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Case Report

Syrinx associated with cervical spondylosis: A report of 13 cases

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ABSTRACT

Background: Sustained compression of the spinal cord by cervical spondylosis may induce arachnoid fibrotic changes and trigger local syrinx formation.

Cases Description: Here, we describe 13 cases of syrinx formation in association with cervical spondylosis. In 12 out of 13 patients, the syrinx was incidental finding while screening for simple neck pain. In one case, it was discovered during an evaluation of upper extremity radiculopathy. Over the 3–8-year follow-up period, the syrinx size did not change in 11 cases (i.e., 10 asymptomatic and one with radiculopathy) even after surgical decompression. In the other two cases, the syrinx spontaneously resolved.

Conclusion: With the increased utilization of cervical MR imaging, more cases of incidental asymptomatic syrinx formation versus symptomatic lesions contributing to radiculopathy have been discovered.

Keywords: Cervical spondylosis, Radiculopathy, Spinal cord, Sustained compression, Syrinx

INTRODUCTION

Syringomyelia is defines as a cystic cavitation within the spinal cord. It is generally associated with congenital malformations, trauma, postmeningitis, adhesive arachnoiditis, and tumors, but only rarely with cervical spondylosis.[4,9] Lucci *et al*., in 1981, presented the first case of syringomyelia associated with cervical spondylosis.[7] Here, we present 13 new cases of cervical syrinx formation along with a short literature review.

CASE DESCRIPTION

Thirteen patients, including nine males and four females, averaging 48.2 years of age, presented with cervical (i.e., C5-7 levels/average length of 18 mm and Axial 3.8 mm): 11 patients or upper thoracic syringomyelia attributed to cervical or thoracic spondylosis [Table 1]. Twelve patients were asymptomatic and were followed for between 2 and 7 years (i.e., six patients < 5 years vs. six patients > 5 years) during which time their syrinxes did not change in 10 of 12 asymptomatic cases, while spontaneously resolved in two patients [Figures 1-6]. The one patient with cervical radiculopathy was followed for 3 years after an anterior cervical discectomy and disk fusion; the size of her syrinx did not chance postoperatively [Figure 7].

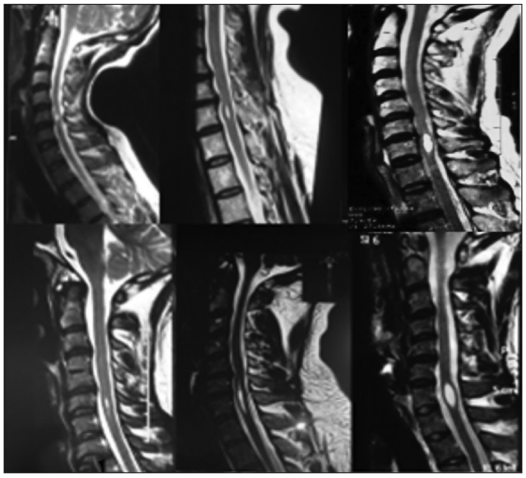

Figure 1: Six different patients with an association of cervical spondylosis and syrinx.

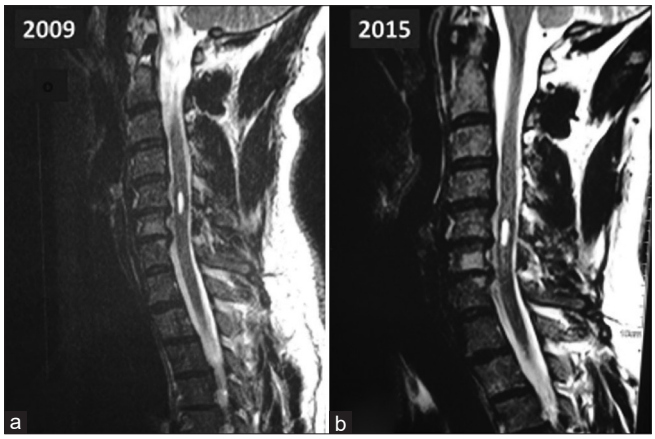

Figure 2: A 52-year-old male shows no change after 7 years (a: Primary; b: seven years later).

Figure 3: A 59-year-old man with four-level syrinx no change in size after 6 years (a: Primary; b: six years later).

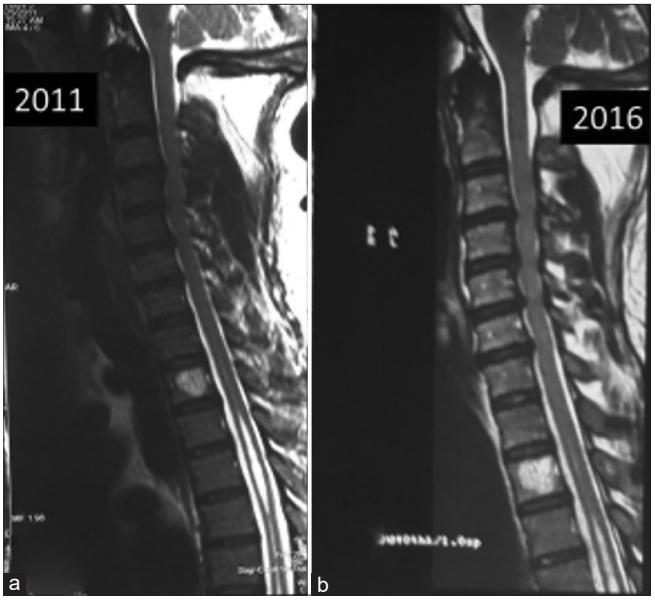

Figure 4: A 43-year-old man with a combination of spondylosis and cervicothoracic syrinx, note no change after 5 years (a: Primary; b: five years later).

