ValleyOrtho Rehabilitation Playbook Series

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Surgical Procedure: Reverse Total Shoulder Arthroplasty (rTSA)
*The intent of this information is to inform the treating clinician on the evidence based considerations to be used as a guideline regarding the surgery noted above. This is not a substitute for appropriate clinical decision making but a supplement to that effect. If at any time a clinician feels uncertain about a given phase discrepancy or patient presentation they are strongly encouraged to discuss this with the referring physician and his/her team. *It is the responsibility of the therapist to read the operative report before providing care to the patient to improve treatment communication*.*

Therapeutic Activity Progression Disclaimer: Phase progression should be strongly based on meeting clinical criteria (not solely based on the post-operative timeframes) and in collaboration with the referring surgeon. Patient progress is variable and should be individualized while ROM restrictions provide upper limits, not absolute goals. Exercise prescription should be clinically directed by pain and performance absent of detrimental compensation with respect to altered arthrokinematics at the glenohumeral joint (GHJ).

Communication Recommendations from Therapist to Surgical Team: When a treating therapist feels the need to reach out to the physician, and his/her team, at any point for any reason they are strongly encouraged to do so. All concerns are not explicitly written and clinical judgement is paramount. Below is a handful of reasons and suggested methods of contact to promote communication:

Urgent Red Flag Communication: the patient is in clinic and an action is required as directed by referring staff office
- Uncontrollable and unremitting pain
- Signs of infection at incision or treated limb
- Severe palpation tenderness, swelling, tachycardia (UE or LE DVT)
- Labored breathing (PE)
- Drastic improvement or decline in ROM (failed subscapularis/component or dislocation concern)
- Excessive muscle guarding or motion phobia evident after the first 1-2 outpatient visits
- After a fall/trauma, or near fall/trauma, resulting in a clinical change

Preferred Contact Method: 1. Immediate call to MD or PA Cell. 2. Office phone call to request consult with MD/PA/MA/ATC until answer.

Administrative Needs
- Rehabilitation Prescription needed or prescription change requests.
- Appointment needed with the physician office, or medication refill.

Preferred Contact Method: Office phone call to MA/ATC.

Other Patient Concerns During Clinic Hours M-TH 9am-5pm F 9-3pm
- Abnormal pain, comorbidities or complications that may prevent attainment of established discharge criteria
- Patient is noncompliant with rehabilitation process
- Adverse work or home practices negatively impacting recovery
- Patient expresses discontent or concerns with the current POC established by PT/OT and/or by MD/PA

Preferred Contact Method: Phone call to MD &/or PA

Preferred Updates before checkup visits with MD
During Clinic Hours M-TH 9am-5pm F 9am-3pm
- Information regarding adherence/participation in rehab process
- Comments on progress and trends of the patient's rehab course

Preferred Contact Method: Phone call MD and/or PA. Or Fax update.

Phase 0: Post-op Healing & Inpatient Education (*Days 1 to 7*)

Goals:
- Ensure optimized healing environment, sling position, and postures
- Pain control, swelling control, exercises, precautions and ADL strategies understood by the patient
- Identify and discuss any clinical concerns of excessive muscle guarding to PROM or motion phobia after the first 1-2 outpatient visits with the physician

Precautions:
- Sling use only required during situations of fall risk (uncontrolled environments) and while sleeping for 4 weeks
- 6 week Restricted ROM: EXT to neutral in all positions, no combined EXT, ADD & IR due to increased dislocation risk
- Protect loading on subscapularis reattachment if involved
- No lifting, pushing, pulling or RROM with involved UE
- AROM encouraged but only anterior to the frontal plane below ≈100^0 elevation

Phase 0 Therapeutic Activities:
- GHJ protected PROM without tissue deformation of surgically involved tissue after complete resolution of interscalene block
- P/AA/AROM to restrictions as expressed in prescription
- Cervical, thoracic and scapular postural exercises for kinetic chain facilitation
- ADL safety strategies for UE/LE dressing, toileting, and showering
- Sling and cooling device don/doffing education and training

