

## Case Report

# Safety of Sacral Neuromodulator in Pregnancy – A Case Report

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- Sacral neuromodulator
- Fowler's syndrome

**Abstract**

The urinary retention is defined as the inability to completely empty the bladder. Among females the prevalence of UR is rare. The treatment of urinary retention is mainly depending on using Sacral Neuromodulator device. Most physicians advise the pregnant women to turn off the device during their pregnancy and labor to keep the mother and infant health. However, our case went against medical advice and kept the device on her responsibility. Unexpectedly the pregnancy was uneventful, and without complication, all labs were within normal range, and no abnormality showed in the imaging. In conclusion, using the Sacral Neuromodulator device during pregnancy and labor may be safe in some cases, but it requires continuous follow-up.

**INTRODUCTION**

Lower urinary tract dysfunction affects millions of people worldwide. It can manifest as urinary retention, urinary incontinence, urgency, frequency. The patient who has (nonobstructive) urinary retention, undergoing Electromyography (EMG) of the external urethral sphincter which can divide these patients into two categories. Symptoms of Lower urinary tract dysfunction has the significant negative effect on health-related quality of life [1]. Fowler's Syndrome is a cause of urinary retention in young women in which they show burst and complex repetitive release on EMG, and those who showed no activity on EMG are said to have idiopathic no obstructive urinary retention [2]. Fowler's syndrome described as chronic urinary retention in young women characterized by a primary failure of urethral sphincter relaxation; and unique urethral sphincter EMG findings in the absence of any structural pathology [3]. The most patient starts the treatment with conservative therapies, such as bladder training, pelvic floor exercises. This regimen is supported by pharmacological therapy. Roughly 40% patients either don't accomplish an adequate level therapeutic benefit or remain refractory to treatment. The surgical parts of treatment, such as bladder transection, transvesical phenol injection of the pelvic plexus, augmentation cystoplasty have been supported for these unremitting conditions. However, these procedures have variable efficacy and have been related to significant morbidity and risk [4].

**CASE PRESENTATION**

This is a case of 35-year-old female who known to have idiopathic urinary retention since three years. She was using

clean intermittent catheterization (CIC) on a regular basis, until we saw her in the clinic about two years and six months ago. She was evaluated and then she was started to be worked up for sacral neuromodulation therapy.

Initially, started with the first stage which was extremely successful and the patient was voiding spontaneously with minimal usage of the catheter to drain the postvoid residual. Then after that, she was permanently implanted about two years ago. She was on regular follow-up in our clinic and was voiding regularly. The side effects of using the sacral modulation during the pregnancy were discussed with the patient.

On one of her clinical follow-up visits, she presented in her first trimester of pregnancy. The patient was advised to turn off the device as she was pregnant and there is no evidence showed that it is safe for pregnancy and despite that patient went against medical advice and kept it on her responsibility because she was afraid using CIC might cause recurrent urinary infections.

The pregnancy was uneventful, and without complication, all labs were within normal range, and no abnormality showed in the imaging. She has one episode of UTI, and she claimed that because she turned off the device.

At 40 weeks gestation, the woman delivered a healthy infant normally through the vagina. Well, infant and was in good health status. There were no issues noticed caused by SNM with the delivery, either for patient or infant. Sacral Neuromodulator was active throughout the pregnancy and postpartum,

**DISCUSSION**

The incidence of urinary retention among females is rare.

However, those cases that do happen may show significant management problems to the urologist. While regarding fit young females with a complete inability to void and intolerance of intermittent self-catheterization reasonably demand an alternative to a long-term indwelling suprapubic catheter. According to the urological studies the causes of retention was classified as anatomical and functional causes. Mainly tumors, bladder calculi, bladder neck stenosis, urethral diverticula, bladder neck stenosis, bladder calculi, and rarely urethral strictures or pelvic organ prolapse are the causes of mechanical obstruction [5,6]. The incidence of UR in women is not well documented. One Scandinavian study revealed an incidence of AUR in women of 7 per 100,000 populations per year; the male to female ratio was 13:1 [7].

Treatment of the urinary retention in females is mainly in the form of urethral dilatation, intermittent catheterization, botulinum toxin injection of the urethral sphincter, and alpha blockers. Spontaneous recovery has been observed in 42% of patients, in which precipitating factors were present such as post pelvic surgery and postpartum [8]. Sacral neuromodulation (SNM), a minimally invasive therapy, has been shown to be a permissive and effective therapy in the restoration of spontaneous voiding and remains effective for several years in patients with urinary retention [9]. Sacral neuromodulation (SNM) which has been found to be the effective treatment of lower urinary tract dysfunctions [4]. It is approved by the FDA for the treatment of frequency, urgency, urge incontinences and retention. The mechanism of action is based on the electric stimulation of the S3 and S4 nerves; however, mechanism of action is still unclear. SNM consists of an implanted lead that lies along a sacral nerve root and is connected to an implanted pulse generator. A patient programmer is also available and allows the discontinuation of the device at any time [5]. Because of the rare occurrence of bladder dysfunction among females during their reproductive years, the use of sacral neuromodulation during pregnancy is very uncommon. Consequently, the experience of the effects of this treatment on pregnancy is limited. There is a theoretic risk of the teratogenic effect on the developing fetus and not so theoretic risk of preterm labor because the uterus and the bladder may share the same nerve roots. The International Urogynecological Association has advised women to deactivate their pulse generator as soon as their pregnancy is diagnosed [10]. Khunda et al. [11], studied 13 pregnancies of women with sacral neuromodulation and came to the conclusion that turning off the neuromodulation is associated with an increased risk of urinary tract infection recurrence and furthermore preterm delivery, this study's conclusion matched with our case. While a review of the relevant literature revealed only 1 article that concluded that a sacral neuromodulation device should be deactivated during pregnancy because the effect on the fetus is unpredictable [12].

## CONCLUSION

Urinary retention rarely occurs among females [6]. The use of sacral neuromodulator during pregnancy is very uncommon [11]. The International Urogynecological Association has advised women to deactivate their pulse generator as soon as their pregnancy is diagnosed [11]. However, our case continued her pregnancy without turning off the sacral neuromodulator device. The pregnancy was uneventful, and without complication, all labs were within normal range, and no abnormality showed in the imaging.

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