

CESAREAN SECTION UNDER SPINAL ANESTHESIA IN A PATIENT WITH ANKYLOSING SPONDYLITIS

- A Case Report -

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Abstract

Introduction: It is generally accepted that neuraxial anesthesia is difficult to establish in patients with ankylosing spondylitis. General anesthesia also has some disadvantages, especially with respect to airway control in patients with ankylosing spondylitis. We present herein a gravida with ankylosing spondylitis who had a cesarean delivery performed under spinal anesthesia.

Case: A 30-yr-old gravida at 38 weeks gestation with a 9 yr history of ankylosing spondylitis was admitted to our hospital in labor. She was scheduled for an elective repeat cesarean delivery. Spinal anesthesia was induced using a 22-gauge Quincke spinal needle with 1.8 mL of 0.5% heavy bupivacaine + 0.2 mL (10µg) of fentanyl at the L₃₋₄ interspace in the left lateral position by the median approach. Adequate sensory and motor blockade were achieved. The postoperative period was uneventful and she was discharged home on postoperative day 3.

Conclusion: We suggest that spinal anesthesia can be safely and effectively used as an alternative to general anesthesia in patients with ankylosing spondylitis. Neuraxial techniques should not be regarded as unachievable in such patients; however, all necessary precautions should be taken to avoid complications of spinal anesthesia, and facilities to secure the airway should be available.

Introduction

Ankylosing spondylitis (AS) is a seronegative spondyloarthropathy; it is a chronic and usually progressive inflammatory disease. The primary sites of involvement are the sacroiliac joints and the spine^{1,2}. The disease prevalence varies ranging between 0.1 and 1.1% in different populations^{3,4}.

Patients with AS may require surgery of any type and these patients present specific challenges to the anesthesiologist. Both airway management and neuraxial access may prove to be difficult^{1,5}. Pregnancy may also occur in patients with AS. Although most pregnant patients with AS have a normal spontaneous vaginal delivery, the manifestations of the disease may interfere with labor and delivery as well as the administration of general and regional anesthesia⁶. There are but a few reports on the use of anesthesia in gravidas with AS⁶⁻⁹.

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Herein, we present a case of a gravida with AS who had a cesarean section under spinal anesthesia.

Case Report

A 30-yr-old gravida 3 para 2, at 38 weeks gestation with a weight of 66 kg and a height of 164 cm, was admitted to our hospital in labor. She had a 9 yr history of AS. The history and physical examination were consistent with moderate cervical AS involving the thoraco-lumbar vertebral column with kyphosis, but without lower limb neurologic involvement. She required two pillows to support her head and four pillows to support her back due to the disease process and curvature of the cervical and thoraco lumbar spines. An elective repeat cesarean section had been planned. She had undergone two cesarean deliveries 12 and 11 years previously under general anesthesia. Since AS had not been diagnosed at the time of her prior cesarean deliveries, the two general anesthesia experiences were uneventful.

Her medical history was benign other than the AS. Her current medications were infliximab, indomethacin, and salicylazosulfapyridine. She could open her mouth 5 cm; physical examination revealed a Grade III Mallampati score. The problems of general anesthesia, with particular reference to difficult intubation, were explained to the patient and she opted for a regional anesthesia technique.

Preoperative laboratory data were within normal limits. The patient was premedicated with ranitidine HCl (50 mg iv) and metoclopramide HCl (10 mg iv) 30 minutes before the planned surgery. In the operating room, an ECG, non-invasive blood pressure, and peripheral oxygen saturation were monitored and an intravenous infusion of Lactated Ringer's solution was started. Spinal anesthesia was planned, but since the patient was a candidate for difficult endotracheal intubation, airway management devices for emergent use, including a percutaneous tracheostomy set, were kept ready.

