



# Timing of Nerve Recovery after Nerve Grafting in Obstetrical Brachial Plexus Palsy Patients with Isolated Upper Trunk Neuromas



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## AIM

- To examine the timing of postoperative recovery in patients with obstetrical brachial plexus palsy who undergo excision of neuroma and sural nerve grafting

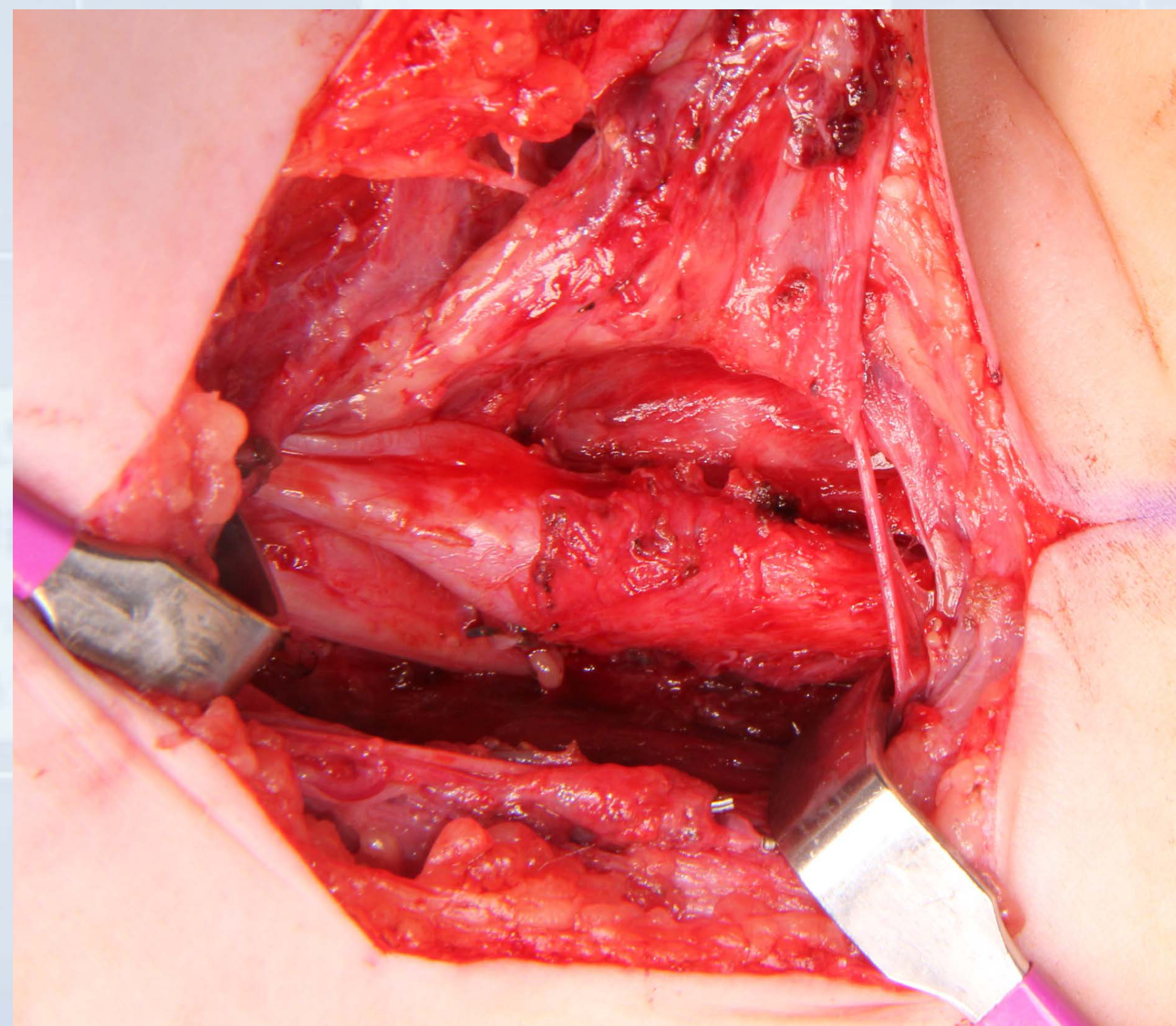


Figure 1. An intraoperative photograph of a neuroma-in-continuity is shown prior to excision.

## METHODS

- Retrospective chart review**
  - Single center (Children's Hospital of Pittsburgh Brachial Plexus Center)
  - All patients with isolated upper trunk neuromas in continuity
  - Surgery between 2009 to 2017 after failing cookie test at 9 months
  - Excision of neuromas-in-continuity with sural nerve grafting
    - 3 patients with spinal accessory to suprascapular nerve transfers
- Pre- and post-op Active Movement Scale (AMS) scores (0-7) pertinent to the upper trunk**
  - Shoulder abduction, shoulder flexion, shoulder external rotation, elbow flexion, forearm supination
- Outcomes:**
  - Time to return to baseline function
  - Time to achieve clinically useful function (AMS  $\geq$  6)

- 11 patients with isolated upper trunk neuromas-in-continuity underwent surgical exploration.
- 1 patient excluded for inadequate follow-up

Table 1. Demographic, birth, surgical, and follow-up data.

