



Case Report

# Syringomyelia resolution after anterior cervical discectomy: A case report and literature review

Alkinoos Athanasiou<sup>1,2</sup>, Ioannis Magras<sup>2</sup>

<sup>1</sup>Lab of Medical Physics School of Medicine, Faculty of Health Sciences, <sup>2</sup>Department of Neurosurgery, AHEPA University General Hospital, Aristotle University of Thessaloniki, Thessaloniki, Greece.

E-mail: \*Alkinoos Athanasiou - athalkinoos@auth.gr; Ioannis Magras - john.magras@gmail.com



**\*Corresponding author:**

Alkinoos Athanasiou,  
Lab of Medical Physics  
School of Medicine, Faculty  
of Health Sciences, Aristotle  
University of Thessaloniki,  
Thessaloniki - 54124, Greece.

athalkinoos@auth.gr

Received : 07 December 18

Accepted : 05 January 19

Published : 26 March 19

**DOI**

10.25259/SNI-91-2019

**Quick Response Code:**



## ABSTRACT

**Background:** Syringomyelia is rarely associated with cervical disc herniations and/or spinal stenosis.

**Case Description:** A 62-year-old male presented with a 4-month history of right brachial pain and hyposensitivity in the C5 distribution. The cervical magnetic resonance (MR) imaging scan revealed a C5–C6 right anterolateral disc herniation with syringomyelia extending from C5–C6 to T1. Following a C5–C6 anterior cervical discectomy and fusion (ACDF), the patient's symptoms resolved. The 3-month postoperative MR documented total resolution of the syrinx. Notably, due to residual neuropathic pain, the patient required a subdural spinal cord stimulator which was placed without any complications.

**Conclusion:** Syringomyelia rarely occurs in conjunction with cervical disc disease and stenosis, and even more infrequently resolves following an ACDF. Future research should focus on the etiology of syrinx formation in these patients and should explore their response to various treatment modalities.

**Keywords:** Anterior cervical discectomy and fusion, cervical disc herniation, cervical spondylosis, spondylotic myelopathy, syringomyelia

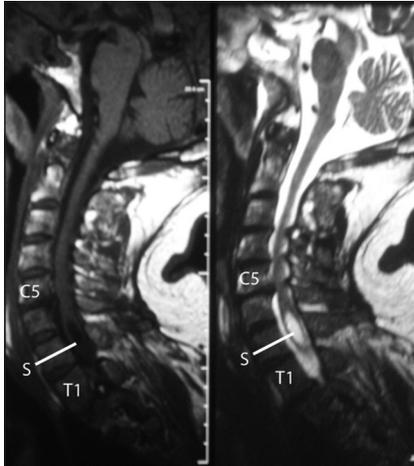
## INTRODUCTION

Syringomyelia is usually attributed to Chiari malformations, spinal arachnoiditis, intramedullary tumors, and trauma. It is rarely due to cervical spondylosis, stenosis, or disc disease associated with myelopathy and/or radiculopathy.<sup>[4,6]</sup> Here, we present a rare case of syringomyelia that resolved following an anterior cervical discectomy/fusion.

## CASE REPORT

A 62-year-old male presented with a 4-month history of right brachial/shoulder pain and numbness with hyposensitivity in the C5 distribution. The magnetic resonance imaging (MRI) scan showed: (a) degenerative cervical spondylosis from the C3–C4 to C5–C6 levels, (b) a C5–C6 right anterolateral disc herniation with

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.



**Figure 1:** Preoperative magnetic resonance imaging of the cervical spine of the patient (left: sagittal unenhanced T1-weighted, right: sagittal T2-weighted) showing right centrolateral C5–C6 disc herniation, cervical spondylosis from C3–C4 to C6–C6, and a syringomyelia cavity (marked “S”) extending from C6–C7 to T1 levels.

foraminal stenosis, and (c) syringomyelia extending from the C5–C6 to the T1 level [Figure 1].

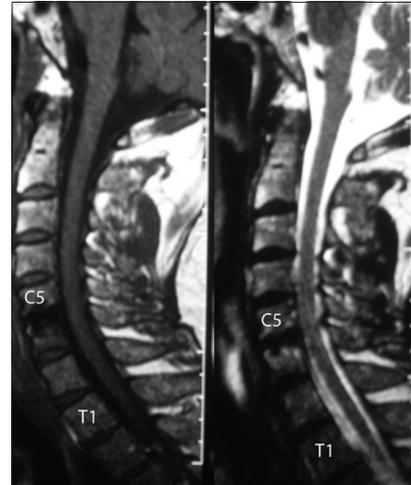
### Surgery

Following a C5–C6 anterior cervical discectomy and fusion (ACDF) with placement of a polyetheretherketone cage, the patient’s symptoms markedly improved. 3 months later, the MRI scan confirmed not only adequate decompression of the spinal cord but also the total resolution of the syrinx [Figure 2].

