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*Case Report*

# Spinal cord stimulation: A novel approach to pain management in Dercum's disease

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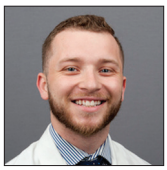

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## ABSTRACT

**Background:** Dercum's Disease (DD) is a rare chronic pain syndrome in which patients experience extreme burning pain associated with subcutaneous lipomatous tissue deposits. These patients may also present with; weakness, psychiatric symptoms, metabolic derangements, sleep disturbance, impaired memory, and easy bruising. Common risk factors for DD include: obesity, Caucasian race, and female sex. The etiology of DD remains under debate while it has proven highly resistant to treatment (i.e., requiring high doses of opioids for adequate pain management).

**Case Description:** A 48-year-old female with DD and a prior spinal cord stimulator (SCS) placed for chronic back pain, presented with recurrent back pain, and increased falling. Surgery to replace her SCS resulted in improvement in her back pain and a decreased incidence of falls. Furthermore, she noticed significant improvement in the burning pain attributed to her subcutaneous nodules; this most markedly occurred at and below the level of stimulator placement.

**Conclusion:** A 48-year-old female with the extremely rare condition, DD experienced dramatic reduction in her pain following the successful revision of her SCS.

**Keywords:** Adiposis dolorosa, Ander syndrome, Chronic pain, Dercum's Disease, Spinal cord stimulation

## INTRODUCTION

Dercum's disease (DD), also known as Adiposis Dolorosa, is a rare condition in which patients experience chronic burning or searing pain. Their pain is typically attributed to subcutaneous lipomatous tissue deposits that are often multiple, diffuse, symmetric, and varying in size.[3] Symptoms may include; weakness, psychiatric symptoms, metabolic derangements, sleep disturbance, impaired memory, and easy bruising.[3,6] Differential diagnostic consideration for DD includes fibromyalgia, lipoedema, panniculitis, multiple symmetric lipomatosis, familial multiple lipomatosis, and adipose tissue tumors.[5]

The most controversial factor for managing DD is how to best manage the pain. Treatments are primarily based on anecdotal evidence and widely vary. They have included weight loss, non-

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steroidal anti-inflammatory drugs, low dose d-amphetamines, lidocaine, ketamine, methotrexate, infliximab, interferon alpha-2b, corticosteroids, pregabalin, calcium channel modulators, rapid cycling hypobaric pressure, and short-term transcutaneous electrical stimulation.[3-5,7] Here, we present the successful control of a 48-year-old morbidly obese female's DD pain by revising her implantable spinal cord stimulator (SCS).

## CASE REPORT

A 48-year-old morbidly obese female (Body mass index 44.2) with DD presented with chronic back pain and increased falls. She had previously received a SCS in 2013 that provided satisfactory relief until 2015. From 2017 to 2018, she noticed the new onset of painful (i.e., 10/10 burning pain) subcutaneous nodules; these first appeared on her abdomen and then occurred diffusely [Figure 1]. In 2018, she was diagnosed with DD and received lidocaine patches, nerve injections, etodolac, and hydrocodone-acetaminophen. By 2020, her pain had become constant at the 10/10 level. Further, interrogation of the SCS showed that the device was not functioning.

She underwent successful replacement of her SCS; the paddle lead was placed at the T8 level along with a non-rechargeable generator placed in the buttock [Figure 2]. Preoperatively, she had the maximum PROMIS-PI Form 6B score of 76.3 (i.e., severe pain limiting daily living).[1] Postoperatively, she sustained a 90% reduction in all pain, particularly below the level of SCS replacement (i.e., PROMIS-PI Form 6B score: 60.4).[1]

## DISCUSSION

A possible etiology of chronic pain in DD is chronic inflammation from subcutaneous nodules. Notably, chronic compression from these subcutaneous nodules may elicit a cascade of inflammatory factors that may then contribute to the development of peripheral nerve sensitization, ectopic neuronal activity and resultant severe pain.[2,9] Often, the aberrant neuronal firing associated with chronic neuropathic pain syndromes as with DD is often treated with high levels of efficacy using SCS.[2,8] Indeed, the similarities of DD with other such syndromes may make it highly amenable to this same treatment modality. The SCS in this patient successfully interrupts the retrograde pain signals originating from the areas surrounding the subcutaneous nodules (i.e., en route to the level of sensory perception). Furthermore, the modest reduction in nodule-associated pain above the level of the SCS placement may be a result of neuronal plasticity along the ascending sensory pathway (i.e., consistent impulses produced by the SCS). Although there are numerous potential therapies for DD, SCS appears to provide the most efficacious pain resolution modality with limited morbidity.

