Chronic Pelvic Pain In Patient With Pelvic Adhesions—Role Of Neurolytic Ganglion Impar Block: A Case Report

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ABSTRACT

Ganglion impar block is used to treat chronic pelvic and perineal pain conditions in case of pharmacotherapy failure to control pain. In this case report, we present a neurolytic ganglion impar block as an effective method to control chronic pelvic pain resulting from post-surgical intra-pelvic adhesions in a 35-year-old female. We used a fluoroscopy-guided trans-sacrococcygeal ganglion impar block due to its simplicity. Pain level was evaluated using a numerical rating scale (NRS). We conclude that the trans-sacrococcygeal ganglion impar block is a simple and effective method to treat chronic pelvic pain due to post-surgical intra-pelvic adhesions, thus decreasing the consumption of analgesic medications and sick leave days.

Keywords: Ganglion impar, chronic pelvic pain, Neurolytic block, Numerical rating scale

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Introduction

Ganglion impar (Walther) block is used to treat many chronic pelvic pain conditions, adding neurolytic agent such as phenol or alcohol may prolong the block duration for more than six months. Intra-pelvic adhesions can cause moderate to severe pain, which in many cases is difficult to treat by ordinary analgesic medications and makes patients disrupt their work for many days. Ganglion impar block has been introduced to treat these types of pain. Ganglion impar is the only solitary sympathetic ganglion consists of fusion of the last two sacral ganglia, located retroperitoneal and anteriorly to the coccygeal bone between the sacrococcygeal junction and the tip of coccyx. [1][2][3] The significant correlation between the wide ranges of coccyx bone sizes and distances of the ganglion impar from the coccygeal tip was studied by Chang-Seak and colleagues. [4]

Ganglion impar block was first reported by Plancarte et al. (1990) to treat perineal neuralgia, [5] and since that time, it was used with some modifications to treat many pelvic and perineum related pain conditions. In this case study, we present a successful ganglion impar block in a patient who suffered from chronic pelvic pain resulting from post-surgical adhesions. Malec-Milewska et al. used this technique, aided by pharmacological, pudendal nerve block and topical

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treatment, to achieve reduction of chronic pelvic pain due to either endometriosis or pelvic adhesions in 18 women. [6] In this case study, we report the effectiveness of neurolytic ganglion impar block without the need to use other methods.

Case presentation

A 35-year-old female patient who suffered from intra-pelvic adhesions due to multiple surgical procedures complained of a lower abdominal pain for a long time. The diagnosis was based on intra-operative findings and follow-up ultrasonography and magnetic resonance imaging. She was treated with NSAIDs, spasmolytics and tramadol with little benefit. The patient refused any further surgical intervention so she was referred to the pain clinic. On the first visit, the patient was complaining of a lower abdominal pain which radiates to the perineum. The numerical rating scale (NRS) was 8/10. Ganglion impar block procedure was explained to both the patient and her husband, and they signed an informed consent form.

The patient was positioned prone, and vital signs were continuously monitored. Two milligrams of midazolam was given. Under aseptic technique, the needle entry point was identified using fluoroscopy. A 22-gauge spinal needle was advanced through the sacrococcygeal ligament until it reached the ventral surface of the sacrococcygeal junction. Proper needle tip position was then confirmed by injecting 3 cc of diluted iodixanol. After a mixture of 3 cc of 2% lidocaine, 2 cc of 0.5% bupivacaine and 80 mg of depot methylprednisolone were injected, the NRS score fell from 8 to 4 in the first 20 minutes, then to 2 after one hour. On the third day, the NRS was 3 and the patient returned to normal daily activities. Thus, we decided to perform neurolytic ganglion impar block using 8 cc of 6% phenol after 2 weeks using the same technique. The NRS score was monitored in each monthly visit, and the patient was satisfied.

Discussion

Chronic pelvic pain is defined as a continuous pain that lasts 6 months or more. It occurs in 4–14% of women, [6][7] and its management is sometimes challenging. Furthermore, it can be caused by a variety of conditions related to the reproductive organs, urinary tract or bowel.

The goal of treatment is to reduce symptoms and to improve the patient quality of life and overall function though that curative treatment is elusive, and evidence-based therapies are limited. The treatment options vary according to underlying cause.

Laparoscopic surgery for adhesiolysis or endometrial tissue removal is an effective solution in the patients who are diagnosed with post surgical adhesions and endometriosis respectively. They may offer significant long-term pain relief in some patients. [8] In rare complicated cases hysterectomy, salpingectomy or oophorectomy are recommended. Because of its high morbidity hysterectomy is the last resort. Up to 40% will have persistent pain and at least 5% will have worse pain after hysterectomy. [9] In the case of failure of the surgery to control pelvic pain or patient refusal of the surgery the use of other modalities is recommended.

