

Paraplegia and Pregnancy: A Rare Case of Autonomic Dysreflexia

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Abstract

Case Report

Paraplegia involves the loss of motor and sensory functions in the trunk, lower limbs, and pelvic organs. While primarily traumatic, paraplegia can also stem from medical conditions. Women with spinal cord injury (SCI) can still conceive, but pregnancy carries unique risks, particularly autonomic hyperreflexia (AHR), a serious condition due to disrupted hypothalamic control over spinal reflexes. AHR, occurring in about 85% of pregnant women with SCI at or above the sixth thoracic vertebra, manifests as severe hypertension, headache, and cardiac arrhythmia, and can cause significant maternal-fetal morbidity. Pregnancy in women with SCI sees a 25% higher complication rate, including urinary tract infections, pressure ulcers, impaired pulmonary function, anemia, and venous thromboembolism. Urinary complications are common; regular monitoring and self-catheterization are recommended. Vaginal delivery is preferred unless AHR necessitates a cesarean section. Neuraxial analgesia is advised to reduce spasticity and prevent AHR during labor. Postpartum, local anesthetics should be extended to prevent AHR, ensuring better outcomes for both mother and child.

Keywords: Paraplegia, Spinal cord injury (SCI), Autonomic hyperreflexia (AHR), Pregnancy, Neuraxial analgesia.

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INTRODUCTION

Paraplegia is defined as a deficit or loss of motor and sensory functions of the trunk, lower limbs, and pelvic organs. The primary etiology is traumatic, but paraplegia can also be secondary to medical causes (vascular, tumoral, infectious, or inflammatory) or malformative conditions [1]. To date, becoming a mother with a spinal cord injury (SCI) is rare, and knowledge in this field is relatively minimal [2]. Therefore, healthcare for pregnant women with SCI is unique and requires special medical attention [1]. Fertility does not pose an issue for women with SCI, as they remain fertile and are able to conceive, although the rate of pregnancy is 13.9% lower compared to women without SCI [3]. However, this pregnancy carries risks, particularly autonomic hyperreflexia (AHR), which must be well understood. Autonomic hyperreflexia is a life-threatening complication attributed to the loss of hypothalamic control over sympathetic spinal reflexes in viable cord segments distal to the injury [2]. Due to its rarity, not many healthcare professionals are comfortable handling issues related to pregnancy in spinal cord-injured women owing to lack of experience.

CASE REPORT

A 26-year-old woman, gravida 1, para 1, was referred to our emergency service in labor at 38 weeks. At age 9, she had been in a road traffic accident that resulted in complete T5 paraplegia with numbness from the T5 spinal level caudally. Since the injury, she had never experienced episodes of autonomic dysreflexia. However, during this pregnancy, she had multiple urinary tract infections that were treated. It should be noted that the patient had poor prenatal care, but during her last month of pregnancy, she was placed on thromboprophylaxis with compression stockings.

A pelvimetric scan showed a completely deformed spine and an obstetrically unfavorable pelvis with an estimated fetal weight of 3800g, indicating the need for a cesarean section. Upon admission to the operating room, the patient presented with elevated blood pressure readings reaching 190/110 mmHg, headaches, a sensation of visual fog, sweating, muscle spasms in the lower limbs, and piloerection. Due to the impossibility of performing neuraxial anesthesia, the cesarean section was performed under general anesthesia. After rapid sequence induction, intubation

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was easy (Cormack-Lehane grade I). Standard monitoring included automatic non-invasive blood pressure measurement, electrocardiography, pulse oximetry, and EtCO₂ monitoring. During the cesarean section, blood pressure decreased, oscillating between 115 and 130 mmHg systolic and 60 to 80 mmHg diastolic. The cesarean section resulted in the birth of a female newborn with an Apgar score of 10 at birth and at 5 minutes, weighing 3765g.

The postpartum period was uncomplicated. The patient did not experience autonomic dysreflexia or urinary tract infections in the days following the cesarean section. Thromboprophylaxis was initiated 6 hours after the procedure. The patient was discharged on day 5.

DISCUSSION

Pregnancy in women with spinal cord injury is high risk and presents unique challenges. Common medical complications include urinary tract infections, pressure ulcers, impaired pulmonary function, anemia, venous thromboembolism, and autonomic dysreflexia [4].

AHR is a life-threatening complication that can result in significant maternal-fetal morbidity during pregnancy, including hypertensive encephalopathy, cerebrovascular accidents, intraventricular hemorrhage, and even death [5]. Pregnant women with SCI experience 25% more complications compared to able-bodied women, and these complications are usually related to the disability [3]. AHR manifests as facial flushing, diaphoresis, nasopharyngeal mucosal congestion, severe paroxysmal hypertension, severe headache, and cardiac arrhythmia [5]. Autonomic hyperreflexia occurs in about 85% of pregnant women with spinal cord lesions at or above the sixth thoracic vertebra [4]. Symptoms most commonly occur intrapartum but can occur anytime during pregnancy in the presence of precipitating afferent stimuli [4]. During pregnancy, AHR can be distinguished from preeclampsia by the context and accompanying neurovegetative signs [5].

Urinary complications are highly frequent and are the leading cause of morbidity in paraplegic patients. A study conducted by P. Garby *et al.* reported that among patients who received prenatal care, 31.3% experienced lower urinary tract infections complicated by pyelonephritis [1]. It is therefore recommended to monitor urinary examinations every two to four weeks and to prescribe appropriate treatment in case of infection [4]. The best way to empty the bladder while minimizing the risk of infection is to perform self-catheterization at least five times within 24 hours. Additionally, it is advised to increase fluid intake to achieve a daily urine output of at least 1.5 liters [6].

Vaginal delivery should be the standard approach. The progression of labor in paraplegic women

is not different from that in able-bodied patients [4]. A cesarean section is indicated only for obstetric reasons or due to uncontrollable autonomic hyperreflexia despite appropriate treatment [7]. This was the case for our patient, which is why a cesarean section was indicated during labor.

Concerns about anesthesia include managing autonomic hyperreflexia (AHR) and the technical challenges of providing neuraxial anesthesia due to the irregular spinal anatomy of these women [1], which was the case for our patient. Neuraxial analgesia should be encouraged during labor as it reduces spasticity, facilitating both delivery and surgical procedures during a cesarean section. It also prevents the occurrence of AHR by blocking nociceptive input [8]. In general anesthesia, high doses of anesthetic agents are required to control dysautonomic syndrome, which poses a risk of severe hypotension [1]; this was not the case for our patient. Therefore, the administration of local anesthetics should be prolonged for 24 to 48 hours postpartum via regional anesthesia to prevent AHR [8].

CONCLUSION

Pregnancy is relatively safe in women with SCI. However, disability-related issues can be exacerbated during pregnancy, delivery, and the postpartum period. Management should take place in a specialized center (level 3 maternity) with a multidisciplinary team, including obstetricians, pediatricians, neurologists, urologists, and anesthesiologists. More information is needed about the care of women with spinal cord injuries during pregnancy, highlighting the necessity for continued research in this area.

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