Reconstructive Neurosurgery following Chordoma Resection Surgery

Justin M. Brown, MD
Chordomas are slow-growing malignant bone tumors that can occur anywhere along the spinal column, from the skull base to the tail bone.
Cervical nerve root resection
Lumbar and sacral nerve root resection
Spinal Cord Compression
Nerve Transfers
8 months post op
18 Months
10 mo post-op:
Median/ulnar to biceps/brachialis
Reconstructive strategy

• Ulnar to biceps

• Median to axillary

• Contralateral C7 to
  • Dorsal scapular
  • Spinal accessory
  • Suprascapular
Nerve transfers

- Ulnar to biceps
- Median to axillary
- Contralateral C7
  - Spinal accessory
  - Dorsal scapular
  - Suprascapular
What happens if you wait too long?
Redundancy:
C5: External rotation
(2 muscles)

to recover →

C7: Triceps
Supinator to PIN nerve transfer
Loss of Hand Function

Before
C5 nerves transferred to C7/8 nerves (chronic injury)
Spinal Cord Compression
Triceps spasticity
**Spasticity reduction:**

**peripheral neurotomies**  
(Sindou)

A 75% muscle fiber denervation is easily compensated for by motor unit enlargement.

Re-innervation of sensory spindle nerve endings also occurs after nerve section but is disorganized. This non-specific reinnervation of muscle receptors is largely non-functional.

Study of the long-term course of the Hmax/Mmax ratio after tibial neurotomy has shown the absence of functional sensory re-innervation, as reflected by the absence of long-term recovery of the H response.

Thus, strength is preserved while spasticity is reduced.
Selective Nerve branch Cutting

Lateral gastroc. sub divided into 3 branches
Tendon Transfers
Lumbar and sacral nerve root resection
Anatomical feasibility of performing intercostal and ilioinguinal nerve to pelvic nerve transfer
Thank you for your attention.