SHOULDER ADHESIVE CAPSULITIS NON-OPERATIVE GUIDELINE

The following Non-operative Adhesive Capsulitis Guideline was developed by HSS Rehabilitation in order to assist with clinical decision-making to optimize patient outcomes and facilitate return to prior level of function. This guideline applies to individuals with primary adhesive capsulitis and is categorized into 4 stages. The stages are a continuum of the disease with early stages characterized by pain due to an inflammatory reaction and later stages characterized by a capsular contracture.

- Stage 1: Pre-adhesive - high irritability due to the inflammatory reaction, painful shoulder active/passive range of motion (A/PROM) with empty feel.
- Stage 2: Freezing - high to moderate irritability due to the inflammatory reaction and progressive capsular contracture, painful and limited shoulder A/PROM.
- Stage 3: Frozen - moderate to minimal irritability due to capsular contracture, stiff shoulder with pain at end ranges of A/PROM.
- Stage 4: Thawing - low irritability, improving shoulder A/PROM with minimal pain at end ranges.

The clinician should monitor stage, level of irritability, shoulder range of motion (ROM) and compensatory patterns to perform appropriate interventions. Although in many cases the condition will progress through all 4 stages, early recognition and treatment including physician consult for an ultrasound-guided intra-articular glenohumeral (GH) corticosteroid injection can significantly alter the duration of symptoms. An injection during the early stages can significantly improve the pain related to the inflammatory reaction and can prevent the advancement of the existing capsular contracture but not reverse it. There is no indication for steroid injection in stages 3 and 4 when the inflammatory reaction will have already resolved.

It is common for patients to present to physical therapy (PT) in stage 2. In early stage 2 the individual will likely present with an extremely painful shoulder, high irritability and progressive loss of pure GH external rotation (ER), elevation, and internal rotation (IR), whereas in late stage 2 the shoulder is less painful but stiffer as it transitions to stage 3. Given the typical longevity and nature of the condition, adjusting PT frequency and ongoing communication with the referring provider is warranted.

Adhesive capsulitis occurs in 2-5% of the general population with associated factors including: female sex, age over 40 years, history of adhesive capsulitis in the contralateral shoulder, as well as diagnoses of diabetes mellitus, cardiac disease, pulmonary disease, Parkinson's Disease, stroke, thyroid deficits, scleroderma, and Dupuytren's disease.

FOLLOW REFERRING PROVIDER'S MODIFICATIONS AS PRESCRIBED

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Stage 1: High Irritability/Pre-Adhesive

PRECAUTIONS

- Limit pain provoking activities and sudden movements
- Continue to use the arm for pain-free activities
- Monitor response to treatment to assist with differential diagnosis
- Following ultrasound-guided GH corticosteroid injection, follow up with PT to address presenting deficits

ASSESSMENT

- Quick Disabilities of the Arm, Shoulder and Hand Score (QuickDASH)
- American Shoulder and Elbow Surgeons Shoulder Score (ASES)
- Numeric Pain Rating Scale (NPRS)
- Shoulder Pain And Disability Index (SPADI)
- Nature and behavior of pain
- Current activity level
- Hand dominance
- Cervicothoracic screen
- Postural /scapular assessment
- Palpation
- AROM/PROM: shoulder complex versus GH
- Joint mobility
- Thoracic mobility
- Evaluation of soft tissue
- Strength testing: Manual muscle testing (MMT) and/or hand held dynamometer (HHD) within available ROM
- Special tests for differential diagnosis of intra-articular, extra-articular or rotator cuff pathology (see Biederwolf reference for testing algorithm)
- Activity limitations specifically pain during sleep, grooming, and reaching activities

TREATMENT RECOMMENDATIONS

- Consultation with referring physician regarding ultrasound-guided GH steroid injection
- Patient education
    - Nature of the condition and typical progression
    - Activity modification to decrease and/or limit pain
    - Postural awareness
    - Early recognition and treatment if occurrence in contralateral shoulder
    - Superficial heat or cold modalities for pain management and relaxation
- Gentle range of motion exercises, e.g. PROM in pain-free ranges, pendulums
- Postural exercises/re-training
- Manual therapy
    - Low grade joint mobilization for pain management
    - Pain-free, low intensity PROM / stretching
    - Scapular mobility
    - Gentle soft tissue mobilization as indicated
- Strengthening/stabilization in pain-free ranges
- Home exercise program (HEP): i.e. pendulums, scapular clocks, AAROM shoulder flexion and external rotation (ER), self-massage to shoulder and periscapular muscles, diaphragmatic breathing for pain management

