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## Results of Median Nerve Fascicle Transfer to the Biceps in Long Standing Upper Brachial Plexus Injuries

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**Introduction:** the transfer of ulnar nerve fascicles to the biceps, or the Oberlin procedure, became widespread used in the treatment of upper brachial plexus injuries. However, there is no clinical evidence regarding the upper limit of time in which the procedure should be forsaken. Also, there are only few studies addressing the possibility of using median nerve fascicles transfer instead of the ulnar nerve.

**Patients and Methods:** from 2004 to 2009 we performed five median nerve fascicle transfer to the biceps in five patients with upper brachial plexus injuries. In three of these patients, the elapsed time between the injury and the surgery ( $\Delta T$ ) was superior to 16 months. The mean age of these patients was 23,6 years (22 to 30) and they were all males with C5-C6 or C5-C7 injuries. The mean elapsed time between the injury and the surgery was 14,8 months (9 to 19 months). The mean follow-up period was 27,4 months (12 to 72 months).

**Results:** all patients regained useful elbow flexion within one year of follow-up. Three patients achieved M4 (one of them M4+) and two patients achieved M3, according to the Medical Research Council. Two of the three patients with M4 grade were operated after 19 months of injury. Only one of the five patients had transient numbness and weakness in the median nerve distribution in the early post-operative period.

**Discussion:** in our small case series the median nerve was a reliable source for motor fascicle transfer to the biceps, in terms of elbow flexion strength. The two patients with M3 grade had a relatively shorter follow-up and should be probably improved with time. This transfer was also feasible in long standing upper brachial plexus injuries (> 12 months from injury).



Patient 3: 23 y.o., C5-C7 injury,  $\Delta T$ : 11 months, M3 with 12 weeks f.u.



Patient 4: 30 y.o., C5-C7 injury,  $\Delta T$ : 16 months, M3 with 14 weeks f.u.



Patient 1: 22 y.o., C5-C6 injury,  $\Delta T$ : 6 months, M4+ with 72 weeks f.u.



Patient 2: 22 y.o., C5-C6 injury,  $\Delta T$ : 19 months, M4 with 12 weeks f.u.



Patient 5: 24 y.o., C5-C6 injury,  $\Delta T$ : 19 months, M4 with 19 weeks f.u.