Conference
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Title
Persistent Anterior Shoulder Pain Following Shoulder Replacement

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Case History
A 55-year-old female with a history of right rotator cuff arthropathy and cervical fusion underwent a right reverse total shoulder arthroplasty (RTSA). Her shoulder pain initially improved after surgery; however, after 13 weeks (note: all dates are post-operative), she had worsening, sharp, anterior shoulder pain. She was referred to physiatry for evaluation of suspected conjoint tendonitis. At 5 months, the physiatrist performed a diagnostic and therapeutic ultrasound-guided corticosteroid injection, which instantly improved her pain. However, at 6 months, her anterior shoulder pain returned with worsening numbness and tingling in the fingers. There was no improvement with her home exercise program, dry needling, or stretching. Due to failure of conservative treatment, she was referred for further orthopedic management.

Physical Examination
As part of the orthopedic evaluation, physical exam of the operative upper limb prior to injection of the conjoint tendon was significant for limited range of motion, tenderness to palpation at the anterior shoulder, and pain with cross chest adduction. Immediately following the injection, she reported decreased anterior shoulder pain. However, 8 weeks later, she had pain with internal and external rotation and snapping along the conjoint tendon, prompting recommendation for conjoint tendon release.

Differential Diagnosis 1
Conjoint tendonitis

Differential Diagnosis 2
Biceps tendinopathy

Differential Diagnosis 3
Cervical radiculopathy

Differential Diagnosis 4
Suprascapular neuropathy

Differential Diagnosis 5
Periprosthetic joint infection

Tests & Results
X-ray of the shoulder performed 2 weeks postoperatively was negative for acute fracture or dislocation. Conjoint tendonitis was identified via ultrasound at the 5-month post-operative visit. Using an in-plane, transverse approach, a diagnostic conjoint tendon sheath corticosteroid injection was performed, resulting in immediate relief of pain.

Final/Working Diagnosis
Improvement in pain following the corticosteroid injection supports the diagnosis of conjoint tendonitis. Pain relief after the subsequent tendon release further confirmed this diagnosis.

Discussion
Conjoint tendonitis is a rare complication that can occur after RTSA and is thought to be caused by over-tensioning of the tendon during surgery. It can limit post-RTSA recovery if not diagnosed and treated. Although there is limited literature regarding the complication, tendon lengthening and release are two possible surgical solutions (Tashjian et al., 2020). This case report stresses the utility of ultrasound to obtain a dynamic view of the conjoint tendon and to perform a diagnostic and therapeutic injection, which assisted the surgeon in his decision to pursue a tendon release. Future studies should investigate additional avenues for optimizing functional status after a replacement.

Outcome
After conjoint tendon release, there was improvement in anterior shoulder pain and range of motion for 10 weeks; residual anterior shoulder pain was due to postoperative recovery.

Return to Activity and Follow-Up
The patient is currently engaging in range of motion exercises to improve her shoulder mobility as she gradually returns to her activities of daily living. Her anterior shoulder pain, which was initially caused by conjoint tendonitis, has significantly improved.