Dublin Shoulder Institute

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Total Shoulder Arthroplasty/Hemiarthroplasty Protocol

Modified from the protocol developed at Boston Shoulder Institute by the Massachusetts General Hospital and Brigham & Women's Hospital Shoulder Services.

This protocol is intended as a guideline to the post-operative rehabilitation pathway for a patient who has undergone an anatomic total shoulder arthroplasty or a hemiarthroplasty. It is not intended as a substitute for a Chartered Physiotherapist's clinical decision-making regarding how their patient is progressing. Clinical exam findings, individual progress, and/or the presence of post-operative complications will determine progress through the pathway. . If there are any concerns as to how your patient is progressing, please contact Dublin Shoulder Institute.

Patients are discharged from hospital wearing a Shoulder Immobiliser (Don Joy Ultrasling III). Patients will attend for a 2 week post-op review before attending with their Chartered Physiotherapist.

Please see link for shoulder immobiliser below:

https://www.dublinshoulder.com/services/shoulder-surgery/

Progression to the next phase based on Clinical Criteria and/or Time Frames as appropriate.

Phase I – Immediate Post Surgical Phase:

Goals:

- Allow healing of soft tissue
- Maintain integrity of replaced joint
- Gradually increase passive range of motion (PROM) of shoulder; restore active range of motion (AROM) of elbow/wrist/hand
- Reduce pain and optimise healing process
- Reduce muscular inhibition
- Independent with activities of daily living (ADLs) with modifications while maintaining the integrity of the replaced joint.

Post-Operative Day 1 (POD1 - in hospital):

- Passive forward flexion in supine to tolerance
- Gentle ER in scapular plane with a limit of 30^{o} ER
  (**Attention:** DO NOT produce undue stress on the anterior joint capsule, particularly with shoulder in extension)
- Passive IR to chest
- Active distal extremity exercise (elbow, wrist, hand)
- Pendulum exercises
- Frequent use of ice for pain, swelling and inflammation management
- Patient education regarding proper positioning and joint protection techniques

Early Phase I (out of hospital):

- Continue above exercises
- Begin periscapular musculature isometrics / sets (primarily retraction)
- Continue active elbow ROM
- Continue use of ice for pain and inflammation management

Late Phase I:

- Continue previous exercises
- Continue to progress PROM as motion allows
- Begin assisted flexion, elevation in the plane of the scapula, ER, IR in the scapular plane
- Progress active distal extremity exercise to strengthening as appropriate

Precautions:

- Sling should be worn continuously for 4 weeks
- While lying supine, a small pillow or towel roll should be placed behind the elbow to avoid shoulder hyperextension / anterior capsule stretch / subscapularis stretch. **When lying supine patient should be instructed to always be able to visualize their elbow. This ensures they are not extending their shoulder past neutral. This should be maintained for 6-8 weeks post-operatively.**
- Avoid shoulder AROM.
- Limit passive ER to 30^{o} until 6 weeks post op.
- **NO** lifting of objects
- **NO** excessive shoulder motion behind back, especially into internal rotation (IR)
- **NO** excessive stretching or sudden movements (particularly external rotation (ER))
- **NO** supporting of body weight by hand on involved side
- Keep incision clean and dry (no soaking for 2 weeks)
- **NO** driving for 4 weeks (i.e. until shoulder immobilizer has been discontinued) Patients should then be instructed to try driving for the first time in their driveway or an empty car park and ensure that they can safely and comfortably control the car before getting back out on the road.

Criteria for progression to the next phase (II):

If the patient has not reached the below ROM, forceful stretching and mobilization/manipulation is not indicated. Continue gradual ROM and gentle mobilization (i.e. Grade I oscillations), while respecting soft tissue constraints.

- Tolerates PROM program
- Has achieved at least 90**°** PROM forward flexion and elevation in the scapular plane.
- Has achieved at least 30**°** PROM ER in plane of scapula
- Has achieved at least 70**°** PROM IR in plane of scapula measured at 30**°** of abduction

Phase II – Range of Motion, Scapular Strengthening Phase:

(Not to begin before 4-6 Weeks post-surgery to allow for appropriate soft tissue healing)

Goals:

- Restore full passive ROM
- Gradually restore active motion
- Control pain and inflammation
- Allow continue healing of soft tissue
- Do not over stress healing tissue
- Re-establish dynamic shoulder stability

Early Phase II:

- Continue with PROM, active assisted range of motion (AAROM)
- Begin active flexion, IR, ER, elevation in the plane of the scapula pain free ROM
- AAROM pulleys (flexion and elevation in the plane of the scapula) – as long as greater than 90° of PROM
- Begin shoulder sub-maximal pain-free shoulder isometrics in neutral
- Scapular strengthening exercises as appropriate
- Begin assisted horizontal adduction
- Gentle glenohumeral and scapulothoracic joint mobilizations as indicated (traction, scapular glides)
- Initiate glenohumeral and scapulothoracic rhythmic stabilization
- Use of ice for pain and inflammation, as needed.

