

## EFFICACY AND SAFETY OF HAEMORRHOIDECTOMY ALONE AND HAEMORRHOIDECTOMY PLUS LATERAL INTERNAL SPHINCTEROTOMY FOR MANAGEMENT OF 3RD AND 4TH DEGREE HEMORRHOIDS

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### ABSTRACT

**Objectives:** To compare the efficacy and complications of Haemorrhoidectomy alone and Haemorrhoidectomy plus lateral internal sphincterotomy (LIS) for the treatment of 3<sup>rd</sup> and 4<sup>th</sup> degree Haemorrhoids among middle-aged patients.

**Study Design:** Quasi experimental study.

**Place and Duration of Study:** Combined Military Hospital, Quetta from Mar 2010 to Feb 2011.

**Methodology:** A total of 60 patients of 3<sup>o</sup> and 4<sup>o</sup> Haemorrhoids, were randomly divided into two groups 'A' and 'B' with 30 patients in each group. Group 'A' and 'B' were subjected to Haemorrhoidectomy alone and Haemorrhoidectomy plus LIS respectively. The outcome measures were relief of symptoms, recurrence rate and complications.

**Results:** Important immediate complication was postoperative pain in group 'A'. 33.3% had moderate pain and 26.7% had severe pain within 24 hours of procedure whereas in group 'B' 13.3% patients had moderate pain and 10% had severe pain (*p*-value 0.002). Postoperative bleeding and acute urinary retention were not major complications in both groups. Flatus and faecal incontinence was major problem in group 'B' at 1<sup>st</sup> postoperative day and 1<sup>st</sup> week with 30% and 16.7% cases respectively. After 2 weeks, there was significant improvement in flatus 10% and faecal incontinence 3.3% in group 'B'. At 6 months, only 3.3% in group 'B' had residual flatus incontinence. Anal stenosis was present in 13.3% patients in group 'A' as compared to none in group 'B' (*p*-value 0.043). On anoproctoscopy at 6 months, early recurrent/secondary haemorrhoids were seen in 23.3% patients in group 'A' and 3.3% in group 'B' (*p*-value 0.031). Ten percent patients from group 'A' presented with bleeding secondary haemorrhoids before 6 months (*p*-value 0.083).

**Conclusion:** The Haemorrhoidectomy plus LIS was found a recommended procedure in relatively younger patients of 3<sup>o</sup> and/or 4<sup>o</sup> haemorrhoids with good anal tone on digital rectal examination.

**Keywords:** Haemorrhoidectomy, Incontinence, Sphincterotomy.

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### INTRODUCTION

In this committed life, everybody needs a complete and satisfactory treatment of ones ailments. A vast majority of soldiers of Pakistan Army present with perianal ailments among whom haemorrhoids is the commonest. Haemorrhoidectomy is the only treatment option for 3<sup>o</sup> and 4<sup>o</sup> haemorrhoids. Recurrence due to high anal pressure reduces effectiveness of the treatment and not only demands repeated inpatient treatment but also poses more financial burden

on hospital administration<sup>1</sup>.

Haemorrhoids are classified into four groups according to the degree of prolapse; first degree (only bleed), second degree (prolapse but return automatically), third degree (prolapse, require manual reduction and stay reduced on reduction) and fourth degree (permanently prolapsed, irreducible)<sup>1</sup>. Complications associated with haemorrhoids are strangulation, thrombosis, ulceration, gangrene, portal pyaemia and severe haemorrhage.

The prevalence of haemorrhoids is not well known because patients and some clinicians attribute any anorectal symptom to haemorrhoids. The prevalence rate in USA is 4.4% with 10

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million people complaining of Haemorrhoids annually. Peak age is 35-65 years with increasing prevalence until the seventh decade. The treatment of haemorrhoids has changed in recent years with >90% of patients being managed non-surgically<sup>2</sup>. About 10% of patients referred for specialist treatment require surgery.

