

## Is the left lateral sphincterotomy a necessity during the Milligan-Morgan hemorrhoidectomy in patients with hemorrhoids prolapse?

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### Abstract

**Aim:** The alteration of the Milligan-Morgan (MM) technique in order to reduce the number of postoperative complications and enhance rehabilitation of patients continues to attract attention. We aimed to compare the classic and altered MM techniques in a group of patients in Albania.

**Methods:** This cross-sectional study included 152 patients suffering from anal fissure requiring surgical treatment in Tirana during September 2009-October 2013. Patient suffering from any pathology of anal canal, colon and other disease affecting the intervention outcome were excluded. 92 patients (group A) were intervened with the classic MM technique and 60 patients (group B) were intervened with MM accompanied by left lateral sphincterotomy. Chi-square test and student's t-test were used to compare study groups regarding dependent variables.

**Results:** Average post-operative and first defecation pain level were significantly higher in group A patients. A significantly higher proportion of group A patients required three morphine vials. Beyond ten days after intervention a significantly higher proportion of group A patients suffered from rectorrhagia. Also, the wound lasted for a month or less in 85% of group B patients compared to 53.2% in group A patients ( $P < 0.001$ ). Prevalence of urinary retention and any complication up to six months after intervention was significantly higher in group A patients.

**Conclusion:** Lateral sphincterotomy accompanying open hemorrhoidectomy in patients with prolapsed hemorrhoid, reduces the level of postoperative pain, helps in faster healing of wounds and rehabilitation of the patient, without damaging the continence and reduces the frequency of postoperative complications, such as anal stricture.

**Key words:** Albania, anal fissure, hemorrhoids, Milligan-Morgan, sphincterotomy.

## Introduction

Hemorrhoid prolapse was described by Hippocrates in 460 BC (1). According to statistics it is a pathology that affects 10 million Americans annually (2). It occurs mostly in women aged 40-65. It is common in pregnant women (3). Hemorrhoids are highly vascular submucosal cushions that generally lie along the anal canal in three typical columns – the left lateral, the right lateral and anterior (2). According to Thomson, the hemorrhoid disease is a pathophysiological and anatomic damage characterized by the decline of elasticity and increase in the volume of hemorrhoid structures (4). There are two main types of hemorrhoids: internal and external (5), depending on the localization, and they are classified into four grades by their degree of prolapse (6). Hemorrhoid prolapse is characterized by bright red blood defecation, hemorrhoid nods prolapse, pain during prolapse, anal pain and straining during defecation. Surgical treatment techniques are classified into two groups: open hemorrhoidectomy and closed hemorrhoidectomy (7) always referring to the presence or not of postoperative wounds. The “Milligan-Morgan” technique is known as the open hemorrhoidectomy and it is considered as the golden standard for the surgical treatment of hemorrhoid disease (8). This technique has been applied widely in our clinic since 1979, but it was firstly implemented in 1937 (8).

The left lateral sphincterotomy is the most common technique for the surgical treatment of benign anal fissures. It consists on cutting the internal anal muscle up to the cryptal level. Its purpose is the internal anal muscle relaxation resulting in better blood supply in the anal canal, reduction of pain, and fissure recovery (9,10). It is performed in two ways: open and closed (9,10). We have mainly used the open technique.

There is limited information about the results of surgical treatment with and without sphincterotomy of benign anal fissures in Albania. Therefore, the purpose of this study was to compare the results

of the surgical treatment for this pathology by comparing the two above mentioned techniques.

## Methods

This is a cross-sectional study conducted during September 2009 - October 2013.

### *Study population*

All patients presenting at the 3<sup>rd</sup> Surgical Clinic, Hospital number 2 in the premises of University Hospital Center “Mother Teresa” in Tirana during this time period with signs and symptoms of benign anal fissure requiring surgical treatment were included in the study. The exclusion criteria comprised any accompanying pathologies of the anal canal, colon and any other systemic disease that could affect the result of surgical treatment. In total 152 patients meeting the inclusion and exclusion criteria participated in the survey. Of these, 92 patients were treated through the open surgical technique Milligan-Morgan without sphincterotomy (hereafter referred to as group A) whereas the remaining 60 patients were treated through the open procedure but without sphincterotomy (hereafter referred to as group B).

