

Patient Data	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6
Sex	M	M	M	M	M	F
Age	17	17	21	22	18	17
Height	Unavailable	5'9"	5'10"	5'11"	5'8"	5'5"
Weight	Unavailable	146	228	213	166	138
BMI	Unavailable	21.5	32.7	29.7	25.2	23
Hand dominance	Unavailable	Right	Unavailable	Ambidextrous	Right	Right
Injured shoulder	Right	Right	Right	Right	Left	Bilateral
Activity	Ice hockey	Collegiate tennis	Collegiate football	Collegiate wrestling/weightlifting	Ice hockey	Cheerleading
Symptoms	<ul style="list-style-type: none"> AC joint pain Popping and clicking at AC joint 	<ul style="list-style-type: none"> Popping and instability at AC joint 	<ul style="list-style-type: none"> AC joint pain 	<ul style="list-style-type: none"> AC joint pain (3/10), particularly with overhead activities, flies, and bench pressing Popping at AC joint with activities of daily living 	<ul style="list-style-type: none"> Painful clicking at anterolateral aspect Instability of shoulder "Vague AC joint symptoms" (3/10) 	<ul style="list-style-type: none"> Anterior shoulder pain, decrease in mobility, frequent painful popping (R,L) Intermittent hand paresthesia *
Prior present injuries	<ul style="list-style-type: none"> Grade III AC joint sprain, mid-season 	<ul style="list-style-type: none"> Subscapularis tear with flap, mild supraspinatus tearing, mild partial posterosuperior labral degeneration (debrided) 5 months prior 	<ul style="list-style-type: none"> Grade II AC joint sprain, 3 months prior 	<ul style="list-style-type: none"> Increased AC joint pain while performing bench pressing exercises, 2 months prior 	<ul style="list-style-type: none"> Hyperabduction, hyperextension type shoulder injury while skiing, 2.5 months prior 	<ul style="list-style-type: none"> Motor vehicle accident, 2 years prior
Physical examination	<ul style="list-style-type: none"> Unavailable 	<ul style="list-style-type: none"> Symptoms localized to AC joint 	<ul style="list-style-type: none"> Unavailable 	<ul style="list-style-type: none"> Tender over AC joint Cross-arm adduction (+) Popping elicited at AC joint when stressing rotator cuff Normal ROM Pain with arm behind back in extension and internal rotation Point and stress tenderness of supraspinatus No biceps, labral, or circumduction signs Tightness in posterior capsule Scapular dyskinesis Scapula assist (+) scapular retraction (+) tests 	<ul style="list-style-type: none"> Muscle strength intact, no weakness Shoulder rhythm normal, no rotation, or lag No increased external rotation Lift-off (-), bear-hug (-), belly-press (-) tests No biceps tenderness AC joint tenderness, cross-arm (+) O'Brien test was uncomfortable On load-shift, patient had increased posterior play and clicking No posterior apprehension Anterior apprehension slightly positive, but relocation maneuver does not reduce symptoms from the abduction and external rotation Mayo shear test (-) Scapular dyskinesis and tight posterior capsule 	<ul style="list-style-type: none"> 5/5 muscle strength * Tender to palpation at AC joint * FF = 120, ABD = 100, ER = 85, IR = 17, ER90 = 80, IR90 = 100 * Anterior pain with FF and ABD * Scapular winging with FF * Snapping in anterior shoulder with passive FF to 170 and ABD to 180 (R) Snapping with palm supinated, forearm pronated and slightly abducted, and forward elevation (R) Snapping eliminated when clavicle is pushed down on (R) Subtle paresthesia with sensation abnormal (R) Apprehension (+), Yergason (-), Speed's (+) (R)
Imaging	<ul style="list-style-type: none"> Plain Radiographs No fracture or dislocation, and AC joint at upper limits of normal 	<ul style="list-style-type: none"> MRI Evidence of prior surgery No findings to suggest labral or rotator cuff pathology AC joint has normal appearance 	<ul style="list-style-type: none"> Plain radiographs No fractures or dislocations Normal AC joint space 	<ul style="list-style-type: none"> MRI Partial 2-3 mm supraspinatus tear AC joint changes 	<ul style="list-style-type: none"> Plain radiographs, MRI Slight increased signal in the anterior aspect of the superior labrum, sublabral foramen Significant signal abnormality at the level of the AC joint, marrow edema Element of impingement on the rotator cuff tendon by the hypertrophied tissue on undersurface of AC joint Mild increased signal in supraspinatus with no evidence of full thickness tear or retraction of musculotendinous junction 	<ul style="list-style-type: none"> Plain radiographs * MRI (R,L) No acute abnormalities, but incidental cyst found in humeral head * Fluid in AC joint space * Increased proton density between thinned fibrocartilage disk and chondral surface of acromion

