

# The role of local anaesthesia in ambulatory anal surgery

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## Abstract

**Background:** Anal operations may be useful surgical procedures in major ambulatory surgery. The selection of an anaesthetic technique may influence the duration of hospital stay. The use of local anaesthesia in anal surgery is supposed to be associated with advantages, such as shorter hospital stay and high satisfaction rates. The aim of this retrospective study is to prove the feasibility of local anaesthesia in anal operations as day cases.

**Patients and methods:** A total of 218 patients with various proctologic disorders were consented to anal operations under general, spinal or local anaesthesia. The data including anaesthetic technique, postoperative information, duration of hospitalisation and degree of satisfaction, were collected respectively in a computerised database. 71 patients underwent anal surgery under general anaesthesia (group 1), 73 under spinal anaesthesia (group 2), and 74 under local anaesthesia (group 3).

**Keywords:** Local anaesthesia; Anal operations; Ambulatory surgery; Day case surgery.

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**Results:** The mean hospital stay for the three groups was 2.5, 3.0 and 0.5 days respectively. The difference in duration of hospitalisation of group 3 in comparison to groups 1 and 2 was statistically significant ( $P < 0.01$ ), while the overall satisfaction rate during the post-operative evaluation was not significantly different between the three groups.

**Conclusion:** Local anaesthesia is a suitable technique for anal surgery with a high degree of acceptance among patients. It can be used in most proctologic procedures and is a simple, fast, safe and easy method, with high satisfaction rates among patients. Local anaesthesia is associated with shorter hospital stay and faster return to full social activities. It seems to be the ideal anaesthetic technique for anal procedures as day cases.

## Introduction

Day surgery is becoming more common due to its cost effectiveness as well as patient acceptance. [1] The increase in day case procedures and their complexity is related to improvements in surgical and anaesthetic techniques. [2] Anal operations may be suitable surgical procedures for major ambulatory surgery. Patients suffering from haemorrhoids, anal fistulas, anal fissures, perianal abscesses, pilonidal sinus or even anal carcinomas can be satisfactorily operated on as day surgery cases. [3–5] Although almost all anal procedures can be carried out as ambulatory operations, the selection of anaesthetic technique may be the only factor which excludes the possibility of one day hospitalization. [6] General (GA) and spinal (SA) anaesthesia are considered to be the gold standard anaesthetic techniques for anal surgery. [7], The use of these techniques usually requires more than one day nursing, and have sometimes been associated with various minor or major complications which may lengthen postoperative hospitalization. Only few reports in the literature comment on the role of local anaesthesia (LA) in anal surgery. [8–10]. The use of LA in patients with anal disease seems to be feasible and may be associated with less morbidity, shorter hospital stay and a faster return to full social activities. [11] The aim of this retrospective study was to prove the feasibility of LA in anal operations as day cases.

## Patients and Methods

A total of 218 patients (154 men, mean age 54 years, range 21 to 86), with various proctologic disorders were consented to anal operation. 122 of them underwent 23 stapled haemorrhoidectomy (SH), 36 Milligan-Morgan haemorrhoidectomy (MMH), 25 perianal abscess revision (AR), 24 subnodular fistula resection (FR), and 11

anal tumour electrocoagulation (ATE). The patients' data including demographics, anaesthetic technique, postoperative information, duration of hospital stay and degree of satisfaction were collected and studied retrospectively.

The patients were divided into three groups according to anaesthetic technique: (1) general anaesthesia (GA), (2) spinal anaesthesia (SA) and (3) local anaesthesia (LA). GA was used in 71 patients, (34 SH, 14 MMH, 16 AR, 6 FR, and 1 ATE), SA in 73 patients (43 SH, 12 MMH, 6 AR, 10 FR, and 2 ATE) and LA in 74 patients (45 SH, 10 MMH, 3 AR, 8 FR, and 8 ATE) (Table 1).

The selection of anaesthetic technique was the decision of the anaesthetist depending on the patient's age and the presence or not of serious cardiovascular, respiratory or metabolic disease. Especially for LA, an additional selection criterion was painless two finger digital examination.

