Lumbar Sympathectomy in an Ankylosing Spondylitis Patient with Vasculitis: A Case Report

Venu Narayanapanicker¹, Bhupider Pal Singh², Gautam Das³

ABSTRACT

In ankylosing spondylitis (AS), the axial skeleton, peripheral joints, and extra-articular structures are also frequently involved. Cutaneous lesions and vasculitis is extremely rare. Lumbar sympathectomy has a definite role in patients with painful cutaneous vasculitis and ischemic leg ulcer, especially those refractory to medical management. Despite the relatively small percentage of patients suffering from chronic leg ulcer, it has a significant impact on the patient’s quality of life. A 44-year-old male AS patient with low backache (LBA) of 15 years and bilateral leg pain came to us. But in the past 2 years, severity of pain worsened resulting in infection and ulcer of dorsum of both feet. Examination confirmed multiple ulcers along with sensory loss on the dorsum of foot bilaterally. Not only he was refractory to conventional medical management, but he also had developed various side effects. Our results of diagnostic left lumbar sympathetic block (LSB) turned out to be positive. Next day, radiofrequency ablation (RFA) of lumbar sympathetic chain bilaterally at L2, L3, and L5 was done, and the patient was discharged pain free. At the 3-month review, the leg ulcers had healed, and the patient was pain free. So here, we discuss about the possible mechanisms and the role of LSB in vasculitic leg ulcers.

Keywords: Ankylosing spondylitis, Leg pain, Leg ulcer, Lumbar sympathetic block, Vasculitis.

Journal on Recent Advances in Pain (2019): 10.5005/jp-journals-10046-0148

INTRODUCTION

Ankylosing spondylitis (AS) is an inflammatory disorder of unknown cause that primarily affects the axial skeleton; peripheral joints and extra-articular structures are also frequently involved. The disease usually begins in the second or third decade; male-to-female prevalence is between 2:1 and 3:1. Its most common symptoms are chronic low back pain and morning stiffness. Extra-articular manifestation includes dactylitis, uveitis, inflammatory bowel disease, psoriasis, and cardiac and pulmonary lesions. Cutaneous lesions and vasculitis is extremely rare.

In this case report, we describe the resolution of a refractory vascular ulcer of the lower limb in a patient with AS. The main aims of treatment are to facilitate the ulcer healing process and treat the pain. Conventional treatment options for the ulcer of the leg vary from conservative management, medications, and surgical interventions. This case is unusual and peculiar since the chronic leg ulcer was not responsive to the usual medical treatment.

The sympathetic contribution to the lower extremity arises from the cell bodies originating in the anterolateral horn of the spinal cord from T10 to L2. The spinal contribution to the sympathetic chain ends at L2, but the sympathetic chain continues to the coccyx, ending with the ganglion impar. The lumbar sympathetic chain is located in the anterolateral portion of the vertebral bodies bilaterally. The segment of the sympathetic chain that carries the sympathetic fibers to the lower extremities resides alongside L2, L3, and L4 vertebral bodies bilaterally. In the lumbar region, the psoas muscle separates the sympathetic chain from the somatic nerves.

Lumbar sympathetic block can be utilized to disrupt the nerve supply from the sympathetic chain to the lower extremities. This is useful in treating sympathetic mediators of pain. Specifically, LSBs can be used for the treatment of painful conditions such as complex regional pain syndrome, phantom limb pain, hyperhidrosis, vascular insufficiencies, and pain from herpes zoster/shingles.

CASE DESCRIPTION

A 44-year-old male AS patient with LBA of 15 years [verbal rating scale (VRS) = 3] was referred to our hospital. His symptoms had progressed to bilateral leg pain. But in the past 2 years, severity of pain worsened (VRS = 10) resulting in infection and ulcer of dorsum of both foot. Examination confirmed multiple ulcers (Fig. 1) along with sensory loss on the dorsum of foot bilaterally. He was already diagnosed to have spondyloarthropathy with vasculitis and was put on long-term prednisolone, etanercept, nortriptyline, and thalidomide. He had no relief, instead had already developed steroid-induced diabetes and was at the verge of depression.

After informed consent and evaluation, B/L lumbar sympathetic RFA following a diagnostic block was planned. Under strict asepsis and monitoring, fluoroscopic-guided left lumbar sympathetic diagnostic block at L3 level was done. For the diagnostic block, a 22-G 12 cm needle with bent tip was inserted targeting the lateral border of L3 vertebral body under ipsilateral oblique fluoroscopic view in tunnel vision. After hitting the bone, the tip is moved slightly lateral and slipped off from the vertebral body. In lateral view, the needle was advanced till tip and reached the anterior border of vertebral body just anterior to psoas muscle. The dye spread in the

¹,³Department of Pain Medicine, Daradia Pain Hospital, Kolkata, West Bengal, India

Corresponding Author: Venu Narayanapanicker, Department of Pain Medicine, Daradia Pain Hospital, Kolkata, West Bengal, India, Phone: +91 9496100228, e-mail: drvenuvenuvenu@gmail.com


