



## Editorial



### Corresponding Author

Inbo Han

<https://orcid.org/0000-0002-0834-9325>

Editor-in-Chief

Department of Neurosurgery, CHA  
University, School of Medicine, CHA  
Bundang Medical Center, 59 Yatap-ro,  
Bundang-gu, Seongnam 13496, Korea  
Email: hanib@cha.ac.kr

# From the Editor-in-Chief: Featured Articles in the September 2024 Issue

Inbo Han

Department of Neurosurgery, CHA Bundang Medical Center, CHA University School of Medicine, Seongnam, Korea

In this editorial, we highlight the significant contributions of selected articles published in the September 2024 issue of *Neurospine*. These articles represent advancements in spine research, offering valuable insights into various aspects of spinal health, treatment modalities, and clinical outcomes.

### Article 1: “An Experimental Model for Fluid Dynamics and Pressures During Endoscopic Lumbar Discectomy”

Farshad et al.<sup>1</sup> developed an experimental model to measure intracranial, intra-, and epidural pressures during full-endoscopic lumbar discectomy (FELD) using human cadavers. Catheters were placed at various spinal levels, and pressure changes were monitored during endoscopy. Their results validated the model's reproducibility and sensitivity in detecting pressure increases, offering a reliable setup to explore the impact of endoscopic techniques and pump pressures. This study aims to guide safe pressure limits during FELD to avoid complications like headache, seizure, and autonomic dysreflexia.

### Article 2: “Intraoperative Management of Iatrogenic Durotomy in Endoscopic Spine Surgery: A Systematic Review”

Trathitephun et al.<sup>2</sup> conducted a systematic review to assess the incidence, management, and outcomes of iatrogenic durotomy in endoscopic spine surgery. Analyzing 14 studies with 68,546 patients, they found that tear size dictated management strategies: small tears (<5 mm) were often left untreated, while medium (5–10 mm) and large tears (>10 mm) required more complex repairs. Nerve root herniation frequently led to conversion to open surgery. The authors proposed a management flowchart to guide treatment based on tear size and complications, aiming to improve outcomes and reduce complications.

### Article 3: “Complications in Minimally Invasive Spine Surgery in the Last 10 Years: A Narrative Review”

Boadi et al.<sup>3</sup> conducted a systematic review of complications in minimally invasive spine surgery (MISS) from 2013 to 2024. Analyzing 137 studies, they found common complications in cervical MISS, such as hematomas and dural tears, while thoracic MISS was more prone to cerebrospinal fluid leaks. Lumbar MISS commonly experienced disc herniation recurrences and dural injuries. Despite these challenges, MISS continues to offer reduced tissue disruption and lower complication rates compared to open surgery. Technological advancements, such as intraoperative neuromonitoring and navigation are helping to further



This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Copyright © 2024 by the Korean Spinal Neurosurgery Society

mitigate risks, making MISS a safe and effective approach.

#### **Article 4: “Artificial Intelligence Detection of Cervical Spine Fractures Using Convolutional Neural Network Models”**

Liawrungrueang et al.<sup>4</sup> developed a convolutional neural network model for computer-assisted diagnosis of cervical spine fractures using lateral radiographic x-ray images. The model was trained on 500 images (250 normal, 250 fracture) and tested on 30% of the dataset. It achieved high sensitivity (0.886 for fractures, 0.957 for normal cases) and precision (0.954 for fractures, 0.893 for normal cases), with an overall accuracy of 92.14%. This deep learning approach shows great potential for enhancing radiologists’ ability to screen and diagnose cervical spine fractures effectively.

#### **Article 5: “Distal Junctional Failure After Fusion Stopping at L5 in Patients With Adult Spinal Deformity: Incidence, Risk Factors, and Radiographic Criteria”**

Do et al.<sup>5</sup> identified risk factors and radiographic criteria for distal junctional failure (DJF) in patients with adult spinal deformity undergoing fusion surgery stopping at L5. In a cohort of 76 patients, 21.1% experienced DJF. Older age, the use of antidepressant/anxiolytic medications, and preoperative pelvic incidence–lumbar lordosis mismatch  $> 40^\circ$  were significant risk factors. Two radiographic criteria—last distal junctional angle

$> -5^\circ$  and  $\Delta$  last distal junctional angle  $> 5^\circ$ —were highly predictive of DJF, with 93.3% sensitivity and 91.7% specificity.

- **Conflict of Interest:** The author has nothing to disclose.

## **REFERENCES**

1. Farshad M, Stauffer A, Zipser CM, et al. An experimental model for fluid dynamics and pressures during endoscopic lumbar discectomy. *Neurospine* 2024;21:745-52.
2. Trathitephun W, Asawasaksakul A, Jaruwanneechai K, et al. Intraoperative management of iatrogenic durotomy in endoscopic spine surgery: a systematic review. *Neurospine* 2024; 21:756-66.
3. Boadi BI, Ikwuegbuenyi CA, Inzerillo S, et al. Complications in minimally invasive spine surgery in the last 10 years: a narrative review. *Neurospine* 2024;21:770-803.
4. Liawrungrueang W, Han I, Cholamjiak W, et al. Artificial intelligence detection of cervical spine fractures using convolutional neural network models. *Neurospine* 2024;21: 833-41.
5. Do SH, Bae S, Jo DJ, et al. Distal junctional failure after fusion stopping at L5 in patients with adult spinal deformity: incidence, risk factors, and radiographic criteria. *Neurospine* 2024;21:856-64.