Patients (number)	11
Maternal gestational diabetes	4
Shoulder dystocia	10
Clavicle fracture	3
Vertex	11
Full-term	11
Male/Female	4/7
Right/Left	10/1
Average birth weight (grams)	4184
Age at surgery (months)	9.8
Length of follow-up (months)	37.1

## RESULTS

Figure 2. Time to return baseline function and time to achieve clinically useful function

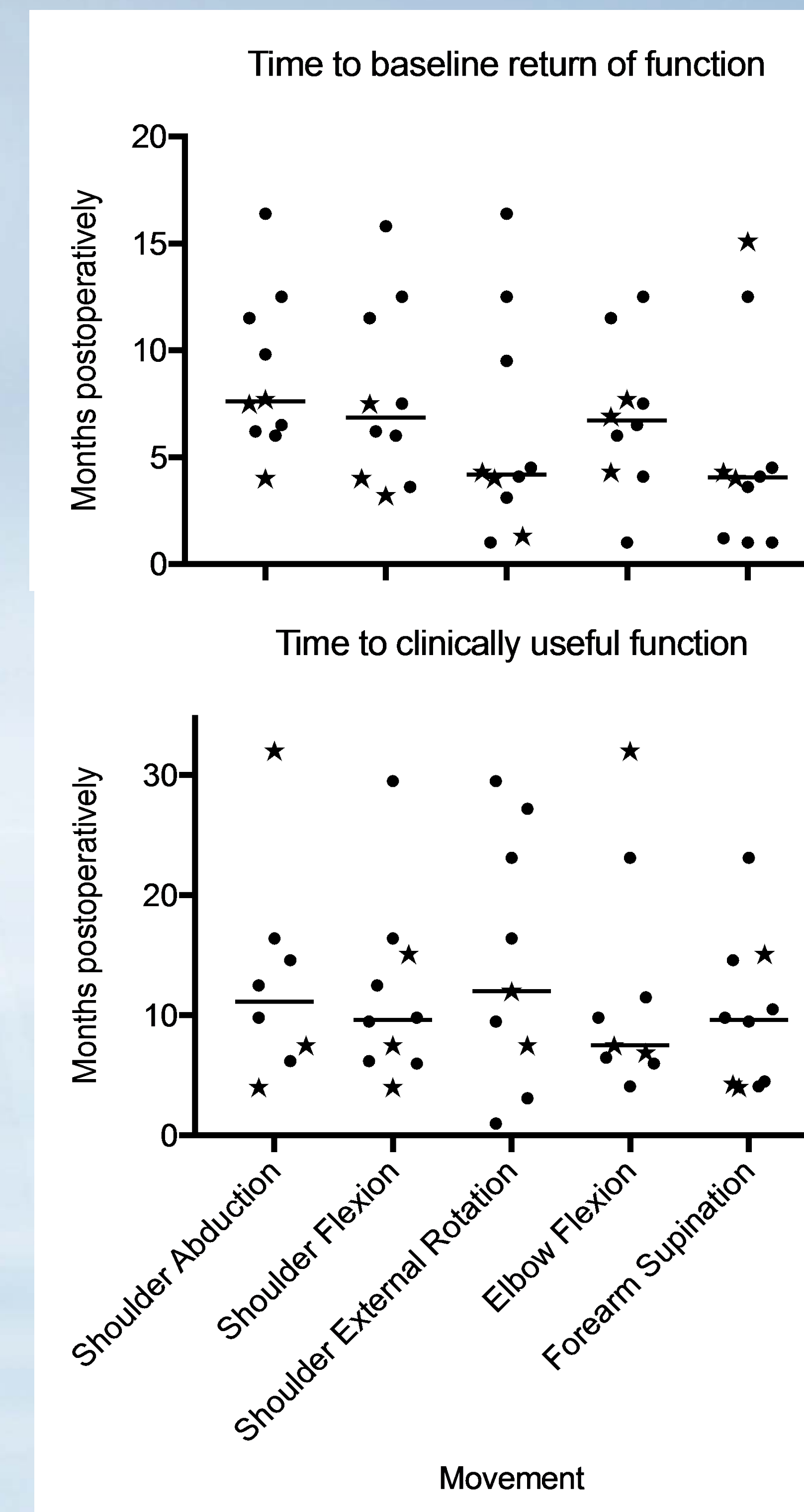


Table 2. The percentage of patients with clinically useful function increased significantly postoperatively.

Movement	Preop	Postop	p value (Fisher's exact test)
Shoulder Abduction	30%	80%	p < 0.0001
Shoulder Flexion	50%	100%	p < 0.0001
Shoulder External Rotation	10%	90%	p < 0.0001
Elbow Flexion	20%	90%	p < 0.0001
Forearm Supination	20%	100%	p < 0.0001

## CONCLUSION

- In patients who undergo resection of upper trunk neuroma-in-continuity and nerve grafting, recovery is as follows:
  - Return to baseline function by 4-8 months
  - Clinically meaningful function by 9-15 months

THE AUTHORS HAVE NO DISCLOSURES



Figure 3 (left). Photographs showing postoperative recovery of upper extremity function.