

Cryoneurolysis for Post-hysterectomy Scar Neuralgia: An Innovative Management Approach

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ABSTRACT

When a small skin nerve is injured or squeezed by the scar tissue, it may cause pain in the scar tissue. Patient with pain after abdominal hysterectomy, a common gynecological operation, can be an ideal model for postoperative pain studies. Cryoneurolysis of nerves is the technique used to treat neuropathic pain, but the report on its use to treat postoperative abdominal scar neuralgia is not available. So we present a case report of a 39-year-old female patient who complained of burning and excruciating pain over her post hysterectomy scar since the last 4 years which did not relieve even with conservative medical management. We gave a diagnostic block along the scar tissue and found positive result. Then we did cryoneurolysis of the scar tissue under ultrasonography guidance, after which patient had significant pain relief.

Keywords: Cryoablation, Cryoneurolysis, Post scar neuralgia.

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INTRODUCTION

One of the common gynecological operations is abdominal hysterectomy. To study the postoperative pain, post hysterectomy pain could be an ideal model.¹ The pain percentile that has been reported varies from 5% to 32% and is irrespective of the type of surgery.^{2,3}

When a small skin nerve is damaged or compressed by the scar tissue, it may cause pain in the scar tissue. It is more common after surgery of inguinal hernia, lung, heart, kidney, shoulder, and after breast amputations. Postsurgical scar tissue pain can occur due to the formation of neuroma at injured nerve ending, which may ultimately progress to chronic pain at and around the scar area.⁴

Cryoanalgesia is usually suitable for small, well-localized lesion that causes neuropathic pain. Such pain generators might be neuromas, entrapment neuropathies, and postoperative pain.⁵ Exacerbating deafferentation pain is one of the complications while performing neurotomy or conventional radiofrequency ablation. But this complication can be avoided in cryoneurolysis technique.⁶

CASE DESCRIPTION

A 39-year-old female from Durgapur visited our outpatient department on September 9, 2019, with burning pain over the lower abdomen since 2015. About 3 years after abdominal hysterectomy, burning and shooting pain was experienced in the lower abdomen which was continuous and radiated to the lower part of the abdomen. It aggravated while sitting and during night. She then visited many hospitals and took medicines such as nonsteroidal anti-inflammatory drugs, antineuropathic medicines such as carbamazepine, gabapentin, etc. On August 2019, she was treated in Mission Hospital, Durgapur, with local infiltration of anesthetic agent around the scar after which she was pain free but only for few hours. Later she was advised to consult a pain physician and therefore came to our hospital for further management.

On examination, there was post hysterectomy scar on the lower abdomen. The scar was approximately 6 inches in length. Skin color over and around the scar was normal. On mild touch over the scar tissue, severe tenderness, allodynia, and hyperalgesia were noted.

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Her verbal rating scale (VRS) score was 8/10. Post hysterectomy scar neuralgia was diagnosed and hence planned for diagnostic nerve block with local infiltration of 1% lignocaine 15 mL around the scar tissue. Within 5 minutes, her VRS score was 0/10.

Then we planned for cryoneurolysis of peripheral nerves around the scar tissues under ultrasonography guidance at -78°C , which demonstrated immediate pain relief (Fig. 1). She was then

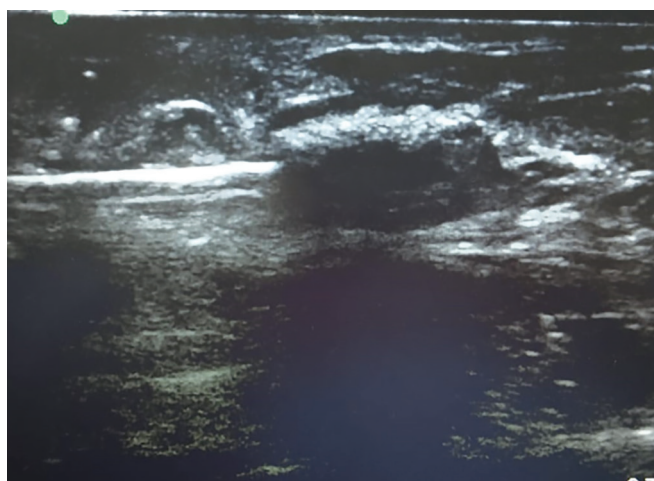


Fig. 1: Cryoprobe at scar tissue

discharged from our hospital and advised to take medicines such as duloxetine and baclofen. On follow-up after 3 months, she was not experiencing any pain at the scar area.

On telephonic conversation with the patient on the afternoon of January 21, 2020, she informed that there is no any pain at scar tissues and was very happy.

DISCUSSION

Patient with nerve damage can present with both hypoesthesia and hyperesthesia. Hypoesthesia is a finding and hyperesthesia reflects sensitization. This characteristic of neuropathic pain is due to a reduction in nerve function as well as increase in sensitivity to a nonnoxious stimulus.³

Acute postoperative pain is reported to be severe in abdominal hysterectomy when compared to vaginal or laparoscopic hysterectomies.⁷ It is found that acute postoperative pain is well correlated with the sensorial alterations of skin, preoperative pain, and hypersensitivity. In contrary to this, preoperative pain and hypersensitivity with chronic pain showed weaker correlations and thus show negligible roles in chronic post-hysterectomy pain.^{8,9} Beyaz et al. did a study in which 18 patients were detected to have cutaneous sensorial alterations which was reflected by dermatomal cutaneous hypersensitivity of uterus and the surrounding pelvic organs.¹⁰

In this patient, we preferred to do cryoneurolysis of the scar tissue. In cryoneurolysis, only second degree of nerve damage occurs in which the epineurium and perineurium remain intact and there is only lysis of axons and myelin sheaths (Wallerian degeneration) which eventually results in successful nerve regeneration. Neuromas are usually associated with the lesions in perineurium and epineurium due to any cause (trauma, surgery, or temperature). With cryoneurolysis, formation of neuromas in these affected axons is unlikely.¹¹ When compared with pulsed radiofrequency ablation, cryoprobe on larger nerve has more contact surface area and, thus, provide complete neurolysis.⁶ It covers the larger surface area of large abdominal scar. Also, the analgesic effect of radiofrequency ablation is delayed by 2 to 3 weeks, whereas cryoneurolysis provides immediate analgesia and can be experienced by the patient as soon as the procedure ends.

CONCLUSION

Scar neuralgia developing after abdominal hysterectomy is a very painful and distressing condition for the patient. We suggest cryoneurolysis as a new treatment option for managing chronic pain arising from such a large-sized scar tissue.

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