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Case Report: Elbow Plica in a High School Pitcher

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SUMMARY:

Lateral elbow pain is very common in both athletes and non-athletes. Lateral epicondylitis is a common diagnosis of lateral elbow pain. However, when elbow pain persists despite conservative treatment and physical therapy, other differentials must be considered. Elbow synovial fold syndrome may be clinically confused with epicondylitis, resulting in a delayed diagnosis and other treatment modalities. Here, we describe a case illustrating a hypertrophic elbow plica as a source of elbow pain in a 16 year old high level baseball pitcher.

CASE DESCRIPTION:

The patient is a 16 year old left hand dominant male with a past medical history of anxiety who is a high level left-handed baseball pitcher. He first presented with several weeks of nonspecific left elbow discomfort that had been gradually getting worse. He did not recall any specific injury to the elbow joint and stated onset was progressive. He previously complained about slight numbness around his elbow area that seemingly self-resolved. However, the day prior, towards the end of a throwing showcase for college he noticed sudden sharp pain just posterior to the lateral epicondyle of his elbow. He denied hearing or feeling a pop and the pain was non-radiating. He denied any previous history of major injuries or surgeries. He also denied receiving any formal treatments such as therapy or injections to the specific joint.

On exam he had no edema or ecchymosis of the left elbow. No tenderness was appreciated over the medial epicondyle, flexor pronator, or ulnar collateral ligament areas. He did have focal area tenderness at the posterior aspect of the lateral epicondyle near where the triceps tendon inserts laterally. Olecranon was non-tender. Full range of motion and strength was intact in all directions. He had pain with resisted supination, less so with pronation. Negative Tinel's at the medial elbow, negative Hook test, and negative Milking test. No gross signs of instability. A clinical diagnosis of left elbow posterolateral impingement involving the distal lateral triceps tendon was suspected. Physical therapy was recommended immediately since the patient had an important college throwing showcase in approximately three and a half weeks in Florida. A follow up appointment was scheduled for clinical evaluation.

On second presentation, four weeks later the patient denied any improvement in symptoms. He identified pain mainly in his lag and release phases of throwing with persistent pain at the posterolateral elbow area. He was also having recurrence of symptoms documented by his physical therapist. No new physical exam findings were noted. A MR Arthrogram of his left elbow was ordered to further evaluate the ulnar collateral ligament. Two weeks later, that patient presented on a third visit to review the results of the MR Arthrogram. Symptoms were constant with no new complaints. The results of the study were negative, demonstrating no ulnar collateral ligament tear. A mechanical problem rather than structural was thought to be the cause of his pain. Thus, a dynamic musculoskeletal (MSK) ultrasound study was ordered to be completed by a specific radiologic center in nearby Philadelphia for further evaluation of the joint space.

On the fourth visit, approximately eight weeks later, the results of the MSK ultrasound study were obtained and showed the source of pain to be impingement from a hypertrophic lateral elbow plica. Since the patient continued to have pain and other upcoming baseball throwing showcases, a consultation with an orthopaedic elbow surgeon was recommended to discuss any possible surgical intervention.

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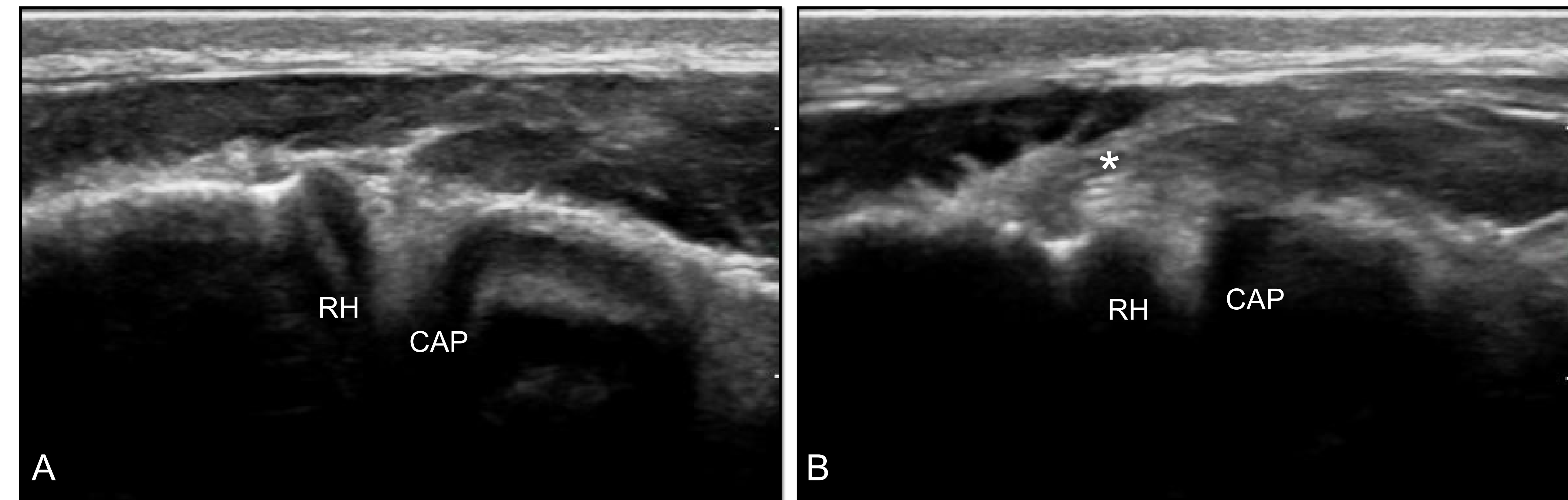


