RESEARCH JOURNAL OF TRAUMA AND DISABILITY STUDIES

Volume: 02 Issue: 11 | Nov – 2023 **ISSN: 2720-6866**

http://journals.academiczone.net/index.php/rjtds

A COMPARATIVE STUDY OF ANESTHESIA TECHNIQUES USED IN HEMORRHOID SURGERY

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Abstract

Background: Open hemorrhoidectomy is commonly believed to be a distressing procedure. However, a successful hemorrhoidectomy can be achieved through a straightforward, open surgery conducted under local anaesthesia (LA). This study assessed the importance of anesthesia techniques related to patients with hemorrhoidectomy. Patients and methods: A comparative study investigated the effectiveness of anesthesia in open hemorrhoidectomy surgery among patients aged 20 to

Key words:

Haemorrhoidectomy, Local anesthesia, and Spinal anesthesia.

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50 years. The study included demographic data for 120 patients collected from different hospitals in Iraq between February 15th, 2022, and August 9th, 2023. The clinical data was categorized into two groups. The first group comprised 60 cases of patients under local anaesthesia, while the second group consisted of 60 cases of patients under spinal anaesthesia. The postoperative pain of hemorrhoid patients was monitored at 8-hour intervals, 24-hour intervals, three days, and one week using a visual analogue scale (VAS). Results: The findings indicate that eight patients experienced complications following surgery under local anesthesia, and 16 patients experienced complications following surgery under spinal anesthesia. The most frequent complications observed after hemorrhoid surgery were related to thrombosis. The study evaluated the pain experienced by hemorrhoid patients using the VAS score. The results indicated that pain levels were reduced for patients who received local anesthesia compared to those who received spinal anesthesia. This suggests that local anesthesia is a more effective and efficient option for hemorrhoid pain management. Conclusion: Our study indicates that regional anaesthesia is a more efficient and safer option for both surgeons and patients due to a decreased rate of complications, lower pain scores, and shorter hospital stays for postoperative patients in comparison to spinal anaesthesia.

Introduction. Proctology now plays a significant role in the surgical activities of most General Surgery services in both public and private institutions. The introduction of ambulatory surgery has revolutionised therapeutic approaches to addressing various pathologies by reducing hospitalisation costs and facilitating speedy patient reintegration into the workforce. The definition, etiology, and

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treatment of hemorrhoidal disease are constantly evolving ideas that have undergone significant changes in recent times [1-3].

Hemorrhoids are physiological structures composed of arteriovenous vascular plexuses which create a cushion along the anal canal. They cause symptoms when they undergo structural alterations such as dilation, ingurgitation, or prolapse in the hemorrhoidal tissue and adjacent supporting tissues. Hemorrhoidal disease is regarded as one of the most common factors causing rectal bleeding, and prolapse is a potential complication. The diagnosis involves an anorectal examination, which includes inspection, digital rectal examination, anoscopy, and rigid sigmoidoscopy. [4-7]

Hemorrhoidal disease is the most common proctological pathology, with a prevalence ranging from 4.4% to 36.4%. It is estimated that over 50% of individuals over 50 years of age may experience some form of complication related to it. It has been estimated that approximately 90% of the global population will experience the disease at least once during their lifetime. Although it is widespread, only 10% of patients necessitate surgical intervention. [8,9]

Hemorrhoidal pathology is highly prevalent, but its exact prevalence is uncertain as patients tend to seek medical attention only when the condition reaches an advanced stage. Given the extensive impairment that it causes in personal, professional, and social aspects of the patient's life, its timely resolution is crucial. [10,11]

In some cases, surgical intervention is necessary, and various alternatives are available. The aim of this text is to compare different surgical alternatives for treating hemorrhoids, determining the most effective and commonly used methods to reduce complications and recurrence. The focus is on the surgical options themselves rather than the definition, etiopathogenesis, or non-pharmacological treatment of the condition. [12-13]

In general, initial forms of haemorrhoids (grades I and II) can be managed conservatively. As the condition progresses to grades III and IV, or in some cases from grade II, a haemorrhoidectomy is required, which involves surgically removing the haemorrhoids. Haemorrhoidectomy can be performed through conventional techniques, such as the Milligan-Morgan open technique and the Ferguson closed technique, or through unconventional methods that utilize stapling devices. Hemorrhoids may be corrected utilizing endoscopic procedures or energy devices employing the Ligasure (bipolar) clamp or the harmonic or ultrasonic scalpel. [14-16]

Different treatments are implemented based on the degree of hemorrhoids. Medical recommendations include changes in eating habits, incorporation of physical activity into daily life,

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and cessation of toxic habits such as smoking and alcoholism. Patients who do not respond to medical treatment are eligible for surgical treatment. [17,18]

The optimal technique for resecting hemorrhoids should entail the removal of all affected tissue, keeping postoperative pain for the patient to a minimum, and a lack of subsequent recurrences [19]. Presently, no approach satisfies all three goals, with the most significant challenge being pain management after the procedure.

