

# Discovery and Improvement of a Cervicomedullary Syrinx Following Endoscopic Endonasal Odontoidectomy and Posterior Fixation

## Introduction

- Odontoid pannus is a rare soft tissue growth on the odontoid process of the C2.
- Chronic compression can myelopathy and accompanying neurologic deficits.
- Infrequently, this mass effect can impede cerebrospinal fluid (CSF) flow leading to syrinx formation.
- Surgical decompression is associated with neurological and radiographic improvement of syrinx.
- We present a unique case of a postoperative syrinx identification with subsequent resolution following decompression of odontoid pannus.

## Methods

- IRB approved retrospective review of a single patient at our institution.
- Review included:
  - Clinical presentation and neurologic examination
  - Pre- and postoperative imaging
  - Operative approach and perioperative course
  - Postoperative outcomes

## Case Presentation

- **Patient Case:**
  - 72-year-old male
  - Past medical history of Type II DM, osteoarthritis, and prior C3-C6 anterior cervical discectomy and fusion.
  - Presented with left hemibody weakness progressing to quadriparesis.
  - MRI demonstrated odontoid pannus with severe ventral cervicomedullary junction compression.
  - Neurologic exam was positive for spastic quadriparesis, worst on the left side (Table 1).
- **Surgical Management:**
  - **Stage 1:** Endoscopic endonasal odontoid pannus resection
  - **Stage 2:** Posterior decompression with occiput-T3 posterior fusion

Table 1. Pre- and postoperative neurologic examinations.

Pre-operative			Postoperative		
Right	Left	Site	Right	Left	Site
4	2	Deltoid	5	3	Deltoid
3	2	Bicep	5	3	Bicep
4	2	Tricep	5	3	Tricep
4	3	Wrist Extension	5	2	Wrist Extension
4	3	Wrist Flexion	5	2	Wrist Flexion
4-	1	Grip	5	2	Grip
2	1	Interossei	5	1	Interossei
2	2	Hip Flexion	5	4	Hip Flexion
2	2	Knee Extension	5	4	Knee Extension
4	2	Knee Flexion	5	4	Knee Flexion
3	3	Dorsiflexion	5	5	Dorsiflexion
3	3	Plantar Flexion	5	5	Plantar Flexion
3	3	EHL	5	5	EHL
+ Hoffmans Sign					
+ Clonus					

## Postoperative Course

- Immediate postoperative MRI demonstrated a new cystic CSF collection at the ventral cervicomedullary junction consistent with a syrinx.
- Recovery was complicated by acute CHF, AKI, and prolonged ventilatory support requiring tracheostomy
- Discharge: postoperative day 32 with significant neurologic improvement.
- Six-week postoperative MRI showed near complete resolution of syrinx

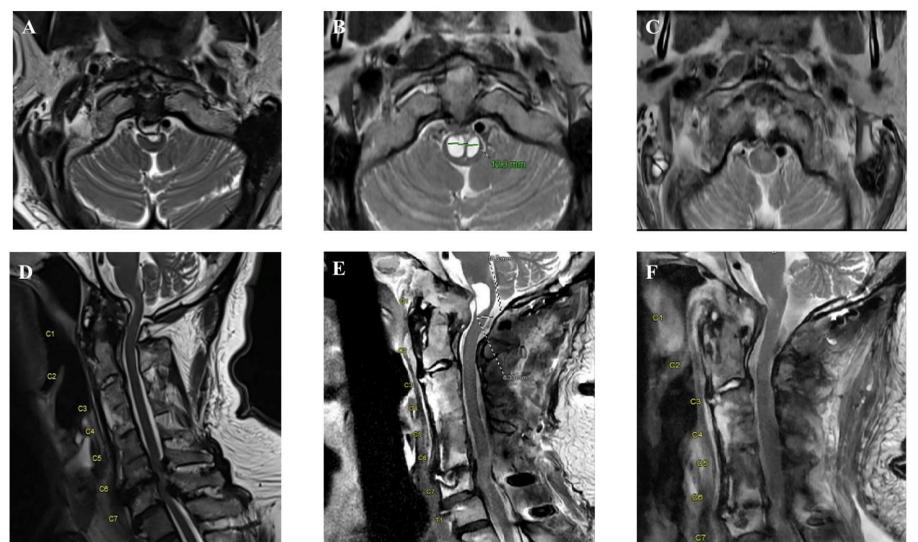


Figure 1. Axial (A-C) and corresponding sagittal (D-F) T2-weighted MRI demonstrating preoperative cervicomedullary compression (A, D), postoperative day 1 syrinx following decompression (B, E), and near complete resolution of syrinx six weeks postoperative (C, F).

## Discussion

- Acute neurologic decline from odontoid pannus is uncommon.
- In our patient, the syrinx was likely pre-existing but masked by severe ventral compression.
- Decompression and restoration of CSF flow allowed for resolution of large postoperative syrinx.

## Conclusions

Chronic odontoid compression can induce syrinx formation within the lower brainstem and cervical spinal cord. Access to the ventral source of compression is feasible with an endoscopic endonasal approach. Decompression and fixation can improve both the syrinx and the patient's neurologic status.

## Contact

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