

İleri Derece Kifoskolyozlu Gebe Hastada Ultrasonografi Eşliğinde Yapılan Spinal Anestezi: Olgu Sunumu

Cesarean Section with Ultrasound Guided Spinal Anesthesia in a Pregnant Patient with Advanced Kyphoscoliosis: A Case Report

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ÖZ

Kifoskolyoz; hem genel hem de rejyonel anestezi için çeşitli zorluklara neden olabilmektedir. Olgu sunumumuzda ileri derecede torakolomber bölgede kifoskolyozu olan gebe hastaya uygulanan anestezi yöntemi sunulmuştur. Torakolomber bölgede ciddi kifoskolyozu olan, elektif sezaryen operasyonu planlanan gebe hastaya ultrasonografi eşliğinde başarılı bir şekilde spinal anestezi uygulandı. Supin pozisyon verilen hastada T-6 dermatomu seviyesinde duyuşsal blok elde edildi. Hastada intraoperatif ve postoperatif dönemde herhangi bir komplikasyon gelişmedi. Sonuç olarak, kifoskolyozda ultrason eşliğinde yapılan spinal anestezi iyi bir seçenek olabilir.

Anahtar Kelimeler: kifoskolyoz, spinal anestezi, sezaryen

ABSTRACT

Kyphoscoliosis may be the reason for various difficulties in terms of both general and regional anesthesia. In this case report, the anesthesia method applied to a pregnant patient with advanced thoracolumbar kyphoscoliosis is presented. Spinal anesthesia was successfully applied to a pregnant patient with severe kyphoscoliosis in the thoracolumbar region by ultrasound guidance, who was scheduled for an elective cesarean section operation. Sensory block was obtained at the T-6 level in the patient who was placed in the supine position. No complications occurred during the intraoperative and postoperative periods. In conclusion, ultrasound guided spinal anesthesia may be a good option in kyphoscoliosis.

Keywords: kyphoscoliosis, spinal anesthesia, cesarean section

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INTRODUCTION

Kyphoscoliosis is an uncommon deformity in which a spinal segment is abnormally angulated posteriorly and laterally caused by developmental vertebral disorders (1). It may occur idiopathically, due to congenital anomalies, or after trauma. In addition, etiologies of kyphoscoliosis include degenerative disc diseases, inflammatory diseases, infectious causes, muscle and neuromuscular diseases, and iatrogenic causes after surgery (2).

Kyphoscoliosis may be associated with restrictive lung disease, hypoxemia, and depressed cardiovascular functions (3). Therefore, kyphoscoliosis can pose various difficulties for both general and spinal anesthesia. In addition, it may also cause complications at the beginning, during and after anesthesia (4). There are many reported cases regarding anesthesia management in pregnant women with kyphoscoliosis (5). We report a case of ultrasonography-guided spinal anesthesia for cesarian section in a 34-year-old woman with severe kyphoscoliosis.

CASE REPORT

An elective cesarean section was planned by the obstetric department for a 34-year-old, 56 kg and 152 cm tall female patient who was having her third pregnancy. Adequate mouth opening was present in the airway evaluation, temporomandibular joint and cervical extension movements were normal. The Mallampati score was grade II. During the physical examination of the patient, there was an advanced degree of kyphoscoliosis in the thoracolumbar region (Figure-1 and 2). Bilateral respiratory sounds were normal on auscultation. Preoperative blood test results were normal and the patient had no comorbid disease too.



Figure 1. Posterior view of the patient in a sitting position

Figure 2. Lateral view of the patient in a sitting position

In the operating room, standart anesthesia monitorization (non-invasive blood pressure, peripheral oxygen saturation, heart rate) was applied (pulse rate: 98 min⁻¹, blood pressure: 113/81 mmHg, oxygen saturation: 98%). Before spinal anesthesia, 500 mL of Ringer's lactate infusion was performed. Abnormal vertebral anatomy was evaluated by ultrasonography before the procedure. And the level of spinal anesthesia was determined as 4th lumbar intervertebral space (Figure-3).



Figure 3. Ultrasonographic image of L-4 İntervertebral space via convex probe

Skin sterilization of the procedure area was performed in the sitting position, and intrathecal intervention was performed with a 25 G Quincke needle with simultaneous ultrasound-guided imaging. After free cerebrospinal fluid(CSF) flow was observed from the needle, 10 mg hyperbaric bupivacaine (Buvasin® 0.5% Spinal Heavy, Vem İlaç, Istanbul, TURKEY) and 20 µg fentanyl (Talinat® 0.5mg/10mL, Vem İlaç, Istanbul, TURKEY) were applied to the subarachnoid area.

The patient was then placed in the supine position and tilted 30 degrees to the left to avoid aortocaval compression. Motor blockade was evaluated with Bromage score and recorded as 3. Sensory block was achieved at the 6th thoracic level. In the intraoperative period, the patient was given oxygen at 4 L.min⁻¹ via nasal cannula. Approximately 5 minutes after the skin incision, a live female baby was born with a first-minute APGAR score of 9. During the intraoperative period, 1100 mL Ringer's lactate was continued. There were no complications such as an increase in the block level or hypotension during surgery. Postoperatively, the patient was monitored in the recovery room for 15 minutes. The patient's motor block and sensory block levels decreased and she was transferred to the ward without any problem. Written informed consent was obtained from the patient for a case report.

DISCUSSION

Kyphoscoliosis can cause restrictive lung disease, which reduces vital capacity, functional residual capacity and tidal volume (6). Even it carries a significant risk of morbidity in terms of anesthesia due to these negative changes in respiratory mechanics and possible intubation and ventilation difficulties. Applying controlled regional anesthesia in such patients significantly reduces morbidity (7). In recent years, spinal or epidural anesthesia is frequently preferred in cesarean section operations, considering its benefits for the mother and the fetus (8). Regional anesthesia has become more preferred in patients with kyphoscoliosis (9).

In addition to the fact that the mother is awake during childbirth, it also has advantages such as reducing the risk of gastric aspiration and the use of anesthetic drugs (10). In healthy pregnant women, the minute ventilation volume increases by 40-50% without changing the number of breaths during pregnancy. However, this adaptation is not possible in pregnant women with kyphoscoliosis (5).

In patients with kyphoscoliosis, there may be difficulty in anatomically determining the desired spinal space and reaching the subarachnoid area. Undesirable events may occur, such as unsuccessful block, increased block level, insufficient or patchy block (11). Nevertheless, spinal anesthesia may be sufficient as an anesthetic technique for cesarean section in patients with kyphoscoliosis. However, in patients with kyphoscoliosis, the curvature of the vertebral column may cause difficulty in applying spinal anesthesia due to generalized spinal stenosis, as well as difficulty in controlling the level of regional block (12). Expected problems with spinal anesthesia in scoliotic patients include difficulty finding the intrathecal space, altered distribution of local anesthetic in the CSF, rapid onset of sympathetic blockade causing cardio-respiratory dysfunction, and unacceptably high or low blockade, which are considered disadvantages of spinal anesthesia in kyphoscoliosis (13). Some studies have reported successful spinal anesthesia in cesarean section operations in patients with kyphoscoliosis (5,14). In our case, no complications such as elevation of block level, hypotension, bradycardia, nausea and vomiting occurred. The patient was discharged on postoperative day 3.

CONCLUSION

We believe that regional anesthesia technique applied under ultrasound guidance is a good option for pregnant patients whose respiratory function capacity is impaired due to deterioration of spinal anatomy such as kyphoscoliosis.

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Informed Consent: Written informed consent was obtained from the patient for a case report.

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