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

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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.

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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
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The anterolateral 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. Haynsworth 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 parietal cells and increasing the expression of angiopoietin-1. It can reduce the

**Fig. 1:** Vasculitic leg ulcers on both the legs

**Fig. 2:** Radiofrequency ablation—RF needle at lower 1/3rd at L2 vertebrae and upper 1/3rd at L3 vertebrae level and dye spread can also be seen

**Fig. 3:** Radiofrequency ablation—RF needle at upper 1/3rd at L3 vertebrae level and middle of L5 vertebral body and dye spread can also be seen
inflammatory reaction in the sympathetic nerve denervation area, decrease the adrenergic release in the dorsal root ganglion, inhibit sympathetic activity by stimulating α2-adrenergic receptors and/or upregulating α2-adrenoceptors, inhibit spinal microglia activation, and reduce the expression of inflammatory cytokines ( interleukin (IL)-1β, IL-6, and tumor necrosis factor-α). 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 sympathectomy has 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**

1. Longo DL, Fauci AS, Kasper DL, et al. Harrison’s Principles of Internal Medicine. 18th ed., New York, NY: McGraw-Hill; 2012.
2. Robson MC, Cooper DM, Aslam R, et al. Guidelines for the treatment of venous ulcers. Wound Repair Regen 2006;14(6):649–662. DOI: 10.1111/j.1524-475X.2006.00174.x.
3. Abramov R. Lumbar sympathetic treatment in the management of lower limb pain. Curr Pain Headache Rep 2014;18(4):403. DOI: 10.1007/s11916-014-0403-x.
4. Awal S, Madabushi R, Agarwal A, et al. CRPS: early lumbar sympathetic block is better compared to other interventions. Pain Physician 2016;19(2):E363.
5. Ernst D, Baerlecken NT, Schmidt RE, et al. Large vessel vasculitis and spondyloarthritis: coincidence or associated diseases? Scand J Rheumatol 2014;43(3):246–248. DOI: 10.3109/03009742.2013.850737.
6. Ye C, Li W. Cutaneous vasculitis in a patient with ankylosing spondylitis: a case report. Medicine (Baltimore) 2019;98(3):e14121. DOI: 10.1097/MD.0000000000014121.
7. Kobak S, Yilmaz H, Karaarslan A, et al. Leukocytoclastic vasculitis in a patient with ankylosing spondylitis. Case Rep Rheumatol 2014;2014:653837. DOI: 10.1155/2014/653837.
8. Thalomid (Thalidomide) Capsules Prescribing Information. Warren, NJ: Celgene; 2007.
9. Doshi BR, Chougule NS, Manjunathswamy BS. Prevention and management of thalidomide toxicity. Indian J Drugs Dermatol 2017;3(2):100–104. DOI: 10.4103/ijdj.jidd_38_17.
10. Ruckley CV. Socioeconomic impact of chronic venous insufficiency and leg ulcers. Angiology 1997;48(1):67–69. DOI: 10.1077/000331979704800111.
11. Phillips T, Stanton B, Provan A, et al. A study of the impact of leg ulcers on quality of life: financial, social, and psychologic implications. J Am Acad Dermatol 1994;31(1):49–53. DOI: 10.1016/0190-9622(94)70134-2.
12. Renner R, Erfurt-Berge C. Depression and quality of life in patients with chronic wounds: ways to measure their influence and their effect on daily life. Chro Wound Care Manag Res 2017;4:143–151. DOI: 10.2147/CWCMR.S124917.
13. American Society of Anesthesiologists Task Force on Chronic Pain Management. American society of regional anesthesia and pain medicine. practice guidelines for chronic pain management: an updated report by the american society of anesthesiologists task force on chronic pain management and the american society of regional anesthesia and pain medicine. Anesthesiology 2010;112(4):810–833. DOI: 10.1097/ALN.0b013e31815c43103.
14. Hayworth RF Jr, Noe CE. Percutaneous lumbar sympathectomy: a comparison of radiofrequency denervation versus phenol neurolysis. Anesthesiology 1991;74(3):459–463. DOI: 10.1097/00000542-199103000-00012.
15. Agarwal P, Sharma D. Sympathectomy revisited: Current status in management of critical limb ischemia. In: Dieter RS, Dieter RA Jr, Dieter RA, et al. Critical Limb Ischemia: Acute and Chronic. 3rd ed., Switzerland: Springer International Publishing; 2016. pp. 459–464.
16. Coventry BJ, Walsh JA. Cutaneous innervation in man before and after lumbar sympathectomy: evidence for interruption of both sensory and vasomotor nerve fibres. ANZ J Surg 2003;73(1–2):14–18. DOI: 10.1046/j.1445-2197.2003.02618.x.
17. Zheng Z, Wan Y, Liu Y, et al. Lumbar sympathectomy regulates vascular cell turnover in rat hindfoot plantar skin. Clin Hemorheol Micro 2017;67(2):149–157. DOI: 10.3233/CH-170257.
18. Xie W, Chen S, Strong JA, et al. Localized sympathectomy reduces mechanical hypersensitivity by restoring normal immune homeostasis in rat models of inflammatory pain. J Neurosci 2016;36(33):8712–8725. DOI: 10.1523/JNEUROSCI.4118-15.2016.
19. Ogoni I, Takebayashi T, lwase T, et al. Sympathectomy and sympathetic blockade reduce pain behavior via alpha-2 adrenoceptor of the dorsal root ganglion neurons in a lumbar radiculopathy model. Spine 2015;40(24):E1269–E1275. DOI: 10.1097/BRS.0000000000001050.
20. Zhang JH, Yang CX, Zhong JY, et al. The influence of lumbar sympathectomy radiofrequency thermo coagulation on the activation of microglia in rats with diabetic neuropathic pain. Zhonghua Yi Xue Za Zhi 2016;96(24):1934–1938. DOI: 10.3760/cma.j.issn.0376-2491.2016.24.014.