



# Effect of Pudendal Nerve Block on Pain Relief After Hemorrhoidectomy

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## ABSTRACT

**Aims** Considering the importance of proper pain control after hemorrhoidectomy and not using drugs due to their many side effects, we decided to conduct the present study with the aim of investigating the effect of Pudendal nerve block on reducing pain after hemorrhoidectomy.

**Instrument & Methods** This is a cross-sectional study that was performed in 2019 with the participation of 120 patients who were candidates for hemorrhoidectomy. Patients were divided into two groups and for one group the Pudendal nerve block method was used and for the other group routine ward procedures were performed. Finally, pain intensity at 2, 6, 12 and 24 hours after surgery was evaluated and compared by McGill Visual Analog Scale.

**Findings** Pain intensity in the second ( $p=0.001$ ), sixth ( $p=0.005$ ) and twelfth ( $p=0.014$ ) hours ( $p=0.014$ ) in the blocked group was significantly lower than the unblocked group, while the pain intensity between the two groups in 24 hours ( $p=0.215$ ) was not statistically significant.

**Conclusion** By comparing different methods of reducing pain and performing pudendal nerve block in different parts of the world and the desired results, it seems that the ischioanal cavity block is a suitable method to reduce pain after surgery.

**Keywords** Pudendal Nerve Block; Hemorrhoidectomy; Pain; McGill Visual Analog Scale

## CITATION LINKS

[1] Systematic review and network meta-analysis comparing clinical outcomes and effectiveness of surgical treatments for haemorrhoids [2] Is the severe pain after Milligan-Morgan hemorrhoidectomy still currently remaining a major postoperative problem despite being one of the oldest surgical techniques described? A case series of 117 consecutive patients [3] Prospect Group (Collaborators). Evidence-based management of pain after excisional haemorrhoidectomy surgery: A prospect review update [4] Randomized clinical study on the analgesic effect of local infiltration versus spinal block for hemorrhoidectomy [5] Efficacy of doppler-guided hemorrhoidal artery ligation with mucopexy, in the short and long terms for patients with hemorrhoidal disease [6] Results of the double-blind randomized controlled trial comparing laser hemorrhoidoplasty with sutured mucopexy and excisional hemorrhoidectomy [7] Transanal hemorrhoidal dearterialization versus Milligan-Morgan hemorrhoidectomy in grade III/IV hemorrhoids [8] Short-term outcomes of transanal hemorrhoidal dearterialization with mucopexy versus vessel-sealing device hemorrhoidectomy for grade iii to iv hemorrhoids: A prospective randomized multicenter trial [9] Periprostatic nerve block alone versus combined with perineal pudendal nerve block or intrarectal local anesthesia during transrectal ultrasound-guided prostate biopsy: A prospective randomized controlled trial [10] Update on ultrasound-guided interventional procedures on peripheral nerves [11] Efficacy of epinephrine-free articaine compared to articaine with epinephrine (1:100 000) for maxillary infiltration, a randomised clinical trial [12] Comparison of adding sufentanil and low-dose epinephrine to bupivacaine in spinal anesthesia: A randomized, double-blind, clinical trial [13] Perianal block: Is it as good as spinal anesthesia for closed hemorrhoidectomies? [14] Ultrasound-guided pudendal nerve block in patients undergoing open hemorrhoidectomy: a double-blind randomized controlled trial [15] Ultrasound-guided pudendal nerve block at the entrance of the pudendal (alcock) canal: Description of anatomy and clinical technique [16] Comparison of hemorrhoidectomy by LigaSure with conventional Milligan Morgan's hemorrhoidectomy [17] Accuracy of ultrasound-guided pudendal nerve block in the ischial spine and alcock's canal levels: a cadaveric study

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## Introduction

Hemorrhoids are the natural pads and blood vessels in the duct that help with defecation. But for a variety of reasons, these arteries may become abnormal and become inflamed and painful. Sometimes a blood clot gets trapped in this area, causing a painful type of hemorrhoid called a thrombotic hemorrhoid [1]. Approximately 50% of people develop hemorrhoids or hemorrhoids at some point in their lives, and how to manage and treat hemorrhoids is crucial in preventing the recurrence of the disease [2]. The peak age of this disease is between 45 and 65 years old [3].

Hemorrhoids are one of the most common surgical diseases in the anorectal area, which manifests itself in the form of pain, bleeding, and a mass coming out of the anus. One of the most important reasons why patients with hemorrhoids refuse surgery is fear of pain [4]. Pain control, especially in the first 24 hours after surgery, in addition to increasing patient satisfaction will reduce urinary retention and constipation [5].

