

# A painless treatment for patients undergoing Milligan-Morgan haemorrhoidectomy



Ann. Ital. Chir., LXXV, 4, 2004

G. Di Vita\*, R. Patti, M. Arcara, R. Petrone, V. Davì, P. Leo

Università degli Studi di Palermo  
Dipartimento di Discipline Chirurgiche ed Oncologiche  
U.O. di Chirurgia Generale, Endoscopica, Diagnostica ed Interventistica

Direttore: Prof. P. Leo

\*Professore Straordinario di Chirurgia Generale

## Introduction

Milligan-Morgan haemorrhoidectomy (MMH) is considered the most effective cure for 3<sup>rd</sup> and 4<sup>th</sup> degree of haemorrhoids (1); however it is almost associated with considerable pain which may cause anxiety to patients (2) and required a more long hospital stay with an increase of health care costs.

The amount of pain depends of various factors including the surgical technique used, subjective pain threshold, the quality and type of anaesthesia, and the postoperative analgesia (3).

Many alteration in surgical technique and multiple complementary treatments have been proposed to reduce postoperative pain, including the use of different surgical instruments (diathermy, scalpel, stapler, bipolar scissors, laser, ultrasound forceps), local and a systemic injection of analgesic (4), or associated procedures such as lateral internal sphincterotomy (5). Although all of these techniques have had their advocates, none has achieved a sufficiently significant decrease in pain to gain universal acceptance (6).

Most patients complaint a severe pain on defecation and a significant number suffer from great discomfort in the postoperative weeks from wound infection and sphincter spasm (6).

In this prospective randomised study we assessed the effectiveness of treatment with lactulose, metronidazole and topic glyceryl-trinitrate ointment to reduce a postoperative pain and patient's discomfort after MMH.

## Riassunto

### TRATTAMENTO DEL DOLORE NEI PAZIENTI SOTTOPOSTI AD EMORROIDECTOMIA SECONDO MILLIGAN-MORGAN

**Introduzione:** Il dolore post-operatorio dopo emorroidectomia secondo Milligan-Morgan rimane ancora la complicanza più temuta. Molti pazienti continuano a lamentare dolore alla defecazione e durante la prima settimana post-operatoria; ciò sembra essere correlato ad una infezione secondaria delle ferite ed allo spasmo dello sfintere anale. Scopo dello studio è stato quello di valutare l'efficacia del metronidazolo, del lattulosio e del trinitrato di glicerina, nel ridurre il dolore dopo emorroidectomia secondo Milligan-Morgan.

**Metodi:** A random 30 pazienti sono stati suddivisi in due gruppi. Nel 1° gruppo è stato praticato un trattamento pre e post-operatorio che prevedeva la somministrazione di lattulosio al 66,7% e metronidazolo e l'applicazione topica di un unguento a base di trinitrato di glicerina allo 0,2%. Nel 2° gruppo è stato praticato un trattamento placebo. Sono stati valutati: il dolore post-operatorio durante la prima settimana ed al momento della defecazione, il consumo di analgesici ed il tempo di ritorno alle normali attività.

**Risultati:** È stata osservata una differenza statisticamente significativa fra i due gruppi riguardo il dolore in seconda e terza giornata post-operatoria e durante la prima e la seconda evacuazione, mentre il consumo di analgesici è stato maggiore nei pazienti trattati con placebo.

**Conclusioni:** L'uso di lattulosio, metronidazolo e l'applicazione topica di trinitrato di glicerina nei pazienti sottoposti ad emorroidectomia secondo Milligan-Morgan, è risultato utile per ridurre il dolore post-operatorio determinando una maggiore soddisfazione dei pazienti, un precoce ritorno alle normali attività ed un miglior rapporto costo-beneficio.

**Parole chiave:** Emorroidectomia, dolore.

## Abstract

**Background:** Postoperative pain associated with Milligan Morgan haemorrhoidectomy (MMH) remains problematic. Most patients complaint a severe pain on defecation and in the 1<sup>st</sup> postoperative week because of secondary infection and sphincter spasm. We studied the effect of metronidazole, lactulose and glyceryl-trinitrate on pain after MMH.