The degree of satisfaction in all groups was evaluated by means of a visual analogue scale (VAS) in which 0 indicated dissatisfaction and 10 indicated maximum satisfaction (Table 2).

The aim of the study was to detect the impact of the type of anaesthesia on the length of pre-operative and post-operative hospital stay (Table 3).

Also, the influence of the anaesthetic technique on satisfaction rates among patients undergoing anal surgery was determined.

## Statistical analysis

Statistical analysis was performed using the Arcus Quick-stat biomedical statistical package (Research Solutions, UK) with the median values for continuous variables 56 presented with range in

**Table 1** Type of operation and anaesthetic technique.

Operation	Group 1: GA (n = 71)	Group 2: SA (n = 73)	Group 3: LA (n = 74)
Stapled haemorrhoidectomy	34 (47.9%)	43 (58.9%)	45 (60.8%)
Milligan-Morgan haemorrhoidectomy	14 (19.7%)	12 (16.5%)	10 (13.5%)
Perianal abscess revision	16 (22.5%)	6 (8.2%)	3 (4.1%)
Fistulectomy	6 (8.5%)	10 (13.7%)	8 (10.8%)
Anal tumour electrocoagulation	1 (1.4%)	2 (2.7%)	8 (10.8%)

GA = General anaesthesia SA = Spinal anaesthesia LA = Local anaesthesia

**Table 2** Satisfaction rate in 3 groups by the type of operation.

Operation	Satisfaction rate (VAS score)			P
	Group 1 (n=71)	Group 2 (n=73)	Group 3 (n=74)	
Stapled haemorrhoidectomy	8.5 (±1.8)	8.3 (±1.4)	8.6 (±1.2)	NSD
Milligan-Morgan haemorrhoidectomy	7.9 (±1.4)	8.0 (±1.3)	8.1 (±1.2)	NSD
Fistulectomy	8.1 (±1.2)	7.9 (±1.4)	8.0 (±1.3)	NSD
Perianal abscess revision	6.8 (±2.5)	6.5 (±2.5)	6.1 (±2.7)	NSD
Anal tumour electrocoagulation	7.3 (±1.8)	7.2 (±1.8)	7.0 (±1.8)	NSD
Overall satisfaction rate	7.7 (±1.7)	7.6 (±1.6)	7.6 (±1.7)	NSD

Satisfaction rate was scored on a visual analogue scale (VAS) in which 0 indicated dissatisfaction and 10 indicated maximum satisfaction.

NSD: No Significant Difference (P=0.35, Fisher's exact test)

**Table 3** Impact of anaesthetic technique on duration of hospital stay.

Hospital stay (days)	Group 1 (n=71)	Group 2 (n=73)	Group 3 (n=74)	P
0.3 – 0.5	0 (0.0%)	0 (0.0%) <sup>c</sup>	62 (83.7%) <sup>a,b</sup>	SD
0.5 – 1.0	0 (0.0%)	0 (0.0%) <sup>c</sup>	10 (13.5%) <sup>a,b</sup>	SD
1.0 – 2.0	16 (22.5%)	16 (21.9%) <sup>c</sup>	1 (1.4%) <sup>a,b</sup>	SD
> 2.0	55 (77.5%)	57 (78.1%) <sup>c</sup>	1 (1.4%) <sup>a,b</sup>	SD

SD: Significant Difference <sup>a</sup> SD between 3 and 1 (P<0.01, two-tailed test)

<sup>b</sup> SD between 3 and 2 (P<0.01, two-tailed test) <sup>c</sup> NSD between 1 and 2 (P=0.35, Fisher's exact test)

Also, the influence of the anaesthetic technique on satisfaction rates among patients undergoing anal surgery was determined.

parentheses. Fisher's exact test and Mann Whitney U test were used as appropriate to compare the groups to each other. P < 0.05 (two-tailed test) was considered statistically significant.

