

CASE REPORT

Pain Management with Ganglion Impar Block in Adenocarcinoma Recti

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ABSTRACT

Background: Colorectal cancer is a type of malignant neoplasm that is often found with the third highest mortality rate in the world after breast cancer and lung cancer. Adenocarcinoma is the most common type of colorectal cancer which cause pain to the patient. The pain from this disease was described as chronic pain. Chronic pain can result from ongoing nerve inflammation and central sensitization. Inflammation begins with a mechanical injury which then turns into chronic inflammation. This situation changes the responsiveness of neurons to pain in the sympathetic ganglion. Sympathetic ganglia block is more effective in controlling visceral pain. This impar ganglion is the only sympathetic nervous system ganglion that is not attached to the sacrococcygeal. In this case report, the transsacrococcygeal joint approach was used to locate the ganglion accurately by injecting contrast and viewing the vertical dispersion called inverted commas along the ganglion laterally.

Case Illustration: A 60-year-old female patient was admitted with complaints of pain around the anus. The patient has been diagnosed with Adenocarcinoma recti two years ago. Pain is felt like being stabbed and persists in the anal area. Pain intensity increases on sitting and defecation. The patient has undergone chemotherapy 12 times and is taking pain relievers that have been prescribed regularly. The patient's Numeric Rating Scale (NRS) score is 6-7, which is categorized as severe pain. This patient underwent ganglion impar block using the trans sacrococcygeal joint approach with the help of fluoroscopy to relieve the severe pain.

Conclusion: Ganglion Impar Block (GIB) can be performed with significant results in reducing opioid use and reducing pain in patients with Adenocarcinoma recti. The technique of administering neurolysis agents with the help of fluoroscopy can be an option because it is very effective and simple.

Keyword : Adenocarcinoma; Anesthesi; Pain.



INTRODUCTION

Colorectal cancer is one of the most common malignant neoplasms with the third highest mortality rate in the world after breast cancer and lung cancer¹. Until now, colorectal cancer has been the second-leading cause of death in Europe. In 2017, there were more than 135,400 new colorectal cancer cases and 50,000 deaths in the United States. Similar cases were found in several other countries. The highest incidence rates were found in Australia and New Zealand, Europe, and North America, while the lowest rates were found in Africa and Southeast Asia. This proportion is more common in men than women². Meanwhile, in Indonesia, the incidence rate was 17,2 cases per 100.000 population per year³.

In cases of rectal cancer, chemoradiotherapy is often used but in some cases, the treatment depends on the stage⁴. Rectal cancer (RC) represents 35% of colorectal cancer (CRC) and is considered a distinct entity with diverse etiological features, molecular profiles and higher risk factor than colon cancer. From a histopathological point of view, approximately 90% of rectal cancers are of adenocarcinoma (ADC) type⁵. ADC type of rectal cancer consists of

epithelial cells and is capable of secreting varying amounts of mucus⁶.

Clinical manifestations of colorectal cancer are hematochezia, tenesmus, changes in bowel habits, and chronic pain due to cancer which greatly affect quality of life⁵. Nerve inflammation and central sensitization is the main mechanism of chronic pain in cancer. Inflammation begins with a mechanical injury which then turns into chronic inflammation. This situation changes the responsiveness of neurons to pain in the sympathetic ganglion. Pain associated with a neoplasm may be of somatic, visceral, or neuropathic origin⁷. Usually, patients are given analgesic drugs according to the rules of the World Health Organization (WHO) such as non-steroidal anti-inflammatory drugs, opioids, and adjuvants⁴.

Invaded or distended visceral structures cause diffuse pain with an inaccurate location. Many studies have been conducted to evaluate the ganglion impar block approach, one of which is a study conducted by Savas Sencan et al conducted in April and September 2017, in his writing, Sencan observed patients with coccygodynia between the ages of 18 - 65 years who did not undergo conservative treatment for three months

in undergoing ganglion impar block. Patients were followed up for one month, three months, and six months after injection. The results showed a significant increase in the Visual Analogue Scale (VAS) and Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) scores during the follow-up period. The Beck Depression Inventory score also increased while the SF-12 (Physical and mental health functioning) score did not show a significant change. The length of time the patient sits without pain also increases significantly ⁸.