Criteria for Progression to Phase 1:
- Pain reduced at rest
- Discharge to home and outpatient services initiated
- Patient is able to return demonstration of precautions and self ROM

Progression Note:
- The patient should have a fuller understanding and appreciation of the recovery process at this point to ensure a more complete recovery

Phase 1: Healing & ROM Recovery (*weeks 1 to 4-6*)

Goals:
- Progressive improvement in P/AAROM with decreasing pain and inflammation
- Improve P/AAROM scapula-humeral disassociation
- Establish appropriate cardiovascular exercise program

Precautions:
- Continued sling use per phase 0
- Protect loading on subscapularis reattachment if involved
- Restricted P/AA/AROM progressions carried through from phase 0
- No RROM or uncontrolled active movements

Phase 1 Therapeutic Activities:
- Continue GHJ protected PROM without tissue deformation of surgically involved tissue
- AAROM (Respect subscapularis/lesser tuberosity healing if involved)
- Cervical, thoracic, and scapular manual treatment and postural exercises to promote healing environment and decrease potentially prolonged effects from the interscalene block
- Scar mobilizations on healed incision (approximately 2 weeks)
- Sub-max isometrics with NMES to deltoid and teres minor without pain increase from baseline

Criteria for Progression to Phase 2:
- Tolerates therapeutic progressions without undue discomfort, compensation or guarding. Good deltoid activation witnessed
- **PROM to Achieve without exceeding: (Flexion = 120^0) (Scaption = 100^0) (ER = 15^0)**

Progression Note:
- If the patient has not reached the above ROM criteria, forceful stretching and mobilization without respect for soft tissue restraints is not indicated in this phase. Continue with the current phase approach unless specific comorbidities create unattainable goals for phase progression, discuss this with the treating physician group before progressing to the next phase

Phase 2: ROM & Early strengthening (weeks 4 to *8*)

Goals:

- Restore full PROM & Initiate AROM program
- Do not over stress surgically involved healing tissue: goal is for mild tissue deformation focused activities

Precautions:

- Protect loading on subscapularis reattachment if involved until cleared by X-ray
- Restricted ROM until week 6: Limit extension to neutral in all positions, No IR ROM behind midline of body
- No CKC >10 percent body weight, RROM or uncontrolled active movements

Phase 2 Therapeutic Activities:

- AROM with associated NMES as needed
- Sub-max shoulder isometrics in scapular plane (No IR before appropriate healing is identified between weeks 4 and 6 if involved)
- Gentle GHJ and scapular PROM and mobilizations with respect to altered joint mechanics. Emphasis on rotational motion followed by elevation
- Non weight bearing rhythmic stabilization

Criteria for Progression to Phase 3:

- Tolerates therapeutic progressions without undue discomfort, compensation or guarding
- Minimal compensation with AROM observed
- **P/AAROM to Achieve without exceeding: (Flexion = 140^0) (Scaption = 130^0) (ER = 30^0)**

Progression Note:

- If the patient has not reached the above ROM criteria, forceful stretching and mobilization without respect for soft tissue restraints is not indicated in this phase. Continue with the current phase approach unless specific comorbidities create unattainable goals for phase progression, discuss this with the treating physician group before progressing to the next phase

Phase 3: AROM & Intermediate strengthening (*weeks 6 to 12*)

Goals:

- Gradual restoration of shoulder strength power and endurance
- Improve neuromuscular control: Scapula/Thoracic spine/GHJ
- Gradual return to ADL's with involved limb in front of body

Precautions:

- Risk of acromion stress fracture with rapid deltoid strength progressions
- No heavy lifting, jerking or sudden lifting / pushing
- Caution with ROM into low ranges of extension and IR behind body
- Lesser tuberosity healing assessed by X-ray determines progression of subscapularis activities if involved

Phase 3 Therapeutic Activities:

- GHJ protected PROM with moderate tissue deformation focused activity as necessary to maintain/gain ROM
- Slow progression of IR P/AA/AROM from Scapular plane to behind back
- Progress all other AROM activity as tolerated
- SLOW progression of RROM in scapular plane and CKC to 50% WB