**Method:** Thirty patients were randomly assigned to two groups. The 1<sup>st</sup> received a treatment with oral laxative (lactulose 66,7%) metronidazole and a topical glyceryl-trinitrate ointment at 0,2% both pre and postoperative; the 2<sup>nd</sup> received a placebo at the same dosage. The amount of pain in the 1<sup>st</sup> week and at the time of two defecation, postoperative analgesic requirement and time to return to normal activities were documented.

**Results:** A significant differences in the score pain on 2<sup>nd</sup> and 3<sup>rd</sup> day and on the 1<sup>st</sup> two defecation were observed among group. Analgesic consumption was highest in the placebo group.

**Conclusion:** The treatment with lactulose, metronidazole and topic glyceryl-trinitrate in patients undergoing MMH, seems to reduce secondary pain and increase patients satisfaction and earlier return to work with improvement of cost and benefit.

**Key words:** Haemorrhoidectomy, pain.

## Patients and methods

Thirty consecutive patients (age range 18 to 65 years) admitted to our Surgical Department between September 2001 and August 2002, with symptomatic third and fourth degree haemorrhoids were included in the study. All patients underwent to carefully proctologic visit and a rectosigmoidoscopy was performed; patients with concomitant anal disease (fissure, dermatitis, fistula, crohn's disease) were excluded. All patients underwent to anorectal manometry that shown always a normal profile. Patients gave written informed consent and the local ethics committee approved the study. Random they were divided in two groups each of 15 units.

The patients in the first group received 66,7% lactulose at the dosage of 20 ml twice daily that was started 2 days before surgery and was continued for 2 weeks after, 400 mg metronidazole administered intravenous 30 minutes before surgical procedure and 400 mg metronidazole tablets 3 times daily for seven days after surgery and a topical glyceryl-trinitrate ointment 0,2% was applied to the anal margin 3 times daily postoperative at dosage of 0.5 gr for application for 2 weeks.

In the second group the patients received a placebo that was administered at the same dosage and in the same way for the first group.

Haemorrhoidectomy in all patients was performed by the same surgeon according to Milligan-Morgan techniques under general anaesthesia and after enema. The haemorrhoids were prolapsed and retracted from the anal canal. A V-shaped perianal incision was made at the base of the haemorrhoids which were dissected from the internal anal sphincter up to the level of the vascular pedicle that was transfixed with an absorbable suture. Immediately after surgery all patients in both groups received a diclofenac 100 mg intravenous for analgesia and were instructed to take a nimesulide 100 mg

tablets as request. Of the 30 patients 23 were discharged on the day of surgery, the remaining 7 were all discharged on the following day. An outpatient clinic appointment was made for 1 week after surgery, and every week till to complete wounds healing.

Postoperative, if alvus still closed after 48 hours following surgery, an additional oral laxative was administered.

A linear analogue pain scale (VAS) from 0 to 10 was used to evaluate pain, where 0 corresponded to not pain and 10 to the worst pain imaginable. The assessment was made at the 24<sup>th</sup> hour after surgery and then every day for 1 week postoperative. The data was also collected during the first five defecation after surgery. Analgesic consumption during the first week and time to return of normal working activities was also recorded.

Results are expressed as median  $\pm$  standard deviation (SD). For statistical analysis Student's t test was used. *p* value of <0.05 was considered statistically significant.

## Results

There were no significant differences for age, gender, anaesthesiologic grading, degree of haemorrhoids and duration of operation among groups (Tab. I). There were not observed nitrate-related symptoms like cardiovascular modifications or headache in both groups, neither were recorded postoperative complications. There was no significant differences between the two groups for the pain assessed at 24<sup>th</sup> hour after surgery. Patients in the 1<sup>st</sup> group reported significantly less pain on days 2 and 3 (*p* <0.01) and on days 6 and 7 (*p* <0.05) compared with the 2<sup>nd</sup> group (Fig. 1).

Values on VAS regard the 1<sup>st</sup> five defecation were lower in the 1<sup>st</sup> group than in the 2<sup>nd</sup>, but the difference was significant (*p* <0.05) only at the 1<sup>st</sup> and 2<sup>nd</sup> assessments (Fig. 2).

The required of analgesic in the first week was highest in the first group but the difference among groups was not significant.