Impar ganglion is also known as Walters ganglion. This impar ganglion is the only sympathetic nervous system ganglion that is not attached to the sacrococcygeal so the sympathetic ganglion block technique is more effective in controlling visceral pain. This method can only help reduce pain but does not eliminate the cause of the pain. Sympathetic ganglia block was first described by Plancarte et al in the context of cancer patients. According to Plancarte (1990) demonstrated sympathetic efferent and nociceptive afferents from the perineum, distal rectum, perianal, distal urethra, and vulva or scrotum, and the distal third of

the vagina and sympathetic innervation of the pelvic viscera. Four different techniques can be used, namely trans sacrococcygeal, anococcygeal, intercoccygeal, and paracoccygeal ^{6,8}.

In this case report, the trans sacrococcygeal joint approach was used to locate the ganglion accurately by injecting contrast and viewing the vertical dispersion called inverted commas along the ganglion laterally ⁹.

CASE ILLUSTRATION

A 60-year-old female patient was admitted with complaints of pain around the anus. Pain feels like being stabbed and persists in the anal area but is not accompanied by symptoms of nausea and vomiting. Pain intensity increases with sitting and defecation. The patient was diagnosed with adenocarcinoma recti after a biopsy examination two years ago. She has undergone chemotherapy 12 times and radiotherapy 12 times and has also received pain relievers such as NSAIDs, Paracetamol, and Morphine. However, the patient's pain complaints did not improve. The patient was then consulted at the pain management polyclinic in the departments of anesthesiology and intensive therapy.

On physical examination, the patient was hemodynamically stable. The patient's blood pressure is 140/90 mmHg with a heart rate of 98 bpm. The patient's Numeric Rating Scale (NRS) score is 6-7, which is categorized as severe pain. The patient has been explained the block intervention action plan and the family and patient agree to take action. With the help of fluoroscopy, the patient underwent ganglion impar block using the trans sacrococcygeal joint approach.

The patient is prepared for a ganglion impar block procedure. Laboratory tests were carried out in the form of hemoglobin, leukocytes, platelets, and hemostatic function (results). After arriving at the operating room, the patient was positioned prone and a blood pressure monitoring device, ECG (Electrocardiogram), and saturation were installed in general preparation for surgery. Identify the

insertion area using a metal material. (Figure 1)

The needle is inserted into the vertebral disc through the ventral and anterior sacrococcygeal ligaments using a loss of resistance technique. (Figure 2). 3 cc of contrast was put into the retroperitoneal space. Then observed images such as apostrophes in the lateral position (Figure 3).

Injection of Lidocaine 1% as much as 3 cc in the target block as a diagnostic. After the administration of lidocaine, the patient felt less pain in the anal area. After the diagnostic block was fulfilled, injection of 96% alcohol as much as 8cc as ganglion impar sympathetic neurolysis. After the injection was given, the patient's hemodynamics remained stable and there were no complications such as bleeding, drug allergies, and limb weakness.



Figure 1. Patient's prone position with markers at the needle Insertion Site.



Figure 2. The C-Arm lateral image shows the depth of the needle.



Figure 3. The C-Arm lateral image with contrast administration shows contrast spreading posteriorly of the sacrum.

After 6 hours of ganglion impar block, the patient felt that the pain was reduced with an NRS of 1-2. After 12 hours the patient complained of starting to feel hot in the perineal area, the patient did not complain of nausea and vomiting. 24 hours after the procedure, the patient was able to walk and sit without complaining of significant pain. 2 days after the procedure, the patient was able to defecate without pain when straining. Patients can also carry out daily activities without complaining of pain.

DISCUSSION

In this case, the patient was diagnosed with colorectal cancer 2 years ago. Rectal cancer (RCC) represents 35% of colorectal cancer (RCC) and is considered a distinct entity from other etiologies. The cause of colorectal

cancer is not yet known with certainty. Risk factors that influence the occurrence of colorectal cancer are colorectal polyps, family history of CRC, and genetic disorders such as heredity, namely familial adenomatous polyposis (FAP), and non-polyposis hereditary CRC, ulcerative colitis or Crohn's disease, smoking, excessive alcohol consumption, consumption of highly processed meat up to 140 grams per day, obesity, diabetes, chronic enteric infections (amebiasis or schistosomiasis), human immunodeficiency virus (HIV), human papillomavirus (HPV), and *Helicobacter pylori* and *Fusobacterium spp.* Infections¹⁰⁻¹².

