



## ORIGINAL ARTICLE

# STAPLED HAEMORRHOIDOPEXY LOCAL VERSUS GENERAL ANESTHESIA

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### Abstract

**Background:** This simple randomized study is to evaluate the ability of performing stapled haemorrhoidopexy under local anesthesia.

**Methods:** Between January 2010 and May 2012, fifty patients with haemorrhoid disease were randomized to receive local or general anesthesia for stapled haemorrhoidopexy. Sub mucosal block was added after applying the purse-string suture in local anaesthesia group. Patients reported peak pain daily for 10 days using a visual analogue scale (VAS). They also completed anal symptoms questionnaires before the operation and during follow up.

**Results:** The anal block was sufficient in all patients, general anaesthesia group mean symptoms score was 8.8 before surgery and 1.8 after surgery, while in local anaesthesia group the score was 8.3 before surgery and 2.2 after surgery Mean change in symptoms load was also similar between the two groups, with score differences of 7.0 in the general anesthesia group and 6.1 in local anesthesia group. No patient had a recurrence of haemorrhoids during follow up period.

**Conclusion:** Perianal local block is easy to apply with high degree of acceptability among patients. Post-operative pain and symptoms resolution were similar to that of stapled haemorrhoidopexy performed under general anesthesia.

**Keywords:** Stapler Haemorrhoidopexy, Perianal local block, Postoperative pain.

### INTRODUCTION

Preventing post-operative pain in haemorrhoid surgery is very important. Diathermy haemorrhoidectomy is often followed by severe pain because of the wounds in the sensitive anal canal and perianal area. The introduction of the procedure for the rectal prolapse and haemorrhoids by Longo in 1998 reduced post-operative pain by making the excision wound in the lower rectal mucosa.<sup>(2-9)</sup> Usually anal surgery is performed under general or spinal anesthesia mainly as an Inpatient

procedure. More recently, several reports have described various forms of local anesthetic infiltration for the procedure for partial rectal prolapse and hemorrhoids.<sup>(10-15)</sup>

Local anesthetic infiltration for anal surgery aims to facilitate ambulatory surgery and to provide several hours of post-operative pain relief. Some authors have previously described a technique for local anesthetic block of the ischioanal fossae by targeting the terminal

nerves to the anus and sphincter.<sup>(16-18)</sup> To allow painless stapled haemorrhoidopexy, the perianal block was supplemented with sub mucosal block of the lower rectum.<sup>(17)</sup> The aim of this study is to assess the feasibility of stapled haemorrhoidopexy under local anesthesia and to evaluate the total pain experience in addition to symptom resolution with local anaesthesia.

## PATIENTS AND METHODS

This prospective simple randomized study included 50 patients underwent haemorrhoidal surgery between January 2010 and May 2012 in Al-Mishari Hospital (Riyadh- Kingdom Saudi Arabia). Total of fifty patients were simple randomized, 26 patients were included in general anaesthesia group (GA), and 24 patients in local anaesthesia group (LA).

Simple randomization was done one day before operation and patients were informed about type of anesthesia during preoperative evaluation period. All patients underwent the following investigations, complete blood count (CBC), blood grouping and RH factor, random blood sugar (RBS), Liver function tests (LFT), serum creatinine, coagulation profile, X ray chest and ECG if the patient above 35 years or history of cardiac problem. Patients above 40 years with history of recurrent bleeding per-rectum underwent colonoscopic examination to rule out other causes of bleeding per-rectum. There was no age restriction, but patients had to be considered suitable for either general anesthesia or local block.

Patients with mucosal prolapse needing manual reposition or with confirmed prolapse on straining at examination associated with or without history of recurrent bleeding per-rectum and patient with bleeding first grade haemorrhoids were suitable for surgery (Fig. 1). Fourth degree hemorrhoids, complicated hemorrhoids by infection or thrombosis and patients who were considered unsuitable for a general anesthesia for a minor anal surgery were excluded from this study.



Fig 1. Showing prolapsed pile.

## Local anesthetic technique

Patient was placed supine in Trendelenburg position, the patient was draped and the perineal block was applied using 40 ml ropivacaine in a solution of 4.5 mg/ml. A 20-ml syringe was used and the solution injected approximately 3 cm from anal verge through the anococcygeal ligament into the ischioanal fossae to the level of levator ani muscle. A total of 5 ml of the anesthetic solution was injected while withdrawing the needle. The needle was thin directed at 45 degree anteriolaterally and 5 ml was injected on both sides in the perisphincteric space while the needle was withdrawn. This was repeated in the same fashion anteriorly in the perineum.<sup>(16,17)</sup> The onset of action of anesthesia was approximately 5 minutes, with blockage of the branches of the anococcygeal and pudendal nerves to the anus. Complete anaesthesia of the perianal skin and the anal canal ensured with relaxation of the sphincters rendered painless to dilatation. Before introducing the stapler, the sub mucosa beneath the purse string suture was infiltrated with 10–15 ml of ropivacaine, 2mg/ml. This ensured complete painlessness during closure and firing of stapler.

