

Case Report: Complete Tear of The Common Flexor Tendon of The Elbow after Local Corticosteroid Infiltration in A Tennis Player

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1. Abstract

It is common in clinical practice to use corticosteroids locally to treat orthopedic conditions, due to their anti-inflammatory power, although it is also well recognized that this practice is related to an increased incidence of tendon ruptures. The reported case concerns a 53-year-old male patient who, during a tennis match, suffered a complete avulsion of the common flexor tendon and the ulnar collateral ligament (UCL) after local infiltration with corticosteroids. After the injury, the flexor muscles were reinserted and the UCL was repaired using a graft from the palmaris longus muscle tendon, resulting in excellent postoperative results.

2. Introduction

Corticosteroid injections are frequently used in orthopedic practice due to their anti-inflammatory properties, but their association with tendon rupture is often underestimated [1-5]. The literature reports several cases of tendon ruptures [1-3] related to local corticosteroid injections, with effects on the integrity and healing process of tendinous structures supported by in vivo and in vitro studies [3-5]. A case from our service illustrates clearly this potential complication related to the procedure and the successful functional outcome with

reinsertion of the flexor muscles and repair of the ulnar collateral ligament (LCU) using a palmaris longus tendon graft.

3. Case Report

A 53-year-old male, a competitive master player in the International Tennis Federation (ITF), presented with acute pain on the medial aspect of his elbow and loss of flexion strength after an intense tennis match with heavy balls. Magnetic resonance imaging (MRI) revealed tendinopathy of the common flexor tendon confirming the diagnosis of medial epicondylitis. After three weeks of physical therapy with minimal improvement, the patient, in consultation with his attending physician, opted for local injectable corticosteroid therapy (betamethasone dipropionate + betamethasone sodium phosphate - 5mg/mL + 2 mg/mL) administered radially. Following the procedure, the patient reported symptom relief and resumed his sports activities. Four months later, symptoms returned with greater intensity, leading to another radial injection in the medial epicondyle region. Seven days after this injection, during a semifinal match at a senior state tennis championship, the patient experienced acute pain while hitting a forehand shot, followed by inability to throw the ball, forcing him to withdraw from the competition. On clinical

examination, he presented with swelling and bruising on the medial aspect of the elbow, palpable crepitus compromising the entire medial and distal surface of the elbow. Valgus stress maneuver revealed medial gapping. Radiographs in anteroposterior view with valgus stress demonstrated medial gapping. MRI showed complete tendon avulsion and tear of the common flexor tendon, partial tears of the pronator teres, and high-grade tear of the ulnar collateral ligament complex (Figure 1). Eight days later, the patient underwent surgical treatment (Figure 2), revealing complete rupture of the musculotendinous junction of the flexor-pronator muscles at the medial epicondyle with 1.5 cm retraction of the muscle mass and anterior medial capsular rupture. The surgical procedure included medial collateral ligament reinsertion and reconstruction using the Jobe technique, utilizing a palmaris longus tendon graft harvested from the

ipsilateral side fixed at the medial epicondyle through transosseous tunnels and distally inserted at the coronoid tubercle, secured with a 2.9 mm Smith-Nephew biocomposite osteoraptor anchor, followed by capsular reinsertion and reinsertion of the pronator muscles (Figure 3). Postoperatively, the patient wore a cast for 45 days in 90 degrees flexion and the forearm in neutral rotation, then initiated physical therapy for range of motion (ROM) recovery. After 3 weeks of physical therapy, complete ROM was achieved, and gradual muscle strengthening began. The patient returned to sports activities only 5 months postoperatively and was cleared for competitive sports in the sixth month postoperatively after complete muscle recovery, achieving his first victory in a regional championship in the seventh month postoperatively. Currently, he remains asymptomatic and has returned to his pre-injury competitive level (Figure 4).

Figures File: Case Report: Complete Rupture of The Common Tendon of The Elbow Flexors After Local Corticosteroid Injection in A Tennis Player.