## Results

Groups 1 and 2 patients were admitted to the hospital 0.5-1 days preoperatively (mean 0.7 d) for anaesthetic evaluation. The postoperative hospital stay ranged from 1-4 days (mean 1.8 d) in group 1, and 1-5 days (mean 2.3 d) in group 2 respectively. Group 3 patients were admitted to the hospital on the day of operation. The postoperative hospital stay ranged from 0.3-2.5 days (mean 0.5 d). 62 patients (83.7%) were discharged within 12 hours (0.5 d) of admission (Table 3).

The impact of the type of anaesthesia on the length of hospital stay is shown in Table 3. Although the difference between groups 1 and 2 was not significant, (P = 0.35, Fisher's exact test), if we compare group 3 to group 1 and 2, the difference was significant, (P < 0.01 and P < 0.01 respectively, two-tailed test). The satisfaction rate during post-operative evaluation was 7.7±1.7 in GA, 7.6±1.6 in SA compared to 7.6±1.7 in LA on the VAS. These differences were not significant, (P = 0.35, Fisher's exact test). (Table 2)

## Discussion

The aim of day surgery units is a short term hospital stay along with limiting patient discomfort and reducing cost. Its main drawback is the limited time for direct observation of the patient. Thus, it is

imperative that the anaesthetic and surgical procedures be safe and effective.[1,2] The optimal anaesthetic technique in day surgery aims to provide excellent operating conditions, fast discharge, low complication rates and a high degree of patient satisfaction.[6]

It is believed that most anal surgery procedures can be carried out as ambulatory operations. The selection of anaesthetic technique may be the only factor which may prevent this – especially if GA or SA is selected. This is because in these cases, patients may have to be admitted to hospital one or two days prior to operation, due to the need for pre-operative anaesthetic evaluation. Local anaesthetic modalities have been proposed as an alternative to GA or SA for anal surgery. [7–12] Although local techniques have not yet been standardized for proctologic operations, few methods have been proposed to provide sufficient relaxation of the sphincters.[6-7] Marti [13] described a posterior perineal block that provided sufficient analgesia for anal surgery. Gabrielli et al [14] performed a posterior block in 400 haemorrhoidectomies. They found their technique to be complete or satisfactory in 94% of the operations performed, while 6% of patients needed supplementation with intravenous analgesics. Nyström et al [8] described a perianal block performed in 30 patients with various proctologic disorders.

Although a lot of papers concerning the type of anaesthesia used in day surgery have been published in the past [5, 7-10, 15], a correlation between the type of anaesthesia and the duration of hospital stay has rarely been reported. Law et al [4] presented 48 patients who underwent ambulatory stapled haemorrhoidectomy. They compared the outcomes following stapled haemorrhoidectomy as an inpatient versus as a day surgery procedure. There were no differences in post-operative complications, pain scores, analgesic requirements, and patient satisfaction scores between the two groups. The total mean hospital stay was significantly shorter for those undergoing 7 day surgery stapled haemorrhoidectomy (0.46 versus 1.9 days,  $P < 0.01$ ). They concluded that stapled haemorrhoidectomy is a feasible procedure to perform on a day basis.

The aim of our study was to detect the impact of the type of anaesthesia on the length of pre-operative and post-operative hospital stay, and also to prove the feasibility of LA in a wide variety of day case anal operations. We found that the selection of anaesthetic technique plays a predominant role in the length of hospital stay. The duration of hospitalisation in patients operated under LA was shorter than in patients operated under GA or SA, regardless of the type of procedure. These results were significantly different ( $P < 0.01$ ) (Table 3). This means that LA is associated with a shorter hospital stay. The overall satisfaction rate during post-operative evaluation was not significantly different among the three groups, ( $7.7(\pm 1.7)$  in GA,  $7.6(\pm 1.6)$  in SA, and  $7.6(\pm 1.7)$  in LA on the VAS respectively). This means that LA is accepted as well as GA or SA for anal operations.

## Conclusion

LA is a suitable method of anaesthesia for anal surgery with a high degree of acceptance among patients. It can be used in most proctologic procedures. The method is simple, fast, safe and easy to learn. LA is associated with shorter hospital stays, a faster return to full social activities and a high satisfaction rate among patients. It seems to be the ideal anaesthetic technique for day case anal procedures.

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