### *Data collection and procedures*

Diagnosis was based on the use of anoscopy and the clinical signs and symptoms of the disease. None of the patients presented anemia resulting from rectorrhagia. Before surgery all patients had undergone colonoscopy, abdominal ultrasound, routine examinations and biochemical laboratory. Anamnesis of the patients resulted as follows: right herniotomy (6 patients), hypertension stabilized on medication (5 patients), rhinoplasty (1 patient), removal of the cyst of the thyroid gland (1 patient), right hydrocele drainage (1 patient), excision of the mammary gland fibroadenoma (1 patient) and varicectomy (2 patients).

All interventions were performed with spinal anesthesia with 2% of lidocaine solution. The preoperative preparation consisted in light hydric

diet, ciprofloxacin (2x500 mg) flagyl (2x250mg) and omeprazole (2x20mg) 24 hours before the intervention and two rectal enemas two hours before the intervention. Interventions were performed by the same surgeon.

Technically, we attempted to minimize the use of electro lancet, which was at level 40 in all cases. Parks Retractor was used by exerting minimal dilating effect in all cases. Left lateral sphincterotomy was realized by excising the internal anal muscle with scissors. Hemorrhoid peduncles were saturated by using vicryl 2-0. At the end of the intervention we did not use intra-anal but perianal swab. The pain level was evaluated using the Visual Analog Scale (VAS) for pain system (11). The VAS scale ranges from zero (no pain) to 10 (worst imaginable pain) (11). The subject is asked to indicate his/hers pain level according to his/her perception.

At the same time, we registered the number of analgesic vials applied to each patient. At the end of the intervention, all patients were injected an s/c morphine vial. Later, morphine was applied only on patient's request, also referring to the pain level evaluation. When the effect of anesthesia wore off we started a fiber diet and two hours later we used 5 ml Dulcolax Pico Liquid per os every six hours until the first defecation.

The patients were discharged from the hospital after first defecation, when they had no complications and the level of pain was tolerable. The postoperative follow up lasted six months after the surgery and it consisted in notifying all patients for a visit every 10 days in the first month and every month for the next three months. The last visit was made six months after the surgery. Incontinence was assessed six months after the surgery. The type and nature of incontinence is measured after

the "Pescatori score" scale (12). This method divides the patients into three groups: gas incontinent patients, liquid or solid defecation patients and continent patients. At the same time, it determines the type of incontinence: permanent or intermittent (12). We have not evaluated the type of incontinence.

We assessed the following indicators: the postoperative pain level, pain level during the first defecation, quantity and duration of postoperative rectorrhagia, duration of the surgery wound closure, urinary retention, anal sepsis. The incontinence grade was evaluated six months after surgery.

#### **Statistical analysis**

For categorical values we calculated the respective absolute number and frequency (in percentage) was reported. The chi-square test was used to compare categorical variables. The Student's t-test was used for both techniques for the comparing mean values of continuous variables (postoperative pain and pain during first defecation) by type of technique used (open vs. closed). A p-value  $\leq 0.05$  was considered as the acceptable level of statistical significance.

#### **Results**

This study included 152 patients: 101 males (66.4%) and 51 females (33.6%). The male:female ratio was 58 men and 34 women for group A, 43 men and 17 women for group B. The average age of patients was 46.8 years for group A and 52.5 years for group B.

Table 1 presents the average pain level, measured by VAS scale by study group. The average pain level for group A patients was significantly higher compared to group B patients.

**Table 1. Average pain level by type of surgery**

Variable	Average pain level according to VAS scale	T-test	P-value
<b>Study group</b>			
Group A (n=92)	8.18	4.96	<0.001
Group B (n=60)	6.21		

Table 2 presents information about the average pain level during first defecation when the patients are still hospitalized, by study group. The average pain level during first defecation was significantly higher for group A patients.

**Table 2. Average pain level during first defecation**

Variable	Average pain level according to VAS scale	T-test	P-value*
<b>Study group</b>			
Group A (n=92)	9.32	5.26	<0.001
Group B (n=60)	7.23		

\* P-value according to student's t-test.

Table 3 displays the information about the number of morphine vials applied during hospitalization, by study group. The proportion of group A patients using three morphine vials is significantly higher compared to respective proportion in group B patients (82.6% vs. 16.7%, respectively). On the other hand, 60% of group B patients did not require the application of any morphine vial compared to none in group A patient not needing morphine. These differences are significant (Table 3).

