

Case Report

Open Access

A Rare Case of Interstim Leads Site Pain

Justina Tam*, Wai Lee, Kevin Gioia and Jason Kim

Stony Brook University, Stony Brook, New York, USA

Introduction

Sacral neuro modulation is an increasingly commonly used therapy for patients with symptoms of lower urinary tract dysfunction refractory to conventional medical or surgical therapies. Published data has shown significant success with sacral nerve stimulation, but has also cited complications including pain at the lead site, lead migration, and infection leading to revision rates of approximately 30% [1]. We report a case of pain at the lead site secondary to the protrusion of lead tines in a patient with a slim body habitus.

Case Summary

A 27 year-old female with a BMI of 18.4 (165 cm, 50 kg) underwent Interstim lead placement for severe urinary urgency, urinary frequency every 20 minutes, and pelvic pain. She had failed multiple trials of behavioral and medical management. After Interstim placement, the patient had complete resolution of her irritative voiding symptoms and pelvic pain until the symptoms suddenly returned 8 months later.

The device was interrogated and demonstrated abnormal impedance readings between multiple electrodes, suggesting electrode failure. Plain films of the sacrum did not show lead migration.

The patient was taken to the operating room, and the leads were replaced in the patient's left S3 foramen. After the leads were replaced, the patient's voiding symptoms and pelvic pain improved, but she experienced severe pain at the insertion site of the lead that did not improve with pain medications, muscle relaxants or anti-inflammatory medications. The patient was unable to sleep on her back secondary to this pain. She denied any systemic signs of infection. Physical exam revealed no erythema, fluctuance, or other signs of infection at the lead insertion site or pocket site for the Internal Pulse Generator (IPG). The skin appeared to be tented up near the lead insertion site likely secondary to the patient's slender body habitus.

One month later, the patient was taken to the operating room again where the lead was placed deeper under the skin, in an attempt to reduce her pain. However, there was no resolution of pain. Later in the same month; the patient was taken to the operating room once again for removal of left-sided lead and placement of a new lead on the right S3 foramen. During removal of the left-sided lead, it was noted that the most proximal tine was protruding from the skin, despite fluoroscopy showing proper placement of leads in relation to the sacrum.

During placement of the right-sided leads, fluoroscopy was used to position the lead in the right S3 foramen. Figure 1 demonstrates the fluoroscopic image with the lead in proper position. With the lead in this position, the patient exhibited appropriate plantar flexion of the great toe and bellows response. It was noted that the most proximal tine was protruding from the patient's lead insertion site (Figure 2). We advanced the lead in an attempt to completely bury the lead. However, deeper lead placement led to loss of appropriate motor response and the lead was returned to its original position. We suspect that the pain the patient had experienced from her left sided lead was from the proximal set of tines that were causing the skin to tent up around the lead insertion site secondary to a lack of subcutaneous tissue.

We proceeded to trim the most proximal set of tines using Metzenbaum scissors, before tunneling the lead to the IPG pocket. It

appeared to lie in better position without tenting of the skin, compared to the previously placed lead.

Currently, ten months after the procedure, the patient continues to do well with good control of voiding symptoms and pelvic pain without any lead migration due to removal of the proximal tines and only slight pain at the new site. The pain at the former lead site resolved with no erythema or swelling. Preoperatively, the patient's bladder diary reported urinary frequency every 15 minutes. Currently, the patient's bladder diary reports urinary frequency every 3 to 4 hours. In addition, the patient reported pelvic pain, which resolved after the procedure. The patient's device is currently set to a frequency of 9.7 Hz, with a voltage of 0.8 V, and a pulse width of 210 us.

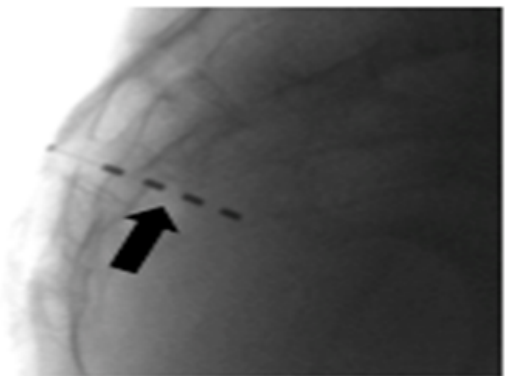


Figure 1: Fluoroscopic image of Interstim lead.



Figure 2: Proximal tine of Interstim lead protruding from skin.

***Corresponding author:** Justina Tam, Student at Stony Brook University, Stony Brook, New York, USA, Tel: (646)239-7887; E-mail: justina.tam@gmail.com

Received December 20, 2013; **Accepted** December 28, 2013; **Published** December 31, 2013

Citation: Tam J, Lee W, Gioia K, Kim J (2013) A Rare Case of Interstim Leads Site Pain. Med Surg Urol 2: 123. doi:[10.4172/2168-9857.1000123](https://doi.org/10.4172/2168-9857.1000123)

Copyright: © 2013 Tam J, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

From time of initial lead placement to lead revision, the patient stated that she had lost 5 kg. This lead to a decrease of her BMI from 18.3 to 16.5 and we speculate the loss of subcutaneous tissue overlying her sacrum lead to this complication of lead site pain.

Discussion

Complications of sacral neuromodulation have included pain at the site of the neurostimulation in 15.3%, lead migration in 8.4%, infection in 6.1%, transient sensation of electrical shock in 5.5%, and pain at the lead site in 5.4%, with an overall surgical revision rate of 33% [1]. Thus, this patient's complication is not rare, however, further detail on the specific causes of lead site pain in previous studies have not been described. This patient developed pain at the lead site with the use of Interstim leads containing tines that function in preventing lead migration after implantation [2]. The cause of the pain was protrusion of the lead tines as resulting from a discrepancy between the length of the leads and location of the tines in relation to the patient's slim body habitus. While studies have found that one significant predictor of complications including pain at the lead site is a change in BMI class from obese to overweight or overweight to normal, this patient did not experience such a change in during the course of her treatment [3]. One concern is that trimming of the most proximal tines may lead to an increased risk of lead migration; however, as the most proximal tines are protruding from the skin, we believe that these tines would

not prevent lead migration. In addition, this was not a problem that we encountered in this case. Another possible solution to prevent the protrusion of the most proximal tines is to change the angle of the lead to the skin to create a longer channel for the lead. However, this was not possible due to this patient's slender body habitus.

A previous case study detailed the course of a patient who lost a significant amount of weight as a result of a gastric bypass after Interstim placement. She developed pain and spontaneous perforation of the skin over the implant site without the presence of infection, raising the question of poor nutritional intake and poor wound healing as a cause of the extrusion of the device. This case study, as well as the case we have presented here demonstrate a need for further efforts to understand and endeavor to reduce complications and surgical revision rates associated with sacral neuromodulation, and may suggest a need for adjustments to tines or the availability of variable tine lengths to accommodate body habitus.

References

1. Martínez-Piñeiro L, Djakovic, N, Plas E, Mor Y, Santucci R A, et al. (2010) EAU Guidelines on Urethral Trauma. *Eur Urol* 57: 791-803.
2. Thomas AZ, Giri SK, Meagher D, Creagh T (2009) Avoidable iatrogenic complications of urethral catheterization and inadequate intern training in a tertiary-care teaching hospital. *BJU Int* 104: 1109-1112.
3. Kashefi C, Messer K, Barden R, Sexton C, Parsons J K (2008) Incidence and prevention of iatrogenic urethral injuries. *J Urol* 179: 2254-2257.