Haemorrhoidectomy is recommended way for treating 3<sup>o</sup> and 4<sup>o</sup> haemorrhoids, 2<sup>o</sup> haemorrhoids not responding to outpatient treatment, fibrosed haemorrhoids and internoexternal haemorrhoids with well defined external component<sup>2,3</sup>. However, recurrence rate is high after haemorrhoidectomy alone. High resting anal pressure, caused by increased tonicity of internal sphincter, is an important factor in causing and recurrence of haemorrhoids<sup>4,5</sup>. Besides haemorrhoidectomy, sphincterotomy or anal canal dilatation are recommended procedures to overcome high anal pressures. Lord first described anal dilatation in 1969<sup>6</sup>. However, the procedure was rejected because of high incidence of faecal incontinence due to uncontrolled damage to the internal sphincter (IS)<sup>7</sup>. Notaras in 1971 suggested LIS as an alternative to anal dilatation<sup>8</sup>. LIS improves pain by reducing sphincter tone (Di Bella and Estienne 1990)<sup>9</sup>. Lateral internal sphincterotomy (LIS) with haemorrhoidectomy reduces resting anal pressures considerably and is recommended in patients with haemorrhoids to avoid recurrence<sup>10</sup>. In LIS, internal sphincter is identified and lower one third is divided. LIS is not time consuming and does not cause additional bleeding. However, due to some degree of faecal incontinence the procedure is reserved for recurrent haemorrhoids and high sphincter tone.

The objective of this study was to compare the Efficacy and Complications of Haemorrhoidectomy alone and Haemorrhoidectomy plus LIS in the treatment of 3<sup>rd</sup> and 4<sup>th</sup> degree Haemorrhoids among middle-aged patients.

## **METHODOLOGY**

A quasi experimental study was conducted at Combined Military Hospital, Quetta, from March 2010 to February 2010 assessing the

efficacy and safety of the addition of lateral internal sphincterotomy (LIS) to Milligan-Morgan Haemorrhoidectomy (MMH) in terms of symptomatic relief and post operative pain, bleeding, urinary retention, incontinence and recurrence.

Patients of both genders and age group 25-50 years who were diagnosed cases of 3<sup>o</sup> and 4<sup>o</sup> Haemorrhoids or patients presenting with bleeding per rectum and displaying 3<sup>o</sup> and/or 4<sup>o</sup> Haemorrhoids on Anoproctoscopy were included in study.

Known patients of bleeding diathesis, on anti coagulants, CCF and renal failure and patients who came out to be the case of anal fissure, perianal abscess and carcinoma of rectum/colon were excluded from study. Similarly patients unfit for anaesthesia or and those who refused consent were also not included in study.

Sixty cases of 3<sup>o</sup> and/or 4<sup>o</sup> Haemorrhoids divided into two groups 'A' and 'B' by random allocation, 30 patients in each group. Prevalence of Haemorrhoids internationally is 4% (local data not available). Sample size was calculated by using equation  $n = z^2pq / d^2$  is 60 patients.

Patients of both genders and age group 25-50 years were considered for this study. These patients included civilians, serving personals and their families.

The procedures and associated complication/s was/were explained to each patient in brief. Informed consent, willingness and voluntary participation of the patients in study were ensured. After informed consent, complete history and physical examination were carried out including anoproctoscopy in all and sigmoidoscopy in selected cases (to rule out malignancy). Patients meeting the inclusion criteria were admitted and divided into two groups 'A' (n=30) and 'B' (n=30) through lottery method (randomisation), using single blind technique.

To prepare the bowel, 30 ml lactulose twice daily and oral metronidazole 400mg thrice daily were advised 2-3 days before surgery. In OT, after briefing about the procedure, the patient

was administered spinal anaesthesia and placed in lithotomy position.

In group 'A' (n=30), after anoproctoscopy, standard Milligan-Morgan haemorrhoidectomy was performed after applying artery forceps to the skin element and prolapsing mucosa of each haemorrhoid. All the incisions were marked in the anal canal to leave adequate skin and mucosal bridges between the excisions, to avoid anal stenosis. A 'V' shaped incision was made with fine diathermy at the base of external haemorrhoid extending upto the anal verge. The dissection was deepened to develop the plane outside the haemorrhoidal tissue and inside the internal sphincter. After reaching the pedicle, haemorrhoid was transfixed with absorbable suture and haemorrhoid excised. All three haemorrhoids were dissected the same way and haemostasis done with diathermy.