To achieve this goal, several studies have been performed, including injection of fentanyl and anesthetic, intradermal injection of fentanyl, epidural injection of morphine, intrathecal injection of ketorolac, injection of dextromethorphan, ischemic corpuscle block and mycelial p-meselp Be. Currently, narcotic analgesics are used to reduce postoperative pain [6, 7].

Injection of 3 to 5 ml of marcaine anesthetic solution into the ischioanal cavity blocks the lower hemorrhoidal branches of the pudendal nerve, and relaxation of the external sphincter muscle is a sign of the effect of the ischioanal cavity block. Contradictory results have been obtained regarding the effects of Pudendal nerve block in reducing pain intensity after hemorrhoidectomy [8].

Considering the importance of proper pain control after hemorrhoidectomy and not using drugs due to their many side effects, we decided to conduct the present study with the aim of investigating the effect of Pudendal nerve block on reducing pain after hemorrhoidectomy.

## Instrument and Methods

### Study design

This descriptive cross-sectional study was performed during the period from the beginning to the end of 2019 in Imam Reza Hospital (Tabriz-Iran) with the participation of 120 patients who were candidates for hemorrhoidectomy. For some patients, the Pudendal nerve block method was used to control postoperative pain, and for the other group, routine hospital procedures were performed. The sample size was estimated by taking into account the difference in pain intensity of 3 units between the two groups, as well as the ability to

study 80% and test error equal to 5% in a total of 100 people. Entry/exit and entered the study by available sampling method.

### Inclusion/Exclusion Criteria

Inclusion criteria include age between 18 and 65 years, consent to participate in the study, patients with grade III and IV hemorrhoids without response to medical and outpatient treatments, symptomatic and incarcerated hemorrhoids and thrombosis, concomitant internal hemorrhoids and Externally, severe bleeding hemorrhoids that do not respond to medical treatment. Exclusion criteria included infection near the pudendal nerve, dissatisfaction with the pudendal nerve block, patients with a history of discopathy and lumbar spine hernia, and patients with diabetes mellitus.

### Procedure

General anesthesia was used in patients who underwent surgery. After the operation, all patients underwent lithotomy and the operation site was disinfected with betadine solution and flaked and after flaking and flaking with 25% marcaine. The ischioanal cavity was blocked. The ischioanal cavity was blocked by injecting 3 to 5 ml of 0.25% marcaine with needle number 20 with a length of 5 cm. After touching the lowest protrusion of the ischial bone, it was identified about two and a half centimeters above and inside it, which is the hypothetical location of the pudendal nerve, and at this point the needle was inserted and the needle was advanced to the bone and then aspiration was performed. Until the needle has entered the arteries. The anesthetic was then injected. Relaxation of the external sphincter muscle was used as a sign of ischemic rectal block. Hemorrhoidectomy was open hemorrhoidectomy in all patients. After surgery, patients were transferred to recovery and then to the surgical ward. Postoperative care was the same in both groups. The pain score was recorded by McGill visual Analog Scale at 2, 6, 12 and 24 hours after surgery by the residents and the nursing staff. Pain scores range from 1 to 6, which is painless and 6 is the worst pain imaginable. The day after surgery, the number of doses of drugs injected to patients by the nursing service was recorded in two groups at different hours.

### Data analysis

The data were analyzed and compared after entering SPSS 21 software. Mean and standard deviation, frequency and percentage were used to display the initial information. T-test was used to compare the severity of pain between the two groups.

### Ethical considerations

The objectives of the study were explained to all patients and their consent was obtained to participate in the study. There was no charge for Pudendal nerve block from patients. Participation in the study was completely optional.

## Findings

The mean age of patients in the blocked group was  $31.14 \pm 3.85$  years and in the second group was  $32.01 \pm 3.15$  years, which statistically no differences were observed between the two groups ( $p=0.665$ ). There were 27 women and 33 men in the blocked group and 28 women and 32 men in the non-blocked group ( $p=0.589$ ). The oldest patient in the blocked group was 61 years old and in the non-blocked group was 64 years old.

