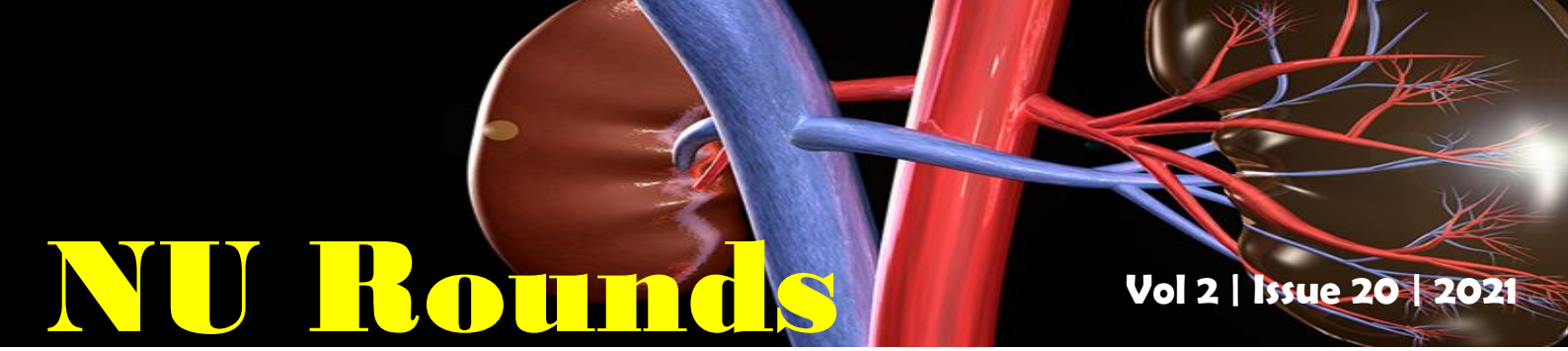

# NU Rounds

Vol 2 | Issue 20 | 2021

Dear Doctor,

Greetings from Micro Labs limited. We are happy to bring you "**UROunds**" which contains latest and interesting news in the field of Urology.

Inside This Issue:

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- External validation of the R.I.R.S. scoring system to predict stone-free rate after retrograde intrarenal surgery
- A prospective, multicentre, international study to explore the effect of three different amplitude esttings in female subjects with urinary urge incontinence

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,

**Medical Team, Micro Labs Ltd**

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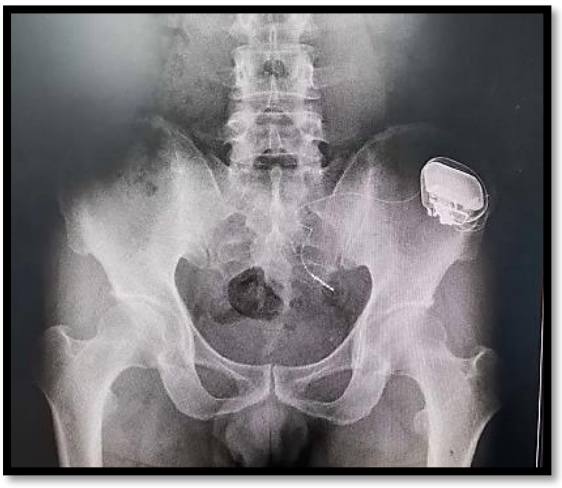
# Bilateral electrical pudendal nerve stimulation as additional therapy for lower urinary tract dysfunction when stage II sacral neuromodulator fails: a case report

## Introduction

Lower urinary tract dysfunction (LUTD) includes a broad spectrum of diseases ranging from failure to empty the bladder to failure to store urine. Sacral neuromodulation (SNM) using InterStim is a minimally invasive therapy approved by the United States Food and Drug Administration for LUTD. Over the last 20 years, SNM has become an effective therapy used in China for patients with LUTD who do not respond to conservative treatment. However, one-third of patients required reoperation, often due to a lack of efficacy or worsening symptoms. This case report is the first to use electrical pudendal nerve stimulation (EPNS) as an additional therapy for a patient who did not respond to stage II sacral neuromodulation.

