# Brachial Plexus Injury : Prioritization Improves Outcome at High Volume Centers

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## Introduction

- Brachial plexus injury requires prolonged treatment and rigorous follow up from both the doctor and the patient. In spite of this it is challenging to get the desired results.

## Aim

- In this study we present our experience in treating BPI over two years and our approach for improving the results

## Methods

- **SAMPLE SIZE:** 107 primary brachial plexus injury
- **TENURE**: Retrospective analysis of brachial plexus injury patients those operated between Jan 2014 to December 2015.
- Out of 107 patients, 88 were operated during this 24 month period and followed up from 6 to 18 months
- Patients were allocated based on level of injury and time period since injury

| Time period since injury | Level of injury |
|---|---|
| A) Within 12 months | A) C5, C6 |
| B) More than 12 months | B) C5, C6, C7 |
| | C) C8, T1 injury |
| | D) Pan brachial plexus injury |

- Range of motion and the muscle strength as per the British Medical Research Council muscle grading system. was recorded post operatively at various interval of times

## Results

- 7 lost to follow ups, total 81 patients were followed up after surgery. 71 presented <12 months post injury & rest 10 were >12 months

| Injury Pattern (within 12 Months) | N | Procedure | Partial Recovery | Recovery | No Recovery |
|---|---|---|---|---|---|
| C5-C6 | 11 | Triple nerve transfer (7)<br>SA to SSN, Oberlin (3)<br>C5 to SSN,post cord and oberlin (1) | 3 | 7 | 1 |
| C 5-C7 | 26 | SA to SSN & Oberlin (24)<br>Neurolysis (2) | 10 | 9 | 5 |
| C5-T1 | 31 | SA to SSN ICN to MCN (12)<br>SA to MCN (11)<br>SA to SSN,Phrenic to MCN(6)<br>Neurolysis (2) | 6 | 14 | 11 |

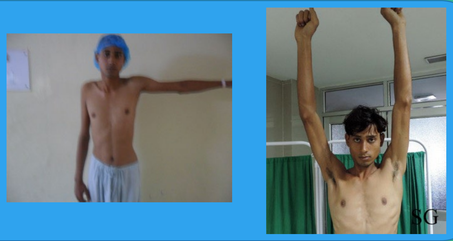
| Injury Pattern (after 12 Months) | N=10 | Procedure | Partial Recovery (Elbow flexion <90*) | Recovery | No recovery |
|---|---|---|---|---|---|
| C5-C6/ C5-7 | 2 | FFMT for elbow flexion | 0 | 2 | 0 |
| C5-T1 | 8 | FFMT for elbow flexion (6)<br>Abandoned (2) | 2 | 3 | 1 |

- Out of the 52 cases of SA to SSN transfer 25 had M4 power(49.1%) and 17 had M3 grade power(33%)
- Out of the 35 cases who underwent Oberlin transfer 16 had M4 power (45%), elbow flexion average 100* & 13 had M3 power with average elbow flexion 70*
- Out of the 27 patients who underwent ICN to MCN, SA to MCN, Phrenic to MCN neurotisation 14 patients had M3+ power (51.8%) and 4patients had M3 power(14.8%) and 2 patient(6%) had M2 power
- FFMT 5 patients got M4 power (66.7%) and 1 got M3 and M2

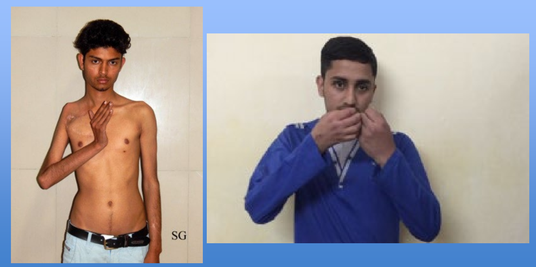
## Figures

***C5-C6 SA to SSN,Somsack &Oberlin 1***


***C5 TO SSN, POST DIVISION, & OBERLIN***




***FFMT FOR ELBOW FLEXION***




## Conclusion

**Selecting the right patient and intervening at the right time can give good results**