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Intraoperative findings	<ul style="list-style-type: none"> Second slip of the biceps tendon, reinforcing the superior capsule Buford complex with a cord-like middle glenohumeral ligament No labral tissue in the anterosuperior quadrant of glenoid Torn AC joint disk on the superior quadrant 	<ul style="list-style-type: none"> Subscapularis showed evidence of previous debridement Synovitis above the labrum in superior part of shoulder Prominence near clavicle, removed from inferior edge of AC joint Degenerative AC joint disk 	<ul style="list-style-type: none"> Superior labrum detached slightly at the biceps anchor Degenerative and torn AC joint disk 	<ul style="list-style-type: none"> Some delamination and tearing of biceps tendon (~15-25%) Synovitis on back of shoulder Insertion of supraspinatus had some delamination but otherwise looked normal Torn AC joint disk 	<ul style="list-style-type: none"> Superior labrum had cleft like appearance but extended over the top of the glenoid Cracking in posterior labrum Thickened and inflamed bursa Material of disk was slipping in and out of joint, torn AC joint disk End of clavicle looked like osteolysis 	<ul style="list-style-type: none"> Thickened bursa (R,L) AC joint disk had bucket-handle-like tear of the meniscus and could be subluxed in and out of the joint * AC joint disk had a tear in the center of it (L)
Treatment	<ul style="list-style-type: none"> Corticosteroid injection 	<ul style="list-style-type: none"> Corticosteroid injection Physical therapy Distal clavicle excision 	<ul style="list-style-type: none"> Corticosteroid injection Physical therapy SLAP lesion repair Distal clavicle excision 	<ul style="list-style-type: none"> Corticosteroid injection Physical therapy Aspiration Distal clavicle excision 	<ul style="list-style-type: none"> Corticosteroid injection Physical therapy Distal clavicle excision 	<ul style="list-style-type: none"> Tramadol * Ice and heat therapy * Physical therapy * Corticosteroid injection (L) Distal clavicle excision (R,L)
Duration of non-operative therapy	<ul style="list-style-type: none"> 2+ months during season, operated on after end of season 	<ul style="list-style-type: none"> 5 months of PT after first surgery 	<ul style="list-style-type: none"> 4 months post-injury, operated on after end of season 	<ul style="list-style-type: none"> 2+ months after increased symptoms 	<ul style="list-style-type: none"> 5 months post-injury 	<ul style="list-style-type: none"> 2-2.5 years post-injury
Follow-up/outcomes	<ul style="list-style-type: none"> 1 day: Unremarkable 15 days: No complaints, completing exercises below the 90° plane, full range of motion and strength, though slightly diminished on external rotation 	<ul style="list-style-type: none"> 7 months: Continued difficulty and pain with overhead serving and throwing. Reports limited mobility and strength. Has not done any real active PT because he has been traveling. On PE, has full active and passive ROM, no specific point tenderness, negative cross-arm and O'Brien's tests, sensations completely intact, S/5 muscle strength, preserved IR and ER, but slightly limited IR to 50° 	<ul style="list-style-type: none"> 1 day: Unremarkable 2 weeks: Unremarkable 6 weeks: No pain, strength improving, ROM normal 3 months: Full range of motion and strength, return to activities as tolerated 	<ul style="list-style-type: none"> 1 day: Unremarkable 2 weeks: Excellent ROM, no swelling 6 weeks: Full ROM, minimal pain, returned to performing push-ups, pull-ups, and strengthening activities 	<ul style="list-style-type: none"> 1 day: Unremarkable 2 weeks: Improved pain, full ROM 4 weeks: Feels "100% better," full ROM, no pain with cross-body adduction, minimal tenderness, returned to skating and puck handling 	<ul style="list-style-type: none"> 1 day: Unremarkable (R, L) 2 weeks: Excellent ROM, good strength * 6 weeks: "Normal," excellent ROM, some popping but not painful * 2 months: Full ROM, excellent strength, unable to reproduce popping (L) 1 year: Pressure like pain and popping that feels like it's subluxing, AC joint non-tender, full ROM, mild multidirectional glenohumeral instability (R,L)
AC: Acromioclavicular, BMI: Body mass index, MRI: Magnetic resonance imaging						