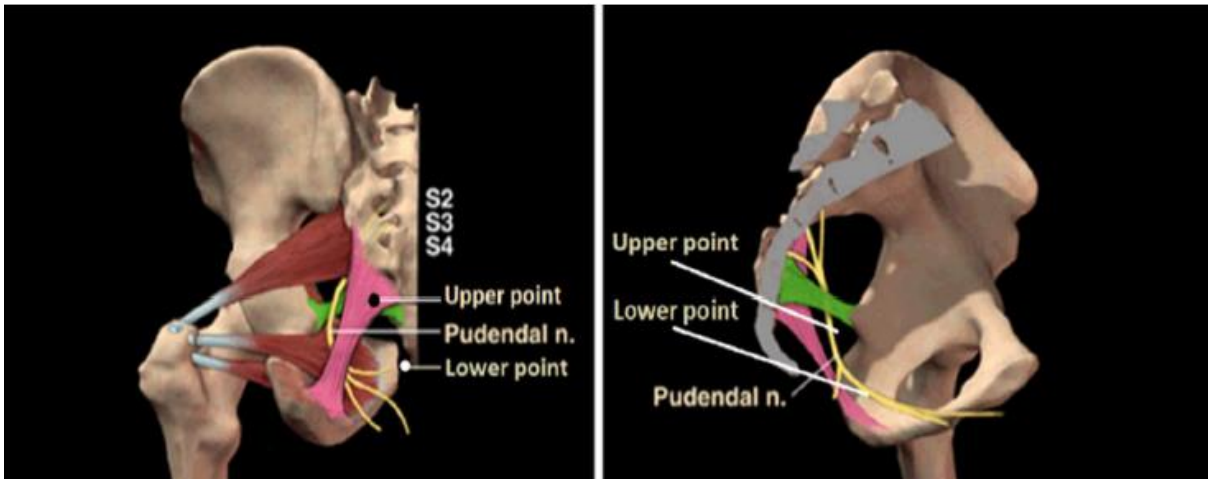
**Case presentation**: A 51-year-old Chinese man presented to an outpatient clinic complaining of difficulty in urination for > 3 years. The patient also complained of urinary frequency and urgency, accompanied by perineal discomfort. He was diagnosed with LUTD based on his symptoms and previous examinations.

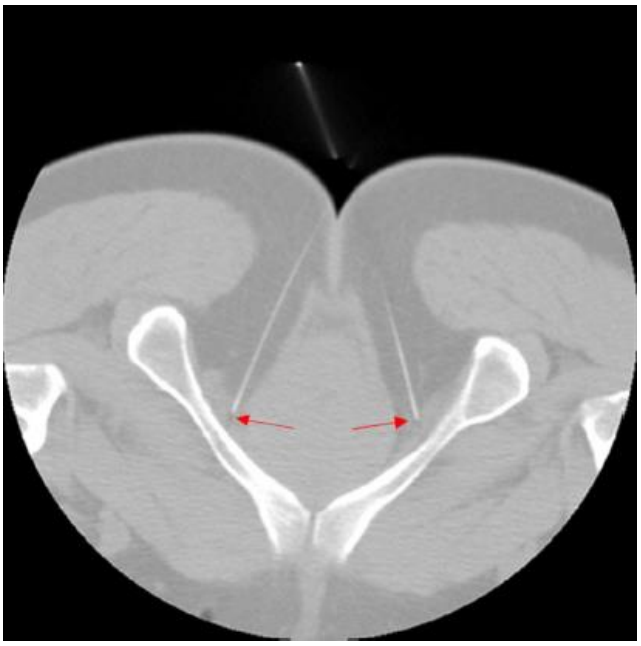


Radiograph of the implantable pulse generator in the patient's left buttock

The patient underwent sacral neuromodulation with a permanent implantable pulse generator (IPG) in the left buttock, but due there was loss of efficacy of the device 3 months after the implantation.

Anatomical locations of the four sacral points for electrostimulation



Transverse computed tomography (CT) scan of the coccygeal apex: A transverse CT image of the coccygeal apex shows the tips of needles inserted at the lower sacral point in the ischiorectal fossa

Following this patient was given bilateral electrical pudendal nerve stimulation (EPNS) therapy. After 2 weeks of treatment, patient began to report smooth voiding within 2 h after EPNS, and a moderate improvement in urinary frequency, urgency, and perineal discomfort.