CRITERIA FOR ADVANCEMENT TO STAGE 2

- Decreased pain and irritability
- Goal of stage 1 is early recognition and injection to resolve the condition and prevent progression through the remaining stages
- *If condition is not resolving, reconsider differential diagnosis*

EMPHASIZE

- Patient understanding of condition
- Symptom management
- Activity modification
- Early recognition and minimization of disease process
- Avoidance of secondary pathologies

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Stage 2: High-Moderate Irritability/Freezing

PRECAUTIONS

- Avoid pain provoking activities and sudden movements
- Continue to use the arm for pain-free activities
- Monitor response to treatment and capsular pattern
- Following ultrasound-guided GH corticosteroid injection, follow up with PT to address presenting deficits

ASSESSMENT

- Quick DASH
- ASES
- NPRS
- SPADI
- Nature and behavior of pain
- Current activity level
- Cervicothoracic screen
- Postural / scapular assessment
- Palpation
- AROM/PROM
- Joint mobility
- Evaluation of soft tissue
- Strength assessment within available range
- Special tests for differential diagnosis of intra-articular, extra-articular or rotator cuff pathology (see Biederwolf reference for testing algorithm)

TREATMENT RECOMMENDATIONS

- Consultation with referring provider regarding ultrasound-guided GH steroid injection
- Patient education
    - Nature of the condition and typical progression
    - Activity modification to decrease or avoid pain
    - Postural awareness
    - Early recognition and treatment if occurs in contralateral shoulder
    - Superficial heat or cold modalities for pain management and relaxation
- ROM exercise progression
    - Continue with PROM and stretching (i.e. pectoral stretch, thoracic spine foam rolling)
    - Active assisted range of motion (AAROM): shoulder flexion, ER, internal rotation (IR), abduction
- Manual therapy
    - Low grade joint mobilization for pain management and to address capsular restrictions
    - PROM within patient's tolerance
    - Soft tissue mobilization as indicated
- Strengthening/stabilization in pain-free ranges: i.e. rows, prone shoulder extension (I's)
- Postural exercises/ re-training
- Consider hydrotherapy
- HEP progression

CRITERIA FOR ADVANCEMENT TO STAGE 3

- Decreased pain and irritability
- Improving ROM
- *If condition is not resolving, reconsider differential diagnosis*

EMPHASIZE

- Patient understanding of condition
- Symptom management
- Minimizing loss of GH ROM
- Activity modification

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Stage 3: Moderate-Minimal Irritability/Frozen

PRECAUTIONS

- Monitor pain provoking activities and movements
- Limit painful exercises and activities

ASSESSMENT

- Quick DASH
- ASES
- NPRS
- SPADI
- Nature and behavior of pain
- Current activity level
- Cervicothoracic screen
- Postural / scapular assessment
- Palpation
- AROM/PROM
- Joint mobility
- Evaluation of soft tissue
- Strength testing within available range

TREATMENT RECOMMENDATIONS

- Patient education
    - Activity modification: encourage use of UE within available ROM limiting compensatory patterns
- Active warm-up/conditioning
- ROM exercise progression: limit compensatory patterns which may cause secondary pathology or increased irritation
    - P/AA/AROM as tolerated
    - Stretching into tissue resistance: i.e. sleeper stretch, posterior shoulder cross body stretch
    - Low load long duration stretching

- Manual therapy
    - Joint mobilization
    - Mobilization with movement
    - Stretching with increased duration
    - Soft tissue mobilization or referral to massage therapy if appropriate
- Neuromuscular re-education and progressive resistive exercises (PREs):
    - perform in pain-free ROM with optimal mechanics
    - i.e. scaption raises, rotator cuff isotonic exercises, pull downs with resistance band
- Postural exercises / re-training
- Hydrotherapy program progression
- HEP progression with emphasis on stretching and PREs