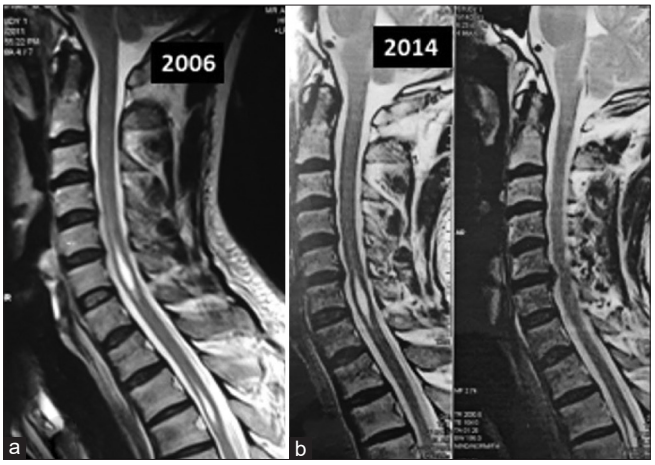

Figure 5: A 41-year-old man with two separate syrinxes; one in cervical and one in upper thoracic, no change after 8 years (a: Primary; b: eight years later).

DISCUSSION

Syrinx formation in patients with cervical spondylosis is an extremely rare entity, with only 14 previously published cases. In addition, two cases with a combination of syringomyelia and thoracic ossification of the ligamentum flavum have been reported.[1,3,5-7,10-12]

Pathogenesis

Syrinxes in association with cervical/thoracic spondylosis should be differentiated from intramedullary cysts and/or intramedullary/intradural, extramedullary intradural, and/

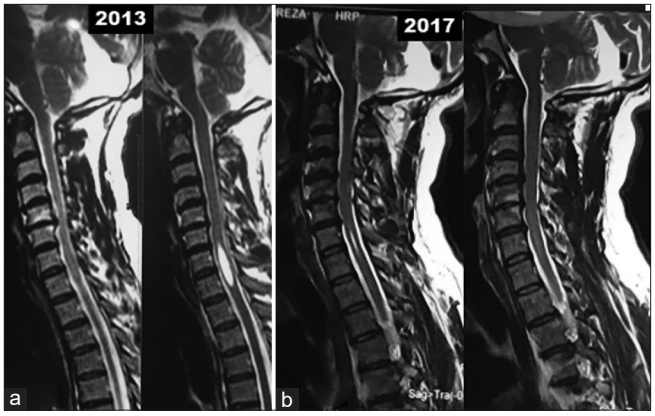

Figure 6: A 43-year-old man with a two-level syrinx, note no change after 4 years (a: primary; b: four years later).

Figure 7: A 68-year-old woman with syrinx which has not changed in size after decompression, one-level ACDF.

or extradural arachnoid cysts.[8] Cerebrospinal fluid (CSF) dynamic disturbances are often attributed to localize adhesive arachnoiditis at the site of spondylosis resulting in syrinx formation.[2,4] Heiss *et al.* discussed how the CSF pressure increased in the subarachnoid space above a block, and how these stronger – pulsations resulted in greater collections of interstitial cord fluid.[4] Brierley confirmed the movement of CSF tracers from the subarachnoid space into the spinal cord perivascular space,[2] resulting in the formation of cystic cavities/syrinx formation.[2,4]

The size of syrinx varies in proportion to the severity of the attendant spondylosis. Therefore, advanced cervical spondylotic myelopathy results in larger syrinx formation versus smaller syrinxes with less severe spondylotic disease.[1,3,5-7,10-12] Although syrinxes typically develop distal to the spondylosis, they can also be found at more proximal levels.

Treatment

Asymptomatic syrinxes due to cervical/thoracic spondylosis do not require surgery. Alternatively, patients with symptomatic syrinxes should undergo the most appropriate decompressive surgical procedure for their spondylotic disease rather than direct syrinx drainage.[1,3,5-7,10-12] In these latter surgical cases, the corresponding syrinx usually resolves following decompressive spinal surgery.[1,3,5-7,10-12]

CONCLUSION

In symptomatic patients, surgical resection of cervical/thoracic spondylosis typically results in resolution of attendant syrinx formation; the cysts do not require direct drainage/marsupialization/removal. However, the majority of patients with asymptomatic syrinxes attributed to spondylotic disease, neurologically either stabilize or

Table 1: Information with respect to sex, age, clinical picture, level, and size of the syrinx. The syrinx was very small in five cases, small in three cases, medium in three cases, and large in two.

S. No.	Sex	Age	Clinical picture	Level	Size	Change in size with time
1.	F	52	Asymptomatic	C5+C6	Medium	No
2.	F	68	Radiculopathy	C5+C6	Medium	No
3.	M	60	Asymptomatic	C5	Small	No
4.	M	52	Asymptomatic	C5	Very small	No
5.	F	39	Asymptomatic	C5	Very small	No
6.	M	59	Asymptomatic	C6-T2	Large	No
7.	M	33	Asymptomatic	C6	Very small	No
8.	M	43	Asymptomatic	T2 to T4	Large	No
9.	F	47	Asymptomatic	C7	Very small	No
10.	M	43	Asymptomatic	C6-C7	Medium	Resolved
11.	M	46	Asymptomatic	C7	Small	Resolved
12.	M	41	Asymptomatic	C6-C7, T2-T3	Small	No
13.	M	44	Asymptomatic	C7	Very small	No

experience spontaneous regression of their syrinxes without surgery.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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