How to do Open Hemorrhoidectomy Under Local Anesthesia and its Comparison with Spinal Anesthesia

Hanish Bansal · Raj Kamal Jenaw · Rajendra Mandia ·
Rajeev Yadav

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Abstract Day care open hemorrhoidectomy under local anesthesia (LA) may be most effective approach to hemorrhoidectomy. We describe a technique for a surgeon to administer local anesthesia himself for open hemorrhoidectomy and also compare outcome and clinical perspectives of hemorrhoidectomy under Local anesthesia with that after open hemorrhoidectomy under spinal anesthesia (SA). Technique: 50 patients with III/IV degree hemorrhoids and grade II hemorrhoid not responding to conservative treatment were randomized to LA (5 grade II, 15 grade III and 5 grade IV) and SA (7 grade II, 14 grade III and 4 grade IV). Assessment was carried out afterwards in terms of pain scores (using Numerical Rating Scale, NRS at 30 mins, 90 mins, 6 h and 24 h) and post operative analgesia. Secondary outcomes were complications like urinary retention, post operative headache and surgical complications, and overall stay. Median pain scores were comparable in both the treatment groups during the whole study period except at 6 h where significantly higher ($p < 0.05$) pain scores were noted in spinal anesthesia group. Complications were much higher in Spinal anesthesia [Hypotension (4patients); post operative headache (6patients); urinary retention (9patients)]. Mean time at first bladder evacuation was

significantly higher in patients operated under spinal anesthesia [8 h (SA) Vs 1.5 h (LA)]. Average hospital stay was significantly longer in patients operated under spinal anesthesia (p value < 0.001). Local anesthesia is an alternative mode of anesthesia that surgeon can safely carry out by their own. In our study hemorrhoidectomy under local anesthesia was associated with a shorter hospital stay, lower pain scores and lower post operative complications which supports the routine use of local anesthesia for hemorrhoidectomy.

Keywords Hemorrhoidectomy · Day care · Local anesthesia · Intersphincteric

Introduction

Open hemorrhoidectomy is traditionally viewed as a painful procedure. Most operations are performed under general or regional anesthesia. Improvements in multimodal and pre-emptive analgesia, the introduction of stapled anopexy, and improvements in patient counseling have led to an increasing number of daycare open hemorrhoidectomies. A further evolution in technique is daycare open hemorrhoidectomy under local anesthesia. There is a paucity of randomized controlled trials to support its routine use.

We describe a technique for surgeons to administer local anesthesia themselves for open hemorrhoidectomy and also compare outcome and clinical perspectives of hemorrhoidectomy under local anesthesia (LA) with that after open hemorrhoidectomy under spinal anesthesia (SA).

Material and Technique

This randomized clinical trial was approved by the local research ethics committee.

H. Bansal · R. K. Jenaw · R. Mandia
Surgical Unit 4, Department of General Surgery,
S.M.S Medical College,
Jaipur, Rajasthan, India

R. Yadav
Department of Community Medicine, S.M.S Medical College,
Jaipur, Rajasthan, India

H. Bansal (✉)
Department of General Surgery,
10-b udham singh nagar,
Ludhiana, Punjab 141001, India
e-mail: y2khanish@rediffmail.com

Eligibility for the trial was determined, and with help of computer-generated random numbers, 50 patients were exposed to one type of anesthesia, either spinal or local (25 patients under local and 25 patients under spinal anesthesia) between July 2009 and December 2010.

Informed, written consent was obtained from all patients. All patients were entered in the routine general surgical list and the same operation theater was used. All selected patients were oriented about the use of numerical rating scale (NRS) to describe their postoperative pain.

Patients with grade III/IV hemorrhoid and grade II hemorrhoid not responding to conservative treatment and with no history of xylocaine/bupivacaine allergy were included in the study.

The following patients were excluded from the study: patients with associated anorectal abscess, patients who had symptoms of benign prostatic hypertrophy or bladder neck obstruction, patients with neuropsychotic disorder, patients unfit for surgery (e.g., coagulopathy or liver cirrhosis), and patients on aspirin.

All patients were put on clear liquid diet for 24 h prior to surgery, nil by mouth 6 h prior to surgery, and per rectal enema on the day of surgery in morning. All hemorrhoidectomies were performed by the same surgeon using an open Milligan–Morgan method in lithotomy position. Patients to be administered local anesthesia had an intravenous cannula inserted, but with no intravenous tubing connected and no intravenous fluids administered.

