THE RESULTS OF OPPONENSPLASTIES IN LATE MEDIAN NERVE PALSY

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the oldest was 43 years old, mean age 23.8 being 23.8.
Nine of them were female, and 6 were male.
According to their etiological classification, 5 had
penetrating injuries, 3 obstetrical paralysis, 2
congenital intrinsic paralysis and the other 5 various
reasons causing median nerve injuries.

Regarding the injury level, there were 9 distal
and 6 proximal median nerve injury cases according
to being below or above 1/3 proximal of the forearm.
3 of the patients had only N. Medianus paralysis,
whereas the others had nerve, artery or bone injuries
accompanying this. The average period of time
between the etiological cause and opponensplasty was
2.8 years.

While determining the technique of the
operation, the strenght of the probable motor muscles,
the patients occupation, the pre-operative passive
mobility of the thumb joints and the condition of the
first web distance were taken into account. First web
widening was applied to the patients together with
opponensplasty.

In patients who had opponensplasty, we chose
extensor muscles for 9 and flexor muscles for 6 as
motor muscles. These patients were immobilised for
four weeks, and then had physiotherapy, for two
weeks. Besides these, the tendon transfers were
protected by an opposition splint for two months.

The patients were assessed in accordance with
thumb opposition criteria developed by Sundararaj
and Mani (1984) (Table 1), and the measurements of
the post-transfer strength of the muscle and tip pinch
were carried out by means of dynamometer.

The minimum period of follow-up is 6 months,
the maximum 72 (mean : 24).

**Table 1**
The Results of Opponensplasties in Late Median
Nerve Palsy

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>Thumb opposition to tip of ring or little finger with IP joint of thumb extended and more than 70% of thumb function restored.</td>
</tr>
<tr>
<td>Good</td>
<td>Thumb opposition to tip of index or middle finger with IP joint of thumb extended and more than 50% of thumb function restored...</td>
</tr>
<tr>
<td>Fair</td>
<td>Thumb opposition with flexion of its IP joint, and less than 50% of thumb function restored.</td>
</tr>
<tr>
<td>Poor</td>
<td>No opposition.</td>
</tr>
</tbody>
</table>

**Results**
The list of the patients and the results are seen
in table 1. We got excellent results in 7 patients, good
in 4 and poor in 4. We assumed that fixed adduction
and pronation contracture in one patient, the
inadequacy of motor muscle strength in another with
obstetrical paralysis and the post-operative rupture of
tendon in the other two had a negative impact on the
poor results.

No/ relationship was observed between the
results and the choice of motor muscles. In patients
who had EIP transfer, no lack of extension on the
second finger was detected.

Transfer ruptures in two patients and flexion
tendency of the wrist during opposition due to tight
transfer in two others were observed as complications.

**Discussion**
In opponensplasty operations, the choice of
motor muscle is made and the type of distal insertion
of the tendon is selected by the surgeon depending on
the level of injury and the pre-operative mobility of
the thumb. In our cases, we preferred FDS and EIP
muscles. Anderson (1992) reports that opponensplasty
of FDS in rigid hands, and that of EIP in mobile
hands have better results (1). Anderson and Lee
(1992) reached 89% excellent and good results in 50
EIP opponensplasties, and 85% in 116 FDS
opponensplasties. 73% of our cases resulted excellent
or good.

In the assesmerit of our cases, even the ones
categorized as excellent according to Sundararaj and
Mani, tip pinch strength could not exceed 45% of that
of the opposite/unaffected hand (average 17%). We
believe that not being able to realise a total intrinsic
reconstruction of the thumb by means of
opponensplasty and the post-transfer decrease of the
muscle strength have an active role on this. Moreover,
especially in patients with combined nerve injuries,
the condition of the other fingers also effect tip pinch
strength.

It is possible to reach a higher ratio of
excellent and good results from opponensplasty
operations. However, although the muscle strength of
the transferred muscle can provide an approximately
complete action of thumb opposition, it does not reach
a complete thumb strength.
Table II.
Patients and Results

