



Our Experiences about Cubital Tunnel Syndrome

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Abstract

Introduction: Cubital tunnel syndrome is the second frequent compression syndrome of the upper extremities after carpal tunnel syndrome. Numbness of the ulnar nerve distribution is the most experienced symptom in the patients. Surgery is necessary for patients whose symptoms persist with nonoperative treatments. We use fascial flap and subcutaneous anterior transposition of the ulnar nerve to treat cubital tunnel syndrome in our clinic. In this study, our aim is to examine and report long-time results of these patients.

Methods: We retrospectively examined 30 patients who had been operated because of the cubital tunnel syndrome between November 2009 and April 2013 in our clinic.

Results: There were 18 female (60%), and 12 male (40%) patients between the age of 35-67. In 10% of the patients, electrophysiological findings became normal after the postoperative six months. In 60% of the patients, electrophysiological findings became normal after the postoperative 18 months. In 10% of the patients, there were no differences after postoperative 18 months, and in 20% of the patients, electrophysiologic findings reduced from high level to middle level and from middle level to low level after postoperative 18 months.

Discussion and Conclusion: Fascial flap and subcutaneous anterior transposition of the ulnar nerve is a very effective and reliable surgical procedure. It is widely accepted and it has low complication rates.

Keywords: Cubital tunnel; fascial flap; subcutaneous anterior transposition; ulnar nerve.

Trapping of the ulnar nerve at the elbow, i.e., cubital tunnel syndrome, is the second most common picture of peripheral nerve compression syndromes of the upper extremity after carpal tunnel syndrome^[1, 2] and the degree of nerve damage. In some patients, bone pathologies, such as osteophyte, cubitus valgus, and soft tissue masses, for example, ganglion cysts are caused, but often, there is no definite etiology. Usually, the ulnar nerve is squeezed between the humeral and ulnar heads of the FCU muscle at the level of the Osborne ligament, just distal to the medial epicondyle.

Drowsiness in the ulnar nerve sensory field is the most common symptom seen in patients. Surgical treatment is needed in patients whose symptoms do not regress with

nonoperative treatments. There are several defined methods for the surgical treatment of cubital tunnel syndrome as follows: Simple decompression (open or endoscopic technique), medial epicondylectomy with simple decompression, anterior transposition of the nerve (subcutaneous, intramuscular and submuscular).

Although there is no consensus about which method should be chosen in the treatment, the subcutaneous anterior transposition of the ulnar nerve is a widely used and relatively simple technique and has high success rates and low complication rates. This study aims to investigate and report the middle and long term results after treatment in these patients.

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Materials and Methods

We retrospectively reviewed 30 patients who had been operated for cubital tunnel syndrome between November 2009 and April 2013 in our clinic. In all patients, the facial flap and the ulnar nerve were transposed into the subcutaneous anterior, and preoperative and postoperative electrophysiological tests were compared. Surgical treatment was performed under general anesthesia and tourniquet application.

To support the diagnosis in the preoperative period and to have an idea about the degree of nerve damage, EMG examination was performed, and the patient was called for control periodically in the postoperative period.

Results

Of the 30 patients, 60% (18) of them were female, and 40% (12) of them were male, and their ages ranged from 35 to 67 years (mean 46). Postoperative follow-up ranged from six months to four years.

The most common physical examination finding in patients with cubital tunnel syndrome admitted to our clinic was numbness in the ulnar nerve sensory field. At the same time, some patients had weakness in the intrinsic muscles of the hand and decreased hand-grip strength, with pain spreading from the medial part of the elbow to the proximal forearm and behind the medial epicondyle. In addition, atrophy of hand intrinsic muscles, especially in the first dorsal interosseous muscle, was also seen in patients with ongoing complaints about a long time.

While electrophysiological findings returned to normal in the postoperative 6th month in 10% of the patients, they returned to normal in the postoperative 18th month in 60%, no change was observed in the 18th month after surgical treatment in 10%, and in 20% postop 18th month, and moderate to severe and mild to mild. All of the patients whose symptoms did not regress in the postoperative period and whose findings were severely moderate to mild had severe entrapment and axonal damage of the ulnar nerve in the preoperative period.

Discussion

Described methods for the surgical treatment of cubital tunnel syndrome include simple decompression (open or endoscopic technique), medial epicondylectomy with simple decompression, anterior transposition of the nerve (subcutaneous, intramuscular and submuscular). Only the simple decompression method is less used and usually anterior transposition of the nerve (subcutaneous, intramuscular, or

submuscular) is applied with simple decompression.

There is no consensus as to which method is superior to the other in the transpositional surgical treatment of cubital tunnel syndrome [4]. Surgeons who prefer anterior subcutaneous transposition claim to have less pain and less tension on the nerve in the postoperative period due to early mobilization [5, 6]. Surgeons who use the anterior submuscular transposition technique think that this new position of the ulnar nerve provides a better and healthier vascular bed and a more protected soft tissue covering [7, 8].

In the rat model animal study, when submuscular transposition is applied, it is said that less perineural scar tissue is formed histologically around the nerve and contains healthier axons compared to subcutaneous transposition [7, 8], which could not be shown in this study. In addition, Liu et al. found no significant difference between submuscular and subcutaneous transposition in their study in 2015 [9].

Bartels [10] and Mowlavi [11] conducted similar studies. However, they compared simple decompression, anterior transposition and medial epicondylectomy. In these studies, similar results were obtained in other methods, and it was found that patients who had undergone medial epicondylectomy had less benefit from the procedure.

The common feature of the results obtained from the studies on cubital tunnel syndrome is that, regardless of the surgical technique, the more advanced the disease, the less benefit the patients received in the postoperative period [12].

The results obtained from the patients followed in our clinic are in this direction. Despite the same surgical procedure, the progression of the disease and the development of nerve damage prolong the time required for the reduction or complete disappearance of the complaints in the postoperative period. Chan et al.'s study showed that there was no significant postoperative difference between simple decompression and anterior transposition of the ulnar nerve; argued that the results obtained only in patients who previously had trauma to the elbow or underwent surgical intervention from this region were weak [13].

Hamidreza et al., in their study in 2011, used a method very similar to the anterior transposition of the ulnar nerve with simple decompression and a facial flap that we used. In this study, the patients' existing symptoms generally improved and improved within the first year, and they were mobilized within a short period of 12 days postoperatively.

In addition, patients undergo medial epicondylectomy or submuscular transposition, which requires longer surgical dissection (five weeks) than normal active movements. In conclusion, the transposition of the ulnar nerve with the fa-

cial flap is a highly effective and reliable surgical procedure and is widely accepted and has a low complication rate. Patients whose symptoms do not regress are thought to be due to the development of advanced nerve damage in the ulnar nerve in the preoperative period ^[15].

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