A cocktail of local anesthesia, 20 cc, composed of bupivacaine hydrochloride 0.5 % with adrenaline and lignocaine hydrochloride 2 % in equal amounts, was injected around anal skin using a 25G needle. The left index finger was then inserted as a guide into the anal canal. The right hand inserted a syringe with a 21G needle containing the same solution into intersphincteric plane on four sides of the anus (Fig. 1). Immediate complete relaxation of both sphincters ensued. After this, the procedure was performed by the standard Milligan–Morgan technique.

Fig. 1 Site to administer local anesthesia

Fig. 2 Pain assessment via NRS

After removal of hemorrhoids, 2% xylocaine gel was applied locally, and a standard dry dressing was done, no packing was placed inside the anal canal. All patients were evaluated at different intervals and received oral analgesia in the form of oral tramadol on SOS basis. On discharge each patient was given a standard package of medications containing oral tramadol, oral ofloxacin plus ornidazole, 5 % lignocaine ointment, and lactulose solution and instructions for warm sitz baths from next day morning. All patients on discharge were informed about probable risks of reactionary hemorrhage, secondary hemorrhage, and minor transient impairment of continence. The surgical team was always available on the telephones and patients were instructed to come to hospital in case any emergency arises. Patients operated under local anesthesia were followed up after 30 min, 90 min, and 6 h in the hospital and then at 24 h by telephone, and postoperative pain was assessed via a scoring system: score 0 (no pain), score 1 (mild pain), score 2 (moderate pain), and score 3 (severe pain) (Fig. 2).

Mild pain includes NRS 1–3, moderate pain includes NRS 4–6, and severe pain includes NRS 7–10.

Postoperative analgesia was classified as excellent if no analgesic (tramadol) was needed, satisfactory if one dose was required, and poor if two or more doses were needed.

Statistical Analysis

The statistical analysis was done using Medcalc 11.5.1.0 version for biostatistics. Qualitative data were summarized

Table 1 Clinical presentation

	Local±SD	Spinal±SD	Mean	P value
Mean age	43.56±12.02	43.20±12.44		0.85 ^a
Male/female	23/2	23/2		1.000 ^b
Grade II/III/IV	5/15/5	7/14/4		1.000 ^b
Bleeding	3	2		1.000 ^b
Prolapsed	15	14		1.000 ^b
Thrombosis	1	2		1.000 ^b
Constipation	21	19		0.724 ^b

^a Student t-test

^b Chi-square test

Table 2 Postoperative pain scores

Median pain scores	Local	Spinal	<i>P</i> value ^a
30 min	0	0	0.205
90 min	1	1	0.286
6 h	0	1	0.035 (<0.05)
24 h	0	1	0.111

^a Mann–Whitney test

in percentages, while quantitative data were expressed as means and standard deviation. Student's *t*-test was used to find out significance of difference for data on the numerical scale and Mann–Whitney test for data on the ordinal scale (numerical rating scale). For qualitative data, Chi-square test was used for difference of proportions.

Results

The LA and SA groups were similar in terms of age, sex distribution, grades, and clinical presentation (Table 1).

Median pain scores were comparable in both the treatment groups during the whole study period except at 6 h where significantly higher ($P<0.05$) pain scores were noted in spinal anesthesia group (Table 2). However, some patients in both the groups were given analgesia for their pain relief.

Postoperative analgesia was excellent in more than 90 % patients operated under local anesthesia, while it was excellent in less than 50 % patients operated under spinal anesthesia which was found out to be statistically significant ($P<0.05$) (Table 3).

Certain postoperative complications such as urinary retention and postoperative headache were exclusively seen in the spinal anesthesia group (Table 4). One of the patients in the spinal anesthesia group had wound infection in the postoperative period, which healed successfully with conservative treatment. Postoperative results were satisfactory in both the groups, and none of the patients had any recurrence, stricture, prolapse, or incontinence after 3 months of follow-up.

The mean time between anesthesia and urine passage was significantly higher in patients operated under spinal anesthesia as compared to patients operated under local anesthesia. Average hospital stay was significantly longer in patients operated under spinal anesthesia (Table 5). None of the patients had to be re-admitted with any complaints.

