CASE REPORT

A rare case of transient coma after epidural analgesia during labour

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Abstract

Epidural analgesia is a widely used method for pain relief during labour, but it carries a risk of rare and serious complications. This case report presents a 28-year-old primigravida who developed a transient coma following the administration of a bolus dose of 1% lidocaine for epidural analgesia. Within 15 minutes of administration, the patient became unresponsive, with a significant drop in oxygen saturation. After prompt resuscitation, the patient underwent a caesarean section under general anaesthesia. The case highlights the rare but potentially life-threatening complications associated with epidural analgesia, including high spinal blocks and sensory deafferentation. Timely recognition and intervention are essential for managing these complications and ensuring maternal and foetal safety. This case emphasises the importance of careful monitoring, appropriate dosing, and preparedness in epidural anaesthesia practice.

Keywords: Epidural analgesia, transient coma, high spinal block, sensory deafferentation, labour analgesia.

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Introduction

The global birth rate is estimated at 140 million babies annually, with childbirth being one of the most physically demanding experiences for women.[1] To alleviate the pain during labour, various methods have been introduced, including massage, acupuncture, and regional anaesthesia.[2] Epidural analgesia is widely regarded as the gold standard for pain relief, with up to 64% of mothers in high-income countries opting for it.[3] This form of anaesthesia not only provides excellent pain relief but also significantly enhances maternal satisfaction, with 40.7% of mothers reporting that their childbirth experience was better than expected.[4] However, concerns remains regarding its impact on labour progress, especially in relation to prolonged labour stages, although there is no significant evidence linking epidural analgesia to an increased risk of caesarean delivery.[5]

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Despite its efficacy, epidural analgesia is associated with several risks. These include maternal hypotension, reduced uterine blood flow, and drug-related adverse effects such as nausea, vomiting, itching, and respiratory depression.[6] In rare cases, more severe complications, including convulsions, cardiovascular instability, high neuroaxial blockade, and even death, have been documented.[7] One of the rarest and most alarming complications of epidural anaesthesia is a sudden, transient loss of consciousness, described as "massive epidural."[8] The case presented here highlights this rare but serious event following epidural analgesia, emphasising the importance of awareness and prompt intervention.

Case Report

The case was first seen on 21st May 2023 at Shifa International Hospital, Islamabad, Pakistan. A 28-year-old primigravida at 38 weeks of gestation, with no comorbidities, presented to the Emergency Department with labour pains. Routine laboratory investigations and ultrasound confirmed foetal well-being, with a single live foetus and a posterior placenta. During labour, the patient opted for epidural analgesia after informed consent. The on-call anaesthesiologist performed the labour epidural. During the procedure, standard American Society of Anaesthesiologists (ASA) monitoring was employed, including continuous electrocardiography (ECG), heart rate, pulse rate, pulse oximetry, and respiratory rate monitoring. Non-invasive blood pressure (NIBP) was measured every five minutes using an appropriately sized cuff on the right arm. The patient was requested to lie down in left lateral position. The skin was prepared with Povidine Iodine and allowed to dry. The L3-L4 space was identified and the skin was infiltrated with 40mg of 1% Lidocaine injection. The loss-of-resistance to air technique was performed using an 18-gauge Tuohy needle (B. Braun). The epidural space was found at 4 cm from skin. A 20-gauge epidural catheter was threaded 10 cm into the space. Correct placement of the catheter was confirmed. There was no free flow of cerebrospinal fluid or blood on gentle aspiration. Water column was established in epidural catheter using 2ml normal saline. Observation of fall in level of water column using meniscal drop technique confirmed correct placement of epidural catheter. The epidural catheter was fixed at 10cm with transparent dressing. The patient was then positioned supine with a wedge under her right side.

A bolus dose of 10 ml of 1% Lidocaine was administered, providing immediate pain relief. The sensory level of block was checked with an ice pack and found to be at T10. However, after 15 minutes, the patient suddenly became unresponsive to verbal commands and painful stimuli. Her oxygen saturation dropped to 72%, and her heart rate was recorded at 80 beats per minute, with stable blood pressure. Prompt resuscitation with airway support and supple mental oxygen improved her saturation to 96%, but foetal bradycardia was noted on the cardiotocograph (CTG). Given the recent unresponsiveness, a decision was made to proceed with a caesarean section under general anaesthesia. After rapid sequence induction, endotracheal intubation was performed, and anaesthesia was maintained with sevoflourane < 2 MAC, oxygen 50% and Nitrous oxide 50%. The patient delivered a healthy baby boy with an excellent Apgar score. Intraoperative course was uneventful. Following the procedure, the patient was kept electively intubated for observation in the intensive care unit (ICU). She was extubated after two hours when fully awake and fulfilling extubation criteria. The patient remained stable post-surgery and was discharged two days later without further complications.

Discussion

Epidural analgesia is one of the most effective and commonly used methods for labour pain management. While the procedure is generally safe, it carries the risk of severe complications, including maternal hypotension, reduced uterine blood flow, and respiratory depression, as well as rare occurrences of high spinal blocks or complete neuroaxial blockade.[9] In this case, the patient developed an episode of transient coma following a bolus dose of lidocaine, a rare but potentially life-threatening complication.

Ashagrie et al. highlight transient coma as a documented phenomenon associated with epidural anaesthesia, particularly when high spinal blocks or excessive sensory blockade occurs. High spinal blocks can spread to higher segments of the spinal cord than intended, leading to compromised autonomic functions such as hypotension, bradycardia, and respiratory distress.[10] This phenomenon was observed in the present case, as the patient suddenly became unresponsive with hypoxaemia, despite the technically correct placement of the epidural catheter. The rapid onset of unresponsiveness, coupled with a drop in oxygen saturation, strongly suggests that the lidocaine bolus may have caused an unintended high spinal block.

The management of epidural complications requires prompt recognition and intervention. As seen in this case, the rapid deterioration of the patient's condition necessitated immediate resuscitation and the decision to perform a caesarean section under general anaesthesia. Close monitoring of vital signs, oxygen saturation, and foetal well-being is essential to manage potential adverse effects and ensure the safety of both the mother and the foetus.[7,9]

Conclusion

While epidural analgesia remains a cornerstone of labour pain management, it is essential to recognize the potential risks, particularly rare complications such as high spinal blocks and transient coma. This case underscores the importance of vigilance and preparedness when administering epidural anaesthesia. Careful dosing, continuous monitoring, and prompt intervention are critical in preventing and managing complications. Further research into the mechanisms underlying these rare complications is needed to refine clinical practice and improve patient safety in labour analgesia.

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Author Contribution:
SAN: Concept, writing, data analysis and interpretation.
ZA: Data collection and initial drafting.
SSAP: Final drafting.