



Original Article

EVALUATION OF OUTCOME BETWEEN EXCISIONAL HAEMORRHOIDECTOMY AND LONGO'S TECHNIQUE (PPH)

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Abstract

Objective: The introduction of a Longo's technique for the treatment of haemorrhoids has the potential for less postoperative pain, a short operating time, rapid healing and an early return to full activity. The outcome of Longo's technique was compared with that of current standard surgery in a randomized controlled study, and followed up two years.

Methods: In a prospective randomized study, 140 patients requiring surgical treatment for haemorrhoids grade 2, 3 and 4 were assigned to either MMF (Milligan-Morgan, Park Ferguson) or PPH (Procedure for prolapse and haemorrhoids) 70 each. Operating time, frequency of postoperative analgesic intake, hospital stay, time to return to normal activity and postoperative complications were also recorded.

Results: The Longo's group had a shorter operating time, less frequent postoperative analgesia intake, and earlier return to normal activity. Postoperative pain at rest and during defecation was less important after PPH if no resection of external piles or skin tags was associated. After a mean follow-up of 24 months (12-46), recurrent haemorrhoidal symptoms, mostly mild and temporary, were reported after both MMF and PPH (Table-3). Four patients (5.71%) complained of recurrent prolapse and/or external swelling after PPH, requiring re-do surgery in 3 of them between 18 to 32 months. Recurrent prolapse or external piles were also observed in 5 patients (7.14%) after MMF and re-do surgery was needed in 3 of them between 14 and 41 months. Long term patient's satisfaction after PPH was more or less same like after MMF. None of the patients had anal stenosis, incontinence, fecal urgency or sepsis.

Conclusions: Postoperative pain is less after PPH. This advantage disappears if any resection is associated with the stapling. Use of a Longo's technique in the treatment of haemorrhoidal disease promotes rapid healing, shorter hospital stay and early return to normal activities.

Key words: Excisional haemorrhoidectomy, Procedure for prolapse and haemorrhoids, Longo's technique.

Introduction:

Conventional haemorrhoidectomy with excisional technique such as Milligan-Morgan¹, Ferguson's

technique² or diathermy dissection³, are accepted as the most effective technique for second, third or fourth degree haemorrhoids compared with techniques such as rubber band ligation⁴, infrared coagulation⁵, cryotherapy⁶, and laser excision⁷.

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Major drawbacks of Milligan-Morgan and Parks Ferguson (MMF) technique are postoperative pain and protracted wound healing, leading to a significant, although highly variable, postoperative discomfort and

prolonged sick leave. In order to avoid the postoperative drawbacks of excision haemorrhoidectomy, a new surgical treatment for haemorrhoids has been described by LONGO⁸. This technique has been named "Procedure for Prolapse and Haemorrhoids (PPH)" and should be referred to as stapled haemorrhoidopexy⁹. The principle differs from classical surgery as there is no excision of the haemorrhoidal cushions themselves. Instead, a mucosal cylinder is excised above the prolapsing cushions using an adapted circular stapler, aiming at partially devascularise and relocate the cushions. Several publications have documented decreased postoperative pain, rapid healing and reduced sick leave after PPH.

Patients and methods

Between January 2004 and June 2010, 140 patients presenting internal symptomatic haemorrhoidal disease grades II, III and IV have been included in the study. All the

Procedures were performed by five surgeons experienced in both MMF and PPH. The patients were included after informed consent and acceptance of randomization. Many patients requiring a haemorrhoidectomy during the study period either refused the idea of randomisation, or did not fulfil the inclusion criteria, are excluded from this study. The patients were randomized into two groups: excisional haemorrhoidectomy (group 1, 70 patients) or stapled haemorrhoidopexy (Group 2, 70 patients). The internal haemorrhoidal disease was graded as follows : grade I : symptomatic but non prolapsing haemorrhoids ; grade II : prolapsing at straining with spontaneous reduction ; grade III : prolapse requiring manual reduction ; grade IV : non reducible prolapse. Other exclusion criteria were age < 18 years and haemorrhoids grade I , previous anal surgery or radiotherapy, inflammatory bowel disease, and any concomitant anorectal disease or condition that could require specific treatment or could interfere with the surgical procedure or the postoperative evolution (i.e. anal fissure, anal fistula, anal tumour, anal chronic infection, perianal chronic dermatitis,). The presence of skin tags was not an exclusion criterion. Preoperative assessment included documentation of symptoms, proctoscopy to exclude other pathology in the anus and rectum and all patients received a phosphate enema in the morning of the day of surgery. Patients completed a pain score at 6, 12, 24 hours