## Operative technique

The circular anal dilator was inserted and secured to the anus with sutures (Fig. 2). A 2/0 polypropylene purse-string suture was applied 2 to 3 cm above the dentate line. The stapler was opened to maximum position and inserted so that the distal anvil was passed beyond the purse-string suture line. The purse string suture was tied with a single knot. The end of the thread were pulled through the lateral channels of the stapler head and tied together externally, then the stapler closed. In the women, the posterior vaginal wall was ascertained to be free. The stapler was fired and removed without wounds in the anal verge as shown in Figure 3. Any bleeding point was secured with vicryl 3/0 suture or diathermy. The presence of skin tags before surgery and their excision during surgery were recorded. The operation time included the time taken to apply the local anaesthesia.

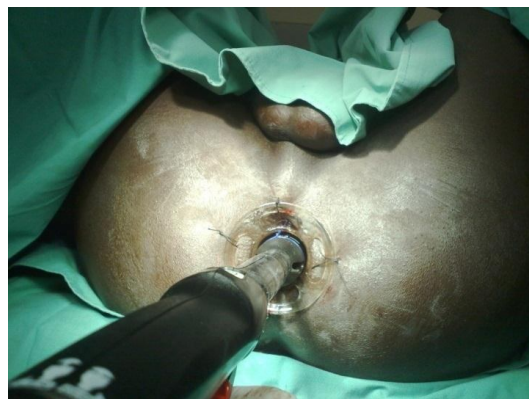


Fig 2. Showing fixed circular anal dilator and inserted stapler.



**Fig 3. Showing Final result after stapler haemorrhoidopexy.**

#### **Postoperative pain and recovery**

Before leaving the hospital, patients were given a diary covering the first 10 postoperative days. The patients were asked verbally to enter a figure that described the pain experienced during most of the day (daily average pain) and another for the maximum pain experienced at any time of the day (peak pain) using a 10 point visual analogue scale (VAS; 0, no pain and 10, worst imaginable pain). The use of pain medication was recorded in the diary. pethedine 100 mg was given as a provisional dose direct post-operative and then 8 hourly when needed during post-operative admission period. After discharge patients received 50mg diclofenac potassium/8 hour per day. Time of recovery was defined as the post-operative day on which patients considered themselves as normal or returned to work. Patients were seen between 1 and 2 months after surgery to record the final outcome.

Patients completed a questionnaire of self-reported symptoms associated with haemorrhoids before the operation and after the operation (during follow up visit 1- 2 months after surgery). Patients rated the frequency of five cardinal symptoms of haemorrhoids: Anal pain, anal irritation or pruritus, bleeding, soiling and prolapse of haemorrhoids needing manual reposition at defaecation. Each of five symptoms was scored according to its frequency: less than once a month (0 point), more than once a month (1 points), 1 – 6 days (2 points) and every day (3 points). The points for each of the five symptoms were added together for maximum of 15 points. For each patient, the difference between the pre-operative and follow up scores was taken to represent the treatment effect.

#### **Statistical analysis**

The pain scores (VAS) were added for each patient from postoperative days (1 to 10) to obtain a total pain score for each patient. The daily average pain and peak pain scores were studied separately. The difference in total pain between the two groups was analyzed using a SPSS package 17.0 (Statistical package for social science). The difference in daily pain was analysed. Data were tested by unpaired t-Test as independent two groups' numerical data. In this study a difference of 9 VAS points per day was considered clinically relevant. Because one of the aims of this study was to study post-operative pain with either anaesthetic methods.

### **RESULTS**

Total of fifty patients were randomized, 26 patients were included in general anaesthesia group (GA), and 24 patients in local anaesthesia group (LA).

The characteristics of the two groups were comparable. Ten patients in the GA group and eight patients in the LA group stated that the muco-anal prolapse required manual reposition at defaecation. An external component (ano-dermal folds and tags) was present in 9 of the GA group and 12 of the LA group, with excision of one or more tags performed in 8 and 10 patients respectively. The mean height of the stable line above the dentate line not differed between the groups (2–3cm above dentate line). Because the operation included the time taken to give the local block, it was significantly longer under perianal block than under general anaesthesia 35 versus 25 minutes respectively.

Thirty-nine patients were discharged from the hospital a one day after surgery and eleven patients after two-days (three in GA group due to nausea and vomiting, and two patients because of post-operative pain and difficult voiding, while in LA group four patients due to post-operative pain and two patients due to difficult voiding).