Tab. I – PATIENTS CHARACTERISTICS

Patients character	I Group	II Group
Age (years)*	35+20	40,6+18
Gender (M/F)	9/6	8/7
Anaesthesiologic Grading (ASA)		
I	9	11
II	5	3
III	1	1
Duration of operation (min)*	20+18	18+16
Degree of haemorrhoids III/IV	5/10	6/9

\*Values are expressed in mean + SD

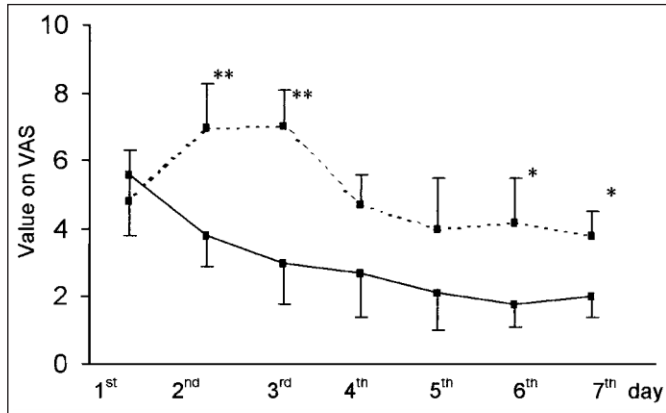


Fig. 1: Score postoperative pain. The assessment was made at the 24<sup>th</sup> hour after surgery and every day for 1 week postoperative. Values of pain for the 1<sup>st</sup> group [—] and the 2<sup>nd</sup> group [···] are expressed as mean  $\pm$  SE. Significance versus the 1<sup>st</sup> groups value \*  $p < 0.05$ ; \*\*  $p < 0.01$ .

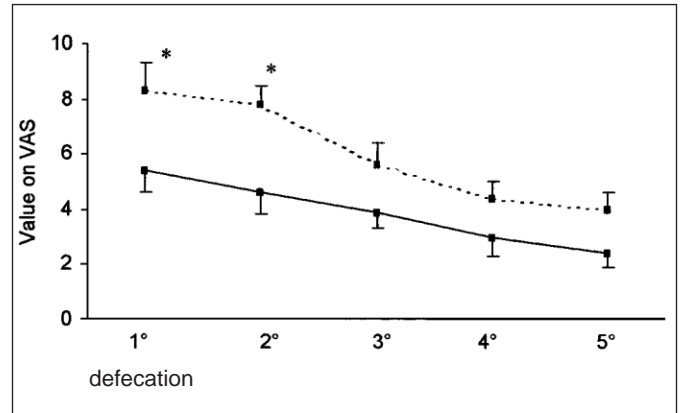


Fig. 2: Score postoperative pain. The assessments was made after the first five defecation after surgery. Values of pain for the 1<sup>st</sup> group [—] and the 2<sup>nd</sup> group [···] are expressed as mean  $\pm$  SE. Significance versus the 1<sup>st</sup> groups value \*  $p < 0.05$ .

The time to return to work or normal activity was significantly earlier ( $p < 0.05$ ) for patients in the first group than for those in the second one. Time to healing was also similar in both groups.

## Discussion

Evidence shows at last that among various procedures described to treat symptomatic haemorrhoids, surgical open haemorrhoidectomy has the best long-term results and is the only effective treatment for haemorrhoidal disease. When performed carefully, recurrent symptoms and complications are rare (7). Although these, many patients still complaints a severe post-operative pain that always is the main reason for refusing surgery.

The amount of pain depends on various factors, including the subjective pain threshold, the quality ad type of anaesthesia, postoperative analgesia and the surgical technique used (3).

According to some authors (3), pain has also attributes to incarceration of the smooth muscular fibres and mucosa in the transfixed pedicle. Nevertheless, Carapeti et al. in his recent report shown no difference between the open and closed techniques about postoperative pain (8). Even if many surgeon tried to search a painless method for haemorrhoidectomy, most patients still have severe pain on defecation, and a significant number suffer from great discomfort at rest in the postoperative week from wound infection and sphincter spasm (6).

