

## Commentary

In this article, the authors introduced a rare case of syringomyelia secondary to cervical spondylosis.<sup>[1]</sup> Further, they performed literature review and discovered only 15 cases of other syringomyelia secondary to spinal cord compression. Although syringomyelia associated with Chiari malformation is occasionally encountered, these cases are extremely uncommon. Therefore, I guess this paper should be published because of rarity.

However, a couple of questions are still remaining unresolved.

It is broadly well known that syringomyelia associated with Chiari malformation sometimes causes scoliosis.<sup>[2,3]</sup> The prevalence of scoliosis accompanied with syringomyelia was previously reported 2.8-25.8%.<sup>[4-6]</sup> Whereas, the prevalence of syringomyelia secondary to spinal cord compression is unknown.

The authors speculated the pathophysiology of syringomyelia secondary to spinal cord compression by bibliographic consideration. But the discussion of pathophysiology of syringomyelia is also incomplete because most diseases by spinal cord compression do not always have syringomyelia. In the syringomyelia associated with Chiari malformation, overcrowding in the posterior cranial fossa due to a normal-sized hindbrain induces a downward herniation of the brain as well as occlusion of cerebrospinal fluid (CSF) flow across the foramen magnum.<sup>[7]</sup> This obstructs natural flow of CSF and may be responsible for the origin and maintenance of syringomyelia by the pulsatile pressure waves forcing CSF into the spinal cord through the perivascular and interstitial spaces.<sup>[8]</sup> Moreover, some syringomyelia associated with Chiari malformation are spontaneously diminishing. In scoliosis cases, Tokunaga *et al.*<sup>[9]</sup> reported the size of syringomyelia associated with Chiari malformation decreased 50% or more in 14 of 27 cases in accordance with growth that promotes elevation of the tonsils.

The next step that we should do is accumulation of similar cases. Amassed data must contribute to properly elucidate prevalence, mechanism, and established

management of this disorder. I hope various questions with regard to this pathology will be solved in the future.

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## References

1. Savitr Sastri BV, Arivazhagan A, Lafazan S, Pruthi N. Syringomyelia secondary to cervical spondylosis – A case report and review of literature. *J Neurosci Rural Pract* 2014;5:S78-82.
2. Arai S, Ohtsuka Y, Moriya H, Kitahara H, Minami S. Scoliosis associated with syringomyelia. *Spine (Phila Pa 1976)* 1993;18:1591-2.
3. Kuroki H, Inomata N, Hamanaka H, Chosa E, Tajima N. Single-group study to explore the optimal management of neuroathic scoliosis caused by neural axis abnormalities based on its clinical features. *The Open Spine Journal* 2012;4:28-33.
4. Evans SC, Edgar MA, Hall-Craggs MA, Powell MP, Taylor BA, Noordeen HH. MRI of “idiopathic” juvenile scoliosis. A prospective study. *J Bone Joint Surg Br* 1996;78:314-7.
5. Shen WJ, McDowell GS, Burke SW, Levine DB, Chutorian AM. Routine preoperative MRI and SEP studies in adolescent idiopathic scoliosis. *J Pediatr Orthop* 1996;16:350-3.
6. Gupta P, Lenke LG, Bridwell KH. Incidence of neural axis abnormalities in infantile and juvenile patients with spinal deformity. Is a magnetic resonance image screening necessary? *Spine (Phila Pa 1976)* 1998;23:206-10.
7. Nishikawa M, Sakamoto H, Hakuba A, Nakanishi N, Inoue Y. Pathogenesis of Chiari malformation: A morphometric study of the posterior cranial fossa. *J Neurosurg* 1997;86:40-7.
8. Oldfield EH, Muraszko K, Shawker TH, Patronas NJ. Pathophysiology of syringomyelia associated with Chiari I malformation of the cerebellar tonsils. *J Neurosurg* 1994;80:3-15.
9. Tokunaga M, Minami S, Isobe K, Moriya H, Kitahara H, Nakata Y. Natural history of scoliosis in children with syringomyelia. *J Bone Joint Surg Br* 2001;83:371-6.

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