#### **Postoperative pain and recovery**

The patients diary was returned by 21 of 26 patients in the GA group and 22 of 24 patients in the LA group. The intensity of postoperative pain was assessed from the diaries. The mean of VAS scores for daily average pain was 7.7 in GA group and 9.1 in LA group ( $p=0.376$ ).

Mean scores for peak pain 8.8 and 9.5 respectively ( $p=0.537$ ). The use of pain medication was similar between the groups. However there was no significant difference between the groups for postoperative days 2 to 10 in this respect.

#### **Symptoms resolution**

In the GA group, the mean symptom score was 8.8 before and 1.8 after surgeries, a mean change of 7.0 points. In the LA group, the scores were 8.3 before

surgery and 2.2 after surgery, a mean change 6.1 points. Resolution of symptoms therefore did not differ significantly between the groups.

## DISCUSSION

This simple randomized study comparing local block with general anaesthesia for haemorrhoidectomy showed statistically similar pain scores for patients in both groups, although numerically the scores were slightly lower after general anaesthesia. Pain after haemorrhoid surgery varies greatly, the coefficient of variation exceeds 50 per cent for VAS scores on any post-operative day as well as for the total pain experienced over 10 days. This wide variation may influence the result in small studies.

Excision of skin tags<sup>(19)</sup> and a lower staple line<sup>(20)</sup> may account for increased pain, although excision of skin tags was not associated with increased pain in other study.<sup>(21)</sup> However there is inverse correlation between the height of staple line and total pain, patients with staple line 22mm above the dentate line required less pain management and returned to work earlier.<sup>(22)</sup>

Although the aim for the height of the stable line should be 20 mm, the reason is not primarily pain control, a higher stable line inadequately controls haemorrhoid prolapsed and invites recurrence below the staple line. A high staple line was originally proposed by Longo to reduce pain,<sup>(23)</sup> but it is a possible explanation of the recurrence of prolapse after haemorrhoidectomy compared with conventional haemorrhoid excision,<sup>(23,24)</sup> Stapled haemorrhoidectomy is predominately performed under general anaesthesia. Gabrielli and colleagues described a posterior ischioanal block but supplemented with an anaesthetic injection into the intersphincteric space.<sup>(13)</sup> Ong and co-walker, also described a technique for local anal infiltration in the intersphincteric space, injecting directly into the anal sphincter, levator ani muscle and surrounding perianal skin under intravenous sedation consisting of 3-5 ml midazolam and 70-100 microgram phentanyl.<sup>(14)</sup> Esser and colleagues infiltrated the perianal skin and submucosa in all four quadrants with 0.5 per cent lidocaine with 1:200,000 epinephrine solution under conscious sedation with midazolam, fentanyl or both.<sup>(12)</sup>

Injection into the sphincter or intersphincteric space and the anoderm are painful and best avoided. When injecting the anaesthetic solution into the perisphincteric space, the main discophort is the sting in the peri-anal skin. Delikoukos and co-walker described a technique similar to Mart's ischioanal block, with deposition of anaesthetic solution perisphincterically in the infra-levator space.<sup>(11)</sup> They proposed using the index finger inside the anus to guide the syringe. This method should block the inferior haemorrhoidal branches of the pudendal nerve but does not reach the anterior sphincteric branches of the same nerve. In this study I achieved this relaxation by blocking the anterior

sphincteric branches with a similar injection anteriorly.

Imbelloni and colleagues used a nerve stimulator to administer a bilateral pudendal nerve block, with better pain relief during the first 24 hours after surgery.<sup>(25)</sup> None of the studies described above recorded pain beyond the first 24 hours. The present study examined the potential benefit at later stages of recovery.

An infra-levator block alone is often insufficient because the rectum at the levator may have unblocked the visceral nerve supply from above. Adding a small submucosal block under the purse string suture provided complete pain control for closure and firing of the stapler.<sup>(16,17)</sup> The anaesthetic injection of submucosa should be performed after insertion of the purse-string suture to avoid narrowing of the view.

Perianal local block has several advantages, the surgeon can apply it as a part of the procedure in approximately 5 min, patients operated in supine position, can place themselves in a comfortable position on table, more patients can be treated, surveillance after anaesthesia is easier, and patients are without pain for several hours. However other studies showed that local block did not ameliorate pain on subsequent days or enhance recovery. Nevertheless, an alternative anaesthetic method allows patients a choice.<sup>(26)</sup>

In conclusion Stapled haemorrhoidectomy under perianal local anaesthetic block is effective, convenient and acceptable to most patients compared with the same procedure under general anaesthesia, providing a similar clinical result.

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