Table 3 Postoperative analgesia

		Excellent	Poor	Satisfactory
Local	23	0	2	
Spinal	12	1	12	

Chi-square=11.600 with 2 ° of freedom; $P=0.003$

Table 4 Postoperative complications

	LA group (number)	SA group (number)	<i>P</i> value
Hemorrhage	2	3	1.000 ^a
Infection	0	1 (4 %)	–
Hypotension	0	4 (16 %)	–
Headache	0	6 (24 %)	–
Urinary retention	0	9 (36 %)	–

^a Chi-square test

Discussion

Hemorrhoidectomy involves surgery on the sensitive anoderm, which is rich in nerve endings. Several possible ways of reducing pain and discomfort have been proposed, including the use of multimodal analgesics, restricting surgery to one hemorrhoid at a time, avoiding a closed technique, rectal application of metronidazole, preemptive analgesia, caudal block, preoperative lactulose, pudendal, perineal blocks, stapled anopexy, and Doppler-guided hemorrhoid artery ligation.

Stapled anopexy is however associated with fecal urgency, tenesmus, and pain, and instances of rectal perforation and bleeding have been reported [1]. Open hemorrhoidectomy continues to remain a safe way of excising hemorrhoids.

Day-case surgery has expanded remarkably in the developed countries, and many general surgical operations can safely be done as day-case procedures. Hemorrhoidectomy can be performed under general anesthesia; however, there may be the complications resulting from general anesthesia together with associated diseases in advanced age. Caudal or spinal anesthesia has been used as an alternative to general anesthesia for hemorrhoid surgery, but they all require a trained anesthetist and have numerous known complications [2].

Local anesthesia with perianal and anal canal blocks gives adequate duration and depth of anesthesia and results in excellent relaxation of the anal canal [3].

Lignocaine provides excellent initial pain relief, and adrenaline reduces bleeding in the operative field due to vasoconstriction. Lignocaine with adrenaline provides

Table 5 Postoperative stay and mean bladder evacuation time

	LA group (hours)	SA group (hours)	<i>P</i> value
Bladder evacuation time	1.5±1.12	8.12±4.17	<0.001 ^a
Postoperative stay	6.08±0.27	32.64±11.7	<0.001 ^a

^a Student *t*-test

enough time for not only hemorrhoidectomy but also transportation to home [4].

The ambulatory setting, when combined with perianal blockade and no intravenous fluid administration, allows anorectal surgery to be performed with a very low incidence of urinary retention, as was case in our study [5]. Spinal or caudal anesthesia and pudendal (ischioanal) nerve blocks may cause urinary retention with a reported incidence of between 10 and 17 %. In view of this potential problem, perianal block alone was evaluated in the present study and no patient operated under local anesthesia had urinary retention.

In this study, local hemorrhoidectomy had a tendency toward lower pain scores than under spinal anesthesia, and this difference persisted for whole of the time after surgery with statistically significant difference at 6 h.

A study of 51 patients at University Hospital, Brazil, in which outpatient hemorrhoidectomy was carried out under local anesthesia concluded that late complications did not differ significantly and the estimated hospital costs were much lower [6].

Another study from Colorectal Surgery Unit, Linköping University Hospital, Sweden, in which 30 consecutive patients with proctological disorders consented to ambulatory ($n=29$) or hospitalized ($n=1$) operation with local perianal block concludes that the perianal block is easy to apply and effective as a sole method of anesthesia for proctological operations [7].

Some adverse comments referred to the pain of needle insertion, burning, and a pressure sensation. A study using eutectic lignocaine/prilocaine (EMLA) before injection for hemorrhoidectomy did not improve any of these symptoms. While outpatient hemorrhoidectomy under local anesthesia was generally well tolerated, there was no statistically significant difference between EMLA cream and placebo for decreasing pain during anesthetic infiltration [8].

Preoperative counseling and adequate information about the expected postoperative course after hemorrhoidectomy is

essential for a successful outcome, as it serves to minimize fear of the unknown. In this study, the anticipated operative and postoperative course was emphasized specifically, and this may explain the reasonable compliance with the study.

Conclusion

Local anesthesia is an alternative mode of anesthesia that surgeons can safely carry out by their own. In our study, hemorrhoidectomy under local anesthesia was associated with a shorter hospital stay, lower pain scores, and lower postoperative complications, which supports the routine use of local anesthesia for hemorrhoidectomy.

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