Late Phase II:

- Progress scapular strengthening exercises

Precautions:

- Wean from sling at 4 weeks post-op
- While lying supine a small pillow or towel should be placed behind the elbow to avoid shoulder hyperextension / anterior capsule stretch
- In the presence of poor shoulder mechanics avoid repetitive shoulder AROM exercises/activity against gravity in standing.
- **NO** heavy lifting of objects (no heavier than coffee cup)
- **NO** supporting of body weight by hand on involved side
- **NO** sudden jerking motions

Criteria for progression to the next phase (III):

If the patient has not reached the below ROM, forceful stretching and mobilization/manipulation is not indicated. Continue gradual ROM and gentle mobilization (i.e. Grade I oscillations), while respecting soft tissue constraints.

- Tolerates P/AAROM, isometric program
- Has achieved at least 140° PROM forward flexion and elevation in the scapular plane.
- Has achieved at least 60+° PROM ER in plane of scapula
- Has achieved at least 70° PROM IR in plane of scapula measured at 30° of abduction
- Able to actively elevate shoulder against gravity with good mechanics to 100°

Phase III – Early Strengthening:

(Not to begin before 8 Weeks post-surgery to allow for appropriate soft tissue healing and to ensure adequate ROM)

Goals:

- Gradual restoration of shoulder strength, power, and endurance
- Optimize neuromuscular control
- Gradual return to functional activities with involved upper extremity

Early Phase III:

- Progress AROM exercise / activity as appropriate
- Advance PROM to stretching as appropriate
- Continue PROM as needed to maintain ROM
- Initiate assisted shoulder IR behind back stretch
- Resisted shoulder IR, ER in scapular plane
- Begin light functional activities
- Include Kinetic Chain exercises (where appropriate)
- Begin progressive supine active elevation strengthening (anterior deltoid) with light weights (0.5-1.5 kg) at variable degrees of elevation.

Late Phase III:

- Resisted flexion, elevation in the plane of the scapula, extension (use theraband/sport cords)
- Continue progressing IR, ER strengthening
- Progress IR stretch behind back from AAROM to AROM as ROM allows
  (Pay particular attention as to avoid stress on the anterior capsule.)

Precautions:

- **NO** heavy lifting of objects (no heavier than 3 kg.)
- **NO** sudden lifting or pushing activities
- **NO** sudden jerking motions

Criteria for progression to the next phase (IV):

If the patient has not reached the below ROM, forceful stretching and mobilization/manipulation is not indicated. Continue gradual ROM and gentle mobilization (i.e. Grade I oscillations), while respecting soft tissue constraints.

- Tolerates AA/AROM/strengthening
- Has achieved at least 140° AROM forward flexion and elevation in the scapular plane supine.

- Has achieved at least 60+° AROM ER in plane of scapula supine
- Has achieved at least 70° AROM IR in plane of scapula supine in 30° of abduction
- Able to actively elevate shoulder against gravity with good mechanics to at least 120°.

Note: (If above ROM are not met then patient is ready to progress if their ROM has plateaued and is consistent with outcomes for patients with the given underlying pathology).

Phase IV – Advanced Strengthening:

(Not to begin before 12 Weeks to allow for appropriate soft tissue healing and to ensure adequate ROM, and initial strength)

Goals:

- Maintain non-painful AROM
- Enhance functional use of upper extremity
- Improve muscular strength, power and endurance
- Gradual return to more advanced functional activities
- Progress weight bearing exercises as appropriate

Early Phase IV:

- **Typically patient is on a home exercise programme, to be performed 3-4 times per week.**
- Gradually progress strengthening programme
- Gradual return to moderately challenging functional activities.

Late Phase IV (Typically 4-6 months post-op):

- Return to recreational activities and hobbies (gardening, sports, golf, doubles tennis)

Precautions:

- Avoid exercise and functional activities that put stress on the anterior capsule and surrounding structures. (Example: no combined ER and abduction above 80° of abduction.)
- Ensure gradual progression of strengthening

Criteria for discharge from supervised physiotherapy:

- Patient able to maintain non-painful AROM
- Maximized functional use of upper extremity
- Maximized muscular strength, power, and endurance
- Patient has returned to advanced functional activities