Patients and methods. A comparative study investigated the effectiveness of anesthesia in open hemorrhoidectomy surgery among patients aged 20 to 50 years. The study included demographic data for 120 patients collected from different hospitals in Iraq between February 15th, 2022, and August 9th, 2023. The clinical demographic results of patients with hemorrhoids were presented through collected data, covering age, gender, obesity, symptoms, hemorrhoid degree, ASA score, anesthesia type used, and level of education.

Our study reported patient outcomes of open hemorrhoid surgery. The clinical data was divided into two groups comprising 60 cases each. The first group received local anesthesia, while the second group received spinal anesthesia. Anesthetics were administered to hemorrhoid patients during the surgical procedure. A dose of 2 mL bupivacaine was administered to patients under local anesthesia and (1.3 ± 0.2) mL for those under spinal anesthesia. Post-surgery, diclofenac sodium was added at a rate of (94.0 ± 8.0) mg for local anesthesia patients and (95.53 ± 10.72) for spinal anesthesia patients who orally received the anesthetic every 8 hours for five days. Some patients were prescribed metronidazole tablets of 400 mg or more. These were to be taken every 8 hours for five days following the operation.

Additionally, the current study compiled clinical data obtained during both intra- and postoperative periods. This data encompasses various measurements, such as operation duration, bladder evacuation time, postoperative duration of hospital stays, and postoperative follow-up.

When comparing local and spinal anesthesia, clinical data was gathered on postoperative complications among hemorrhoid patients. Assessments of patients' pain levels were conducted at 8 hours, 24 hours, three days, and one week following surgery using a visual analogue scale (VAS) with a range of 0 to 10. The effectiveness of both anesthesia techniques was evaluated through the grouping of hemorrhoid patients according to their satisfaction: excellent, poor, and satisfied. Statistical data were analysed and designed by SPSS, version 22.0.

Results.

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Table 1. Clinical, demographic characteristics associated with haemorrhoids patients.

Variables	Number of patients [120]	Percentage [%]	
Age			
20-29	20	16.67%	
30-39	40	33.33%	
40-50	60	50.0%	
Sex			
Males	40	33.33%	
Females	80	66.67%	
BMI [Kg/m3]			
18.5-24.9	24	20.0%	
25.0-29.9	38	31.67%	
> 30.0	58	48.33%	
Smoking			
Smokers	84	70.0%	
Non-smokers	36	30.0%	
Symptoms			
Rectal bleeding	40	33.33%	
Pain	30	25.0%	
Pruritus	27	22.50%	
Fecal seepage	23	19.17%	

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Haemorrhoid degree			
3	20	16.67%	
4	100	83.33%	
ASA classification			
I	56	46.67%	
II	40	33.33%	
III	24	20.0%	
Anaesthesia use			
Local anaesthesia	60	50.0%	
Spinal anaesthesia	60	50.0%	
Education level			
Primary	20	16.67%	
Secondary	47	39.17%	
College	55	45.83%	

Table 2. Clinical outcomes of haemorrhoid surgery.

Variables	*Local anesthesia [60]*	*Spinal anesthesia [60]*	*P-value*
Operative duration [minutes]	***20.57* ± 2.90**	***22.58* ± 7.31**	***0.0492***
Bladder evacuation time	1.37 ± 1.48	7.72 ± 5.88	0.00217

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Post-operative stay [hours]	5.86 ± 1.41	30.17 ± 13.54	0.00351
Post-operative follow-up [Days]	6.82 ± 1.51	9.21 ± 3.153	0.00184

Table 3. Surgical outcomes of haemorrhoid patients.

Drugs	***Local anesthesia [60]***	***Spinal anesthesia [60]***	***P-value***
Intra-operative			
Bupivacaine, mL	1.5 ± 0.5	1.3 ± 0.2	0.0485
Post-operative			
Diclofenac sodium			
Dose, mg	94.0 ± 8.0	95.53 ± 10.72	0.0492
Duration	8 hours Every five days	8 hours Every five days	0.05
Metronidazole			
Dose, mg	392.12 ± 8.01	397.74 ± 10.55	0.0468
Duration	8 hours Every five days	8 hours Every five days	0.05

Table 4. Post-operative complications.