Figure 1. Proton Density Fat-Saturated (Pd Fs) Mri Images of The Elbow In Coronal Planes (A And B) And Axial Planes (C And D) Demonstrating Complete Avulsion Of The Common Flexor Tendon (Long Red Arrows), Partial Tear Of The Pronator Teres Muscle (Short Red Arrow), And High-Grade Tear Of The Ulnar Collateral Ligament Complex (*).

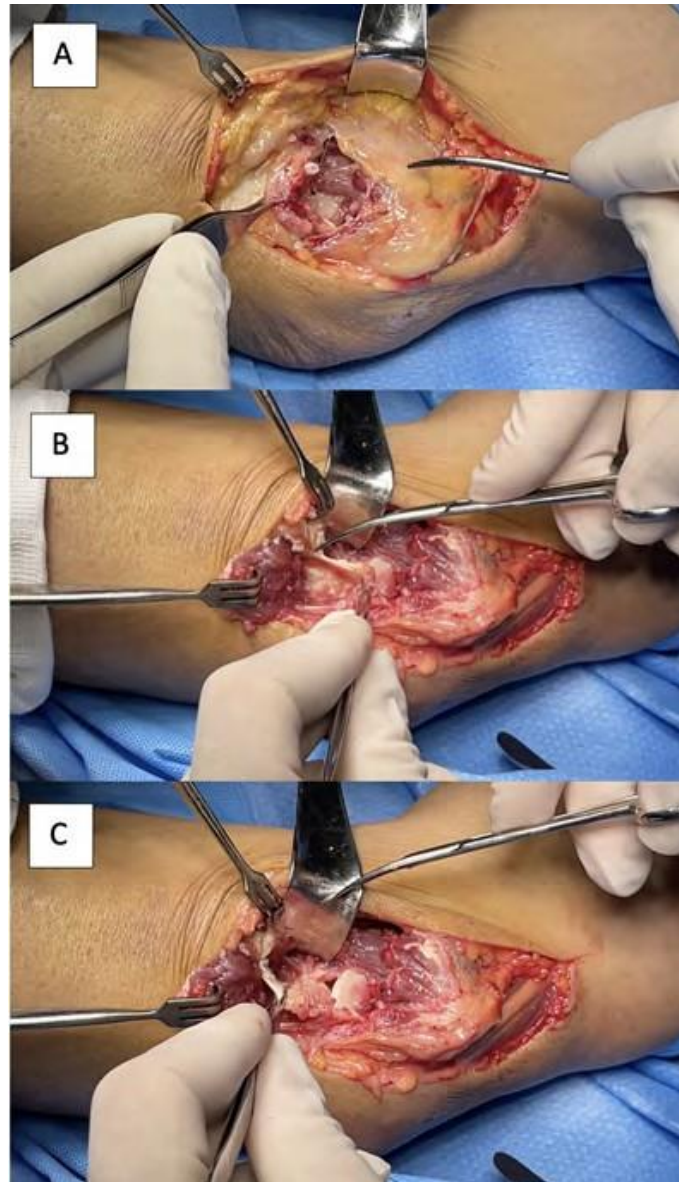


Figure 2 A: Rupture of The Common Flexor Tendon; B) Rupture of The Proximal Insertion of The Ulnar Complex; C) Proximal Rupture of The Anteromedial Capsule.

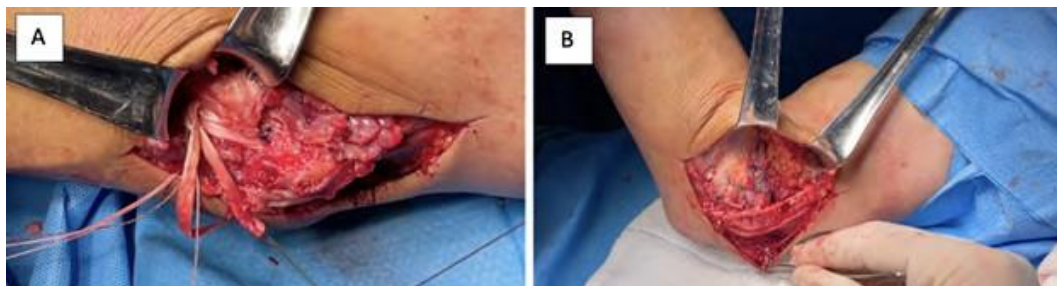


Figure 3 A: Reconstruction of The Medial Collateral Ligament with The Palmaris Longus Tendon; B) Common Flexor Tendon Reinsertion.

