TWIN PREGNANCY IN A WOMAN WITH SPINAL CORD INJURY (SCI): A CASE REPORT
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Abstract: Pregnancy in women with spinal cord injury (SCI) is associated with various complications. Pregnant women with spinal cord lesions are at a greater risk of many medical complications, compared to healthy women. These complications include urinary tract infections, venous thrombosis, anemia, autonomic hyperreflexia, increased spasticity, bladder spasm, dysautonomia, and pressure sores; some of these complications may be even life-threatening. Herein, we report a case of a 41-year-old woman with SCI and twin pregnancy.

Key words: Twin pregnancy; spinal cord injury; complications of SCI

INTRODUCTION

Spinal cord injury (SCI) refers to injuries to spinal cord, resulting in changes in the normal motor, sensory, or autonomic function of the cord. These injuries can be either permanent or temporary and may occur due to trauma or conditions such as transverse myelitis, spina bifida, and Friedreich's ataxia (1, 2).

SCI has a wide range of symptoms (e.g., pain, paralysis, and incontinence), with different levels of severity (complete or incomplete). The rate of paralysis due to SCI is reported to be 0.4% in the U.S. population (3). The number of women with SCI at reproductive age is estimated at 52,000 people in the U.S.A. In addition, 2,400 new cases are expected to occur each year (2).

SCI is associated with many complications. Pregnant women with spinal cord lesions are at a greater risk of these medical complications, compared to healthy women. The complications of SCI in pregnancy include urinary tract infections (UTIs), venous thrombosis, anemia, autonomic hyperreflexia, increased spasticity, bladder spasm, dysautonomia, and pressure sores (4).

Preterm labor and unattended delivery are more common in pregnant women with SCI (5). Furthermore, inducing anesthesia is more risky in these women, compared to normal women. Although SCI results in many complications, there are no data indicating the decreased fertility of these patients. However, lower rates of menstrual cramping have been reported in previous research(6). Considering the life-threatening risks facing pregnant women with SCI, methods of delivery in these women need to be further evaluated. Additionally, there are social concerns about child care in these cases; however, few studies have been performed on this population (7). Herein, we report a case of a 41-year-old pregnant woman presenting with SCI. In addition, we investigated the complications associated with SCI during pregnancy.

CASE REPORT

A 41-year-old woman with twin pregnancy, G7, L5, Ab1, and P5 (five vaginal deliveries & one miscarriage) was admitted to the hospital on January 20, 2014; she was having her seventh pregnancy, with a 10-year interval since her last childbirth. She had suffered from SCI (C5-C6 tetraplegia) and paralysis of both legs for four years (paraplegia and proximal upper limb; Proximal 3.5 and distal 15.1). The patient, residing in a village of Torbat-e Jam city (located in northeast of Iran), was married and her pregnancy was unwanted.

The patient had hepatitis B surface antigen (+HbsAg), UTI, moderate anemia refractory, and decubitus ulcer. Also, she had suffered from pyelonephritis and bedsores during her pregnancy. The patient’s body mass index (BMI) was lower than 17.5 kg/m² and she had a prior history of aspiration pneumonia in 2011; also, in her previous pregnancy, she had been diagnosed with refractory anemia.

At the beginning of her treatment, she was consulted by a gynecologist and a neurologist. Given her critical condition (autonomic dysreflexia, aspiration pneumonia, and decubitus ulcers), she was referred to a coroner for terminating her pregnancy in the ninth week of pregnancy. Since abortion is illegal in Iran, her request was not granted and prenatal care was performed by a medical team consisting of a social worker, a midwife, and a physician; also, she was consulted by a dietitian.

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Floating mats, urinary catheter, and food supplements were purchased by donors and the rural health care center. Routine pregnancy tests were performed in order to ensure the mother’s health. The obtained results related to blood cell analysis in the third month of pregnancy are shown in table 1.

First, a Foley catheter was used for two weeks during pregnancy. However, since the patient was diagnosed with pyelonephritis, the Foley catheter was removed and a Naltriv catheter was used until the end of pregnancy. The patient was consulted by an internist for controlling the difficulties arising from hepatitis Band was monitored by a gynecologist during pregnancy.

She did not use any other medications except ferrous sulfate and multivitamins, which were used before and during pregnancy. Also, she did not receive any anticoagulants and use of epidural anesthesia and spinal anesthesia was suggested by the neurologist to prevent autonomic dysreflexia during delivery. However, as the gynecologist suggested, there was no need for using anesthesia during childbirth. Normal vaginal delivery (NVD) was suggested by both the neurologist and gynecologist. Finally, the patient delivered vaginally on January 20 at 22:50 p.m. The exact time of the premature rupture of membranes was 22:10 p.m., and the placenta was delivered seven minutes later at 22:53 p.m. The delivery was performed by the gynecologist. The patient had light atonic uterine bleeding which was controlled during delivery (hematocrit: 33%-29%). She did not require episiotomy and gave birth in the lithotomy position.