postoperatively and every day for 14 days thereafter. They were discharged home after 1 or 2 days. Total analgesic consumption was recorded. Each patient was assessed weekly until his incorporation to work, thereafter at 3, 6, 9, 12, 24 months subsequently, they were interviewed by telephone or seen at the out-patient clinic. A systematic questionnaire was used. Follow-up was completed for all.

Surgical technique

Surgery was performed in lithotomy position. The prolapse was exteriorised and a photographic picture taken. The procedures were performed as follows:

Milligan-Morgan / Fergusons (MMF) : The three major piles were identified. An anal retractor was used according to surgeon's choice. Each pile was excised separately from the others. The pile was circumcised peripherally in the anal skin and dissected free from the lower border of the external and internal anal sphincter. The dissection was carried on to at least 2 cm above the dentate line. Haemostasis was achieved by absorbable ligatures, electrocautery or both. .

PPH : The technique was performed using the device provided by Ethicon Endo-Surgery. After reduction of the prolapse, the Circular Anal Dilator (CAD33) was inserted. A purse-string suture was made using the Purse-string Suture Anoscope (PSA33) and a Prolene 2/0, taking bites of mucosa and sub mucosa avoiding any obvious gaps in the suture and muscular layer of the rectum and anus .The purse-string sutured was placed circumferentially 4-6cm from the anal verge. The Haemorrhoidal Circular Stapler (HCS33) was then introduced, the purse-string suture tied onto the shaft of the instrument and closed so that the prolapse was reduced and the head of the stapler fully positioned in the anal canal. After maximal closure, the stapler was fired and a waiting time was respected before opening and removing the stapler. Haemostasis was completed by sutures, electrocautery or both, when necessary. The position of the stapling line was recorded. Simultaneous resection of skin tags or residual piles was recorded. A photographic picture was taken immediately after surgery.

Pathology; The haemorrhoidal cushions (after MMF) or the mucosal doughnut (after PPH) were sent for histopathological examination.

RESULT:

140 patients underwent haemorrhoidectomy during the trial period. Mean age and sex ratio were comparable

in both groups: MMF 46 years (25-72), M/F = 5/2; PPH

48 years (19-78), M/F = 4/3.

Operative data

All the procedures were performed under general / spinal anaesthesia. Mean surgical time was 28 minutes for MMF and 25 minutes for PPH.

In MMF group, all patients had three major piles excised, and all patients in the PPH group had one purse-string only inserted. Under-running suture/ electro cautery was necessary to achieve haemostasis. Characteristics of the patients randomised were similar in both groups. Table -1 summarises the patient's baseline demographic and clinical data.

Table-I

Baseline demographic and clinical data.

	Longo (PPH)	Milligan- Morgan / Ferguson(MMF)
Number of patients	70	70
Mean age Years (range)	48(19-78)	46(25-72)
MF	4/3	5/2
Haemorrhoid degree 2/ 3/4*	6/48/16	5/43/22
Constipation	29	34
Bleeding	57	63
Discharge	14	19
Itching	13	16

Table-II

Early post-operative complications

	PPH	MMF
Number of patients (No)	70	70
No of patients with complications (%)	8(11.43%)	10(14.28%)
Dehiscence staple line	1	0
Delayed haemorrhage, requiring haemostasis	1	3
Thrombosis of remaining pedicle	1	0
Urinary retention	5	7

Outcome measurements for both techniques are presented in table-3.

