 30 IR/10 ER

Precautions:

1. Maintain arm in brace, remove only for exercise and for dressing change
2. No lifting of objects.
3. No excessive shoulder extension (diamond zone of safety), no active internal rotation, no active/passive external rotation beyond neutral (line of the shoulder) for 4 weeks. No PT/OT or above movements for 6 weeks if fracture prosthesis.
4. No excessive and aggressive stretching or sudden movements.
5. No supporting body weight by hands (pushing up form bed/chair).
6. Keep incision clean and dry.
7. Ice 6-7 times daily (10-15 minutes each session).

Treatment Summary:

➢ **In-Hospital Physical and Occupational Therapy Guidelines: POD#1 – POD#3**

- Active and PROM to the hand and elbow.
- Pendulum exercises
- Passive elevation in the scapular plain – 90-100 degrees.
- Passive IR, No ER.
- Work on transfers if necessary
- ADLs.
- Review precautions with patient.
- Instruct in HEP.

➢ **Out-patient Physical Therapy: day 3 to 4 weeks**

1. Modalities: Cryotherapy, Electrical stimulation, Ultrasound as needed for pain relief.
2. Sleep in sling for 4-6 weeks, discontinue sling after 4-6 weeks
3. Manual Therapy: MFR as tolerated. Passive range of motion within protocol limits. Gentle mobs as tolerated for pain relief after 2-4 weeks
4. Shoulder passive range of motion exercises within range of motion goals include (but not limited to): Therapist assisted passive range of motion, seated forward flexion/abduction/ER, codmans pendulum, sawing/cradle rocks.
5. Neck range of motion/stretching includes (but not limited to): Active range of motion all directions, neck and shoulder rolls, stretching of the upper trapezius, levator scapula, sternocleidomastoid, scalenes.
6. Other joint exercises includes (but not limited to): Elbow and hand gripping exercises and range of motion exercises. Biceps tenodesis with surgery “solid” and can start gentle elbow ROM within tolerance, no resitance.

Criteria for progression:

1. Achieving passive range of motion goals
2. Pain and swelling within tolerance.

Phase II: Protection Phase (PP) 4-6 weeks

Goals:

1. Allow healing of soft tissue.
2. Decrease pain and inflammation.
3. Do not overstress healing tissue ((protect Subscapularis tendon and prevent dislocation)
4. Prevent muscular inhibition.
5. Gradually restore passive range of motion. 120 flexion, 75 abduction (scapular plane), 55 IR and 30 ER.
6. No excessive shoulder extension (diamond zone of safety), no active internal rotation.

Precautions:

1. No lifting objects
2. No supporting body weight with the hands, pushing up form bed/chair.
3. No sudden jerking movements.

Treatment Summary:

1. Modalities: Electrical stimulation, Ultrasound as needed for pain relief. Heat pre and cold post treatment.
2. MFR and gentle mobs as tolerated (for pain relief). Passive range of motion within protocol limits. Initiate rhythmic stabilization at 45º abduction, manual scapular re-education techniques.
3. Progress with shoulder passive range of motion exercises within range of motion goals (but not limited to): Therapist assisted passive range of motion, seated forward flexion/abduction/ER, codmans pendulum, sawing/cradle rocks.
4. Continue neck range of motion/stretching includes (but not limited to): Active range of motion all directions, neck and shoulder rolls, stretching of the upper trapezius, levator scapula, sternocleidomastoid, scalenes.
5. Initiate sub-maximal pain free Isometrics of the scapula and shoulder with elbow bent.
6. Initiate shoulder active assisted range of motion-AAROM (not but limited to): Pulley flexion/abduction and wand flexion/abduction/ER,and finger ladder. Gentle water based shoulder ROM exercises (with waterproof bandages).
7. Other joint exercises includes (but not limited to): Elbow and hand gripping exercises, isotonic elbow exercises and range of motion exercises.
8. Physician/physical therapist will determine when to discontinue the sling (at 4 or 6 weeks).

Criteria for progression:

1. Achieving passive range of motion goals.
2. Pain and swelling within tolerance.
3. Intact subscapularis without evidence of tendon pain or resisted internal rotation.

Phase III. Intermediate Phase (IP) 6-12 weeks

Goals:

1. Gradually restore shoulder passive range of motion to 130 forward flexion, 90 abduction, 40 degrees ER with arm at the side, 60 degrees of internal.
2. Reestablish dynamic shoulder stability. Teach compensatory shoulder mobility for arm elevation through scapular musculature..

Precautions:

1. No lifting anything heavier than a coffee mug.
2. No behind the back/hip motion.
3. Compensatory movements present secondary to deficient rotator cuff musculature.
4. Gradual strengthening only 3 times a week to prevent tendonitis.

Treatment Summary:

1. Progress on protection phase with Manual stretching, MFR, decrease modalities (PRN), progress with dynamic stabilization exercises (progress to overhead ranges of motion).
2. Manual: Use joint mobilization techniques for capsular restrictions, especially posterior capsule.
3. Initiate isotonic exercises AROM (but not limited to): sidelying ER, prone extensions, prone rows, prone horizontal abduction, prone flexion, overhead ball rolls, scaption (full can), lateral raises. Begin with close chain isometric strengthening (ER and abduction), start with elbow flexion and arm by side. Progress with intensity only if pain free at current level.

Criteria for Progression:

1. Passive range of motion of the shoulder within pain tolerance to set goals.
2. Shoulder active range of motion shoulder elevation without scapular hiking.
3. Pain within tolerance.
4. Good dynamic stability of the glenohumeral joint.

Phase IV: Advanced Strenghtening Phase (ASP) 3 to 12 months

Goals:

1. Maintain full non painful active range of motion.
2. Gradual restoration of shoulder strength, power and endurance.
3. Improve neuromuscular control and shoulder proprioception.
4. Enhance functional use of the upper extremity.
5. Gradual return to functional activities.
6. Home maintenance program: ROM exercises two times a day, strengthening exercises 3 times a week

Treatment Summary:

1. Progress on Intermediate phase with Manual stretching/strengthening, MFR (PRN), decrease modalities (PRN), progress with dynamic stabilization exercises (progress from isometric to isotonic, closed kinematic chain to open kinematic chain below 90 to overhead ranges of motion, single plane to combined movements), and isotonic exercises with weights.
2. Capsular stretching: Initiate shoulder stretching behind the back after 12 weeks.
3. PRE progression based on Holten curve (and patient response) or 1 lb if patient can do 3 sets of 15 with proper form and min-no pain: Progress on strengthening exercises: diagonal D1/D2 patterns, tubing exercises (progress IR/ER from 0º abduction to 45 º, slow to fast speeds), tubing/cable column functional patterns, rows, latissimus dorsi and lower trapezius pull downs, bear hugs, press ups (dips), and push ups.

Phase V: Return to Activity phase (RAP) 12-18 months

Goals:

1. Gradual return to strenuous work activities.

Treatment Summary:

1. Continue with exercise program at least 3 times a week.
2. Continue stretching if motion is tight.
3. Initiate and progress on swimming/tennis if appropriate
4. Remember Maximum improvement is achieved by 12 to 18 months.

Warning:

- Loss of motion
- Continued pain