Pain is usually worst and highest during the first passage of stools owing to direct stimulus of the wound and sphincter spasm (3). It is recognised that the pain of first postoperative defecation is significantly less if the stools are soft and the initial bowel action is early in the recovery period (9, 10, 11). This was achieved in our study with the use of lactulose both pre and postoperative period. An analysis of results obtained shown a significant difference regard to additional analgesic consump-

tion and value of pain recordered on VAS, between the patients treated with oral laxative and the non treated ones. In additional the application of 0.2% glyceryl-trinitrate ointment leads to reversible chemical sphincterotomy and may also be useful for reduction of early pain after haemorrhoidectomy (7). Sphincterotomy at the time of surgery, has been just used by many surgeons to reduce postoperative pain after haemorrhoidectomy (7, 12), but always this procedure has long term sequelae like flatus incontinence (13, 14) that discourage the use of this treatment; while as underlined by Altomare et al. (17) in his recent report, a local application of nitrix oxide donors such as glyceryl-trinitrate have been shown to improve anodermal microvascular perfusion (15) and to induce an internal reversible anal sphincter relaxation (16, 17) that seem to be a conservative treatment without nitrate-related side effects. The use of metronidazole in our patients, has been justified by a postulated bacterial colonisation or infection of haemorrhoidectomy wounds that according to some authors (7), may influence postoperative pain and analgesic requirement through inflammatory swelling and oedema. In reality, although bacterial colonisation of the wounds after haemorrhoidectomy is not most common, bacteria do colonise the site of operation, but it does not seem to affect the healing rate (18). The relation between this observation and pain after surgery is not clear and the author's opinions are yet different. In our study we postulated, as in Carapeti et al. (8) record, that the increase in postoperative pain on days 6-7 might to be due to secondary infection. We found that patients treated with metronidazole tablets, complained less pain in first week after surgery and the pain was significantly less on days 6-7 than in the placebo group. Also analgesic consumption was significantly lower in the metronidazole treated than in the placebo group. Despite this results we obtained, reported also by others authors (7), and the including of use of metronidazole to reduce perioperative pain in the evidence-based guidelines for the practice of haemorrhoi-

dectomy (19), nobody has achieved a sufficiently significant decrease in pain to gain universal acceptance (6).

## Conclusion

We believe that post-operative pain after haemorrhoidectomy depends on many factors, and only the association of many additional procedures seems to be the key of improvement of pain and could to explain our results. However even if metronidazole is could be considered only one aspect in the achievement of patient's satisfactory, and early return to normal activity, we believe that it should be given routinely to these patients awaiting greater confirmations.