CRITERIA FOR ADVANCEMENT TO STAGE 4

- Minimal pain at end ranges of shoulder A/PROM
- Improving shoulder A/PROM with proper mechanics

EMPHASIZE

- Restoration of shoulder ROM with proper mechanics
- Promotion of pain-free activities of daily living (ADLs)
- Strengthening

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Stage 4: Low Irritability/Thawing

PRECAUTIONS

- Monitor pain provoking activities and movement
- Limit painful exercises and activities
- Avoid overtraining
- Monitor for secondary pathology

ASSESSMENT

- Quick DASH
- ASES
- NPRS
- SPADI
- Nature and behavior of pain
- Current activity level
- Cervicothoracic screen
- Postural / scapular assessment
- Palpation
- AROM/PROM
- Joint mobility
- Evaluation of soft tissue quality and flexibility
- Strength testing within available range

TREATMENT RECOMMENDATIONS

- Patient education
    - Activity modification
        - Encourage use of the upper extremity (UE) with proper mechanics
    - Promote independent management of condition
- Active warm-up/conditioning
- Progress ROM exercises
    - P/AA/AROM as tolerated
    - Stretching into tissue resistance: i.e. child's pose
    - Low load long duration stretching
- Manual therapy
    - Joint mobilization
    - Mobilization with movement

    - Stretching into tissue resistance and for increased duration
    - Soft tissue mobilization
- Progress neuromuscular re-education and PREs in pain-free range with optimal mechanics
    - i.e. shoulder proprioceptive neuromuscular facilitation (PNF) patterns
- Postural exercises/re-training
- Progress hydrotherapy program
- Progress HEP with emphasis on return previous level of function

CRITERIA FOR DISCHARGE (OR ADVANCEMENT TO RETURN TO SPORT PHASE IF APPLICABLE)

- Full shoulder range of motion with optimal mechanics
- Functional UE strength
- Pain- free ADLs
- Independent with HEP
- If returning to sport, consider collaboration with trainer, coach or performance specialist

EMPHASIZE

- Restoring shoulder ROM with proper mechanics
- Restoring shoulder strength
- Gradual return to previous level of function/activity with optimal mechanics

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Return to Sport (if applicable)

PRECAUTIONS

- Avoid overtraining
- Be sure to follow functional progressions
- Be certain to incorporate rest and recovery
- Monitor for loss of ROM/flexibility

ASSESSMENT

- Quick DASH including Sports Module
- ASES
- Sport-specific readiness
- Quality of movement during sport-specific activities
- Strength and cardiovascular endurance
- Overall fitness level
- Posture
- Cervical & thoracic mobility
- Soft tissue quality and flexibility
- Scapulothoracic coupling
- Objective tests, e.g., isokinetic testing or handheld dynamometry, Upper Extremity Star Excursion Test, Closed Kinetic Chain Upper Extremity Stability Test, Shot Put Test

TREATMENT RECOMMENDATIONS

- Humeral head control exercise progressions in a variety of overhead positions
- Isotonic exercise progressions to higher loads as indicated
- Sustained single arm holds with perturbations
- Plyometric drills: single arm sport-specific
- Closed kinetic chain UE progression exercises
- Increase endurance and activity tolerance
- Sport-specific multidirectional core retraining
- Initiation of sport specific overhead program
- Progress total body multidirectional motor control and strengthening exercises to meet sport-specific demands

- Advance HEP according to current phase
- Collaboration with trainer, coach or performance specialist

CRITERIA FOR RETURN TO SPORT

- Independent in appropriate return to sport program,
- Movement patterns, strength, flexibility, motion, power and accuracy meet demands of sport
- Pain free

EMPHASIZE

- Self-monitoring of volume of exercise
- Self-monitoring of load progressions
- Speed, accuracy, power and quality in sport-specific activities
- Full body training
- Collaboration with appropriate sports performance expert

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Created: 9/2019
Revised: 6/2020; 3/2022; 5/2024