**Table 3. Number of morphine vials during hospitalization**

Variable	Study group		P-value †
	Group A (n=92)	Group B (n=60)	
<b>Number of morphine vials</b>			
Three vials	76 (82.6) *	16 (16.7)	<0.001
Two vials	16 (17.4)	14 (23.3)	
One vial	0 (0.0)	36 (60.0)	

\* Absolute number and column percentage (in parenthesis).

† P-value according to chi-square test.

Table 4 displays the duration of rectorrhagia and operative wound closure by study group. All patients experienced rectorrhagia for at least ten days, after this many days the proportion of patients suffering from it is significantly lower in group B patients than in group A patients (except for duration of rectorrhagia over 30 days, where a borderline significance was achieved) (Table 4). Regarding wound closure, a significantly higher proportion of group B patient experienced wound closure within 30 days of intervention compared to group A patients (85.0% vs. 53.2%, respectively) (Table 4).

**Table 4. Duration (in days) of rectorrhagia and operative wound closure by study group**

Variable	Study group		P-value <sup>†</sup>
	Group A (n=92)	Group B (n=60)	
<b>Duration of rectorrhagia 1-10 days</b>			
Yes	92 (100.0)*	60 (100.0)	-
No	0 (0.0)	0 (0.0)	
<b>Duration of rectorrhagia 11-20 days</b>			
Yes	76 (82.3)	35 (58.3)	<0.001
No	16 (17.7)	25 (41.7)	
<b>Duration of rectorrhagia 21-30 days</b>			
Yes	31 (33.7)	2 (3.3)	<0.001
No	61 (66.3)	58 (96.7)	
<b>Duration of rectorrhagia &gt;30 days</b>			
Yes	5 (5.4)	0 (0.0)	0.066
No	87 (94.6)	60 (100.0)	
<b>Duration of wound closure</b>			
≤30 days	49 (53.2)	51 (85.0)	<0.001
>30 days	43 (46.7)	9 (15.0)	

\* Absolute number and column percentage (in parenthesis).

† P-value according to chi-square test.

Table 5 displays the distribution of urinary retention and wound sepsis evaluated one month after intervention by study group. Significantly lower

proportion of group B patients experienced urinary retention and wound sepsis compared to group A patients (Table 5).

**Table 5. Distribution of urinary retention and wound sepsis by study group**

Variable	Study group		P-value <sup>†</sup>
	Group A (n=92)	Group B (n=60)	
<b>Urinary retention (catheterization)</b>			
Yes	33 (35.9)*	4 (6.7)	<0.001
No	59 (64.1)	56 (93.3)	
<b>Wound sepsis</b>			
Yes	7 (7.6)	0 (0.0)	0.029
No	85 (92.3)	60 (100.0)	

\* Absolute number and column percentage (in parenthesis).

† P-value according to chi-square test.

Table 6 displays the distribution of incontinence grade (according to Pescatori score) 6 months after

intervention. Differences are not significant.

**Table 6. Incontinence grade by study group**

Variable	Study group		P-value <sup>†</sup>
	Group A (n=92)	Group B (n=60)	
<b>Incontinence grade</b>			
Continent	91 (98.9) *	59 (98.3)	
Gas incontinence	1 (1.1)	1 (1.7)	0.759
Liquid defecation incontinence	0 (0.0)	0 (0.0)	
Normal defecation incontinence	0 (0.0)	0 (0.0)	

\* Absolute number and column percentage (in parenthesis).

† P-value according to chi square test. The chi square test was performed taking into consideration only the first two categories of incontinence grade, since the two last categories are zero.

Table 7 presents the information about complications identified up to six months after intervention, by study group. In general there are no significant differences regarding the proportion of subjects

with various complication in both groups, except for anal stricture which was significantly higher in group A patients (Table 7).

**Table 7. Distribution of complications up to six months after intervention by study group**

Type of complication	Study group		P-value <sup>†</sup>
	Group A (n=92)	Group B (n=60)	
<b>Serious rectorrhagia</b>	3 (3.3)	1 (1.7)	0.548
<b>Anorectal fecaloma</b>	2 (2.2)	0 (0.0)	0.250
<b>Hemorrhoidal thrombosis</b>	4 (4.4)	0 (0.0)	0.102
<b>Anal canal secretions</b>	5 (5.4)	0 (0.0)	0.066
<b>Perianal sentinel</b>	2 (2.2)	1 (1.7)	0.826
<b>Unclosed wounds</b>	5 (5.4)	0 (0.0)	0.066
<b>Anal fissure</b>	5 (5.4)	0 (0.0)	0.066
<b>Anal stricture</b>	8 (8.7)	0 (0.0)	0.019
<b>No complications</b>	58 (63.0)	58 (96.6)	<0.001

\* Absolute number and respective percentage within the total of the group (in parenthesis).

