

## COMPARATIVE ASSESSMENT OF LOCAL ANESTHESIA AND SPINAL ANESTHESIA FOR HEMORRHOIDECTOMY

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### ABSTRACT

**Background:** Various researchers had clinically classified piles or hemorrhoids into four grades. For the treatment of piles or hemorrhoid the most commonly used and widely considered operative technique is open hemorrhoidectomy and reported to be the most effective operative technique for grade III and IV hemorrhoids among various studies **Material & Methods:** Patients who were diagnosed clinically as third- and fourth-degree hemorrhoids and planned for conventional hemorrhoidectomy were enrolled by simple random sampling and randomized for two equal groups. Clearance from hospital ethics committee was taken before start of study. Written informed consent was taken from each study participant.

**Results:** Out of the total study participants of group 1 10 (40%) were females and 15 (60%) were males. The mean age of study population was  $36.2 \pm 5.8$  years. On the basis of degree of hemorrhoids 14 (56%) patients had third degree piles and 11 (44%) patients had fourth degree piles. The need for general anaesthesia was reported among 2/25 (8%) patients. The mean operative duration (minutes) was  $22.54 \pm 6.98$ . Out of the total study participants of group 2, 9 (36%) were females and 16 (64%) were males. The mean age of study population was  $38.4 \pm 6.2$  years. On the basis of degree of hemorrhoids 13 (52%) patients had third degree piles and 12 (48%) patients had fourth degree piles. The need for general anaesthesia was reported among 1/25 (4%) patients. The mean operative duration (minutes) was  $21.32 \pm 5.21$ . **Conclusion:** Local anesthesia for hemorrhoidectomy along with intravenous sedation is a safe procedure and should be considered as an alternative to spinal anesthesia. Present study reported that it has lesser postoperative pain scores, no hypotension, no headache and no urine retention in comparison to spinal anaesthesia.

**Key words:** Hemorrhoidectomy, Local anesthesia, Spinal anesthesia.

### INTRODUCTION

Piles or hemorrhoids are a common disease diagnosed among adults. Previous studies reported that more than half population of males and females who aged 50 years and above were diagnosed with piles or hemorrhoid signs and symptoms (1). Piles or hemorrhoids are characterized as the distal displacement and/or the symptomatic enlargement of the normal anatomy of anal cushions (2). Various researchers had clinically classified piles or hemorrhoids into four grades. For the treatment of piles or hemorrhoid the most commonly used and widely considered operative technique is open hemorrhoidectomy and reported to be the most effective operative technique for grade III and IV hemorrhoids among various studies. The open hemorrhoidectomy operative technique was firstly

used and operated by Milligan and Morgan, surgeons in the United Kingdom in 1937 (3).

Excisional operative techniques for hemorrhoidectomy including the open hemorrhoidectomy technique and its other modifications are reported in various studies as a painful operative procedure. In previous studies, various attempts were made to reduce the postoperative pain such as suturing the vascular pedicle without incisions, limited incisions and stapled hemorrhoidectomy. Along with these modification in operative procedures various medications were also studied for postoperative pain such as local anesthesia, suppositories and oral medications (4).

Among several studies local anesthesia was studied to decrease the postoperative pain after hemorrhoidectomy under general anesthesia or in some studies it was the only anesthesia applied for hemorrhoidectomy (5). The benefits reported of local anesthesia includes reduction in postoperative pain, early recovery and reduction in hospital stay. However, the major complaint reported of local anesthesia for performing hemorrhoidectomy is severe pain during the injection of the local anesthesia because of the sensitive anoderm (6). Various studies also conducted for evaluation of the effects and benefits of the general and spinal anesthesia along with their complications and need of preoperative preparation and duration of hospitalization till complete recovery. We conduct the present study to assess the benefits and complications of local anesthesia and spinal anesthesia for hemorrhoidectomy.

## MATERIALS & METHODS

The present prospective study was conducted at our tertiary care hospital and the study duration was one year from January 2018 to December 2018. A sample size of 50 was calculated at 95% confidence interval at 5% of maximum allowable error. Patients who were diagnosed clinically as third- and fourth-degree hemorrhoids and planned for conventional hemorrhoidectomy were enrolled by simple random sampling and randomized for two equal groups. Clearance from hospital ethics committee was taken before start of study. Written informed consent was taken from each study participant.

