Functional Outcomes of an Olecranon Impingement Case: Conservative Treatment Approaches

Olekranon Sıkışma Sendromu Olan Bir Olgunun Fonksiyonel Sonuçları: Konservatif Tedavi Yaklaşımları

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ABSTRACT Olecranon impingement is a rare condition in general population; however, it is usually seen in overhead athletes; however, it is usually seen in overhead athletes. Repetitive combined hyperextension, valgus, and supination of the elbow, resulting in a mechanical abutment of bony or soft tissues in the posterior fossa of the elbow aggravate the problem. Complains of pain posteriorly, joint effusion, locking, crepitus, and a decrease in range of motion, most notably an extension deficit are most common. Although conservative treatment of posterior impingement is rare, arthroscopy of the elbow can be a radical option at the beginning. The unusual case of an olecranon impingement syndrome at right elbow in a female patient is reported here. The patient was treated with conservative rehabilitation approaches for 8 weeks and returned to painless daily activities.

Key Words: Olecranon process; elbow joint; therapy

ÖZET Olekranon Sıkışma Sendromu genel popülasyonda yaygın olmayan bir problem olup, baş üzerindeki aktiviteler sırasında dirseğini çok kullanan sporcularda sıklıkla görülür. Tekrarlayıcı dirsek hiperekstansiyon, valgus ve supinasyonu, dirseğin posterior fossasında kemik ve yumuşak dokulardaki mekanik dayanakla birleşip bu problemi alevlendirir. Posteriorda ağrı, eklem efüzyonu, kilitlenme, krepitus, ve eklem hareket açıklığında azalma ile ekstansiyon defisiti en sık görülen yakınmalardır. Posterior sıkışmanın konservatif tedavisi az yapılmakla birlikte, dirsek artroskopisi de başlangıç için radikal bir seçenek olabilir. Sağ dirseğinde olekranon sıkışma sendromu olan kadın hasta burada sunulmuştur. Hasta, konservatif rehabilitasyon yaklaşımlarıyla 8 hafta tedavi edilip ağrısız günlük yaşam aktivitelerine geri dönmüştür.

Anahtar Kelimeler: Olekranon işlemi; dirsek eklemi; tedavi

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Olecranon impingement mostly cause of excessive valgus forces at the elbow joint. Seconder injury occurs from medial joint distraction, lateral joint compression and olecranon rotatory forces. These forces give rise to medial elbow soft tissue injuries mainly ulnar collateral ligament (UCL), and osteochondral lesions at the lateral elbow. Combination of this pathophysiological model is called "valgus extension overload syndrome".[1,2] An anterior oblique ligament (AOL), posterior oblique ligament (POL) and a transverse band generate the UCL complex. The AOL is reported to be the most important soft-tissue constraint to valgus instability of the elbow. Valgus extension overload is the cause of diffuse osseous

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changes within the elbow joint and secondary posteromedial impingement.[3] Firstly conservative treatment can be tried for most symptomatic conditions.[2] In non-throwing athletes or general population, a conservative treatment has acceptable results.[4] Conservative treatment of isolated UCL injury consists of short immobilisation to control initial pain and inflammation. Valgus forces to the elbow should be reduced afterwards an intensive exercise programme and avoidance of valgus load resumed for three to six months.[4] If conservative treatment is failed, surgical intervention is indicated.[4] A cadaver study has reported that the flexor carpi ulnaris is the primary dynamic contributor to valgus stability while the flexor digitorum superficialis is a secondary stabilizer.[5] Thus, the muscular dynamic stability of the medial elbow is essential and must be included in conservative treatment programs.[6] The purpose of this case report was to investigate short-term rehabilitation results of a patient with olecranon impingement.

CASE REPORT

A 42-years-old female presented with a history of two-years of right elbow pain as a result of olecranon impingement. Neither any history of trauma nor treatment was recalled. She recalled pain at the posteromedial side of her right elbow during repetitive elbow flexion and extension. Also pain during night was recorded. She has also reported pain during daily activities (house cleaning, weight-lifting etc.).