With the patient in the sitting position, two unsuccessful attempts were made to insert a 22-gauge Quincke spinal needle between the L₃₋₄ intervertebral space using a median technique. The patient was then turned to the left lateral position. Free flow of

cerebrospinal fluid was obtained using the midline technique at the same level on the first attempt in this position and 1.8 mL of 0.5% heavy bupivacaine and 0.2 mL (10 µg) of fentanyl were injected into this space. The patient was then returned to the supine position with pillow support and the operating table rotated toward the left in order to avoid supine hypotensive syndrome. Spinal anesthesia resulted in a complete sensory and motor block from T₆ caudally. The APGAR scores were 9 and 10 for the 1. and 5. min respectively. Surgery was performed successfully within 45 minutes. The patient recovered without any complications and was discharged home following a good recovery on the 3rd postoperative day.

Discussion

AS is often a self-limiting disease with unknown etiology. It is a chronic and usually progressive inflammatory disease involving the articulations of the spine and adjacent soft tissues. It begins in the sacroiliac joints and moves cranially. The degree of the disease ranges from involvement of the sacroiliac joint alone to complete ankylosis of the spine^{1,2,10}.

The traditional anesthetic approach to patients with AS is to secure the airway using awake intubation because fusion of the vertebral column renders neuraxial anesthesia difficult or impossible². In patients with a fixed cervical spine, it has been reported that it is usually not possible to see any part of the laryngeal inlet, emphasizing the difficulty with intubation³.

Since the number of patients with AS are not adequate to perform a controlled study regarding the best method of anesthesia, case reports concerning the care of these patients have provided diverse anecdotal experiences.

The largest series of patients with AS who underwent anesthetic procedures was reported by Schelew and Vaghadia² as a retrospective analysis of 82 patients over 10 years. They reviewed the approach to patients with AS having surgical procedures at one institution to investigate the utilization of neuraxial anesthesia and to determine whether the success rate was acceptable, in an effort to make this a viable alternative to general anesthesia. Neuraxial anesthesia was planned in 19.5% (n=16) of the patients and

successful spinal anesthesia was achieved in 76.2% (n=10) of those in whom it was planned. Their results indicate that spinal anesthesia may be relatively underutilized in patients with AS presenting for surgery. In our review of the current literature, we found a few reports on epidural or combined spinal-epidural anesthesia¹¹⁻¹³. In our patient, we preferred spinal anesthesia after consideration of the consequences and our anecdotal experience favored spinal anesthesia in patients with AS undergoing cesarean section.

The presence of ossification in the interspinous ligament would suggest better success with a paramedian approach¹. Kumar and Mehta¹⁴ reported three cases in which patients with AS were successfully administered spinal anesthesia using a paramedian approach after failed attempts with a median approach. Nevertheless, Schelew et al². suggest that both midline and paramedian methods may be attempted with success. In our patient, spinal anesthesia was successfully administered by the median approach in the lateral position on the first attempt, but preceded by two failed attempts by the median approach in the sitting position.

From the anesthetic point of view, preoperative assessment, including indirect laryngoscopy and preparation to overcome anticipated problems, should enable those patients with AS to be managed safely. But, as in the two cases described in detail by Wittmann et al³, the greatest danger occurs when patients present for surgery which is unrelated to their condition and

difficulties are not anticipated. On the other hand, even in the cases in which regional anesthesia is planned, emergent securing of the airway can be required, such as reported by Batra et al¹⁵. In the literature, total spinal anesthesia was achieved following an epidural test dose in a patient with AS undergoing total hip replacement and after an unsuccessful attempt to intubate the trachea with direct laryngoscopy, positive pressure ventilation was restored by placing a size 4 laryngeal mask airway. Intubation could hardly be achieved using a McCoy's laryngoscope and a bougie in the patient. These are the important reasons for having intubating equipment ready for immediate use in patients with AS³. Therefore full consideration of airway control was included in our plan for anesthesia in this patient.

In conclusion, patient anesthetic preference, potential airway maintenance problems, and specific requirements of the surgical intervention should all be considered for the anesthetic approach in patients with AS. If a central neuraxial blockade is chosen as the anesthetic technique, the likelihood of successful spinal anesthesia seems higher than other neuraxial interventions. Airway intervention and equipment and aids to secure the airway must be available.

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