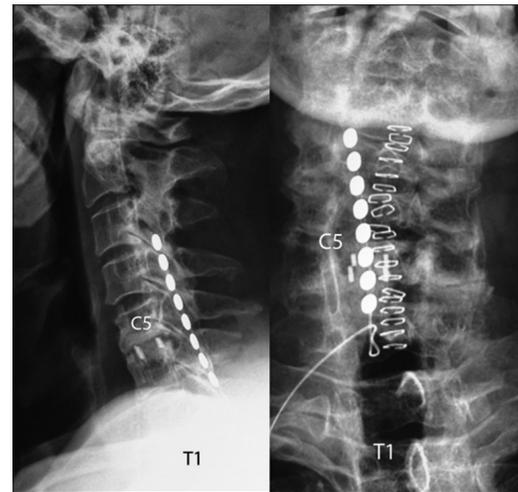
Nevertheless, for residual, non-dermatomal right cervical neuropathic pain, the patient underwent placement of an eight-electrode subdural spinal cord stimulator placed from the C3 to C4 through the C5–C6 levels; the patient significantly improved [Figure 3].

### DISCUSSION

Syringomyelia is usually attributed to Chiari malformations, spinal arachnoiditis, intramedullary tumors, and trauma. It is seldom associated with cervical disc disease or spondylosis.<sup>[1–8]</sup> In two such cases, ACDF resulted in complete radiological and clinical resolution of the syrinx.<sup>[5,8]</sup> Younger patient age, a longer history of disease, and lower functional scores were associated with syringomyelia. Notably, postoperative outcomes and progression-free survival for those patients did not differ significantly versus those without syringomyelia.<sup>[6]</sup> Here, we presented a rare case of syringomyelia attributed to cervical disc disease/stenosis that fully resolved following a C5–C6 ACDF. Such complete radiological resolution indicates that cervical disc disease/spondylosis might alter the cerebrospinal fluid flow that was adequately restored to normal with surgery.



**Figure 2:** Postoperative imaging of the cervical spine of the patient. At sagittal T1-weighted magnetic resonance imaging (MRI) (left) and sagittal T2-weighted MRI (right), resolution of the syringomyelia is evident.



**Figure 3:** Postoperative cervical spine X-ray (anterior-posterior and lateral) after the placement of the subdural spinal cord stimulator at levels C3–C4 to C5–C6, showing also the polyetheretherketone at C5–C6 level.

### CONCLUSION

Syringomyelia associated with cervical disc disease/spondylosis is rare. Here, we present a patient, who following a C5–C6 ACDF achieved complete resolution of the accompanying syrinx along with significant symptomatic improvement.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given his consent for his images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

### REFERENCES

1. Ball JR, Little NS. Chiari malformation, cervical disc prolapse and syringomyelia-always think twice. *J Clin Neurosci* 2008;15:474-6.
2. Butteriss DJ, Birchall D. A case of syringomyelia associated with cervical spondylosis. *Br J Radiol* 2006;79:e123-5.
3. Kimura R, Park YS, Nakase H, Sakaki T. Syringomyelia caused by cervical spondylosis. *Acta Neurochir (Wien)* 2004;146:175-8.
4. Klekamp J. Surgical treatment of multilevel cervical spondylosis in patients with or without a history of syringomyelia. *Eur Spine J* 2017;26:948-57.
5. Landi A, Nigro L, Marotta N, Mancarella C, Donnarumma P, Delfini R, *et al.* Syringomyelia associated with cervical spondylosis: A rare condition. *World J Clin Cases* 2013;1:111-5.
6. Pillich D, El Refaee E, Mueller JU, Safwat A, Schroeder HW, Baldauf J, *et al.* Syringomyelia associated with cervical spondylotic myelopathy causing canal stenosis. A rare association. *Neurol Neurochir Pol* 2017;51:471-5.
7. Venkata SS, Arimappamagan A, Lafazanios S, Pruthi N. Syringomyelia secondary to cervical spondylosis: Case report and review of literature. *J Neurosci Rural Pract* 2014;5 Suppl 1:S78-82.
8. Yaman ME, Eylen A, Ayberk G. Resolution of isolated syringomyelia after treatment of cervical disc herniation: Association or coincidence? *Bratisl Lek Listy* 2012;113:500-2.

**How to cite this article:** Athanasίου A, Magras I. Syringomyelia resolution after anterior cervical discectomy: A case report and literature review. *Surg Neurol Int* 2019;10:42.