† P-value according to chi-square test.

## Discussion

Findings of this study suggested that the average level of postoperative pain, as measured by VAS scale, in group A was significantly higher than in group B patients. Likewise, the average pain level during the first defecation was higher for group A compared to group B patients. Post-hemorrhoidectomy pain is a known complication, which is due to the wounds created, the use of electro

coagulation, suture placement and high sensitivity of the anal canal (13-15). Post-hemorrhoidectomy pain is a complex phenomenon. Damaged tissues release mediators such as TNF- $\alpha$ , interleukin, cyclooxygenase, histamine and chemokine (13-15). All these cause a cascade of predominantly pro-inflammatory effects. These conditions cause the disruption of electrolytic cell balance resulting in its depolarization. These mediators, not only amplify

and distribute the pain, but also turn the painless incentives into painful ones. Based on these data, we understand that by relaxing the anal intern muscle, the sphincterotomy creates opportunities for better supply of blood and rejects postoperative edema and spasm, resulting in reduction of pain (16-18).

The present study also found that patients who were applied sphincterotomy had their first defecation faster than the patients in who sphincterotomy was not applied, a finding reported in international literature as well (19-21).

Difference in the pain level is also evident by the number of morphine vials applied. Around 83% of group A patients were applied three ampoules of morphine versus 16.7% of group B patients. Postoperative wounds epithelized faster in patients of group B. Also, 30 days after intervention, 85% of group B patients had epithelized wounds, versus only 53% of group A patients. Urinary retention was identified in 35.6% of patients of group A versus 6.7% in group B. In all cases urinary dischargers were used, instead of the catheter. The catheter was removed immediately after bladder was discharged. No patient left the hospital with urinary catheter on. Local sepsis was observed only in 7 patients of group A. All patients were treated with local treatment in hospital. Urinary retention is referred to as a complication, which occurs in 15% of patients after the benign anorectal surgery. Urethral reflex, benign prostate hypertrophy, excessive amounts of postoperative liquid, use of morphine analgesics, and pain, are the main causes of urinary retention (8,21,22). Incontinence evaluated on both groups was not significant in our research.

**Conflicts of interest:** None declared.

## References

1. Agbo SP. Surgical management of hemorrhoids. J Surg Tech Case Rep 2011;3:68-75.
2. Sanchez C, Chinn BT. Hemorrhoids. Clin Colon Rectal Surg 2011;24:5-13.

Literature has documented cases where sphincterotomy during open hemorrhoidectomy is accused as causing incontinence (9,23,24). The incontinence grade ranges from 1.3% to 2.9%. In our study total postoperative complications within 6 months resulted higher in group A, however in general the differences were not significant. The four rectorrhagia cases in both groups were resolved with saturation in hospital, with local anesthesia. In both cases of fecaloma, removal was conducted manually. Hemorrhoid thrombosis was treated with thrombus removal with local anesthesia. Unhealed wounds lasted until the 45th day. To speed up the closure of wounds they were provoked several times. 5 cases with anal fissures were treated with Antrolini, a cream with nifedipine and lidocaine content. Anal stenosis was identified in 8 cases, only in group A. It is referred that this complication occurs in up to 6% of patients treated with the "Milligan-Morgan" technique (group A patients in our study). In our research the difference had statistical significance.

## Conclusion

The left lateral sphincterotomy accompanying the open hemorrhoidectomy in patients with hemorrhoid prolapse influences on: reducing the postoperative pain, faster epithelization of postoperative wounds, reducing the number of catheterized patients, reducing the number of patients with wound surgery sepsis, reducing various types of complications outlined. In particular, it helps avoiding complications like the anal stricture, a pathology seriously damaging the patient's life quality and that in most cases requires surgery.