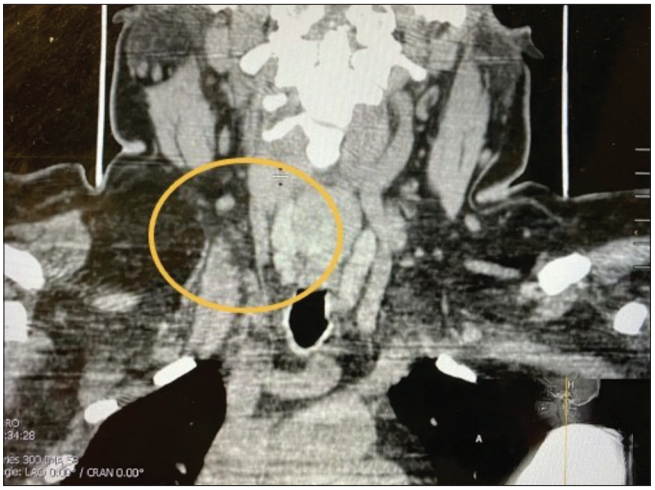

**Figure 1:** An example of one of the subcutaneous nodules (yellow circle) found in this patient with Dercum's disease.

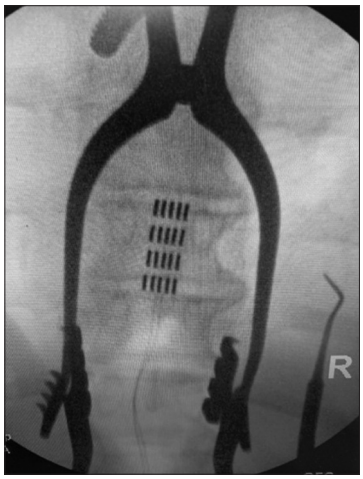


**Figure 2:** Intraoperative imaging demonstrating localization of the paddle stimulator lead at the level of T8.

## CONCLUSION

When a 48-year-old morbidly obese female underwent revision of her previously placed but non-functioning "burst" SCS, she experienced marked improvement in pain (i.e., 90%) without significant morbidity.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

## REFERENCES


1. Amtmann D, Cook KF, Jensen MP, Chen WH, Choi S, Revicki D, *et al*. Development of a PROMIS item bank to measure pain interference. Pain 2010;150:173-82.
2. Attal N, Bouhassira D. Mechanisms of pain in peripheral neuropathy. Acta Neurol Scand Suppl 1999;173:12-24; discussion 48-52.
3. Cook JC, Gross GP. Adiposis dolorosa. In: StatPearls. Florida: StatPearls Publishing; 2021. Available from: https://www.ncbi.nlm.nih.gov/books/NBK507867 [Last accessed on 2021 Jul 21].
4. Ghazala S, Bilal J, Ross E, Riaz IB, Kalb B, Herbst KL. Low-dose d-amphetamine induced regression of liver fat deposits in dercum disease. Am J Med 2018;131:705-8.
5. Hansson E, Svensson H, Brorson H. Review of Dercum's disease and proposal of diagnostic criteria, diagnostic methods, classification and management. Orphanet J Rare Dis 2012;7:23.
6. Kucharz EJ, Kopeć-Mędrek M, Kramza J, Chrzanowska M, Kotyla P. Dercum's disease (adiposis dolorosa): A review of clinical presentation and management. Reumatologia 2019;57:281-7.
7. Martinenghi S, Caretto A, Losio C, Scavini M, Bosi E. Successful treatment of Dercum's disease by transcutaneous electrical stimulation: A case report. Medicine (Baltimore) 2015;94:e950.
8. Sdrulla AD, Guan Y, Raja SN. Spinal cord stimulation: Clinical efficacy and potential mechanisms. Pain Pract 2018;18:1048-67.
9. Thacker MA, Clark AK, Marchand F, McMahon SB. Pathophysiology of peripheral neuropathic pain: Immune cells and molecules. Anesth Analg 2007;105:838-47.


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