Case Report

Posterolateral Rotatory Instability from Multiple Steroids Injections for Tennis Elbow: A Case Report

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This article reports the complication (lateral collateral ligament rupture) arising from improper numbers of steroids injections for the chronic lateral elbow pain (tennis elbow). Clinical sign and investigation with MRI confirmed a diagnosis of LCL rupture. In the present report, we describe the successful outcome of one year results in surgical debridement and lateral collateral ligament (LCL) reconstruction. A discussion of the proper conservative role for the chronic lateral epicondyalgia and the surgical decision to resolve this complication is also included.

Keywords: *Tennis elbow, Posterolateral rotatory instability, Unstable elbow, Iatrogenic tendon rupture, LCL reconstruction*

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Lateral epicondylitis (tennis elbow), one of common conditions found in practice, resolves in more than 80% of the cases within the first year. The multiparameter conservative treatment plays a major role in this situation.

Steroids injections are a common practice to treat tennis elbow. The major benefit is a rapid resolve in pain, which persists for a couple months, but in the long term the benefits are inconclusive[1,2]. Amount and frequency of injection are still a mater of controversy. It has been suggested that injections should be repeated not over two times with two to three months interval between shots. Several steroid injection complications have been reported, ranging from a mild local complication such as fatty atrophy or skin de-pigmentation up to severe as steroids crystal induced arthritis or even infection[3-5]. The side effects of steroids on tendon- and ligament-strength and structural deterioration have been report in basic study and clinical studies[6,7].

The authors report here an uncommon complication arising from multiple repeated steroid injections inducing lateral collateral ligament insufficiency, which in this patient required ligament reconstruction to resolve the pain problem.

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Case Report

A forty-two-years old female, left hand dominant working as laborer, was referred due to the unsuccessful conservative treatment of a tennis elbow. She has been experiencing lateral elbow pain for 2 years. Her pain presented as a dull aching pain when she work (forceful grip the object), and later on becoming a severe pain persisting in the night time. She denies any snapping sensation during motion or numbness. She denies any significant injury in her elbow. She was treated with NSAIDs and physiotherapy as a primary treatment. Eighteen months before, the symptom exacerbated so the primary physician gave her an injection of steroids. After the earlier injection, the symptoms resolved for 1-2 months. But after subsequent injections, the clinical signs reappeared after 2-3 weeks. In total she was injected with steroids over her lateral epicondyle on her right elbow 9 times in 18 months. Later on, she was pain when she pushes herself on the arm raise

Physical examination at her elbow revealed fat atrophy around the lateral epicondyle area. Elbow range of motion was 5 degrees of extension and flexion 140 degrees with full pronation and supination. Special tests for tennis elbow were positive (point of tenderness, tennis elbow shear test, and Cozen's test all were positive, flexion-pronation test for plica condition was negative). Neither the resistive extend

long finger nor the active resistive supination when elbow was extended produced pain. Laxity tests all were negative (valgus and varus stress test, Posterolateral drawer test). Provocative for posterolateral rotatory instability test was positive (lateral pivot shift test, arm raise test and push up test). When evaluating her with Mayo performance score, her score was 65. Her investigation, plain film x-ray was within normal limit, her MRI show evidence of extensor tendon and LCL signal change as shown in Fig. 1.

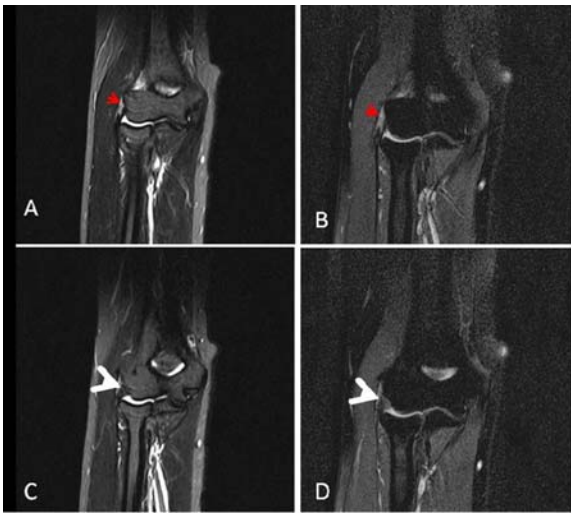

Fig. 1 T1 and T2 Coronal view of right elbow (A-B) Disruption of extensor tendon from lateral epicondyle (red arrows). (C-D) Change in the signal intensity in lateral collateral ligament and disruption in proximal (white arrows)

Surgical technique

The causes of pain could result from lateral epicondylitis and instability on her elbow due to LCL rupture (clinical sign and investigation results). A treatment of LCL reconstruction and debridement of ECRB origin were decided. The detail of surgical technique has been described elsewhere[8]. Briefly, a skin incision proximal and distal 2-3 cm from lateral epicondyle in a Kocher skin incision fashion was used.

The deep fascia was split and the Anconeus-Extensor carpi ulnaris interval was created. A high speed burr, 3mm diameter, was used to create bone tunnels, one near the tubercle on the supinator crest and the other 1.25 cm proximally. The two holes were connected. After identifying the isometric point at the lateral epicondyle area, 4 mm burr was used to create an entry tunnel for the tendon graft. Two 3-mm holes on each side of the supracondylar ridge were drilled proximately 1.5 cm, the tunnels were created to connect the graft entry hole and to each other. A 14 cm Palmaris longus tendon was harvested from the ipsilateral forearm and passes through the bone tunnel and tied to each other on the supracondylar ridge (Fig. 2). The position to set graft tension was 40 degree flexion and pronation, the capsule closed under the graft to prevent the graft rubbing on bone.