	Longo (PPH)	Milligan- Morgan/ Ferguson(MMF)
Surgery time (min)	25 [22-35]	28 [25-40]
Bowel motions within 24 h	56 (80 %)	14 (20 %)
Postoperative analgesia (first week)	18 (13– 21)	32 (28 – 37)
Return to full activity (days)	7 (3 - 14)	14 (11 - 21)
Patient satisfaction (first year) all degrees	90 %	80 %
Patient satisfaction 3rd degree (first year)	96%	87%
Patient satisfaction 4th degree (first year) all symptoms :	70%	80%
Recurrent postoperative haemorrhoid	4(5.71%)	5(7.14%)
• <i>pruritus ani</i>	3	4
• <i>pain at stool</i>	3	3
• <i>bleeding at stool</i>	3	4
• <i>prolapse and/or external swelling</i>		
Redo surgery because of recurrent prolapse and/or external swelling :	3	3

Mean surgical time was less in PPH group than MMF group; median 25(range 22-35) Vs 28 (25-40) mins. The mean postoperative pain score was significantly lower after PPH compared to MMF, both at rest and during defecation.

When the group PPH is subdivided into those who underwent stapling alone (55 patients) and those with associated resection of skin tags or residual external piles (15 patients), a significant difference in the mean pain scores appears. Early postoperative pain evolution in the latter was similar to that after MMF. The mean total pain score was significantly lower in patients in PPH group during the first 24 hrs., at the time of first motion and at one week after operation, On average patients having excisional haemorrhoidectomy consumed twice as many ketorolac tromethamine during first week as patients who underwent PPH technique [PPH 18 (13-21) Vs MMF 32 (28-37)]. There was a trend toward earlier bowel motions in PPH group, 56(80 %) patients opening their bowels within 24 hrs. of surgery in the PPH group and 14 (20%) patients in

MMF group. The mean duration of postoperative hospital stay was 2.5 days for MMF and 1.5 day for PPH.

Patients assessment of time to return to normal activities varied widely between two groups. There was however a significantly earlier return in the PPH group Vs MMF group [7 (3-14) Vs 14 (11-21) days]

Pathology

Pathological examination of the resected specimen showed the presence of some muscular fibres in all the specimens, corresponding to the muscularis mucosae.

The thickness of this muscular layer was evaluated as exceeding 3 mm thickness in three patients after MMF and nine patients after PPH, corresponding to fibres of the muscularis propria

Early postoperative evolution

Eighteen patients (MMF 10, PPH 8) developed one or more significant early postoperative complications (Table 2).

Evaluation during further follow-up

Time to complete healing was significantly shorter after PPH : within 2 weeks (PPH 28 , MMF 15), 2 to 3 weeks (PPH 25, MMF 18), 3 to 4 weeks (PPH 12,MMF 17),more than 4 weeks (PPH 5, MMF 20). Table-IV.

Table-IV
Wound healing time

Procedures	2 weeks	3 weeks	4 weeks	>4 weeks
Longo	28	25	12	5
Milligan-Morgan (MM)/Ferguson	15	18	17	20

Long-term FU after Haemorrhoidectomy

Recurrent haemorrhoidal symptoms, mostly mild and temporary, were reported after both MMF and PPH (Table-3). Four patients (5.71%) complained of recurrent prolapse and/or external swelling after PPH, requiring redo surgery in 3 of them between 18 to 22 months. In spite of a large, circular and almost symmetrical mucosal doughnut, with a stapling row at 2 cm above the dentate line, the patient developed recurrent external swelling leading to redo surgery. Recurrent prolapse or external piles were also observed

in 5 patients after MM and redo surgery was needed in 3 of them.