Both babies were boys and were born in the 36th week of pregnancy in January 2014. The Apgar scores of two babies were 9 and 10 and their weight, height, and head circumference were 2.200 and 2150 kg, 48 and 47 cm, and 33 and 33 cm, respectively. The Apgar scores of the infants are shown in table 2.

The infants were administered immunoglobulin and hepatitis B vaccines. They were admitted to the NICU due to weak sucking reflex for two days. Finally, they were discharged with a good condition.
According to the neurologist, she had no distress or emergency conditions. Also, she was consulted by an internist after the delivery and heparin was prescribed for her. The patient's general condition was good and postpartum care was provided at home.

**Table 5:** The urinary analysis thirteen days after delivery

<table>
<thead>
<tr>
<th>Color</th>
<th>White Blood Cell (WBC)</th>
<th>Red Blood Cell (RBC)</th>
<th>EP. Cell</th>
<th>Bacteria</th>
<th>Casts</th>
<th>Yeast</th>
</tr>
</thead>
</table>

As we know, traumas are the most common cause of SCI; however, SCI may occur as a result of hereditary or congenital factors (10). Our patient had a road traffic accident about 4 years ago and she had a regular menstrual cycle. In total, the probability of congenital malformations or intrauterine fetal death is higher in patients with SCI, compared to the general obstetric population (10, 11). In our study, routine pregnancy tests were performed in order to estimate the well-being and weight of the fetus. The obtained test results showed no harm to the fetuses.

Our patient suffered from UTI during her pregnancy. In fact, indwelling catheters and neurogenic bladder can lead to UTI, which is a common complication in patients with SCI. The results of a study by Stering et al., showed that patients with SCI have high rates of UTI during pregnancy (5). Another study showed that UTI symptoms become more severe in 51% of pregnant women with SCI(4). Moreover, UTI can lead to low birth weight and preterm labor; this point has been confirmed by many previous studies (5).

Frequent urinary cultures or antibiotic suppression are recommended for overcoming UTI in patients with SCI. According to Salomon's study, weekly use of oral cyclic antibiotics leads to decreased rate of UTI in pregnant women with SCI (9). Ongoing monitoring of UTI and use of antibiotic prophylaxis as an appropriate treatment for UTI have been suggested by the American Congress of Obstetricians and Gynecologists(2). Our patient was suspected to have pyelonephritis; therefore, nitrofurantoin was used for the treatment of UTI.

Impaired pulmonary function is another complication associated with SCI in pregnant paraplegic women; moreover, it is highly frequent in patients with high thoracic or cervical spine lesions (10). In this study, the necessary measures were taken to overcome pulmonary embolism in our patient.

To prevent constipation, stool softeners and high-fiber diets are recommended for patients with SCI. Also, excess weight gain and immobilization lead to decubitus ulcers in patients with SCI (10). In our patient, the calculated BMI was 17.5 kg/m², which is lower than the normal range.

Sensitivity to orthostatic hypotension has been reported in patients with SCI. In total, the systemic vascular resistance decreases in pregnant patients with SCI. SCI leads to the loss of sympathetic innervation below the level of the spinal cord lesion. It also leads to the increased risk of hypotension. However, there were no symptoms of hypotension (dizziness or sensation of faint) in our case.

Our patient had moderate anemia refractory and bedsores. Anemia is known as a pregnancy-associated complication in patients with SCI. Treatment of anemia could decrease the risk of decubitus ulcers; therefore, it should be promptly treated (10).

The most serious complication of SCI is autonomic dysreflexia (ADR). ADR occurs in 85% of patients with injuries at or above T6 and is more commonly seen in the cervix. The most common symptoms of ADR include hypertension, hyperthermia, piloerection, respiratory distress, pupil dilation, loss of consciousness, convulsions, and increased extremity spasticity (7). In some cases, ADR leads to fetal hypoxaemia and bradycardia or is misdiagnosed as preeclampsia during labor.

Since sympathetic over activity below the SCI leads to hypertension and headaches and may lead to preeclampsia symptoms(12), an accurate diagnosis can be life-saving and the appropriate management of preeclampsia is required for the delivery of the fetus.

Hypertensive encephalopathy, cerebrovascular accidents, intra ventricular haemorrhage, and retinal haemorrhage are the complications of delayed therapy in ADR. Despite the high prevalence of ADR in pregnant women with SCI, there were no ACR symptoms in our patient. In our case, NVD was performed without spinal anesthesia. Also, the patient's general condition was good. Sterilization was
not performed due to the possible anesthesia-related complications and the risk of hypotension. She was discharged from the hospital and postpartum care was provided at home.

**CONCLUSION**

Pregnancy in women with SCI poses high risks to both the mother and fetus. The rate of amenorrhea after SCI is estimated at 38% in Iranian women and is mostly provisional. In most cases, the menstrual cycle goes back to normal and is not affected by the injury severity, age, or future accidents (13). Considering the high risk of pregnancy in patients with SCI and multiple medical issues, contraceptive methods should be applied by these patients.

**REFERENCES**


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