



USG GUIDED SPINAL ANAESTHESIA IN A PREGNANT PATIENT WITH PREVIOUS L4-L5 DISCECTOMY WITH POSTERIOR LUMBAR INTERBODY FUSION: A CASE REPORT

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ABSTRACT Administering neuraxial anaesthesia in obstetric patients with previous lumbar spine surgery is technically challenging due to altered spinal anatomy, scar tissue formation, and the presence of spinal instrumentation. General anaesthesia in pregnancy carries additional maternal and fetal risks, making regional anaesthesia preferable whenever feasible. We report a case of successful ultrasound-guided spinal anaesthesia in a 37-week pregnant woman with previous L4-L5 discectomy and posterior lumbar interbody fusion undergoing lower segment caesarean section. Preprocedural ultrasound assessment helped identify the appropriate intervertebral level, needle insertion point, and depth to the intrathecal space. Spinal anaesthesia was successfully administered in a single attempt using a 25G Quincke needle at the L3-L4 level. Adequate sensory and motor blockade was achieved with stable haemodynamics throughout the procedure. This case highlights the usefulness of preprocedural ultrasound in facilitating successful neuraxial blockade in obstetric patients with difficult spinal anatomy.

KEYWORDS : Ultrasound-guided spinal anaesthesia; Obstetric anaesthesia; Lumbar fusion; Difficult neuraxial block; Caesarean section

INTRODUCTION

Administering neuraxial anaesthesia in pregnant patients with previous lumbar spine surgery presents significant technical challenges. Postoperative changes such as fibrosis, scar tissue formation, altered vertebral anatomy, and spinal instrumentation can make identification of anatomical landmarks difficult and increase the risk of failed or traumatic neuraxial attempts. Pregnancy-related physiological changes further complicate the procedure.

General anaesthesia in obstetric patients is associated with increased risks including difficult airway management, aspiration, rapid desaturation, and possible neonatal respiratory depression due to transplacental transfer of anaesthetic agents. Hence, regional anaesthesia remains the preferred technique whenever feasible.

Ultrasound-guided neuraxial techniques have emerged as useful adjuncts in patients with difficult spinal anatomy by improving identification of intervertebral spaces, needle trajectory, and depth to the intrathecal space. We report a successful case of ultrasound-guided spinal anaesthesia in a pregnant patient with previous L4-L5 discectomy and posterior lumbar interbody fusion.

CASE REPORT

A 37-week pregnant woman, gravida 2 para 1 living 1, presented in labour with cephalopelvic disproportion and was planned for lower segment caesarean section. She was a known case of hypothyroidism and had undergone a previous lower segment caesarean section 18 years earlier.

The patient had a history of L4-L5 discectomy with posterior lumbar interbody fusion and pedicle screw fixation performed under general anaesthesia for intervertebral disc prolapse with lumbar radiculopathy involving the right lower limb and neurological deficit from L4-S1.

On examination, the patient had short stature with a height of 145 cm and weighed 75 kg. Airway assessment revealed Mallampati Grade II with adequate mouth opening and thyromental distance greater than three finger breadths. Examination of the spine showed a previous surgical scar and instrumentation at the L4-L5 level.

Baseline vitals were stable with blood pressure of 120/80 mmHg, pulse rate of 80/minute, and oxygen saturation of 99% on room air. Routine laboratory investigations were within normal limits.

Considering the anticipated difficulty in neuraxial access due to

previous spinal surgery, a decision was made to perform preprocedural ultrasound-guided spinal anaesthesia.

The patient was positioned sitting and preprocedural ultrasound examination was performed using the parasagittal oblique view, beginning from the sacrum and progressing cephalad. At the L3-L4 interspace, both the posterior and anterior complexes were visualised clearly. The probe was then oriented in the transverse plane to identify the midline and optimal needle insertion point. The depth of the intrathecal space was measured.

After skin marking, a 25G Quincke spinal needle was inserted at the intersection point corresponding to the longitudinal and transverse probe orientation. Clear cerebrospinal fluid was obtained in a single attempt. Spinal anaesthesia was administered using 1.8 mL of 0.5% heavy bupivacaine.

The actual needle depth was approximately 3.1 cm and the total time required for successful spinal block was 92 seconds.

Rapid onset of sensory blockade was observed with bilateral sensory level up to T6 dermatome. Adequate motor blockade corresponding to Modified Bromage Grade III was achieved. The quality of blockade was dense, symmetrical, and adequate for surgery.

Haemodynamic parameters remained stable throughout the procedure without significant hypotension or bradycardia. The patient remained comfortable intraoperatively and did not require supplemental analgesia or conversion to general anaesthesia. The postoperative period was uneventful.

DISCUSSION

Neuraxial anaesthesia in patients with previous lumbar spine surgery is technically demanding because of altered anatomy, epidural fibrosis, scar tissue, and implanted hardware. Multiple failed attempts may increase patient discomfort and complications including traumatic tap, inadequate block, and post-dural puncture headache.

Ultrasound guidance has become increasingly valuable in difficult neuraxial procedures. It allows accurate identification of intervertebral spaces, estimation of depth to the intrathecal space, and determination of the optimal needle trajectory. In obstetric patients, ultrasound can reduce the number of attempts and improve first-pass success rates.

In the present case, ultrasound facilitated successful identification of

the L3-L4 interspace despite prior instrumentation at the L4-L5 level. The ability to accurately determine the insertion point and needle depth resulted in successful spinal anaesthesia in a single attempt without complications.

Avoidance of general anaesthesia was particularly beneficial in this patient due to obesity, short stature, and pregnancy-related airway changes, all of which increase the risk of difficult airway management and aspiration. Furthermore, successful neuraxial blockade avoided fetal exposure to systemic anaesthetic agents.

This case demonstrates that preprocedural ultrasound assessment can significantly improve the safety and success of neuraxial blockade in obstetric patients with previous lumbar spine surgery.

CONCLUSION

Preprocedural ultrasound assessment of the spine is a valuable tool in patients with difficult spinal anatomy undergoing neuraxial blockade. In obstetric patients with previous lumbar spine surgery and instrumentation, ultrasound guidance can improve the accuracy, safety, and success of spinal anaesthesia while reducing procedural attempts and complications.

PATIENT CONSENT

Written informed consent was obtained from the patient for publication of this case report and accompanying clinical details.

DECLARATION OF CONFLICT OF INTEREST:

The authors declare no conflict of interest.

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