

**ANAESTHESIA IN KYPHOSCOLIOTIC PATIENT: DOUBLE EDGED SWORD****<sup>1</sup>Dr. Aditi Ranaut, <sup>2</sup>\*Dr. Narinder Singh, <sup>3</sup>Dr. Sikha Sharma, <sup>4</sup>Dr. Nitesh Mittal and <sup>5</sup>Dr. Anupam Sharma**<sup>1</sup>MD Anesthesia, Zonal Hospital Dharamshala.<sup>2</sup>MS Orthopaedics, Zonal Hospital Dharamshala.<sup>3</sup>MS Obstetrics and Gynaecology, Regional Hospital Bilaspur (H.P.).<sup>4</sup>MD Anaesthesia, Regional Hospital Bilaspur (H.P.).<sup>5</sup>MS Obstetrics and Gynaecology, Regional Hospital Bilaspur (H.P.).**\*Corresponding Author: Dr. Narinder Singh**

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**ABSTRACT**

We report herein, a case of a 35-year-old parturient known case of poliomyelitis with kyphoscoliosis for emergency lower segment caesarean section (LSCS). Though both General and regional anaesthesia have their own limitations in these patients we managed this case with subarachnoid block without any complication.

**KEYWORDS:** Kyphoscoliosis, Spinal anaesthesia, Cardiorespiratory.**INTRODUCTION**

Poliomyelitis patients with kyphoscoliosis present unusual challenges for the administration of general and regional anesthesia due to deformity of spine and cardiopulmonary abnormalities. Poliomyelitis is a neuromuscular disorder which is associated with scoliosis in 30% of patients when compared to its prevalence in general population which is 0.3-15.3%.<sup>[1-3]</sup> This disease was eradicated from most part of the world, and India has been declared polio free in 2014, but the old cases of poliomyelitis posted for surgery came with many challenges. Anesthetic concerns for providing general anesthesia to patients with poliomyelitis and kyphoscoliosis are increased sensitivity to sedative drugs, prolonged effect of nondepolarizing neuromuscular blocking agents, dysfunctional autonomic nervous system, and underdeveloped muscles of respiration making extubation difficult<sup>[4]</sup> whereas central neuraxial block is controversial in these patients and poses an anesthetic challenge in view of difficulties in palpating anatomical landmarks, performing dura puncture, and difficulty in predicting the extent of block.<sup>[5-7]</sup> We report a challenging case of 35 years old parturient at term with kyphoscoliosis posted for emergency caesarean section.

**CASE PRESENTATION**

A 35-year-old primigravida at 37 weeks 5 days period of gestation (POG) with height 135cm and weight 54 kg, known case of poliomyelitis with kyphoscoliosis was posted for emergency lower segment caesarean section (LSCS) in view of persistent fetal tachycardia (Figure-1). Patient was diagnosed case of cephalopelvic disproportion. She was suffering from poliomyelitis

since childhood and had a history of progressive spinal deformity leading to thoracolumbar kyphoscoliosis. Examination of the spine revealed a lateral curvature along with thoracic kyphosis (Figure-1). The thorax was asymmetric with dorsolumbar kyphoscoliosis (Figure-2). She has consumed her last meal 9 hours ago. Her blood biochemistry and electrocardiogram (ECG) was within normal limits but her chest X-ray showed compression of lung on right side and decreased lung volume bilaterally (Figure-3). There was no history of shortness of breath or symptoms suggestive of respiratory or cardiovascular instability. On auscultation bilateral air entry decreased, cardiovascular system was normal. Surgery was planned under spinal anaesthesia and the same was explained to the patient and her attendants. In the operation theater (OT), routine monitoring included heart rate 125 beats/min, electrocardiogram, noninvasive blood pressure (NIBP) 126/82 mmHg and pulse oximetry with SpO<sub>2</sub> 95% on room air, and these baseline parameters were recorded.

An intravenous (IV) access was already there and our patient was preloaded with 10 mL/kg of ringer lactate solution. Under all aseptic precautions, a subarachnoid block was performed at L3/L4 space in sitting position with a 26-gauge Quincke needle and 1.6 mL of hyperbaric bupivacaine was injected into the subarachnoid space after confirming a clear and free flow of cerebrospinal fluid (CSF). The patient was placed in supine position with left uterine displacement. The sensory block was assessed using pinprick testing. Oxygen was supplemented to the patient. She delivered a baby girl with Apgar score of 9/10 in first minute and 9/10 in fifth minute. Patient was comfortable during

surgical procedure which was successfully completed. Blood pressure was maintained with Inj. Phenylephrine and inj. Ephedrine intraoperatively. After surgery, the patient was monitored closely for 24 hours in postoperative ward. Postoperative period was uneventful.



**Figure 1: Patient with Kyphoscoliotic deformity of spine.**



**Figure 2: X-ray spine of patient showing kyphoscoliosis.**



**Figure 3: Chest X-ray showing compression of lung on right side and decreased lung volume bilaterally.**

### DISCUSSION

An important focus in obstetric surgery is the safe and skilled anesthetic management to minimize risk to mother and fetus. The physiological and structural changes in pregnancy worsen the severity of spinal curvature and cardiorespiratory compromise in a scoliotic patient. The maternal mortality and morbidity correlates well with the degree of functional impairment before pregnancy.<sup>[8]</sup> Increased vascularity of respiratory tract mucosa during pregnancy may lead to difficulty in endotracheal intubation and edema of the airway results in increased potential for bleeding.<sup>[9]</sup> Patients with scoliosis suffer from restrictive lung disease which involves decreased vital capacity, functional residual capacity, tidal volume, and increased respiratory rate hence can lead to respiratory failure and cardiovascular compromise.<sup>[9-10]</sup> The severity of pulmonary impairment depends on the degree of the Cobb's angle, the number of vertebrae involved, and the cephalic location of the curvature. In severe cases, displacement with rotation of the trachea and in stem bronchi may also be noted, which could cause problems during intubation for general anaesthesia.<sup>[10]</sup> The incidence of operative delivery is higher in these parturients, and neuraxial anaesthesia is currently the technique of choice for operative deliveries as the risk of maternal mortality during general anaesthesia is higher.<sup>[11]</sup> Therefore we preferred subarachnoid block in this patient for patient comfort and to avoid the cardiorespiratory complications. Things in favour of spinal anaesthesia includes no fetal compromise, better postoperative analgesia and least effect on cardiopulmonary reserve, no exposure to neuromuscular blockers and sedatives for which these patients have increased sensitivity. Epidural anaesthesia can also be preferred in elective surgeries where patient cooperation and time limit are not major constraints.

### CONCLUSION

Anesthesia poses great risk to a parturient with kyphoscoliosis and there is no single technique that can

be recommended for anesthetic management. Neuraxial anesthesia offers a good quality pain relief without further respiratory embarrassment and can be successfully used in a parturient with kyphoscoliosis for anesthesia and analgesia.

#### **Conflict of interest**

All authors declare they have no conflict of interest.

#### **Financial disclosure**

Nil.

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