



# Comment on “Analysis of Risk Factors Causing Adjacent Disc Degeneration After Percutaneous Kyphoplasty for Osteoporotic Vertebral Compression Fractures” [Letter]

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## Dear editor

We have read with great interest the original research article by Song et al,<sup>1</sup> titled “Analysis of Risk Factors Causing Adjacent Disc Degeneration After Percutaneous Kyphoplasty for Osteoporotic Vertebral Compression Fractures”, published in the Journal of Pain Research. The study provides valuable insights into the incidence and risk factors associated with adjacent disc degeneration (ADD) following percutaneous kyphoplasty (PKP) for osteoporotic vertebral compression fractures (OVCFs). We commend the authors for their meticulous analysis and comprehensive approach to understanding this complex clinical issue.

## Comment on Study Design and Findings

The retrospective study by Song et al included 130 patients who underwent PKP between January 2015 and January 2021, with a reported incidence rate of ADD distinct from primary degeneration at 42.3%. The authors identified intradiscal cement leakage (ICL) and pre-operative cranial disc degeneration (Pfirrmann grade  $\geq$ IV) as independent risk factors for ADD. These findings are particularly significant as they highlight the potential long-term sequelae of PKP and underscore the importance of careful patient selection and surgical technique.

## Discussion on Intradiscal Cement Leakage (ICL)

The identification of ICL as a significant risk factor for ADD is a critical contribution to the literature. ICL has been previously implicated in the pathogenesis of ADD due to its potential to disrupt the disc's internal environment and increase intradiscal pressure. We suggest that future studies explore the relationship between the volume of cement leakage and the severity of ADD, as well as the impact of surgical techniques on the incidence of ICL.

## Pre-Operative Cranial Disc Degeneration

The association between pre-operative disc degeneration and the development of ADD is another important finding. It is well-established that disc degeneration is a progressive condition, and the presence of pre-existing changes may predispose patients to further degeneration post-PKP. We recommend that future research consider the role of disc degeneration grading systems in pre-operative planning and patient counseling, emphasizing the potential for accelerated degeneration following PKP.

## Limitations and Future Research

While the study by Song et al is robust, it is not without limitations. The retrospective design and single-center nature of the study may introduce selection bias. We encourage multicenter, prospective studies to validate these findings and explore additional risk factors, such as genetic predispositions, biomechanical factors, and the role of bone cement properties in the development of ADD.

## Conclusion

In conclusion, the study by Song et al adds to the growing body of evidence on the risks associated with PKP. By identifying ICL and pre-operative disc degeneration as independent risk factors for ADD, the authors have provided clinicians with valuable information to consider when discussing treatment options with patients. We look forward to future research that builds upon these findings and contributes to the ongoing dialogue on the management of OVCFs and the prevention of ADD.

## Disclosure

The authors report no conflicts of interest in this communication.

## Reference

1. Song H, Wang A, Zang L, et al. "Analysis of risk factors causing adjacent disc degeneration after percutaneous kyphoplasty for osteoporotic vertebral compression fractures". *J Pain Res.* 2024;17:3985–3995. doi:10.2147/JPR.S486668

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