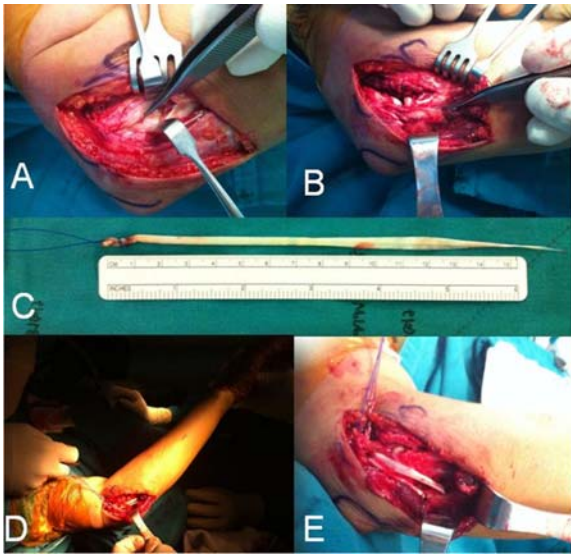

Fig. 2 (A) Extensor origin (B) LCL attenuation was found (C) ipsilateral Palmaris longus graft (D, E) Graft tension and lay down on soft tissue

Post-operative

The authors immobilized the arm in forty degree of flexion and mid pronation position with a posterior long arm slab. After wound care, the skin stitches were removed. A long arm cast was applied for three weeks. Four weeks after, the long arm slab was used again so she could remove the slab and she started training range of motion exercises two times a day. After sixth week the immobilized was complete removed. The authors cautious her not to let her elbow in varus strain position (e.g. Thai style bathing, pour water from jar) for three months. Indomethacin 75 mg/day was prescribed for prevent heterotropic ossification.

Results

Sixth weeks after removing the slab, her active ROM was 110 degrees for flexion and minus ten degree for extension. The VAS was 1-2 without any resting pain. The Cozen's test was negative. Three months post operative her ROM was fully recovered and Mayo elbow functional score was excellent (100). Reverse

pivot shift and arm raise test were all negative.

By twelve months follow-up, the VAS was zero, Mayo elbow functional score was excellent and the quick DASH score was 6.8. Her hand grip strength in elbow extension position was 95% of the strength of the unaffected limb (Rt. 20 kg/Lt. 21 kg).

Discussion

Conservative treatment for tennis elbow with steroids injection from the evidence-based treatment benefit in short term but not in the long term[1,2]. A universally accepted regimen for the most efficient and safe treatment still not exist. Excessive multiple doses and short interval between doses of injection should be used with caution. The wait-and-see protocol or physiotherapy protocol shows the efficacy in the long term results[1,2]. The failure of prolonged periods in conservative treatment should be a guideline as an indication for surgical intervention. As evidence of serious complication like LCL rupture was existed[15], the decision to avoid abuse of steroids injection, a change in the method to treat recalcitrant tennis elbow should be emphasized. The surgical treatment of recalcitrant tennis elbow show promising results both with open or arthroscopic techniques[9-14]. The advantage of the arthroscopic technique is that enables the surgeon to explore others causes of elbow pain with the minimal invasive for the fast return to daily activity[11-14].

The decisions to use ligament reconstruction in this patient were based on history of multiple steroid injection with clinical signs of instability (pivot shift test and arm raise test) and were confirmed with MRI finding showing evidence of LCL incompetent included with the finding of LCL attenuation in the surgical field. Although the laxity test could not be performed, the authors believe that the ligament was in a deboning stage. Kalainov et al, show successful results of ligament reconstruction in patients where no positive varus stress test in examination or under fluoroscope could be demonstrated[15].

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Potential conflicts of interest

None.

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รายงานผู้ป่วยภาวะ posterolateral rotatory instability แทรกซ้อนจากการฉีดยาเสตียรอยด์สำหรับการรักษาภาวะข้อศอกเจ็บด้านข้างเรื้อรัง (tennis elbow)

ชลวิช จันทร์ลลิต, วโรดม ลิ้มศรีเจริญ

รายงานภาวะแทรกซ้อน lateral collateral ligament บริเวณข้อศอก เกิดฉีกขาดจากการฉีดยาเสตียรอยด์หลายครั้งเพื่อรักษาภาวะข้อศอกเจ็บด้านข้างเรื้อรัง (tennis elbow) โดยอาการทางคลินิกและผลภาพถ่าย MRI แสดงภาวะขาดของเส้นเอ็นนี้ซึ่งผู้นิพนธ์ได้รายงานผลระยะหนึ่งปีในการรักษาภาวะนี้โดยการผ่าตัดสร้างเอ็นปะกับด้านข้างของข้อศอก อีกทั้งได้อภิปรายแนวทางที่เหมาะสมสำหรับการรักษาภาวะ tennis elbow และการแก้ปัญหาโดยการผ่าตัดของภาวะแทรกซ้อน