



ORIGINAL RESEARCH PAPER

Anesthesiology

ANESTHETIC CHALLENGES IN A PATIENT WITH SEVERE THORACOLUMBAR KYPHOSCOLIOSIS

KEY WORDS:

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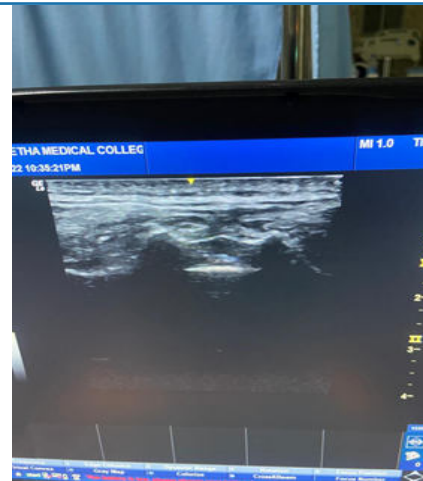
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ABSTRACT Patients with thoracolumbar kyphoscoliosis present unique challenges to anesthesia. Using appropriate space (L3–L4) after viewing X-ray, and successful spinal anesthesia was given using real time ultrasound screening. Kyphoscoliosis causes a decrease in functional residual capacity, inspiratory capacity, vital capacity, and total lung capacity leading to restrictive pattern. We report an interesting and challenging case of a 40-year-old male with kyphoscoliosis presenting with sarcoma of right thigh who was planned for excision of tumor under spinal anesthesia.

INTRODUCTION

Patients with thoracolumbar kyphoscoliosis present unique challenges to anesthesia. We report an interesting and challenging case of kyphoscoliosis presenting with sarcoma of right thigh who was planned for spinal anesthesia.

Using appropriate space (L3–L4) after viewing X-ray, and successful spinal anesthesia was given using real time ultrasound screening. Kyphoscoliosis is a forward and lateral bending of the spine affecting thoracolumbar spine.[1] The most common cause of kyphoscoliosis is idiopathic, which occurs in 70% of the population. The secondary causes include neuromuscular, congenital, or traumatic.[1] Patients with thoracolumbar kyphoscoliosis present unique challenges to anesthesia. Kyphoscoliosis causes a decrease in functional residual capacity, inspiratory capacity, vital capacity, and total lung capacity leading to restrictive pattern. The abnormal thoracic cage geometry leads to a decrease in chest wall compliance. There is a marked decrease in ventilation-perfusion mismatch, leading to arterial hypoxemia. In the cardiovascular system, there is an increase in pulmonary vascular resistance causing pulmonary hypertension. This may lead to right ventricular hypertrophy and right ventricular failure. Restrictive lung disease, airway management, and cardiorespiratory embarrassment make general anesthesia hazardous, whereas regional anesthesia is met with technical problems due to an abnormal curvature of the spine. We report an interesting and challenging case of a 40-year-old male with kyphoscoliosis presenting with sarcoma of right thigh who was planned for excision of tumor under spinal anesthesia. We also discuss the importance of preoperative radiology and ultrasound scanning of spine in helping the anesthesiologists in planning regional anesthesia.



Case Report

A 40-year-old male, weighing 55 kg, with kyphoscoliosis presented with sarcoma of right thigh who was planned for excision of tumor under spinal anesthesia with . On preoperative evaluation, the patient had a history of kyphoscoliosis since birth. No other positive history was present. On examination, vitals were stable. Airway assessment shows Mallampati Grade 2, adequate mouth opening, and full range of neck movements. An examination of the spine revealed a lateral curvature along with thoracolumbar kyphosis. Hemogram, liver function test, renal function test, and coagulation profile were within the normal limits. Pulmonary function tests (PFTs) interpreted moderate restrictive patterns. The surgery was planned under regional anesthesia. The patient was kept nil per oral for 2 h for water and 8 h for solid food. Written, informed, and explained consent was obtained from the patient and his family.



Intraoperative management

On the day of surgery, the patient was shifted to the operation theater. Monitors attached and vitals were recorded. Peripheral venous access was secured by using 18G intravenous (i.v.) cannula on the left forearm. Under all aseptic conditions, the spinal block was tried. Three to Four unsuccessful attempts were taken for spinal anesthesia. Then, using ultrasound guidance, spinal Anesthesia was performed in L3–L4 .2.5 ml of 0.5% bupivacaine heavy with 0.5ml of

fentanyl was given and surgery was completed successfully. Intra operative was uneventful. The patient was shifted and monitored in the PostAnesthesia Care Unit during the postoperative period. Regular monitoring of heart rate, blood pressure, urine output, and temperature was done. In the postoperative period, the effect of spinal anesthesia lasted for 2 h. For pain management, the patient was given injection paracetamol 15 mg.kg i.v. every six hourly, injection tramadol 2 mg.kg i.v. 8 hourly, and when required to cover multimodal analgesia.

DISCUSSION

Kyphoscoliosis is a deformity of the spine, characterized by abnormal curvature of the vertebral column in two planes (coronal and sagittal). It is a combination of kyphosis and scoliosis. Spinal deformities present with functional and physical problems to the patient and anesthesiologists in terms of planning the anesthesia technique. Due to problems associated with the respiratory system, spinal anesthesia is used widely, though technically difficult. In our case, the patient had moderate restrictive pattern on PFT's. Thus, in the view of the requirement of postoperative ventilatory support under general anesthesia and being a lower limb surgery, we also opted for regional anesthesia as our first choice. Every patient of kyphoscoliosis's preoperative X-ray/magnetic resonance imaging of the diseased spine must be studied by the anesthesiologist to adequately plan the exact level of the spinal block.

CONCLUSION

The anesthetic options are limited and technically difficult when both the airway and spine are involved in the disease process. Subarachnoid block with proper preoperative radiological planning and meticulous approach can be a useful technique of providing safe and effective anesthesia in patients with severe thoracolumbar kyphoscoliosis.

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