3. Gojnic M, Dugalic V, Papic M, Vidakovic S, Milicevic S, Pervulov M. The significance of detailed examination of hemorrhoids during pregnancy. *Clin Exp Obstet Gynecol* 2005;32:183-4.
4. Thomson WH. The nature of haemorrhoids. *Br J Surg* 1975;62:542-52.
5. Lohsiriwat V. Treatment of hemorrhoids: A coloproctologist's view. *World J Gastroenterol* 2015;21:9245-52.
6. Lohsiriwat V. Hemorrhoids: from basic pathophysiology to clinical management. *World J Gastroenterol* 2012;18:2009-17.
7. You SY, Kim SH, Chung CS, Lee DK. Open vs. closed hemorrhoidectomy. *Dis Colon Rectum* 2005;48:108-13.
8. Milligan ET, Morgan CN, Jones LE, Officer R. Surgical anatomy of the anal canal and the operative treatment of haemorrhoids. *Lancet* 1937;2:1119-24.
9. Corman ML. Anal fissure. *Colon and rectal surgery*. 4<sup>th</sup> ed. Philadelphia: Lippincott-Raven, 1998;206-23.
10. Sajid M, Afzal M. Lateral internal sphincterotomy; outcome and complications. *Professional Med J* 2009;16:24-8.
11. Hawker GA, Mian S, Kendzerska T, French M. Measures of adult pain: Visual Analog Scale for Pain (VAS Pain), Numeric Rating Scale for Pain (NRS Pain), McGill Pain Questionnaire (MPQ), Short-Form McGill Pain Questionnaire (SF-MPQ), Chronic Pain Grade Scale (CPGS), Short Form-36 Bodily Pain Scale (SF-36 BPS), and Measure of Intermittent and Constant Osteoarthritis Pain (ICOAP). *Arthritis Care Res (Hoboken)* 2011;63(Suppl 11):S240-52.
12. Pescatori M, Anastasio G, Bottini C et al. New grading and scoring for anal incontinence. Evaluation of 335 patients. *Dis Colon Rectum* 1992;35:482-7.
13. Pavlidis T, Papaziogas B, Souparis A et al. Modern stapled Longo procedure vs. conventional Milligan-Morgan hemorrhoidectomy randomised controlled trial. *Int. J Colorectal Dis* 2002;17:503.
14. MacRae HM, McLeod RS. Comparison of haemorrhoidal treatment modalities. A meta-analysis. *Dis Colon Rectum* 1995;38:687-94.
15. Harbour R, Miller J. A new system for grading recommendations in evidence based guidelines. *BMJ* 2001;323:334-6.
16. Mousavi SR, Sharifi M, Mehdikhah Z. A comparison between the results of fissurectomy and lateral internal sphincterotomy in the surgical management of chronic anal fissure. *J Gastrointest Surg* 2009;13:1279-82.
17. Knowles CH, Eccersley AJ, Scott SM, Walker SM, Reeves B, Lunniss PJ. Linear discriminant analysis of symptoms in patients with chronic constipation: validation of a new scoring system (KESS). *Dis Colon Rectum* 2000;43:1419-26.
18. Perry WB, Dykes SL, Buie WD, Rafferty JF. Practice parameters for the management of anal fissures (3rd revision). *Dis Colon Rectum* 2010;53:1110-15.
19. Pelta AE, Davis KG, Armstrong DN. Subcutaneous fissurotomy: a novel procedure for chronic fissure-in-ano. a review of 109 cases. *Dis Colon Rectum* 2007;50:1662-7.
20. Vaizey CJ. Faecal incontinence: standardizing outcome measures. *Colorectal Dis* 2014;16:156-8.
21. Melenhorst J, Koch SM, Uludag O, van Gemert WG, Baeten CG. Sacral neuromodulation in patients with faecal incontinence: results of the first 100 permanent implantations. *Colorectal Dis* 2007;9:725-30.
22. Metzger FM, Demartines M, Handschin AE, Clavin PA. Stapled versus excision hemorrhoidectomy. long term results of a prospective randomised trial. *Arch Surg* 2002;137:337-40.
23. Abramowitz L, Sobhani I, Benifla JL et al. Anal fissure and thrombosed external hemorrhoids before and after delivery. *Dis Colon Rectum* 2002;45:650-5.
24. Damon H, Guye O, Seigneurin A et al. Prevalence of anal incontinence in adults and impact on quality-of-life. *Gastroenterol Clin Biol* 2006;30:37-43.



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