FIGURE 1

Longitudinal axis view of the left lateral posterior elbow joint using musculoskeletal ultrasound. (A) View of elbow flexion/extension without impingement. (B) View of elbow flexion/extension with impingement from a hypertrophic lateral elbow plica (asterisk). RH = Radial Head, CAP = Capitellum

DISCUSSION:

Elbow synovial fold syndrome, or plica syndrome, is an elbow condition common among younger athletes. Plicae are remnants of synovial tissue folds during articular embryological development. They have no function and are usually asymptomatic. Some authors have suggested that the synovial plica may act like 'eyelids' and aid in joint lubrication.³ Adult cadaveric studies show there may be up to four synovial plica or folds¹ within the elbow joint. The most commonly addressed plica in literature include the posterolateral fold of the radiohumeral joint and posterior fold in the olecranon recess adjacent to the aconeus muscle.⁴ Plicae often cause pain when they become inflamed or hypertrophy from direct trauma or other repetitive activities.

Classic symptoms for elbow plicae include pain with flexion and extension. Affected patients commonly describe feelings of "catching" or "snapping". Patients will also report elbow locking with extension movements. Swelling may or may not be present, while pain is typically localized to the lateral aspect of the elbow. A common misdiagnosis for lateral elbow pain is lateral epicondylitis. Ruch et al.⁵ found posterolateral plica at the radiocapitellar joint mimicking lateral epicondylitis and requiring arthroscopic management as a treatment option. Patients with elbow plica will often have recurrent symptoms over long periods of time. Conservative non-operative therapies include rest, non-steroidal anti-inflammatory medications and steroid injections. However, conservative therapies may fail to provide long-term symptomatic relief.⁶ Interestingly our patient did not display these characteristic findings until later but overall did well with conservative therapies.

When conservative therapies fail, surgical evaluations may need to be considered. Studies would suggest after arthroscopic resection and debridement of plicae, most patients report symptom improvement⁷. As early as 1988, Clarke⁸ was one of the first to describe synovial plica in the radiocapitellar compartment as a cause of posterolateral elbow impingement. He reported resolution of symptoms within 2 weeks after arthroscopic excision of the synovial plica in three separate cases. Antuna et al.⁹ showed 12 out of 14 patients had relief of their symptoms after excision of the plica and localized synovectomy. Literature suggest the size of the plica should be taken into account. Today, there is an overlap in size between symptomatic and asymptomatic plica in literature. For instance, Husarik et al.⁴ showed with 60 asymptomatic patients that most plica less than 3mm remain free of symptoms. However, in a study performed by Ruiz de Luzuriaga et al.¹⁰, they determined a statistically significant relationship between the presence of a plica thickness greater than 2.6mm and synovial fold syndrome. Before identifying abnormal elbow structures, appropriate imaging must be completed.

MRI is the preferred imaging modality of choice for chronic elbow pain. MRI can identify pathologic conditions such as bone marrow edema, tendinopathy, nerve entrapments, and joint effusions. Magnetic resonance arthrography may be selected in patients without an effusion to identify ligament tears, osteochondral defects or loose bodies. Musculoskeletal ultrasonography is more operator-dependent than MRI but allows for an inexpensive dynamic evaluation of commonly injured structures.¹¹ Interestingly, the MR arthrogram did not pick up the radiocapitellar plica with our patient instead the abnormal finding was identified on dynamic musculoskeletal ultrasound. Two studies done by Steinert et al.¹² and Kim et al.¹³ revealed positive hypertrophic plicae in MR Arthrograms with gadolinium-enhanced contrast in 67% and 75% of their patient panels, respectively. Suggesting, the absence of plicae in MRI analyses does not exclude their absence.