CRC clinical symptoms depend on the localization of the tumor. The most common symptoms of CRC that

are seen are abdominal pain, changes in bowel habits, rectal bleeding, and iron deficiency anemia, although these symptoms can usually be found in other diseases of the gastrointestinal tract¹⁸. Rectosigmoid carcinoma shows symptoms of tenesmus or pain when defecating, thinner stool diameter, and hemochezia. Continuous and centralized nerve inflammation can cause chronic pain⁷.

The theory of chronic inflammation leading to squamous metaplasia and carcinoma has been one of the most prominent. This notion refers to the fact that irritation and inflammation can cause changes in the metaplastic epithelial lining that occur at different gastrointestinal sites in response to exposure to various stressors (such as ulcerative colitis, radiotherapy, and infection)¹³.

Early in 1990, Plancarte et al explained that Ganglion Impar Block (GIB) has been used as a treatment for pain that cannot be relieved by oral medication in disorders of the pelvic or perineal sympathetic nervous system, both benign and malignant etiologies. Originally, the techniques described included approximating the impar ganglion located in the ventral

sacrococcygeal area through the anococcygeal ligament under fluoroscopic control but this technique carries a high risk of rectal injury. In 1995, Wemm et al. described the sacrococcygeal as a new approach, which is safer and remains the most widely used. The trans sacrococcygeal technique is particularly useful in the presence of ossification of the sacrococcygeal joint^{8,9}.

The procedure could be performed with the help of fluoroscopy using a trans sacrococcygeal joint approach. The needle is inserted into the vertebral disc through the ventral and anterior sacrococcygeal ligaments using a loss of resistance technique. 3 cc of contrast is then introduced into the retroperitoneal space. The author observes an apostrophe-like image when the patient is at his side. It is important to note that echographic control allowed identification of the sacrococcygeal space and the location of the retroperitoneal space, with loss of resistance, although administration of neurolytic agents showed the distribution of contrast medium in the retroperitoneal space^{6,9}. When performing a neurolytic GIB procedure it is recommended to provide the smallest

possible volume to reduce the risk of neuritis because the ventral roots are located near the GI^{14,15}.

In this case, after performing neurolysis using 96% alcohol injection, the patient experienced a decrease in NRS values. Initially, the patient came with an NRS score of 6-7, after receiving therapy, the patient's NRS score changed to 1-2. On the second day after therapy, the patient was able to sit and walk comfortably and did not complain of pain when straining. Using an impar block was effective in reducing VAS by up to 50% in 16 patients with chronic perineal pain. The goal of administering a neurolytic agent is to relieve pain by blocking the nerves that transmit pain from its source. Administration of phenol, alcohol, and glycerol are local neurotoxic agents used to block nerves. These dehydrating agents can non-selectively destroy nerve tissue resulting in tissue necrosis, non-segmental demyelination, Wallerian degeneration, and complete conduction block, which occurs 10 minutes after administration^{14,16}. This procedure still have some risk of complication, some of those was perforation of rectum which could results in infection in joint cause

by fecal material from perforated rectum¹⁷.

A study conducted by Plancarte et al. presented the pilot study with 16 patients with advanced malignancy and significant hip pain with a 60% improvement in pain symptoms⁸. A systematic review in 2021 which involves 4 clinical research found that Ganglion Impar Block could lower the VAS score from the baseline of 7,83 to 3,11 in short term, and preserve it at 4,71 in long-term follow up, this mean that ganglion impar block is an effective procedure in relieving pain¹⁸.

CONCLUSION

This case shows that Ganglion Impar Block is a technique that can be performed with significant results in reducing opioid use and reducing pain in patients with Adenocarcinoma recti. The technique of administering neurolysis agents with the help of fluoroscopy can be an option because it is very effective and simple. Other therapies, such as pharmacotherapy, psychological counseling, and physical therapy, can be used to support patient management.

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