4. Discussion

Literature suggests that corticosteroid therapy, including systemic use [3], affects tensile strength and tendon tissue resistance, compromising its ability to regenerate after traumatic insult [4,5]. In vivo studies reveal that corticosteroids directly affect fibroblast population and collagen quality, and elevate tissue concentration of reactive oxygen species [4-6]. Besides pharmacological effects, intratendinous injection technique may contribute mechanically to structural integrity loss. In clinical practice, such procedures are common due to significant short-term symptom relief and relatively low complication rates [7] when performed correctly. Nonetheless, it is reasonable to presume that a diseased tendon under the influence of these drugs is at higher risk of rupture, necessitating adaptation or temporary cessation of activities during recovery. Surgical treatment for common flexor tendon pathologies is rarely indicated, only in 2.1% of patients in a North American population study [8], typically reserved for persistent pain after conservative therapies, athlete ruptures, or acute complete ruptures. The preferred technique involves tendon debridement followed by reinsertion, and in cases of insufficient tissue, autologous graft reconstruction may be considered [9,10]. Postoperative follow-up is crucial due to higher incidence of reruptures and healing failures, requiring extended rehabilitation before return to physical activities [10]. This case highlights the importance of appropriate indication, administration, and caution in managing corticosteroid injections, particularly the need for activity modification to prevent such complications.

References

1. Carpenito, Giacomo, Gutierrez, Marwin, Ravagnani, Viviana. for the Advanced Rheumatology Sonography (ARS) Group. Complete Rupture of Biceps Tendons After Corticosteroid Injection in Psoriatic Arthritis “Popeye Sign”: Role of Ultrasound. *Journal of Clinical Rheumatology*. 2011; 108.
2. Smith AG, Kosygan K, Williams H, Newman RJ. Common extensor tendon rupture following corticosteroid injection for lateral tendinosis of the elbow. *Br J Sports Med*. 1999; 33(6): 423-4.
3. You-Cheng Lin, Shyh-Jou Shieh, Extensor-pollicis-longus or -brevis tendon rupture after corticosteroid injection, *Formosan Journal of Surgery*. 2015; 15-19.
4. Nichols AW. Complications associated with the use of corticosteroids in the treatment of athletic injuries. *Clin J Sport Med*. 2005; 15(5): 370-5.
5. Knobloch K. Drug-Induced Tendon Disorders. *Adv Exp Med Biol*. 2016; 920: 229-38.
6. Juan Pablo Ramírez, Francesca Bonati-Richardson, María Pía García, Christian Hidalgo, Carroll Stoores, Rodrigo Liendo, Francisco Soza, Eduardo Landerer & Rodolfo Paredes: Intra-articular treatment with corticosteroids increases apoptosis in human rotator cuff tears, *Connective Tissue Research*. 2018.

7. Brooke K Coombes, Leanne Bisset, Bill Vicenzino. Efficacy and safety of corticosteroid injections and other injections for management of tendinopathy: a systematic review of randomised controlled trials. *Lancet*. 2010; 376: 1751-67.
8. Anthony J, Wiggins, Jourdan M, Cancienne, Christopher L, Camp, et al. Disease Burden of Medial Epicondylitis in the USA is Increasing: An Analysis of 19, 856 Patients from 2007 to 2014. *HSS Journal*. 2018; 14(3): 233-237.
9. Lech O, Pitágoras T, Barbosa J, Severo A. Reconstrução cirúrgica das lesões ligamentares agudas do cotovelo. *Rev Bras Ortop*. 1998; 33: 945-950.
10. Azar FM, Andrews JR, Wilk KE, Groh D. Operative treatment of ulnar collateral ligament injuries of the elbow in athletes. *Am J Sports Med*. 2000; 28(1): 16-23.