All the data were recorded related to detailed clinical history, cause of admission, APACHE -2 scores, and co-morbidities. Patients with cardiovascular, renal disease, neurologic disease, hepatic diseases, diabetic mellitus, patients with associated anorectal problems, history of anorectal operations, patients who were taking anti-hypertensive, analgesics, antipsychotics or sedative medicines and pregnant or breast-feeding females were excluded from the present study. Study participants were divided in two groups 1st Group had surgery under local anesthesia with IV sedation and 2nd group underwent surgery under spinal anesthesia. All the study participants were subjected to electrocardiography, end tidal CO<sub>2</sub>, temperature and baseline cardio-respiratory parameters were also recorded. Data analysis was carried out using SPSS v22. All tests were done at alpha (level significance) of 5%; means a significant association present if p value was less than 0.05.

## RESULTS

In the present study, we enrolled 50 patients who were who were diagnosed clinically as third- and fourth-degree hemorrhoids and planned for conventional hemorrhoidectomy and randomized for two equal groups. Out of the total study participants (19) 38% were females and (31) 62% were males. The mean age of study population was  $37.55 \pm 5.9$  years. Study participants were divided in two groups 1st Group had surgery under local anesthesia with IV sedation and 2nd group underwent surgery under spinal anesthesia. Out of the total study participants of group 1 10 (40%) were females and 15 (60%) were males. The mean age of study population was  $36.2 \pm 5.8$  years. On the basis of degree of hemorrhoids 14 (56%) patients had third degree piles and 11 (44%) patients had fourth degree piles. The need for general anaesthesia was reported among 2/25 (8%) patients. The mean operative duration (minutes) was  $22.54 \pm 6.98$ . Out of the total study participants of group 2, 9 (36%) were females and 16 (64%) were males. The mean age of study population was  $38.4 \pm 6.2$  years. On the basis of degree of hemorrhoids 13 (52%) patients had third degree piles and 12 (48%) patients had fourth degree piles. The need for general anaesthesia was reported among 1/25 (4%) patients. The mean operative duration (minutes) was  $21.32 \pm 5.21$ . (Table 1)

**Table 1: Distribution of study participants according to study parameters.**

Study parameters	Group 1 (n=25)	Group 2 (n=25)
Mean age (years)	$36.2 \pm 5.8$	$38.4 \pm 6.2$
Gender		
Male	15 (60%)	16 (64%)
Female	10 (40%)	9 (36%)
Piles degree		
Third	14 (56%)	13 (52%)
Fourth	11 (44%)	12 (48%)
Need for general anaesthesia	2/25 (8%)	1/25 (4%)
Mean operative duration (minutes)	$22.54 \pm 6.98$	$21.32 \pm 5.21$

In the present study, out of the total study participants on the basis of Post-operative pain scores (determined by NRS), it was found that Post-operative pain scores were collectively less in local anaesthesia group. Out of the total study participants of group 1 the mean values of post-operative pain score, determined by NRS after 1st hour was 0.67, after 2nd hour was 0.91, after 4th hour was 2.0, after 6th hour was 2.2 and after 12th hour was 2.0. Out of the total study participants of group 2 the mean values of post-operative pain score, determined by

NRS after 1st hour was 0.42, after 2nd hour was 1.18, after 4th hour was 2.6, after 6th hour was 2.9 and after 12th hour was 2.8. These differences were statistically non-significant (p value > 0.05). (Table 2)

**Table 2: Distribution of Post-operative pain Score among study groups.**

Post-operative pain Score	Group 1	Group 2	p value
1 <sup>st</sup> hour	0.67	0.42	>0.05
2 <sup>nd</sup> hour	0.91	1.18	>0.05
4 <sup>th</sup> hour	2.0	2.6	>0.05
6 <sup>th</sup> hour	2.2	2.9	>0.05
12 <sup>th</sup> hour	2.0	2.8	>0.05