After 4 weeks of EPNS, the patient reported > 50% improvement in urination, evaluated with the short form of the International Consultation on Incontinence Questionnaire for Male Lower Urinary Tract Symptoms. Patient reported smooth voiding, moderate improvements in urinary frequency and urgency, and the disappearance of the perineal discomfort. Patient also reported improved sleep and erections. The patient was discharged after 8 weeks of EPNS treatment.

**Discussion:**

SNMs have become increasingly popular in the treatment of LUTD in recent years. However, investigations after SNM implantation regarding patients' long-term efficacy or satisfaction has received little attention. The PN is a peripheral nerve with sympathetic fibres from the second, third, and fourth sacral nerve roots and motor and sensory functions. Because SNM therapy stimulates only some of the afferent fibres of the pudendal nerve, direct neurostimulation of the PN may be more effective. Pudendal neurostimulation (PNM) is growing as an alternative surgical option for patients who experience a decrease in the effectiveness of SNM and in those who were never satisfied after an SNM procedure. The PNM procedure involves a small implantable neurostimulator device placed directly into one side of Alcock's canal to stimulate the PN. In EPNS therapy, four long needles are inserted at four points near the sacrococcyx in order to stimulate the PN within the sacrococcygeal region . Additionally, EPNS has been used to treat female urgency-frequency syndrome and idiopathic urgency urinary incontinence . In this case, the patient had only mild improvement (< 50% improvement in symptoms) after Stage I. In clinical practice, clinical symptom improvement ≤ 50% was considered to indicate poor efficacy, and these patients were recommended for other treatment. However, the patient accepted Stage II permanent implantation, Unfortunately, he failed the test, and his mood was substantially impaired because of voiding difficulty as well as urinary urgency and frequency symptoms. This case is an example of the use of EPNS as an additional therapy for LUTD when SNM is no longer clinically effective. Therefore we diagnosed the patient with detrusor underactivity as a sub-category under LUTD.

**Conclusion:** EPNS could be an option as an additional therapy for LUTD patients who do not respond to SNM.

*Source: Chen et al. Bilateral electrical pudendal nerve stimulation as additional therapy for lower urinary tract dysfunction when stage II sacral neuromodulator fails: a case report BMC Urol (2021) 21:37*

## ***External validation of the R.I.R.S. scoring system to predict stone-free rate after retrograde intrarenal surgery***

**Introduction:**

There has been continuous improvement of flexible ureteroscope equipment, such as endoscope miniaturization, improved deflection angles, enhanced optical quality, and ancillary tools, more and more urologists have become inclined to use retrograde intrarenal surgery (RIRS) to treat kidney stones. Although the current urolithiasis guidelines recommend RIRS for renal stones smaller than 20 mm, with the accumulation of experience of the surgeon and the preoperative judgment of the difficulty of the operation, more surgeons have engaged RIRS to resolve renal stones larger than 20 mm and achieved excellent results. The ensuing question is how to choose the surgical method before surgery, RIRS or percutaneous nephrolithotomy (PCNL), and the postoperative stone-free rate (SFR) is a significant factor. To solve this problem, in 2017, Xiao et al. published the R.I.R.S. scoring system with four different parameters. In this system, each parameter is assigned a different point according to different situations. The total score can range from 4 to 10 points. The higher the score, the more complicated the stone. Although the R.I.R.S. scoring system showed reliable predictive power in the preliminary research results, and there is still a lack of retrospective validation.

**Objective:** To validate RIRS scoring system and evaluate its validity.

**Methods:** Retrospectively analysis of patients who had, been treated by RIRS for kidney stones. A total of 147 patients were enrolled in the study. Parameters were measured for each of the four specified variables.

**Results:** Stone-free status was achieved in 105 patients (71.43%), and 42 patients had one or more residual fragments (28.57%). Differences in stone characteristics, including renal infundibulopelvic angle, renal infundibular length, lower pole stone, kidney stone density, and stone burden were statistically significant in patients whether RIRS achieved stone-free status or not (P < 0.001, P: 0.005, P < 0.001, P < 0.001, P: 0.003, respectively).

