Neurospine 2024;21(4):1106-1107.
https://doi.org/10.14245/ns.2449374.687

Neurospine
pISSN 2586-6583 eISSN 2586-6591

Commentary

A Commentary on "Practical Guidance of Full-Endoscopic Technique for Incidental Durotomy Repair: A Surgical Video Demonstration"

David Del Curto

Department of Orthopedics, Federal University of Sao Paulo, Sao Paulo, Brazil

Corresponding Author
David Del Curto
https://orcid.org/0000-0002-6273-3723

Department of Orthopedics, Federal University of Sao Paulo, Rua Emilio De Menezes, Sao Paulo 96, Brazil
Email: ddelcurto@hotmail.com

See the article "Practical Guidance of Full-Endoscopic Technique for Incidental Durotomy Repair: A Surgical Video Demonstration" via https://doi.org/10.14245/ns.2449054.527.

The authors present a comprehensive surgical video demonstrating the full-endoscopic repair of an incidental durotomy in a 50-year-old man with bilateral leg claudication due to lumbar stenosis (L4–S1).[1] The dural tear was a contained defect measuring 10 mm in size. To mitigate the risk of intracranial pressure elevation, irrigation pressure was reduced to 30 mmHg. The surgical repair involved passing a 6-0 Prolene suture through the working channel of the endoscope, with two simple knots tied using a knot pusher. This meticulous approach highlights the technical precision required for such repairs.

Iatrogenic dural tears are among the most frequent and concerning complications encountered in spine surgery. Reported incidence rates vary widely, ranging from 1% to 17%, depending on the surgical approach and underlying pathology.[2] Endoscopic spine surgery has been associated with a lower incidence of dural tears compared to traditional open techniques.[3] Nevertheless, the increasing adoption of both full-endoscopic and biportal endoscopic techniques has expanded their use to address more complex clinical cases.[4] This evolution brings not only promising outcomes but also an associated risk of complications, including dural tears. Factors contributing to these risks include the interlaminar approach, stenosis decompression, and the use of powered drills. Additional circumstances such as revision surgeries, repeated steroid injections, and the surgeon's technical expertise also play significant roles in predisposing patients to these complications.[5]

The consequences of dural tears can be severe and multifaceted. These include cerebrospinal fluid fistulas, often associated with postural headaches, as well as pseudomeningocele, meningitis, and arachnoiditis. Managing these complications effectively requires a clear understanding of the defect's characteristics and appropriate surgical techniques. In a recent systematic review, Trathitephun et al.[3] proposed a treatment algorithm for endoscopic repair of dural tears. According to their findings, defects smaller than 5 mm require no intraoperative intervention. Defects measuring between 5 and 10 mm can be managed with either a patching technique or endoscopic suturing. Defects larger than 10 mm necessitate endoscopic suturing as the primary repair strategy. Furthermore, in cases of uncontained defects where nerve root herniation extends beyond the dural layer, repositioning the nerve root into the dural sac is a crucial prerequisite for closure. Conversion to open surgery is recommended if the nerve roots cannot be successfully repositioned into the dural sac.

The full-endoscopic repair of dural tears is a technically demanding procedure. The chal-

lenges stem from the limited working space and the need to precisely manipulate instruments such as the working cannula, endoscope, forceps, and suture materials.[6] While the authors of this video demonstration exhibit remarkable accuracy and skill in performing the repair, it is important to recognize that this level of technical proficiency may not be easily replicable for the broader endoscopic surgical community. Training and experience remain critical for achieving successful outcomes in these cases.

Even with the reduction of irrigation pressure to 30 mmHg, there remains a risk of increased epidural pressure, which can lead to severe complications, particularly during repeated repair attempts.[7,8] Surgeons must therefore exercise sound clinical judgment in deciding the optimal course of action. Their decisions should be informed by their expertise, familiarity with the instruments, and the specific circumstances of the case. Ultimately, patient safety and the likelihood of successful repair should guide the surgical approach.

We are currently witnessing a transformative period in the field of spinal surgery, driven by advancements in both uniportal and biportal endoscopy. This case report exemplifies the potential of these minimally invasive techniques to address complex surgical challenges while inspiring the development of robust training models. Such models are essential for reducing complications and alleviating the frustration that surgeons often experience when managing challenging cases such as dural injuries. By fostering technical refinement and knowledge dissemination, this article contributes to the ongoing evolution of spinal endoscopy and underscores its significance in modern surgical practice.

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

REFERENCES

1. Trathitephun W, Kamolpak J, Suvithayasiri S. Practical guidance of full-endoscopic technique for incidental durotomy repair: a surgical video demonstration. Neurospine 2024;21:1102-5.
2. Kalevski SK, Peev NA, Haritonov DG. Incidental dural tears in lumbar decompressive surgery: incidence, causes, treatment, results. Asian J Neurosurg 2010;5:54-9.
3. 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.
4. Lin GX, Kotheeranurak V, Mahatthanatrakul A, et al. Worldwide research productivity in the field of full-endoscopic spine surgery: a bibliometric study. Eur Spine J 2020;29:153-60.
5. Ahn Y, Lee HY, Lee SH, et al. Dural tears in percutaneous endoscopic lumbar discectomy. Eur Spine J 2011;20:58-64.
6. Shin JK, Youn MS, Seong YJ, et al. Iatrogenic dural tear in endoscopic lumbar spinal surgery: full endoscopic dural suture repair (Youn's technique). Eur Spine J 2018;27(Suppl 3):544-8.
7. Vargas RAA, Hagel V, Xifeng Z, et al. Durotomy- and irrigation-related serious adverse events during spinal endoscopy: illustrative case series and international surgeon survey. Int J Spine Surg 2023;17:387-98.
8. Vargas RAA, Moscatelli M, Vaz de Lima M, et al. Clinical consequences of incidental durotomy during full-endoscopic lumbar decompression surgery in relation to intraoperative epidural pressure measurements. J Pers Med 2023;13:381.