The mean pain scores in the blocked group at 12, 6, 2 and 24 hours after surgery were  $2.51 \pm 0.15$ ,  $2.38 \pm 0.11$ ,  $1.33 \pm 0.14$  and  $2.37 \pm 0.25$ , respectively, while the pain intensity in the non-blocked group was 12, 6, 2 and 24 hours after surgery were  $3.51 \pm 0.61$ ,  $3.20 \pm 0.47$ ,  $2.85 \pm 0.14$  and 2.21. 0.05, respectively. Pain intensity in the second ( $p=0.001$ ), sixth ( $p=0.005$ ) and twelfth ( $p=0.014$ ) hours ( $p=0.014$ ) in the blocked group was significantly lower than the unblocked group, while the pain intensity between the two groups in 24 hours ( $p=0.215$ ) was not statistically significant.

The mean amount of pethidine used to control pain in the blocked group in the second ( $10.41 \pm 5.15$ ) and sixth ( $5.89 \pm 3.18$ ) and twelfth ( $3.99 \pm 2.25$ ) and twenty-fourth ( $15.65 \pm 10.15$ ) groups compared to the unblocked group in The second hours ( $15.96 \pm 8.32$ ), the sixth ( $24.33 \pm 5.19$ ), the twelfth ( $21.19 \pm 8.41$ ) and the twenty-fourth ( $16.48 \pm 3.66$ ) were shorter.

The comparison of p value results between the two groups in terms of pain intensity and the amount of drug used is presented in Table 1.

**Table 1)** Comparison of pain intensity and opioid use between the two groups participating in the study

Parameter	Second Hours	Sixth hours	Twelfth hours	Twenty-fourth hours
Pain p valye	0.001	0.005	0.014	0.251
Opioid p value	0.001	0.003	0.008	0.059

## Discussion

Closed hemorrhoidectomy is used to treat internal hemorrhoids that involve the arteries inside the anus. In this method, the patient is anesthetized to remove the hemorrhoid tissue and the doctor uses a scalpel, electrocautery or laser to cut and remove the hemorrhoid tissue. In the last step, the wound is repaired using sutures.

Statistical comparison of the two groups in terms of pain score and drug use showed that in the blocked group, a significant reduction in pain is seen and analgesic consumption is reduced in the blocked group. This is due to the blockage of the pudendal nerve in the ischioanal cavity. Similar results have been obtained in different parts of the world that have shown that the blockage of the pudendal nerve further reduces the pain after hematoma [9-11].

Non-surgical treatments are generally preferred. Because it is associated with less pain and complications. Sometimes a combination of

treatments (such as a stabilization procedure and a hemorrhoidectomy) can be more effective, although stabilization procedures are preferred for people over 70 and those with poor health. Laser hemorrhoid removal is also one of the healthiest and most effective treatments known, but like any other method, it has advantages and disadvantages [12, 13]. The advantages of hemorrhoidectomy are less speed and discomfort. Another is that after hemorrhoidectomy, no trace of it remains. Also, due to the high accuracy of the operation, healing is faster and the bleeding rate from the wound is usually small and patients do not need to be hospitalized, even overnight. In addition, the tissues around the hemorrhoid are not damaged [14].

However, in order to reduce the pain after hemorrhoidectomy, a method should be used that causes the least complications. Although spinal anesthesia, epidural L, and caudal are all associated with reduced postoperative pain, the rate of complications after these procedures is high. In Kudal method, there is a 5 to 10% probability of failure and other complications are weakness of the lower limbs and even inability to move up to 11 hours after Kudal anesthesia, so if we want to discharge the patient on the same day, it causes It becomes a problem. There is also the possibility of CNS infection after caudal and spinal anesthesia [15].

Infiltration of hemorrhoidal debris with anesthetics such as bupivacaine or lidocaine can increase the analgesic time after hemorrhoidal catheterization, but it is shorter in duration. Intradermal injection of fentanyl, epidural injection of morphine, and subcutaneous injection of morphine by pump are associated with a higher risk of urinary retention. In addition, subcutaneous injection of fentanyl may cause respiratory depression. However, in this study, it was found that Pudendal nerve block, in addition to reducing pain, also reduces drug use [16, 17].

Failure to evaluate the severity of pain before surgery and also failure to evaluate the amount of fentanyl injected for general anesthesia were the limitations of this study; In future studies, it is recommended to increase the control of confounders to determine the positive effects of this method with high accuracy.

## Conclusion

By comparing different methods of reducing pain and performing pudendal nerve block in different parts of the world and the desired results, it seems that the ischioanal cavity block is a suitable method to reduce pain after surgery.

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**Ethical Permission:** This study was conducted after obtaining the code of ethics from Tabriz University of Medical Sciences (IR.TBZMED.REC.1398.1077).

**Conflicts of Interests:** None declared by the authors.

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