

Letter to the Editor



Letter to the Editor: Commentary on Progression of Ossification of Posterior Longitudinal Ligament After Anterior Cervical Discectomy and Fusion in Military Patients Exposed to Minor Trauma (*Korean J Neurotrauma* 2022;18:254–267)

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Conflict of Interest

The author has no financial conflicts of interest.

► See the article “Progression of Ossification of Posterior Longitudinal Ligament After Anterior Cervical Discectomy and Fusion in Military Patients Exposed to Minor Trauma” in volume 18 on page 254.

Dear Editor,

Thank you for the opportunity to review the paper “Progression of Ossification of Posterior Longitudinal Ligament After Anterior Cervical Discectomy and Fusion in Military Patients Exposed to Minor Trauma.”⁶⁾

Ossification of the posterior longitudinal ligament (OPLL) caused by lamellar bone deposition of the posterior longitudinal ligament can result in severe neurological deficits due to spinal cord compression.^{7,10)} OPLL progresses gradually, decreasing cervical spine function and quality of life.⁴⁾ Although genetic or environmental factors have been suggested as the causes of OPLL progression, its pathogenesis is unknown.^{1,3,5,8,9)} Previous studies have reported that the relationship between OPLL progression and mobility of the cervical spine implying that abnormal strain distribution in the tensile direction affects OPLL.⁸⁾ Furthermore, surgical treatment hastens OPLL progression through biological stimulation.²⁾

The authors of this study reported that there was no excessive stress because the range of motion (ROM) in patients undergoing anterior cervical discectomy and fusion did not change significantly before and after surgery.⁶⁾ However, because the surgical level movement was reduced due to the fusion, if there was no difference in the overall ROM of the cervical spine before and after the surgery, it is believed that the remaining cervical joints were actually subjected to excessive stress. Stress corresponds to the abnormal strain distribution described in a previous report,⁸⁾ and it may be related to OPLL progression.

Furthermore, at the index level, the location where OPLL progressed was the most common, and it was reported that OPLL progressed mainly in the body rather than in the intervertebral disc space.⁶⁾ Regarding these points, it is believed that additional evaluation of whether

fusion of the surgical site was successful in all patients is required, and the possibility that different stresses due to fusion and non-fusion affect the increase in OPLL progression. Because the PLL in the upper and lower bodies of the index level serves as the last support portion for the tensile force applied at the upper and lower segments of the surgical site, it is possible that more OPLL progression occurred there.

It would be preferable if a few additional points were included. However, this report is valuable because it provides valuable information to clinicians when treating patients with OPLL. I hope that my suggestion will be beneficial to the authors' research.

REFERENCES

1. Furushima K, Shimo-Onoda K, Maeda S, Nobukuni T, Ikari K, Koga H, et al. Large-scale screening for candidate genes of ossification of the posterior longitudinal ligament of the spine. *J Bone Miner Res* 17:128-137, 2002
[PUBMED](#) | [CROSSREF](#)
2. Hirabayashi K, Miyakawa J, Satomi K, Maruyama T, Wakano K. Operative results and postoperative progression of ossification among patients with ossification of cervical posterior longitudinal ligament. *Spine (Phila Pa 1976)* 6:354-364, 1981
[PUBMED](#) | [CROSSREF](#)
3. Hori T, Kawaguchi Y, Kimura T. How does the ossification area of the posterior longitudinal ligament progress after cervical laminoplasty? *Spine (Phila Pa 1976)* 31:2807-2812, 2006
[PUBMED](#) | [CROSSREF](#)
4. Katsumi K, Hirai T, Yoshii T, Maki S, Mori K, Nagoshi N, et al. The impact of ossification spread on cervical spine function in patients with ossification of the posterior longitudinal ligament. *Sci Rep* 11:14337, 2021
[PUBMED](#) | [CROSSREF](#)
5. Koga H, Sakou T, Taketomi E, Hayashi K, Numasawa T, Harata S, et al. Genetic mapping of ossification of the posterior longitudinal ligament of the spine. *Am J Hum Genet* 62:1460-1467, 1998
[PUBMED](#) | [CROSSREF](#)
6. Koo J, Hwang S, Yoon SH, Shin HJ, Cho BK. Progression of ossification of posterior longitudinal ligament after anterior cervical discectomy and fusion in military patients exposed to minor trauma. *Korean J Neurotrauma* 18:254-267, 2022
[PUBMED](#) | [CROSSREF](#)
7. Li H, Jiang LS, Dai LY. A review of prognostic factors for surgical outcome of ossification of the posterior longitudinal ligament of cervical spine. *Eur Spine J* 17:1277-1288, 2008
[PUBMED](#) | [CROSSREF](#)
8. Matsunaga S, Sakou T, Taketomi E, Nakanisi K. Effects of strain distribution in the intervertebral discs on the progression of ossification of the posterior longitudinal ligaments. *Spine (Phila Pa 1976)* 21:184-189, 1996
[PUBMED](#) | [CROSSREF](#)
9. Ogata N, Koshizuka Y, Miura T, Iwasaki M, Hosoi T, Shiraki M, et al. Association of bone metabolism regulatory factor gene polymorphisms with susceptibility to ossification of the posterior longitudinal ligament of the spine and its severity. *Spine (Phila Pa 1976)* 27:1765-1771, 2002
[PUBMED](#) | [CROSSREF](#)
10. Tsuyama N. Ossification of the posterior longitudinal ligament of the spine. *Clin Orthop Relat Res* 184:71-84, 1984
[PUBMED](#) | [CROSSREF](#)