



Study The Results of Flexor Carpi Ulnaris and Flexor Carpi Radialis Tendon Transfers In Chronic Radial Nerve Palsy

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Introduction

Resuming lost function of the hand in chronic radial nerve palsy has a great value. Tendon transfer procedures for radial nerve palsy are playing a major role. There is about a hundred years of challenging history behind these procedures. Numerous studies were done to describe two combinations of muscles for transfer; the point is using the flexor carpi ulnaris or the flexor carpi radialis to restore the fingers' extension. There are some differences in cosmetic and functional results of these surgical plans. This study was done to compare these two procedures.

Objectives:

Our Objective was to make a comparison between two common surgical methods of tendon transfer in chronic radial Nerve palsy and study the benefits and disadvantages of each method.

Methods

41 known cases of chronic radial nerve palsy that had the inclusion criteria were selected during 2001 to 2007. They were divided into 2 groups randomly. In one group we used flexor carpi radialis (FCR) and in the other one we used flexor carpi ulnaris (FCU) to restore fingers (metacarpophalangealjoint) extension. In both groups we used PT to ECRB and PL to EPL(with rerouting) tendon transfers to restore wrist and thumb extension respectively. Post-operative plan was the same in both groups. A questionnaire was designed and each patient was evaluated by physical exam. The collected data was analyzed by SPSS software. The chi square test, T test and Fischer test were used for data analyzing.

Results

41 patients entered the study.

19 patients were in FCU group and 22 patients were in the FCR group. Average age was 29.6 with a range of 16 to 55 .

There was not significance statistical difference between two groups in age ($p=0.64$) and sex ($p=0.99$). The causes of Radial Nerve palsy were crash injury (29.3%), Fracture (26.8%), Stab wounds (26.8%) and Iatrogenic (17.1%). The distribution of these causes between two groups did not have significant statistical difference. There was not significant statistical difference between two groups in co-morbid injuries .

-wrist Range of motion:

There was not significant statistical difference between two groups in active and passive wrist extension and flexion.

-Fingers range of motion:

There was significant statistical difference between two groups only in Active fingers' Extension ($p=0.045$).

The average was 7.4 degrees for FCU group and 12.5 degrees for FCR group.

-Wrist deviation:

There was significant statistical difference between two groups in Active Wrist Ulnar Deviation ($P<0.001$, AVG for FCU=7.1, FCR= 24.3) and also in Passive Wrist Ulnar Deviation ($p<0.001$, AVG for FCU= 13.2, FCR= 27).

-Forearm bulging:

Forearm bulging was present in 17 patient (41.7% of cases) which was 15 in FCU group and 2 in FCR group. So, There was significant statistical difference between two groups in forearm bulging ($p<0.0001$).

Conclusion

The use of FCR method had better results in our study, due to *better fingers' extension and better wrist ulnar deviation and also better cosmetic results*. We recommend use of this method in restoring wrist and finger extension in chronic radial nerve palsy.