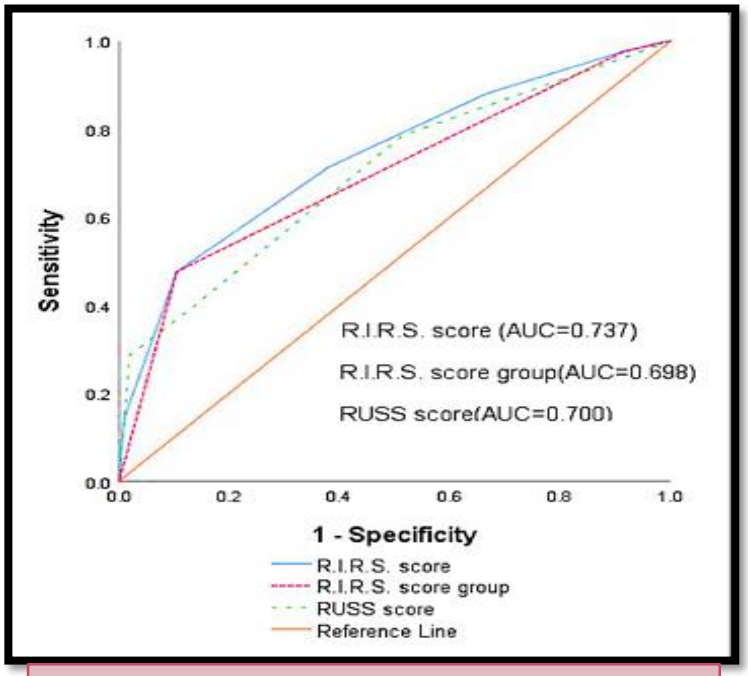
| R.I.R.S. score | SFR (%) | R.I.R.S. score group | SFR (%) | RUSS | SFR (%) |
|---|---|---|---|---|---|
| 4 | 100% (1/1) | Mild (4–5) | 90% (9/10) | 0 | 85.00% (51/60) |
| 5 | 88.89% (8/9) | | | 1 | 70.91% (39/55) |
| 6 | 86.67% (26/30) | Moderate (6–8) | 80.19% (85/106) | 2 | 72.22% (13/18) |
| 7 | 81.08% (30/37) | | | 3 | 14.29% (2/14) |
| 8 | 74.36% (29/39) | Severe (9–10) | 35.48% (11/31) | | |
| 9 | 41.67% (10/24) | | | | |
| 10 | 14.29% (1/7) | | | | |
| Total | 71.43% (105/147) | | | | |
| Linear-by-linear association | *P* < 0.001 | | *P* < 0.001 | | *P* < 0.001 |

**The SFR after RIRS according to the R.I.R.S. scoring system and RUSS**

R.I.R.S. scores were significantly lower in patients treated successfully with RIRS than patients in which RIRS failed (P < 0.001). Binary logistic regression analyses revealed that R.I.R.S. scores were independent factors affecting RIRS success (P = 0.033). The area under the curve of the R.I.R.S. scoring system was 0.737. R.I.R.S. scoring system is an independent predictor of postoperative stone-free status. It provides high prediction accuracy.

| | *P* value | Exp (B) | 95% CI |
|---|---|---|---|
| Inferior pole stone | < 0.001* | 0.56 | 0.011–0.273 |
| RIPA | 0.001* | 0.942 | 0.910–0.976 |
| RIL | 0.007* | 1.165 | 1.042–1.303 |
| Renal stone density | 0.001* | 1.004 | 1.002–1.006 |
| Stone burden | 0.006* | 1.121 | 1.034–1.216 |
| R.I.R.S. score | 0.033* | 0.438 | 0.205–0.935 |

**Binary logistic regression analysis of potential independent predictors for postoperative stone-free outcomes**




**Receiver operating characteristic curves of the original and three-tiered R.I.R.S. score groups and RUSS**

**Conclusions:** Our study retrospectively validates that the R.I.R.S. scoring system is associated with SFR after RIRS in the treatment of renal stones, and can predict accurately.

the treatment of renal stones, and can predict accurately.

