

Progressive Weakness due to an Anterior Arachnoid Cyst: An Indication for Nerve Transfer Surgery

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Introduction

- Anterior Arachnoid Cyst is an uncommon cause of cord compression that may result in severe disability, most located in thoracic region.
- Clinical presentation can be a major challenge for neurologists and neurosurgeons, especially when imaging is unclear.
- Cyst excision and cystoperitoneal/cystopleural shunting are accepted interventions.
- Neurological recovery after surgery depends on duration and severity of compression.
- We present an interesting case of a young female initially thought to have a degenerative motor neuron condition.

Case Presentation

31-year-old female with 10 years of progressive left hand and 1 year progressive right arm weakness

Physical Exam

- Severe atrophy and weakness in left hand intrinsic muscles (MRC 1)
- Right shoulder abduction, external rotation, and elbow flexion weakness (MRC 3)
- Mild weakness in the right elbow extension, supination and pronation (MRC 4)
- No upper motor neuron, bowel/bladder, cerebellar, or sensory abnormalities

EMG

Severe chronic neurogenic left C8-T1 without ongoing denervation

Mod-severe neurogenic right C5-6 with ongoing denervation

Mild-mod chronic neurogenic in right C7-8 myotomes

MRI

Without contrast (pregnant): repeatedly read as normal

With contrast after delivery: possible subtle enhancement within cord, mild atrophy, and subtle signal abnormality anterior to cervical and thoracic cord

Management:

Laminectomy and cysto-peritoneal shunt placement successfully undertaken. Planned Nerve transfer.

Discussion

- This case emphasizes the limits of imaging and importance of clinical localization.
- Given relative preservation of right median nerve axons and presumption of no further progression, a nerve transfer utilizing a single median nerve fascicle to biceps is planned to augment elbow flexion strength, which was predominantly lost over the last year and thus likely receptive to reinnervation.
- This would be the first case we know of where nerve transfer is applied to restore function lost from spinal cord compression by arachnoid cyst.
- Nerve transfer is becoming a lead surgical intervention to restore function in patients with weakness from numerous central and peripheral etiologies but awareness remains low; delay can result in poor outcomes.

Anterior Thoracic Arachnoid Cyst