In the present study, out of the total study participants on the basis of adverse effects, we found that bleeding was the most common adverse effect reported among the study groups of group 1st which was reported among 6(24%) patients. Delayed healing was present among 1 (4%) patients. None of the patient was reported for hypotension, headache, urine retention and deep infection. Out of the total study participants on the basis of adverse effects, we found that hypotension was the most common adverse effect reported among the study groups of group 2nd which was reported among 8 (32%) patients. Headache was present among 7 (28%) patients, bleeding was present among 5 (20%) patients, urine retention was present among 3 (12%) patients and delayed healing was present among 2 (8%) patients. None of the patient was reported for deep infection. (Table 3)

**Table 3: Distribution of study participants according to adverse effects.**

Adverse effects	Group 1	Group 2	p value
Hypotension	0	8 (32%)	< 0.05
Headache	0	7 (28%)	< 0.05
Bleeding	6(24%)	5(20%)	> 0.05
Urine retention	0	3(12%)	< 0.05
Delayed healing	1(4%)	2(8%)	> 0.05
Deep infection	0	0	> 0.05

## DISCUSSION

In the present study, we enrolled 50 patients who were who were diagnosed clinically as third- and fourth-degree hemorrhoids and planned for conventional hemorrhoidectomy and randomized for two equal groups. Out of the total study participants (19) 38% were females and (31) 62% were males. The mean age of study population was  $37.55 \pm 5.9$

years. Study participants were divided in two groups 1st Group had surgery under local anesthesia with IV sedation and 2nd group underwent surgery under spinal anesthesia. Similar results were obtained in a study conducted by Bansal H,et al for the Comparative study of assessment of the benefits and complications of local anesthesia and spinal anesthesia for hemorrhoidectomy. They reported similar results as the present study (7). Similar results were obtained in a study conducted by et al for the Comparative study of assessment of the benefits and complications of local anesthesia and spinal anesthesia for hemorrhoidectomy. They reported similar results as the present study (8).

In the present study, out of the total study participants of group 1 10 (40%) were females and 15 (60%) were males. The mean age of study population was  $36.2 \pm 5.8$  years. On the basis of degree of hemorrhoids 14 (56%) patients had third degree piles and 11 (44%) patients had fourth degree piles. The need for general anaesthesia was reported among 2/25 (8%) patients. The mean operative duration (minutes) was  $22.54 \pm 6.98$ . Out of the total study participants of group 2, 9 (36%) were females and 16 (64%) were males. The mean age of study population was  $38.4 \pm 6.2$  years. On the basis of degree of hemorrhoids 13 (52%) patients had third degree piles and 12 (48%) patients had fourth degree piles. The need for general anaesthesia was reported among 1/25 (4%) patients. The mean operative duration (minutes) was  $21.32 \pm 5.21$ . Similar results were obtained in a study conducted by D. G. Jayne,et al for the Comparative study of assessment of the benefits and complications of local anesthesia and spinal anesthesia for hemorrhoidectomy. They reported similar results as the present study (9).

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assessment of the benefits and complications of local anesthesia and spinal anesthesia for hemorrhoidectomy. They reported similar results as the present study (10).

In the present study, out of the total study participants on the basis of adverse effects, we found that bleeding was the most common adverse effect reported among the study groups of group 1st which was reported among 6(24%) patients. Delayed healing was present among 1 (4%) patients. None of the patient was reported for hypotension, headache, urine retention and deep infection. Out of the total study participants on the basis of adverse effects, we found that hypotension was the most common adverse effect reported among the study groups of group 2nd which was reported among 8 (32%) patients. Headache was present among 7 (28%) patients, bleeding was present among 5 (20%) patients, urine retention was present among 3 (12%) patients and delayed healing was present among 2 (8%) patients. None of the patient was reported for deep infection. Similar results were obtained in a study conducted by Younes Hassan et al for the Comparative study of assessment of the benefits and complications of local anesthesia and spinal anesthesia for hemorrhoidectomy. They reported similar results as the present study (11).

## CONCLUSION

We concluded from the present study that use of local anesthesia for hemorrhoidectomy along with intravenous sedation is a safe procedure and should be considered as an alternative to spinal anesthesia. Present study reported that it has lesser postoperative pain scores, no hypotension, no headache and no urine retention in comparison to spinal anaesthesia.

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