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Injuries</th>
<th>Level</th>
<th>Etiology</th>
<th>Combined Injuries</th>
<th>Motor Muscle</th>
<th>Function*</th>
<th>Top Punch</th>
<th>Follow Up</th>
<th>Results**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M.C.</td>
<td>40</td>
<td>M</td>
<td>Below</td>
<td>Traffic Accident</td>
<td>Pseudoarthrosis of Ulna and Ulnar Nerve Lesions</td>
<td>FDS-4</td>
<td>40%</td>
<td>20%</td>
<td>72 Months</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Y.E.</td>
<td>30</td>
<td>F</td>
<td>Below</td>
<td>Home Accident</td>
<td>-</td>
<td>[Glass Cut]</td>
<td>EP</td>
<td>90%</td>
<td>30%</td>
<td>8 Months</td>
<td>Excellent</td>
</tr>
<tr>
<td>3</td>
<td>K.D.</td>
<td>33</td>
<td>M</td>
<td>Below</td>
<td>Work Accident</td>
<td>-</td>
<td>[Replantation]</td>
<td>FCU</td>
<td>40%</td>
<td>-</td>
<td>6 Months</td>
<td>Poor</td>
</tr>
<tr>
<td>4</td>
<td>S.O.</td>
<td>14</td>
<td>M</td>
<td>Below</td>
<td>Congenital</td>
<td>-</td>
<td>-</td>
<td>EP</td>
<td>100%</td>
<td>40%</td>
<td>10 Months</td>
<td>Excellent</td>
</tr>
<tr>
<td>5</td>
<td>T.G.</td>
<td>43</td>
<td>M</td>
<td>Above</td>
<td>Traffic Accident</td>
<td>Sclerodacty Amputation</td>
<td>EP</td>
<td>20%</td>
<td>0%</td>
<td>24 Months</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>S.K.</td>
<td>40</td>
<td>F</td>
<td>Below</td>
<td>Home Accident</td>
<td>N. Ulnaris Lesion</td>
<td>FDP-4</td>
<td>90%</td>
<td>40%</td>
<td>72 Months</td>
<td>Excellent</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>S.M.</td>
<td>9</td>
<td>F</td>
<td>Above</td>
<td>Fall</td>
<td>Supracondylary Humerus Fracture N. Ulnaris Lesions</td>
<td>EP</td>
<td>66%</td>
<td>25%</td>
<td>12 Months</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>M.G.</td>
<td>20</td>
<td>M</td>
<td>Below</td>
<td>Home Accident</td>
<td>Flexor Tendon + U. Artery Lesions</td>
<td>FDS-3</td>
<td>100%</td>
<td>45%</td>
<td>14 Months</td>
<td>Excellent</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>S.T.</td>
<td>36</td>
<td>F</td>
<td>Below</td>
<td>Home Accident</td>
<td>Flexor Tendon Lesions</td>
<td>FDS-4</td>
<td>65%</td>
<td>40%</td>
<td>60 Months</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>K.A.</td>
<td>10</td>
<td>M</td>
<td>Below</td>
<td>Home Accident</td>
<td>N. Ulnaris + Flexor Tendon Lesions</td>
<td>EP</td>
<td>100%</td>
<td>45%</td>
<td>12 Months</td>
<td>Excellent</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>C.T.</td>
<td>10</td>
<td>F</td>
<td>Above</td>
<td>Obstetrical Palsy</td>
<td>-</td>
<td>EDM</td>
<td>61%</td>
<td>0%</td>
<td>7 Months</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>D.C.</td>
<td>22</td>
<td>M</td>
<td>Above</td>
<td>Obstetrical Palsy</td>
<td>-</td>
<td>EP</td>
<td>26%</td>
<td>0%</td>
<td>36 Months</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>A.O.</td>
<td>12</td>
<td>F</td>
<td>Above</td>
<td>Congenital</td>
<td>-</td>
<td>EP</td>
<td>87%</td>
<td>0%</td>
<td>7 Months</td>
<td>Excellent</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>H.S.</td>
<td>20</td>
<td>M</td>
<td>Below</td>
<td>Electric Burn</td>
<td>Flexor Tendon + N. Ulnaris Lesions</td>
<td>EP</td>
<td>76%</td>
<td>25%</td>
<td>6 Months</td>
<td>Excellent</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>M.T.</td>
<td>12</td>
<td>M</td>
<td>Above</td>
<td>Obstetrical Palsy</td>
<td>-</td>
<td>FDS-4</td>
<td>77%</td>
<td>0%</td>
<td>48 Months</td>
<td>Good</td>
<td></td>
</tr>
</tbody>
</table>

* According to Mackin, E.J., Callahan, A.D. Scala (6).
** According to Sundararaju ve Mani Classilication (Table 1).

Figure 1: The course of the transferred tendon is seen traversing from pisiform area to the MP joint of the thumb.

Figure 2: Full opposition of the thumb.
Figure 3: Opposition Spliant

Literature


