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CASE REPORT

Anaesthetic Management of a Patient with Inguinal Hernia with Restrictive Lung Disease with Cor Pulmonale with Kyphoscoliosis

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ABSTRACT

Introduction: Kyphoscoliosis is a forward and lateral bending of the spine,. Kyphoscoliosis causes a decrease in functional residual capacity, inspiratory capacity, vital capacity, and total lung capacity leading to restrictive pattern.

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.

Case Report: A 53 year old male diagnosed as indirect inguinal hernia was posted for Hernioplasty, Patient is a Known case of Restrictive lung disease with Cor pulmonale since 3 years and was admitted and intubated in ICU 2 months before the surgery in view of respiratory distress and low GCS.

On Pre-anaesthetic examination vitals were stable, airway assessment showed large tongue with MP Grade 4 with prominent anterior larynx. investigations were normal. PFT showed early small airway obstruction. Spine examination was done and there was thoracolumbar scoliosis with spine curve to left and body lean to right.

Under all aseptic conditions, lumbar puncture was done at L3-L4 space with 25G quickie needle, after confirming the back flow of CSF 3.4 ml of 0.5% hyperbaric Bupivacaine with 0.2 ml of Buprenorphine was given, but it failed as motor and sensory block was not achieved after 20 minutes of observation, Sub arachnoid block was reattempted through paramedian approach, patient was made supine, sensory block was checked which was achieved till T6. surgery was performed, No major hemodynamic changes were noted. after surgery, patient was monitored in Post-anaesthesia Care Unit and then shifted towards.

Conclusion: In a patient with Kyphoscoliosis and Restrictive lung disease Regional Anaesthesia is preferred over General anaesthesia considering risks and benefits.

KEYWORDS:

• Spinal anaesthesia • Kyphoscoliosis • Restrictive lung disease

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INTRODUCTION

Kyphoscoliosis is a forward and lateral bending of the spine affecting thoracolumbar spine. The most common cause of kyphoscoliosis is idiopathic, which occurs in 70% of the population. The secondary causes include neuromuscular, congenital, or traumatic. 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.

CASE REPORT

A 53 year old male diagnosed as left indirect inguinal hernia was posted for Left Sided Lichtenstien tension free Hernioplasty, Patient is a Known case of Restrictive lung disease with Cor pulmonale since 3 years and was admitted and intubated in ICU 2 months before the surgery in view of respiratory distress and low GCS, patient was weaned off from the ventilator gradually.

On Pre anaesthetic examination vitals were stable, airway assessment showed large tongue with MP Grade 4 with prominent anterior larynx. investigations were normal, PFT showed early small airway obstruction as FEF 25-75 %, Spine examination was done and there was thoracolumbar scoliosis with spine curve to left and body lean to right.

Patient was shifted to the operation theatre, Monitors were connected and vitals were recorded. Peripheral venous access was secured by using 18G intravenous (i.v.) cannula on the left forearm. Under all aseptic conditions, after identifying and localizing the intervertebral space lumbar puncture was done at L3-L4 space with 25G quickie spinal needle, after confirming the back flow of CSF 3.4 ml of 0.5% hyperbaric Bupivacaine with 0.2 ml of Buprenorphine was given, but it failed as motor and sensory block was not achieved after 20 minutes of observation, Sub arachnoid block was reattempted through paramedian approach, patient was made supine, sensory block was checked which was achieved till T6.

Intraoperatively there was no hypotension or bradycardia' vitals -ECG, SPo2, NIBP were monitored and were stable; IV fluids RL & DNS were given. Surgery was performed, No major hemodynamic changes were noted. after surgery, patient was monitored in Post Anaesthesia Care Unit and then shifted to ward.

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.[1]

Spinal deformities present with functional and physical problems to the patient and anaesthesiologists in terms of planning the anesthesia technique. Due to problems associated with the respiratory system, spinal anesthesia is used widely, though technically difficult.[2]

In our case, the patient had severe 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.

In kyphoscoliosis patients, Spinal anaesthesia could be the most dependable and secure therapy. It is also very important to understand the type of anaesthesia in such patients with compromised pulmonary and cardiac reserve hence right technique is very vital in providing a safe and best mode that will reduce the morbidity.[3]

The ethology of scoliosis may be varied, based on the clinical assessment with the chest x-ray, pulmonary function tests spinal anaesthesia could be the best option for this type of patient's.[4]

Subarachnoid block can be successful even in cases of severe thoraco-lumbar kyphoscoliosis with the use of hypobaric local anaesthetic solution. It can achieve symmetrical and adequate motor and sensory blockade in patients with extreme spinal deformities or musculoskeletal conditions affecting the spinal column.[5]

The anaesthetic 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 anaesthesia in patients with severe thoracolumbar kyphoscoliosis.

CONCLUSION

In a patient with Kyphoscoliosis and Restrictive lung disease Regional Anaesthesia is preferred over General anaesthesia considering risks and benefits.

Conflict of Interest: None

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