Criteria for Progression to Phase 4:

- Tolerates AA>A>RROM without undue soreness demonstrating improving shoulder function with ADLs and ROM progress
- Patient able to activate and isolate all periscapular and deltoid musculature
- **AA/AROM to Achieve without exceeding: (Flexion = 140^0) (Scaption = 130^0) (ER = 45^0)**

Progression Note:

- If the patient is having difficulties attaining the above mentioned functional ROM at 12 weeks, more forceful short lever mobilizations and stretching with GHJ protection may be used with respect to the patient's pain tolerance at the discretion of the therapist
- Continue with the current phase approach unless specific comorbidities create unattainable goals for phase progression, discuss this with the treating physician group before progressing to the next phase
- If the patient hasn't made progress in ROM for 1.5 - 2 weeks and/or has persistent pain complaints beyond recovery expectations; Dr. Liotta requests more information to decide whether injections, surgical release or revision may need to be provided during the 12-16 week timeframe

Phase 4: Advanced strengthening and Final HEP (wk 12-D/C)

Goals:

- Maintain near full non-painful AROM
- Gradual return to more advanced functional activities
- Return to full duty work and recreational activity absent of forceful repetitive overhead tasks

Precautions:

- No sudden lifting or pushing activities
- Ensure gradual exercise and activity progression
- All ROM and weight bearing restrictions lifted on surgical extremity

Phase 4 Therapeutic Activities:

- Home program maintenance and progression education
- Return to work and recreation specific exercise

Criteria for Discharge / Expected Outcomes:

- Pain free AROM to 80% uninvolved extremity with normal mechanics
- Pain free muscle strength to 65% uninvolved extremity
  - ☐ Obtain clearance from surgical team before initial dynamometer test or manual muscle test
- Compliant with prescribed HEP and understanding of lifetime commitment to shoulder care

Progression Note:

- More forceful short lever mobilizations and stretching with GHJ protection may be used in this phase if the patient is having difficulties attaining the above mentioned functional ROM with respect to the patient's pain tolerance at the discretion of the therapist

Physician Alert

- If comorbidities create unattainable goals for discharge, discuss this with the treating physician group
- If the patient hasn't made progress in ROM for 1.5 - 2 weeks and/or has persistent pain complaints beyond recovery expectations; Dr. Liotta requests more information to decide whether injections, surgical release or revision may need to be provided during the 12-16 week timeframe

Abbreviation List:

AAROM: Active assisted range of motion
ABD: Abduction
ADD: Adduction
ADL: Activity of daily Living
AROM: Active range of motion
BT: Biceps tenodesis
BW: Body Weight
CKC: Closed kinetic chain
DVT: Deep vein thrombosis
ER: External rotation
EXT: Extension
FWB: Full weight bearing
GHJ: Gleno-humeral joint
HEP: Home exercise program
IR: Internal rotation
LE: Lower extremity
MA: Medical assistant
MD: Medical doctor
NWB: Non weight bearing
PA: Physician assistant
PE: Pulmonary embolism
PROM: Passive range of motion
ROM: Range of motion
RP: Resting position
RROM: Resisted range of motion
UE: Upper extremity
WB: Weight bearing
#: Pounds
≈: Approximately

References

1. Brigham and Women's Hospital Department of Rehabilitation Services, Reverse total shoulder protocol. http://www.brighamandwomens.org/Patients_Visitors/pcs/RehabilitationServices/Physical-Therapy-Standards-of-Care-and-Protocols/Shoulder_Reverse_TSA_protocol.pdf
2. Liotta, F. Expert Opinion and Consultation.
3. Massachusetts General Hospital, Physical therapy guidelines for Rehabilitation following shoulder arthroplasty with reversed prosthesis.http://www.mghphysicaltherapy.org/pt_pdfs/shoulder_guidelines/Reverse_Inverse_Arthroplasty_Guideline.pdf