The patient was a housewife and she was right-handed. She experienced the pain during house works and self-care activities. Valgus stress test was applied on the elbow by pulling down on the thumb. Medial joint line was palpated and sensitivity was reported. Active and passive elbow flexion, extension, pronation and supination movements were measured bilaterally with a universal goniometer at the beginning of treatment and 8 weeks later.[7]

A Visual Analog Scale (VAS) with end range descriptors of 0 = no pain, and 10 = extreme pain (0–10cm) was used to assess the pain level.[8] Circumference measurements were also made at the beginning of the treatment and 8 weeks later.[9]

The conservative treatment included 15 minutes cold-pack intervention, 20-minute elbow mobilization with myofascial release techniques such as post-isometric relaxation to biceps and triceps muscles, shoulder and elbow stabilization exercises with 15 repetitions and proprioception treatments for 10 minutes. Additionally, home exercises were given to the patient. After 8 weeks the pain during functional activities has decreased. Therefore, the treatment has terminated and afterwards the patient has been suggested to keep on her home exercise programme. Conservative treatment was applied once in a week for 2 months (Figure 1). Patient was informed about aims of the study, and the testing procedure prior to her participation. Written informed consent was obtained.

Elbow valgus was 12° at left elbow, 14° at right elbow in the beginning of the conservative treatment and there was no difference in the valgus degree after treatment. In addition, there were also no significiant difference in range of motion between right and left elbow's flexion, extension, pronation and supination. While pain level at rest decreased from 7 to 0 after conservative treatment, and also pain level at activity decreased from 10 to 4 after treatment. After treatment the sensitivity with palpation of UCL during valgus stress test was decreased. The patient's pain symptoms in daily functional acitivities did not return in follow-up. The patient has also reported better functionality in house cleaning and shopping activities after treatment. There were no significant difference in

FIGURE 1: Elbow stabilization exercise.
(See color figure at
http://www.turkiyeklinikleri.com/journal/saglik-bilimleri-dergisi/485/tr-index.html)

circumference measurements of right and left elbow through first and last measurement (Table 1).

DISCUSSION

Olecranon impingement is a rare condition in general population; however, it is usually seen in overhead athletes. Additionally, most of the patients with olecranon impingement are treated with arthroscopy rather than conservative treatment. In fact, surgical treatment is indicated when symptoms persist despite non-surgical management. Based on clinical and basic science research, all patients with valgus extension overload should be comprehensively evaluated for medial ulnar collateral ligament insufficiency.[10] The musculotendinous structures at the posteromedial side of the elbow are at risk for various injuries as a result of a single traumatic event or repetitive micro-trauma.[4] The resultant soft tissue swelling, loose bodies, or osteophyte formation, or combinations of these, together with abutment may result in symptoms in the posterior side of the elbow.[11] Conservative treatment such as releasing and mobilization techniques of the soft tissues can be suggested for good results in patients with olecranon impingement. Myofascial release (MFR) is the application of a low load, long duration stretch to the myofascial complex, intended to restore optimal length, decrease pain, and improve function.[12] Post-isometric relaxation (PIR) is a technique often used by manual therapists for treating muscle tension and joint dysfunction.[13] It is important to manage these conservative treatment options in combination for non-surgical management of olecranon impingement. In the present case, all treatments (including both PIR and MFR procedures) were well tolerated by the patient result of pain decrease and functionality improvement in daily living activities.

TABLE 1: Circumference measurements before and after treatment.

	Right		Left	
Circumference Measurements (cm)	**Before treatment**	**8th week**	**Before treatment**	**8th week**
Ulna styloid	16.6	16.5	17.1	16.5
5 cm	19.5	19.5	19	19.5
10 cm	22.5	23.5	22.2	23.2
15 cm	24.8	25.5	24.7	25
20 cm	25.5	26.3	25.3	25.5
25 cm	27.6	28	26.5	26.5
30 cm	29.5	30.7	28.7	29.5
35 cm	32.5	32.6	31.6	32
Lateral epicondyle	25.5	25.8	25.9	25.8

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