## References

- 1) MacRae H.M., McLeod R.S.: *Comparison of haemorrhoidal treatment modalities. A meta-analysis.* Dis Colon Rectum, 1995; 38:687-94.
- 2) Watts J.M., Bennet R.C., Duthie H.L., Goligher J.C.: *Pain after haemorrhoidectomy.* Surg Gynecol Obstet, 1965; 120:1037-42.
- 3) Ganio E., Altomare F., Gabrielli F., Milito Gamma, Canuti S.: *Prospective randomized multicentre trial comparing stapled with open haemorrhoidectomy.* Br J Surg, 2001; 88:669-74.
- 4) Richman I.M.: *Use of Toradol in anorectal surgery.* Dis Colon Rectum, 1993; 36:295-6.
- 5) Mathai V., Ong B., Ho Y.H.: *Randomized controlled trial of lateral internal sphincterotomy with haemorrhoidectomy.* Br J Surg, 1996; 83:380-2.
- 6) Seow-Choen F.: *Stapled haemorrhoidectomy: pain or gain.* Br J Surg, 2001; 88:1-3.
- 7) Carapeti E.A., Kamm M.A., McDonald P.J., Phillips R.K.S.: *Double-blind randomised controlled trial of effect of metronidazole on pain after day-case haemorrhoidectomy.* Lancet, 1998; 351:169-72.
- 8) Carapeti E.A., Kamm M.A., McDonald P.J., Chadwick S.J.D., Phillips R.K.S.: *Randomized trial of open versus closed day-case haemorrhoidectomy.* Br J Surg, 1999; 86:612-3.
- 9) Hunt L., Luck A.J., Rudkin Gamma, Hewett P.J.: *Day-case haemorrhoidectomy.* Br J Surg, 1999; 86:255-8.
- 10) Johnson C.D., Budd J., Ward A.J.: *Laxatives after haemorrhoidectomy.* Dis Colon Rectum, 1987; 30:780-1.
- 11) London N.J.M., Bramley P.D., Windle R.: *Effect of four days of preoperative lactulose on posthaemorrhoidectomy pain: results of placebo controlled trial.* BMJ, 1987; 295:363-4.
- 12) Asfar S.K., Juma T.H., Ala-Edeen T.: *Haemorrhoidectomy and sphincterotomy: a prospective study comparing the effectiveness of anal stretch and sphincterotomy in reducing pain after haemorrhoidectomy.* Dis Colon Rectum, 1988; 31:181-5.
- 13) Khubchandani I.T., Reed J.F.: *Sequelae of internal sphincterotomy for chronic fissure in ano.* Br J Surg, 1989; 76:431-4.
- 14) Walker W.A., Rothenberg D.A., Goldberg S.M.: *Morbidity of internal sphincterotomy for anal fissure and stenosis.* Dis Colon Rectum, 1985; 28:832-5.
- 15) Lund J.N., Scholefield J.H.: *A randomized, prospective, double-blind, placebo controlled trial of glyceryl trinitrate ointment in the treatment of anal fissure.* Lancet, 1997; 349:11-4.
- 16) Hyman N.H., Cataldo P.A.: *Nitroglycerin ointment for anal fissures.* Dis Colon Rectum, 1999; 42:383-5.
- 17) Altomare D.F., Rinaldi M., Milito Gamma, Arcanà F., Spinelli F., Nardelli N., Scardigno D., Pulvirenti-D'Urso A., Bottini C., Pescatori M., Lovreglio R.: *Glyceryl trinitrate for chronic anal fissure-Healing or Headache? Results of multicenter, randomized, placebo-controlled, double-blind trial.* Dis Colon Rectum, 2000; 43:174-81.
- 18) De Paula P.R., Speranzini M.B., Hamzagic H.C., Bassi D.G., Chacon-Silva Mann, Goldenberg S.: *Bacteriology of the anal wound after open haemorrhoidectomy: qualitative and quantitative analysis.* Dis Colon Rectum, 1991; 34:664-9.
- 19) Cheetham M.J., Mortensen N.J.M., Nystrom P.O., Kamm M.A., Phillips R.K.S.: *Persistent pain and faecal urgency after stapled haemorrhoidectomy.* Lancet, 2000; 356:730-3.

## Commento

## Commentary

Prof. Edoardo TRIGGIANI

Ordinario di Chirurgia Generale  
Università degli Studi di Palermo

*Il dolore postoperatorio nel trattamento per emorroidi ha storicamente costituito un problema dal quale non è esente la procedura di Milligan-Morgan, largamente sperimentata e di più diffuso impiego ancora oggi nonostante le proposte alternative; dolore difficile da accettare anche perché ritenuto nell'immaginario comune, eccessivo rispetto all'entità di un intervento definito minore. Il metodo non è nuovo, nasce da chiare premesse fisiopatologiche ed è stato già validato dai risul-*

*tati che sembrano interessanti, come gli Autori confermano. Certo il sintomo dolore non è obiettivabile e difficilmente si presta a considerazioni assolute; ritengo comunque si possa condividere in pieno il messaggio per una applicazione sistematica; l'effetto sarà più o meno completo, ma sempre benefico e scevro da aspetti negativi (rischi, alti costi).*

*The postoperative pain in surgery of haemorrhoids has been for long time a problem. Also the Milligan-Morgan procedure, widely adopted also nowadays notwithstanding the alternative new procedures offers such an adverse trouble. These postoperative pains are difficult to resist also because considered disproportionate for a so called minor surgical procedure. The methodology isn't new, comes from pathophysiologic premises and was validated from interesting results as also the claim of the Authors. However I think that the message of the paper can be completely shared for a systematic utilization. The effect can be more or less complete, but anyways it offers advantages and has no negative side effects (risks, high costs).*

*Autore corrispondente:*

Prof. Gaetano DI VITA  
Via Autonomia Siciliana, 70  
90100 PALERMO, Italy  
Tel.: 3381793529  
Fax: 0916552724  
e-mail: divitagaetano@libero.it