Using over the counter pain remedies, such as acetaminophen, aspirin, ibuprofen and naproxen may provide partial pain relief. Cochrane review indicates lack of non-steroidal anti-inflammatory drugs effectiveness for endometriosis. [10] Opioid medications such as codeine, tramadol or fentanyl patch may provide long-term pain control when the other options have failed.

Hormonal therapies are recommended if the pain coincides with a particular phase of the menstrual cycle or endometriosis. They include birth control pills, gonadotropin-releasing hormone injections or progestin-releasing intrauterine devices. [11][12][13]

Some types of antidepressant such as tricyclic antidepressants (e.g.; amitriptyline, nortriptyline) and serotonin-noradrenaline reuptake inhibitors (e,g.; venalfaxine, duloxetine) or anticonvulsants (e.g.; gabapentin, pregabaline) may be helpful in relieving chronic pain if neuropathic pain is suspected. [14] In literature there was a small study shows that the combination of gabapentin and amitriptyline was more effective than amitriptyline alone. [15]

Physiotherapy has an important role in many cases and it may improve the pain effectively. It includes stretching exercises, massage and other relaxation therapy. In some cases the use of transcutaneous electrical nerve stimulation (TENS) which delivers electrical impulses that inhibit pain pathways may be helpful. In literature there was one study of 58 women diagnosed with chronic pelvic pain and treated with TENS after failure of multidisciplinary management. The result was reduction of skin pain sensitivity associated with an increase in pelvic pain threshold ($p< 0.0001$). [16]

Different types of Psychotherapy such as cognitive behavioral therapy and biofeedback may be helpful in many cases that associated with depression, personality disorders or sexual abuse. When combined with standard gynecologic care, somatocognitive therapy improved psychological stress, pain and motor function of women with chronic pelvic pain. [17]

Interventional pain management may have an important role in chronic pelvic pain control. It includes trigger point injections with local anesthetic and steroid mixture or botulinum toxin, selective nerve blockade, superior hypogastric plexus block, ganglion impar block and spinal cord stimulation. Ganglion impar block is a preferred method to control pain due its safety and simplicity.

Ganglion impar controls the sympathetic and nociceptive nerves from most of the pelvic structures. Ganglion impar block techniques include different approaches; transsacrococcygeal ligament approach (Toshniwal et al., 2007), transsacrococcygeal joint approach, paramedial approach (Allister, 2007) and paracoccygeal cork screw approach (Foye and Patel 2009); various positions prone, lateral and lithotomy and lastly different guidance techniques like fluoroscopic, ultrasound and computed tomography guidance. The transsacrococcygeal joint remains the most popular approach due to its simplicity and effectiveness. The procedure is done under a strict sterile technique and the needle is advanced under fluoroscopy guidance through the sacrococcygeal disk and correct needle placement is then confirmed by administration of contrast dye and appearance of comma sign in the retroperitoneal space on lateral fluoroscopic projection.[18] (Figure 1) A successful diagnostic block is assessed by significant pain relief. Following that a therapeutic block is performed with neurolytic agent like phenol or alcohol. The procedure usually takes 15 minutes and the patient can leave the hospital at the same day.

Figure 1: Lateral fluoroscopy view showed the trans-sacrococcygeal approach for ganglion impar block and dye contrast injection at the retroperitoneal area (Comma sign) .

This study presents a case of chronic pelvic pain that indicates block of the ganglion impar. The trans-sacrococcygeal approach to the ganglion was used under fluoroscopy guidance to confirm correct placement of the needle tip and to avoid rectal perforation. Nebab and Florence described an alternative method using curved spinal needle insertion through the anococcygeal ligament to avoid excessive tissue damage.[19]

For long-term effect, we performed ganglion impar neurolysis using 6% phenol after a successful block with local anaesthetics and steroid without any recorded complication. Pain NRS was significantly reduced after the procedure. Phenol (carbolic acid) was introduced in the 1950s.[20] It has local anaesthetic effects and can provide significant pain relief, lasting from 6 to 12 months.[21] It`s mechanism of action includes nervous tissue destruction by protein denaturation, protein coagulation, segmental demyelination and Wallerian degeneration.[22]

Conclusion

The ganglion impar block is an effective method in the treatment of chronic pelvic pain with minimal or no complication. It can reduce the consumption of variable analgesic agents and decrease sick leave days.

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