Case Report
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A Case of Severe Parturient with Kyphoscoliosis coming for Caeserean Section

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Abstract

Parturients with kyphoscoliosis present a unique challenge during their anaesthetic management. The physiologic changes of pregnancy along with the gravid uterus compound the cardiopulmonary compromise induced by deformity of spine, and further, the technical difficulty to perform subarachnoid block may add to the difficulty in management of patients. We present a case report of 29 year old parturient with kyphoscoliosis posted for caesarean section.

Keywords: Caesarean Section, Kyphoscoliosis, Parturient, Subarachnoid Block

1. Introduction

Kyphoscoliosis is anteroposterior spinal angulation and lateral spinal curvature that begins in childhood. In addition to the lateral curvature of the spine, thevertebrae are rotated and rib cage may be markedly deformed[1].

Airway management and cardio respiratory disturbances make general anaesthesia complicated where as regional anaesthesia is associated with technical problems due to abnormal curvature of spine and unpredictability of the level of anaesthesia. Neuraxial anaesthesia is currently the technique of choice for operative deliveries as the risk of maternal mortality during general anaesthesia is higher and it facilitates early bonding of the child with the mother[2,3].

2. Case Report

A 29yr old primigravida with 39 weeks of gestation with kyphoscoliosis posted for caesarean section in view of cephalo-pelvic disproportion. Patient had kyphoscoliosis but, she did not have any sensory or motor deficits and no cardiopulmonary symptoms. Her clinical examination revealed pulse rate of 86 bpm, blood pressure of 120/80mmHg, on auscultation normal vesicular breath sound sand normal heart sounds were heard. Airway assessment included modified Mallampati class two, adequate mouth opening and intact teeth, normal neck movements. On examination of spine there was thoracolumbar kyphoscoliosis with concavity to the left. The interspinous space in lumbar region was not identifiable except L4-5. The blood investigations ordered were normal (Haemoglobin-12.8, platelets: 1.74lakh/cumm, Prothrombim time of 9.8, INR of 0.8, Activated thromboplastin time of 23.9 and TSH 1.76microIU/ml).

The patient was informed about general anaesthesia and regional anaesthesia as choices and the advantages and disadvantages of both considering her anatomical deformity. An informed written consent was taken.

Premedication was given half an hour before the surgery in the form of inj. pantoprazole 40mg IV. andinj. emeset 4mg IV. Difficult intubation cart was kept ready. In the operating room standard monitors were connected and baseline parameters noted. A peripheral line secured with 18G cannula. Preloading done with Ringer lactate

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15ml/kg. Patient was made to sit and under all aseptic precautions, lumbar puncture was attempted in L3-L4 space using 25G Quincke's needle through midline approach. Successful lumbar puncture was achieved after two attempts.Inj. bupivacaine 0.5% (H) 1.5ml with inj. fentanyl 25mcg was given. Patient was made supine and level of sensory block was assessed using pinprick method. An inadequate sensory level of T10 was achieved after 20 minutes of administering spinal anaesthesia. There was no improvement even after 20 degree trendelenburg position. Patient was haemodynamically stable. After 20 minutes subarachnoid block was repeated with inj. bupivacaine 0.5 % (H) 1cc and level of T6 was achieved. The patient was assessed for maximum height of the block for another 20 minutes every 2 minutes. The maximum height of the block was said to have been achieved if three consecutive measurements showed the same dermatomal level of sensory blockade. Intraoperatively blood pressure, pulse oximetry and electrocardiogram were monitored every 3 minutes. Vigilance was maintained for any complaints of respiratory discomfort and consciousness level. No episodes of Hypotension or Bradycardia were identified. The patient remained comfortable throughout the procedure. Sensory blockade lasted for 120mins. Blood pressure, pulse oximetry and electrocardiogram were monitored in the recovery room and later shifted toward after the sensory levels regressed to T10 levels.

3. Discussion

Kyphoscoliosis is mostly idiopathic (80%) with female preponderance of 4:1. Theincidence of severe scoliosis in parturients varies from 1 in 1500 to 1 in 12,000 pregnancies[4].

In kyphoscoliotic patients the diaphragm is entirely responsible for all increments in minute ventilation but in pregnancy as the uterus becomes an abdominal organ this diaphragmatic activity is constrained and leads to decrease in functional residual capacity and closing capacity. In kyphoscoliosis the development of lung and alveoli are compromised, which lead to the development of restrictive lung disease and pulmonary arterial hypertension[5,6]. Operative delivery is increased in such patients due to cephalopelvic disproportion as in our case.

Both general anaesthesia and central neuraxial anaesthesia are described for caesarean sections in patient with kyphoscoliosis and scoliosis[7,8].

Due to the above anatomical and physiological changes we decided to go ahead with spinal anaesthesia after obtaining an informed consent from the patient.We perceived that regional anaesthesia has several advantages over general anaesthesia, as the patient remains awake, respiratory parameters are not further compromised, and problems like difficult airway management and delayed respiratory function recovery are avoided. We decided to keep into account the technical difficulty and the unpredictable spread while administering spinal anaesthesia[9]. In our patient the maximum height of sensory block achieved was T10 on the first attempt and on repeat injection level of T6 was achieved. Similar instance has been described by Kumar *et al.*[9] they also repeated spinal anaesthesia after a partial block and concluded that if maternal and fetal condition allows, then, repeat spinal anaesthesia appears to be safe with a reduced dose and after waiting about 15-20mins in kyphoscoliotic patients. It can avoid the need of general anaesthesia in parturient with kyphoscoliosis needing caesarean section.

In a similar study by Jaswant *et al* in their case report[10], they also opted for a repeat spinal anaesthesia and found favourable results and concluded that a repeat injection with lesser volume of drug should always be kept as an option in such patients- in emergency situation, full stomach and difficult airway.

Hence, in our patient we decided to decrease the dose of repeat spinal rather than choosing general anaesthesia due to the complications associated and increased maternal mortality rate with general anaesthesia.

To conclude, a detailed preoperative cardio respiratory assessment and optimization is necessary in a patient with kyphoscoliosis. The unpredictable spinal blockade in such cases makes it imperative to use lower dose of spinal drug for successful outcome. Repeat spinal anaesthesia can be considered in failed or partial spinal anaesthesia.

4. References

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