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Complications	*Local anesthesia [60]*	*Spinal anesthesia [60]*	*P-value*
Hemorrhage	*1 [1.67%]*	*2 [3.33%]*	*0.0423*
Infection	*2 [3.33%]*	*3 [5%]*	*0.0455*
Hypotension	*0 [0%]*	*2 [3.33%]*	*0.0612*
Thrombosis	*3 [5%]*	*5 [8.33%]*	*0.0477*
Urinary retention	*2 [3.33%]*	*4 [6.67%]*	*0.0469*
Total	***8 [13.33%]***	***16 [26.67%]***	***0.072***

Table 5. Post-operative pain of haemorrhoid patients by VAS score.

Variables	*Local anesthesia [60]*	*Spinal anesthesia [60]*	*P-value*
8 hours	1.082 ± 0.31	2.75 ± 0.92	0.0492
24 hours	1.064 ± 0.55	2.551 ± 0.86	0.0474
Day 3	2.251 ± 0.87	2.01 ± 0.24	0.382
Day 7	0.40 ±0.35	0.84 ± 0.50	0.801

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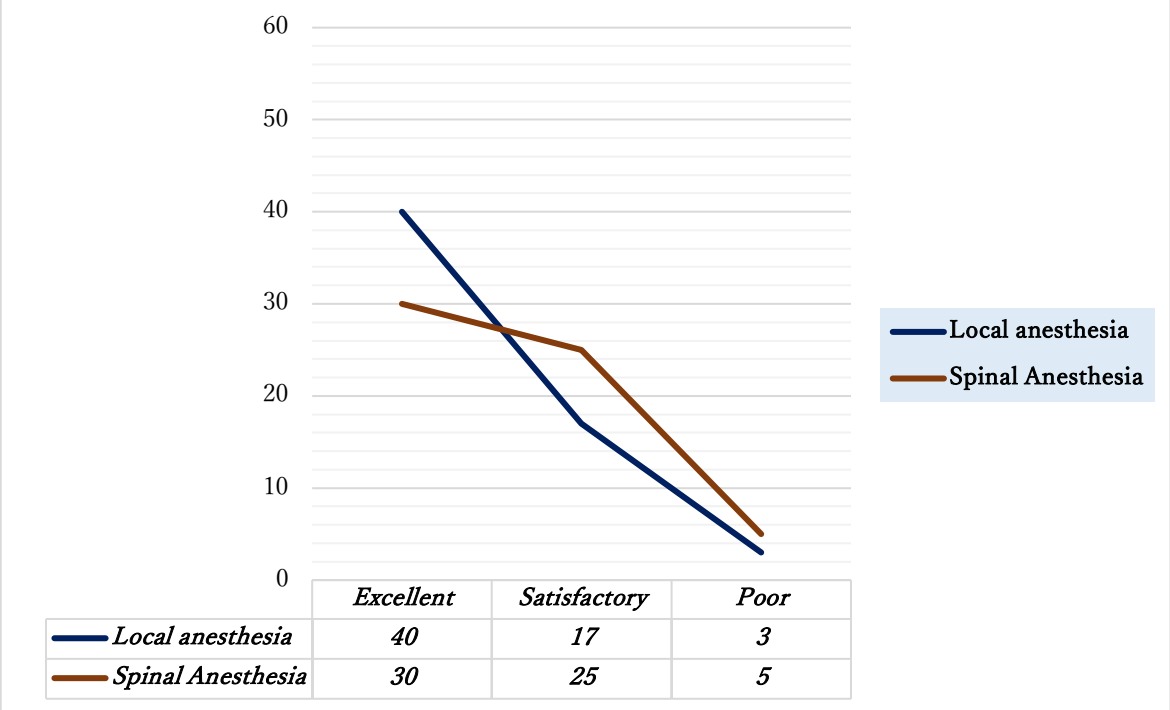

	Excellent	Satisfactory	Poor
Local anesthesia	40	17	3
Spinal Anesthesia	30	25	5

Figure 1: Performance of Postoperative analgesia.