Source of support: Nil

Conflict of interest: None

© The Author(s), 2019. Open Access. This article is distributed under the terms of the Creative Commons Attribution 4.0 International License (https://creativecommons.org/licenses/by-nc/4.0/), which permits unrestricted use, distribution, and non-commercial reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The Creative Commons Public Domain Dedication waiver (http://creativecommons.org/publicdomain/zero/1.0/) applies to the data made available in this article, unless otherwise stated.
Lumbar Sympathectomy in an Ankylosing Spondylitis Patient with Vasculitis

Anterior border of L2 to L4 vertebra in a linear fashion ruled out intrathecal, intravascular, or intradiscal placement. Then, 8 mL of 1% lignocaine is injected for diagnostic purpose (Figs 2 and 3). Post procedure, the patient had 70% pain relief at the dorsum of left foot. Also, the sensory impairment improved from 70% to 95% sensory perception. But this relief was short lasting. So, we decided to proceed with bilateral RFA of lumbar sympathetic chain at L2, L3, and L5 levels. The risk of developing retrograde ejaculation after the procedure was explained. Next day, during RFA for L2, L3, and L5 levels, the needle was targeted at the lower 1/3rd, upper 1/3rd, and middle 1/3rd of vertebral body, respectively. A 22-G 150-mm RF needle with a 10-mm non-insulated active tip was placed in the anterolateral border of the vertebral body. After confirmation of the correct position by means of fluoroscopy, sensory stimulation with 50 Hz and 0.6 V was done, which reproduced the original pain. Motor stimulation was done with 2 Hz and 2 V, which did not produce any motor contraction.

Then, 1 mL of 1% lignocaine is injected. Conventional RFA at each level at 80° for 90 seconds of 2 cycles was done by rotating the needle. After lesioning, depot triamcinolone is injected in each level before withdrawing the needle. The patient was discharged explaining him clearly that the benefits of RFA will take average of 3 weeks to appear. The patient was told to maintain a pain diary. But later, during the 3-month review, it was noted that ulcer had healed, and the patient was pain free.

Discussion

The interesting thing in this case is that AS is not commonly associated with vasculitis. The coexistence of AS with vasculitis though rare is still reported. Ernst et al. have stated about the persistence of large vessel vasculitis with spondyloarthritis. Ye and Li narrated about the occurrence of cutaneous vasculitis in AS patients. Another case report of leukocytoclastic vasculitis in AS is described by Kobak et al.

Our patient was already on thalidomide which is the treatment for livedoid vasculopathy, but the patient had no signs of relief. Thalidomide is associated with side effects including peripheral neuropathy, somnolence and fatigue, dizziness, tremors, confusion, and incoordination.

Steroid-induced diabetes as a consequence of prednisolone was another problem patient had developed. Chronic leg ulcer invariably makes a significant negative impact on the quality of life as well as quality of work performance of the patient. Our patient was on the verge of depression which is a common tragedy in chronic leg ulcer patients as it is well reported.

The result in this case report showed that sympathetic block could be an option in treating patients with chronic vascular ulcer. According to the practice guidelines for chronic pain management by the American Society of Anesthesiologists, LSB are indicated for the treatment of multitude of sympathetic mediated pain disorders. Haysworth and Noe reported that RFA of the sympathetic chain provided longer duration of pain relief and fewer complications than chemical (phenol) neurolysis. This led to the decision to prefer RFA.

Sympathetic nerve block works for resting pain and healing of ischemic ulcers because marked reduction in peripheral resistance leads to opening of arteriovenous anastomoses, thereby increasing blood flow to the skin. Alleviation of resting pain also occurs because of the blockage of afferent pain fibers traveling in the sympathetic chain. Studies have shown that disruption of lumbar sympathetic nerve can regulate the regeneration of cutaneous vascular cells by inhibiting the proliferation of pial cells and increasing the expression of angiopoietin-1. It can reduce the
inflammatory reaction in the sympathetic nerve denervation area,\textsuperscript{19} decrease the adrenergic release in the dorsal root ganglion, inhibit sympathetic activity by stimulating α2-adrenergic receptors and/or upregulating α2-adrenoceptors,\textsuperscript{20} inhibit spinal microglia activation, and reduce the expression of inflammatory cytokines (interleukin (IL)-1β, IL-6, and tumor necrosis factor-α).\textsuperscript{21} Therefore, the mechanisms of sympathetic nerve blockade for pain relief are complex and need to be further studied. Therefore, the mechanisms of sympathetic nerve blockade for pain relief are complex and need to be further studied.

**Conclusion**

Painful cutaneous lesions may be an extra-articular manifestation of AS, while more cases and deeper investigations are needed. Lumbar sympathetic blocks have a definite role in patients with painful cutaneous vasculitis and ischemic leg ulcer, especially those refractory to medical management. It should be considered as an alternative to amputation in patients with otherwise viable limbs.

**Reference**