*Source: Wang et al. External validation of the R.I.R.S. scoring system to predict stone-free rate after retrograde intrarenal surgery. BMC Urol (2021) 21:33*

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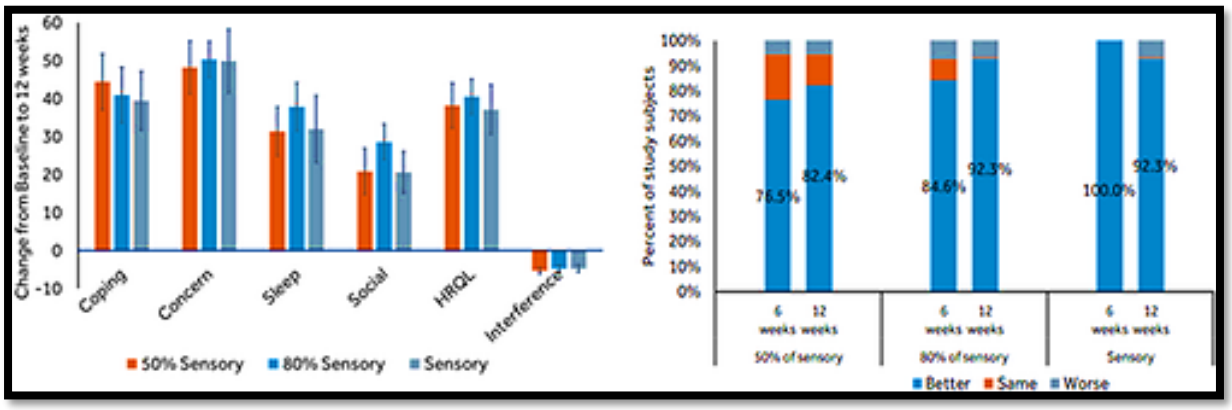
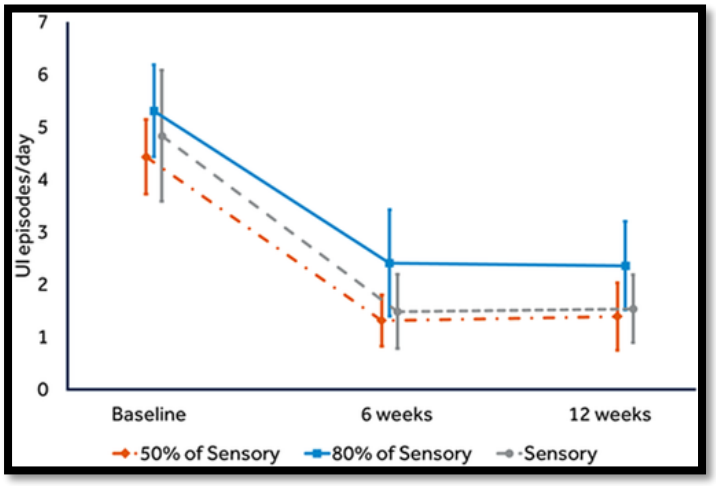
# *A prospective, multicenter, international study to explore the effect of three different amplitude settings in female subjects with urinary urge incontinence receiving interstim therapy*

**Aims: T**o evaluate the effect of sub-sensory amplitude settings of sacral neuromodulation therapy on overactive bladder symptoms in subjects with urinary urge incontinence.

**Methods:** Subjects who qualified for a neurostimulator device implant were randomized to one of three amplitude settings (50% of sensory threshold [ST], 80% of ST, and ST). Subjects completed urinary voiding diaries (3-day), International consultation on incontinence modular questionnaire-overactive bladder symptoms quality of life questionnaire, and patient global impression of improvement (PGI-I) to assess change in voiding symptoms and quality of life (QoL) from baseline through 12 weeks.

**Results:** Forty-eight subjects had a successful test stimulation, 46 were implanted with a neurostimulator device and 43 completed the 12-week follow-up visit. The change from baseline to 12 weeks is -3.0 urinary incontinence (UI) episodes/day (95% confidence interval [CI]: -4.4 to -1.7) for the 50% of sensory threshold group, -2.9 UI episodes/day (95% CI: -4.7 to -1.2) for 80% of sensory threshold group, and -3.6 UI episodes/day (95% CI: -5.2 to -1.9) for the sensory threshold group.






In each randomized group, improvements were observed in health-related QoL, its subscales, and symptom interference. Subjects across all three randomization groups reported on the PGI-I that their bladder condition was better at 12 weeks compared to before they were treated with InterStim therapy.

**Conclusion:** These findings provide insights into possible advancements in the postimplantation phase of therapy with potential for improved patient comfort and increased device longevity.

*Source: Elterman D, Ehlert M, et al. A prospective, multicenter, international study to explore the effect of three different amplitude settings in female subjects with urinary urge incontinence receiving interstim therapy. Neurourol Urodyn. 2021 Mar 1. Epub ahead of print. PMID: 33645864.*