Discussion. This study evaluated the anesthetic techniques used in hemorrhoidectomy surgery. The current study showed the results of patients and the extent of people's susceptibility to hemorrhoids, as age, sex, and weight factors were significantly associated with hemorrhoids. The results found that patients in the age group between (40 - and 50) years were most susceptible to infection at a rate of 50% and it also focused This study examined the extent of men's and women's exposure to hemorrhoids in Iraq to obtain final conclusions, which showed that the rate of sick women was 66.67%, which represents a higher risk of developing hemorrhoids compared to men at a rate of 33.33%. To similar with other studies, our study discovered that there is a statistically significant relationship between smoking and hemorrhoids, as it was noted that smokers are twice as likely to suffer from hemorrhoids compared to non-smokers. The number of smokers is 70.0%, and that of non-smokers is 30.0%. Regarding symptoms, this study found that thrombosis is one of the most common symptoms of hemorrhoids, which was found in 33.33% of hemorrhoid patients, and in particular, other symptoms, such as pain, itching, and water leakage, also occupied a high percentage of patients. Clinical data related to the grade of hemorrhoids were presented, with 83.33% having grade 4 hemorrhoids while 16.67% of patients had grade 3 hemorrhoids.

Regarding the clinical results during and after surgery, the results showed that the operation time for hemorrhoid patients under local anesthesia was shorter and reached (20.57 ± 2.90) and the

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operation time under spinal anesthesia was (22.58 ± 7.31). The time for bladder evacuation was shorter in the group of patients under anesthesia. Local anesthesia which amounted to (1.37 ± 1.48), while the time of bladder evacuation in the group of spinal anesthesia was (7.72 ± 5.88). The duration of stay in the hospital after the surgical operation under local anesthesia was shorter and reached (5 - 7) hours, while in the group of patients under spinal anesthesia where, it took 30 hours or more, and the follow-up after the operation may reach a week to a week and a half for both groups.

Regarding the postoperative results, the current results showed that eight patients had complications after surgery under local anesthesia, while 16 patients had complications after surgery under spinal anesthesia, as the most common complications in hemorrhoids after surgery included thrombosis, hemorrhage, infection, and urinary retention. The pain of hemorrhoid patients was evaluated using the VAS score. It was noted that a decrease in the pain rates of hemorrhoid patients under local anesthesia was observed during the first 24 hours, then it increased relatively on the third day, then it gradually decreased on the seventh day [20]. This is considered more improved and efficient than spinal anesthesia, in which a continuous increase was observed during the first days of the week.

Hemorrhoids, a frequently occurring anal condition, are categorized as submucosal, fibrovascular, and arteriovenous sinusoids, which are a part of the anorectum. Symptoms of this condition include hemorrhoidal cushions that protrude, resulting in bulging masses, perianal pain, and discomfort, bright red rectal bleeding accompanied by mucous discharge, and unhygienic conditions. Whilst obesity is a significant factor in increasing an individual's risk of developing hemorrhoids, the evidence remains inconclusive based on the literature available. However, research has indicated a positive correlation between obesity and a heightened risk of developing hemorrhoids, with constipation frequently accompanying obesity also being linked to the condition [21]. Open hemorrhoidectomy remains the most optimal treatment for third and fourth-degree hemorrhoids; nevertheless, postoperative pain remains a prevalent issue, with up to 40% of patients experiencing severe pain post-surgery, according to some studies. Recent British studies suggest that the likelihood of developing hemorrhoids increases with age and is influenced by factors such as sex, smoking, and obesity. It is essential to note that the long-term development of hemorrhoidal disease can be dangerous. While obesity is considered a significant contributing factor, the available literature provides inconclusive evidence. However, research indicates a significant correlation between obesity, which is frequently linked to constipation, and an increased risk of hemorrhoids. These

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findings suggest an association between constipation and hemorrhoids. [23,24] Regarding the use of anaesthesia techniques, most studies indicate that performing a hemorrhoidectomy under spinal anaesthesia is typically more costly than under local anaesthesia [24]. Conversely, local anaesthesia is generally more efficient and effective for excising open hemorrhoids, making it the preferred surgical treatment method. Studies carried out in America have shown that open hemorrhoidectomy surgery performed using local anesthesia results in significantly fewer complications than spinal anesthesia is used. Open hemorrhoidectomy has a lower cost of the surgery lower with local anesthesia, shorter hospital stays, shorter surgery times, and reduced postoperative pain. Like previous study, our study provides evidence that performing open hemorrhoidectomy under local anesthesia is both effective and safe, as well as being a more efficient option for surgeons when compared to spinal anesthesia. [25]

Conclusion.

The study found that local anaesthesia is the preferred option for resection surgery compared to spinal anaesthesia due to a lower postoperative complication rate of 13.33%, compared to a complication rate of 26.67% for haemorrhoid patients under spinal anaesthesia. Thrombosis was the most frequent complication observed after surgery, although hemorrhage, urinary retention, and perianal infection were also frequently observed. Based on the VAS score, the level of pain experienced by patients who had open hemorrhoidectomy surgery under local anesthesia was significantly lower than that of patients with hemorrhoids who underwent spinal anesthesia.

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