



Neurosurgical Forum LETTERS TO THE EDITOR

Enhanced recovery after surgery and unilateral biportal endoscopy

TO THE EDITOR: We read with great interest the publication by Özer and Demirtaş¹ (Özer Mİ, Demirtaş OK. Comparison of lumbar microdiscectomy and unilateral biportal endoscopic discectomy outcomes: a single-center experience. *J Neurosurg Spine*. 2024;40[3]:351-358). Their results highlight the advantages of unilateral biportal endoscopic discectomy (UBE) over traditional techniques. These advantages align with the principles of Enhanced Recovery After Surgery (ERAS), reducing surgical trauma, postoperative pain, and hospital stays while promoting faster recovery. However, the application of ERAS principles to UBE is significantly underrepresented in the literature.^{2,3} We aim to underscore the need for systematic integration of ERAS principles in minimally invasive techniques like UBE to enhance perioperative care in spine surgery.

ERAS, introduced as “fast-track” surgery by Kehlet in the 1990s,¹¹ is a multimodal approach designed to enhance perioperative care through evidence-based methods. Its primary goals are to minimize surgical stress, reduce hos-

pital lengths of stay, and lower hospitalization costs.⁴ The first guidelines for spine surgery were published by Debono et al. in 2021, focusing on lumbar fusion.⁵ However, the authors did not address minimally invasive techniques like UBE, reflecting a data gap on the topic.^{2,3}

We propose a tailored ERAS protocol for UBE procedures, summarized in Fig. 1, with the following considerations. In the preoperative phase, patients receive education during surgical and anesthetic consultations, supported by physiotherapist sessions on lumbar hygiene. Nutritional optimization targets anemia and protein deficiencies. In the immediate preoperative period, preemptive multimodal analgesia is administered to reduce postoperative pain. Immersive virtual reality alleviates preoperative anxiety by offering calming, immersive environments. Such nonpharmacological anxiolysis techniques may reduce postprocedural anxiety and intraoperative pain.⁶ Antibiotic prophylaxis is not routinely used for UBE without fusion, in line with the 2024 French Society of Anesthesia, Critical Care and Perioperative Medicine (Société Française d’Anesthésie et de Réanimation [SFAR]) guidelines.⁷ Moreover, continuous saline irrigation and ERAS protocols minimize the risk of postoperative infection.⁸

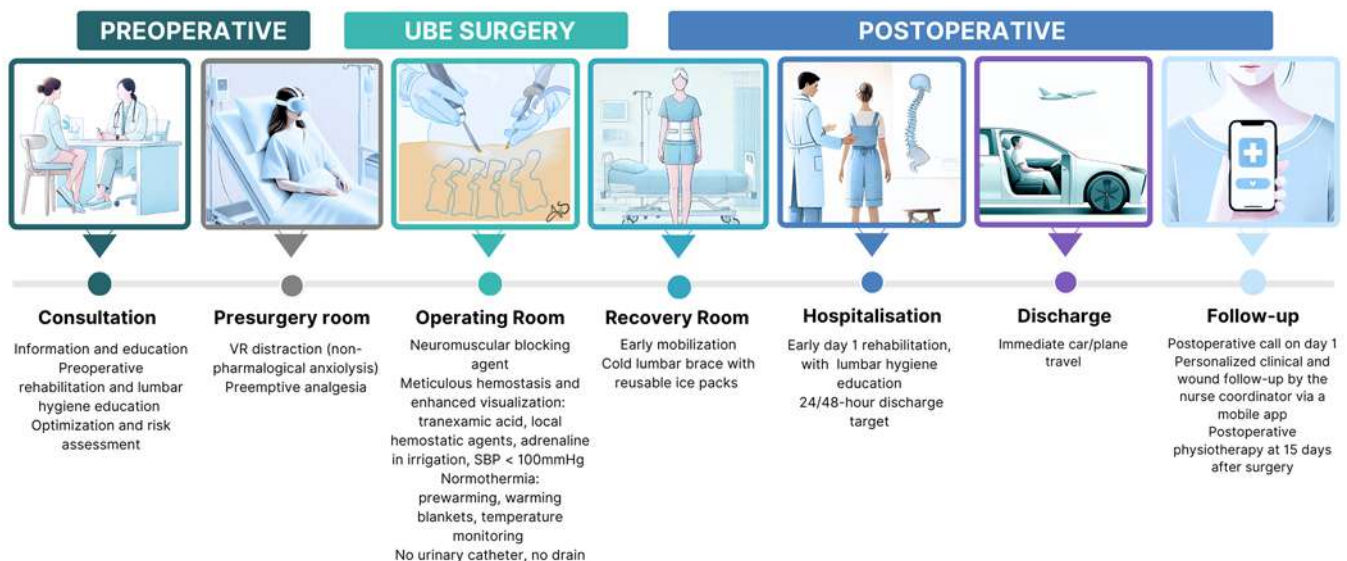


FIG. 1. Schematic of the ERAS protocol adapted for UBE, detailing preoperative, intraoperative, and postoperative care components. SBP = systolic blood pressure; VR = virtual reality. Figure is available in color online only.

In the intraoperative phase, meticulous hemostasis is achieved using tranexamic acid, adrenaline in the irrigation solution,⁹ systolic blood pressure control (< 100 mm Hg), and local hemostatic agents to maintain clear visualization and reduce blood loss.⁹ Continuous saline irrigation increases hypothermia risk,⁴ mitigated through prewarming and active warming measures.⁹ The use of warmed irrigation fluids is under study.¹⁰ The avoidance of urinary catheters and drains reduces infection risks and promotes faster recovery.⁵ Neuromuscular blockade prevents spasms during portal creation, while local anesthetic infiltration improves postoperative pain control.

In the postoperative phase, early mobilization begins in the recovery room, aided by a cold lumbar brace with reusable gel packs to reduce swelling and improve comfort. Physiotherapy starts on day 1 to address maladaptive behaviors and facilitate functional recovery. Patients are discharged within 24–48 hours and can travel by car or plane immediately after discharge. Patients are monitored every other day for 2 weeks via a dedicated mobile application. Advanced rehabilitation begins on day 15, focusing on core strengthening and mobility restoration.

Integrating UBE with ERAS enhances patient-centered care in spine surgery, improving outcomes and addressing healthcare system challenges. This approach requires a paradigm shift among surgeons and medical teams, multidisciplinary collaboration, and audits to ensure adherence and optimize results. Longitudinal studies are needed to evaluate the long-term benefits.

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Disclosures

The authors report no conflict of interest.

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Response

We thank Sellier and colleagues for their interest in and comments on our published study. We believe that, as in other surgical disciplines, implementing a protocol like ERAS for UBE would be highly beneficial. In fact, our surgical approach aligns with many aspects of such protocols, as we ensured early mobilization, avoided urinary catheterization, maintained a postoperative discharge time of less than 24 hours, and implemented several other similar measures. We believe that these practices are inherent to the fundamental philosophy of minimally invasive spinal surgery.

Although many of these recommendations are already implemented at various centers, their systematic proposal helps address a gap in the literature. This structured approach not only contributes to standardizing the perioperative management of UBE but also serves as a valuable reference for future studies aimed at optimizing UBE outcomes. We are grateful to the authors for their valuable contributions.

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