Discussion

Our result suggest that PPH technique is an effective treatment for symptomatic haemorrhoids with significant advantages for patients over conventional haemorrhoidectomy, and our study coincide other authors^{12,18,19}. In addition, we observed that PPH procedure is associated with less postoperative pain, and patient's acceptance & satisfaction for operation were high as that reported by other authors¹¹⁻¹⁷. Most patients experience considerable post-operative pain, especially during defecating which limits their resumption of normal activities. Besides this, perianal skin wounds are slow to heal, which may prolong bleeding & discomfort for weeks¹⁰.

Our study confirms short-term advantages of PPH as reported by others: decreased postoperative pain²¹⁻³⁰, and shorter time to complete healing^{21,31}. Our study demonstrates that it is important to clearly identify the conditions needed to obtain this benefit. Postoperative pain was found to be equivalent to the pain experienced after MMF haemorrhoidectomy if any kind of resection is performed at PPH. This underlines the importance of patient selection. Patients more likely to benefit from stapling should be free from major skin tags. The same holds for patients presenting with a marked asymmetrical prolapse. In this case, the reduction by stapling may be incomplete and the surgeon could be prompted to complete the procedure by a limited resection. If combination of stapling and excision is expected, the patient should be informed that this could result in the loss of the benefit of decreased postoperative pain as achieved after stapling alone. Haemorrhoidal surgery is not without complications, whatever the technique used. In our experience, dehiscence of the staple line and thrombosis of the reduced pedicles were the complications specific to PPH. Both have been reported occasionally in the literature^{23,32,33}. Delayed haemorrhage were noted after both PPH & MMF. Urinary retention is a well-known complication after anal surgery, and occurs also after PPH & MMF with reported rates up to 12.8%^{8,9}. In our study there was no report of anal incontinence or damage of internal sphincter. Some mild haemorrhoidal symptoms recurred after both techniques: in 5.71% (4/70) after PPH and in 7.14% (5/70) after MMF, suggesting a

trend to a higher frequency; nevertheless the difference does not show statistical significance. This trend is confirmed by the literature which reports, differences do not reach statistical significance^{24,30,32,34,35}. This variability probably reflects differences in the accuracy of the patient questionnaire and difficulties to obtain adequate follow-up information. In our study, we did not observe long term persistent pain or fecal urge after stapling, as reported by others²⁰.

The majority of reports concluded very positively about the stapling technique, but without significant follow-up for most of them. It appears that clinically significant recurrences develop with longer follow-up^{22-24,30,34,36}. In our experience, four out of 70 patients (5.71%) developed recurrence of significant haemorrhoidal complaints after PPH, either acute oedema of the anal verge or prolapse, leading to redo surgery in three of them. These recurrences are obviously related to the technique itself. The PPH technique requires precision, especially concerning the position of the purse string suture. It is usually advocated that the staple line must fall just above the anorectal ring, i.e. between 2- 3 cm proximal to the dentate line, at the top of the haemorrhoids^{9,37,38}, as was the case in our study. A lower staple line would induce pain and a higher suture could be less effective in prolapse reduction and/or haemorrhoidal devascularisation. Some technical adaptations have been reported to optimise reduction of the external component during stapling³⁸. Others have performed real stapled haemorrhoidectomy, resecting the cushions themselves^{39,40}. The term "stapled haemorrhoidopexy" perfectly describes what is actually performed or aimed at in PPH⁹: dilated and prolapsed piles are reduced and partially disconnected from their rectal vascular supply. PPH leaves the anal verge untouched and does not treat external haemorrhoids which are still present and vascularised through subcutaneous vessels coming from pudendal pedicles. Some recurrences must therefore be expected, especially in patients with important external haemorrhoidal disease.

Conclusion

This study confirms the short-term advantages of PPH over MMF. The advantage in terms of decreased postoperative pain disappears if any resection is added to the stapling. Medium to long-term results appear

to be less satisfactory like excisional haemorrhoidectomy, with recurrent symptoms leading to further surgery, mainly in patients with significant external Haemorrhoidal disease. Excisional surgery could therefore be more appropriated in patients with prolapsing internal haemorrhoids associated with marked external disease.

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