

Case Report: Ultrasound Guided Neuraxial Anaesthesia in a Patient with Severe Scoliosis and Large Lumbar Hernia

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Abstract: *Background:* Use of Ultrasonography (USG) in performing regional blocks is well established. Many anaesthesiologists are still reluctant to use USG to identify landmarks in patients with distorted spinal anatomy. USG is as an effective tool and helps anaesthesiologist to identify various landmark in patients suffering with any kind of spinal deformity. Here we present a case of 52 years old patient posted for Cystoscopy and TURP with a huge right sided lumbar hernia causing spinal deformity. This case report details the problems faced by anaesthesiologist in positioning the patient, difficulty in administering spinal anaesthesia and how difficult spinal anaesthesia was overcome with use of Ultrasound as guide for identifying various anatomical landmarks. *Method:* This is a case report along with review of literature. *Result:* Experienced anaesthesiologist can visualize neuraxial structures with satisfactory clarity using USG. A preprocedural scan allows to preview the spinal anatomy, identify midline, locate a given intervertebral level, accurately predict the depth to space, and determine the optimal site and trajectory for needle insertion. *Conclusion:* Ultrasound guided neuraxial anaesthesia is a rapidly developing alternative to traditional landmark - based techniques with regular usage it can be a resourceful technique in challenging spine cases.

Keywords: Ultrasonography, Scoliosis, subarachnoid block, lumbar hernia, TURP

1. Introduction

Use of Ultrasonography (USG) in performing regional blocks is well established. Many anaesthesiologists are still reluctant to use USG to identify landmarks in patients with distorted spinal anatomy. USG is as an effective tool and helps anaesthesiologist to identify various landmark in patients suffering with any kind of spinal deformity.

2. Case Report

A 52 - year - old male presented to the urology department with complaints of lower urinary tract symptoms including hesitancy, weak stream, and incomplete voiding. He also complained of a right - sided lumbar swelling associated with discomfort and mild pain. Patient also had a past medical history significant for hypertension, for which he was on antihypertensive medications. He had no history of diabetes or any other significant medical conditions.

Upon examination, patient was diagnosed with Benign Hypertrophy of Prostate (Prostate size of 125cc) and was posted for Cystoscopy and Trans - urethral resection of prostate (TURP).

During pre - anaesthetic checkup, patient was found to be averagely built with normal vital parameters and moderate exercise tolerance (NYHA - 2). All laboratory parameters were within normal range. Systemic evaluation revealed a large right - sided lumbar hernia with associated severe scoliosis. The hernia was approximately 10 cm in diameter and was causing visible asymmetry in the lumbar region (Fig 01).

X Ray Spine showed severe scoliosis of spine with convexity to left (Fig 02). Ultrasound showed a large lumbar hernia crossing midline with Right Kidney as content, non - visualization of Left kidney and the defect was not measurable. There was no evidence of bowel or omental involvement and no signs of strangulation or bowel obstruction. Computed Tomography of abdomen showed atrophic left kidney with right posterolateral abdominal wall defect 6.8x5.9cm and right kidney, bowel loop with mesentery as herniated content, enlarged prostate and cholelithiasis without cholecystitis.

Challenges that anaesthesia team encountered included large size prostate (125cc), requiring more resection time, thereby increasing chances of volume overload & hyponatraemia. The large lumbar hernia with content being Rt kidney, bowel loops with mesentery, vascular structure crossing midline posed a threat of spinal needle injury. Deviated spine with obscured surface landmarks in lumbar region due to hernia made neuraxial anaesthesia extremely dangerous. Patient was counselled to undergo repair of hernia first, but he refused.

Ultrasonography assisted Spinal Anaesthesia was planned. Patient was screened with Ultrasound in pre - op holding area, marking the spine curvature, selection of inter spinal space as well as rotation of spine and extent of hernial sac was noted. In Operation theatre the patient was positioned in sitting posture. Using ultrasound, markings were reconfirmed, especially, transverse inter - laminar view was noted with angle of expected needle direction (Fig 03). Under all aseptic precaution, intrathecal space at L1 - L2 was located successfully, subarachnoid block was established after 3 attempts with adequate spinal anaesthesia level achieved (T10) using 0.5% Bupivacaine (Heavy) along with Buprenorphine 30 mcg intrathecal (3.2ml). Intraoperatively

the patient tolerated the procedure well with operating time of 45 minutes. Patient was observed till spinal action wore off and assessed for any neuro - deficit post op for 2 days.

3. Conclusion

USG guided neuraxial anaesthesia is non - invasive, safe, can be quickly performed, does not involve exposure to radiation, provides real - time images, and is free from adverse effects. USG guided neuraxial anaesthesia is a rapidly developing alternative to traditional landmark - based techniques. In experienced hand USG can be an important tool in providing CNB in specific patients. As US technology continues to improve and as skills become more widely available, use of US for CNB may become the standard of care in future.



Figure 1



Figure 2



Figure 3

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