

Spinal Anesthetic Utilized for a Single Level Lumbar Microdiscectomy

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Introduction:

Spinal anesthesia is widely used for lower extremity, pelvic, and lower abdominal surgeries. Spinal may be favored over general anesthesia (GA), depending on procedure and patient-related factors. Spinal anesthesia has been recently suggested to be used for brief, uncomplicated lumbar spine surgeries. In this case, we describe a spinal anesthetic technique for a lumbar microdiscectomy.

Case Report:

A 57-year-old, 55 kg female with a history of lumbar stenosis, anxiety, and severe post-operative nausea and vomiting (PONV) presented as an outpatient for a left sided L5-S1 microdiscectomy. After discussion with the patient and surgeon, spinal anesthesia and monitored anesthesia care were planned. The case is chronologically listed as follows:

Preoperative:

- Oral acetaminophen 975mg

Intraoperative:

- Standard ASA monitors
- Appropriate antibiotics
- Intravenous midazolam 2mg

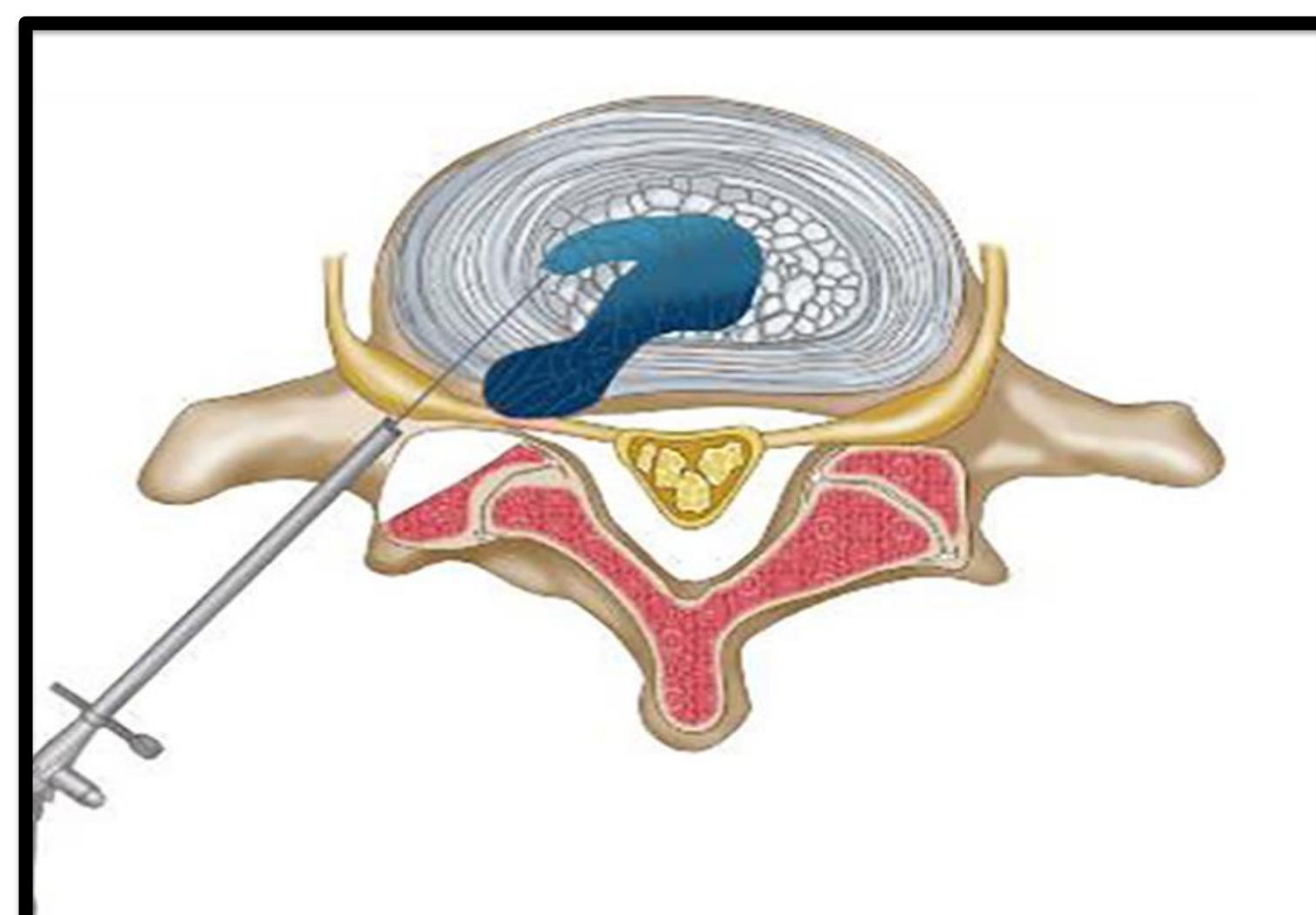


Illustration of a Lumbar Microdiscectomy

Spinal:

- Patient positioned sitting on the OR table
- Skin over the lumbar spine sterilized with chlorhexidine
- Drape applied
- Skin anesthetized with 1% lidocaine over the L3-4 interspace.
- 20-gauge introducer was placed
- 25-gauge, 3.5-inch Whitacre needle advanced.
- CSF flow was noted on the first attempt
- 1.6mL of hyperbaric 0.75% bupivacaine was injected
- Patient positioned prone, with assistance
- Sensory deficit level determined to be adequate up to T10 level.

Post-Spinal:

- Propofol infusion started.
- Surgeon injected 20cc of 0.5% bupivacaine
 - Beginning and end of the case
- Patient remained hemodynamically stable throughout
- No additional anesthetics, analgesics, or pressors
- Intravenous ketorolac 15mg at the end of the case

Postoperative:

- Regained sensation and movement in lower extremities
- No PONV
- Denied pain
 - No additional analgesics or antiemetics in PACU
- Discharged home 2.5 hours after the case
- Two-week follow up pain free and very satisfied

Discussion:

This case highlights how spinal anesthesia can be an acceptable alternative anesthetic for uncomplicated, short lumbar spine cases, despite low projected clinical use. Literature supporting spinal techniques in lumbar spine surgeries have demonstrated benefits when compared with patients undergoing GA, including decreased intraoperative blood loss, decreased perioperative cardiac events, decreased postoperative hypoxia episodes and pulmonary complications, lower theoretical incidence of vascular thrombosis, reduced positioning related injuries, decreased intraoperative time, and superior postoperative pain control. However, these studies are limited, and some literature has concluded no advantages of spinal technique over GA in this subset of patients. Regardless, the use of spinal anesthesia for lumbar spine surgery has largely been determined to be a safe alternative to GA assuming appropriate operative time, spinal technique, and patient factors.

References:

1. Dagistan Y, Okmen K, Dagistan E, Guler A, Ozkan N. Lumbar microdiscectomy under spinal and general anesthesia: a comparative study. Turk Neurosurg. 2015;25(5):685-689.
2. Attari MA, Mirhosseini SA, Honarmand A, Safavi MR. Spinal anesthesia versus general anesthesia for elective lumbar spine surgery: A randomized clinical trial. J Res Med Sci. 2011;16(4):524-529.
3. Sadrolsadat SH, Mahdavi AR, Moharari RS, et al. A prospective randomized trial comparing the technique of spinal and general anesthesia for lumbar disk surgery: a study of 100 cases. Surg Neurol. 2009;71(1):60-65; discussion 65.
4. Breton JM, Ludwig CG, Yang MJ, et al. Spinal anesthesia in contemporary and complex lumbar spine surgery: experience with 343 cases. J Neurosurg Spine. 2022;36(4):534-541.