In group 'B' (n=30), Milligan-Morgan Haemorrhoidectomy was performed similarly as in group 'A'. After haemorrhoidectomy, blunt scissor dissection done to open the plane outside the internal sphincter. Free distal edge of the internal sphincter was divided and haemostasis was secured with diathermy.

Postoperatively patients were advised Tablet Metronidazole 400 mg 8 hourly for 72 hours, Tablet Diclofenac Sodium 50 mg 8 hourly for 72 hours and injection Diclofenac Sodium 75 mg I/M in severe pain. Bowels were managed with lactulose 30ml orally twice daily. Warm sitz baths twice daily, started on first postoperative day.

Following procedure, in both groups, patients were observed for 24 hours for immediate complications like pain, bleeding and urinary retention. Each patient was asked to rate the pain on a Visual Analogue Pain Scale of 1-10. The pain was graded as Mild (1-3) if pain was there but did not limit the activity of the patient, Moderate (4-6) if pain was there and patient was able to do most activities with periods of rest and Severe (7-10) if patient was unable to do most of the activities due to pain. Physical examination was done to look for bleeding, urinary retention and

incontinence if any. Bleeding was estimated by weighing the dry and soaked dressing pads. Blood loss was calculated using following formula.

$$\text{Blood Loss (ml)} = \frac{\text{Weight of soaked pad} - \text{weight of dry pad (grams)}}{1.055(\text{Specific gravity})}$$

Bleeding was graded as Mild (<50 ml), Moderate (51-200 ml) and Severe (>200 ml). Moderate and severe bleeding were considered significant requiring re-look in OT. Afterwards they were followed up at 1st week, 2nd week and 6 months to take an account of late complications, degree of improvement and need for repetition of procedure.

Statistical Package for Social Sciences (SPSS) version 10.0 was used to analyse data. Relevant descriptive statistics i.e. frequency and percentage were estimated for gender as well as categorical grouped variables like; presenting complaints, pain (mild, moderate, severe), bleeding (significant or non-significant), acute urinary retention and flatus and faecal incontinence at 1<sup>st</sup> week, 2<sup>nd</sup> week and 6<sup>th</sup> months of procedure. Chi square test was applied to check the association between categorical variables like; pain, bleeding, flatus and faecal incontinence in both groups with level of significance 0.05.

## RESULTS

A total of 60 patients with 3<sup>o</sup> and/or 4<sup>o</sup> haemorrhoids were recruited over the study period. These patients were subjected to haemorrhoidectomy alone (group 'A') or haemorrhoidectomy plus lateral internal sphincterotomy (group 'B') randomly.

Among 60 patients, males were 52 (86.67%) with mean age  $34.88 \pm 5.77$  years and 8 (13.33%) were females with mean age  $37.50 \pm 7.45$  years. In group 'A' mean age was  $35.43 \pm 5.39$  years. In group 'B' mean age was  $35.03 \pm 6.66$  years. M:F was equal in both groups. Age was grouped into 3 groups which showed that maximum no. of patients belonged to 1<sup>st</sup> age group (25-35 years) and 2<sup>nd</sup> age group (36-45 yrs). The difference of age in the two groups has no statistical significance as the patients were randomly subjected

to Haemorrhoidectomy alone or Haemorrhoidectomy plus LIS (*p*-value 0.785) (fig-1).

Both groups had equal number of patients of 3<sup>o</sup> and/or 4<sup>o</sup> haemorrhoids (30 patients in each group). Mucosal prolapse was present in all patients of both groups indicating high grade (3<sup>o</sup> and/or 4<sup>o</sup>) haemorrhoids. In group 'A', bleeding PR was second leading symptom present in 93.33% patients. 20.0% patients, had other associated symptoms like; Pruritis Ani (6.7%) and Pain (13.3%) as well. In group 'B', again bleeding PR was the leading symptom (after mucosal prolapse) present in 86.67% patients. 13.3% patients, all males, had other associated symptoms like; Pruritis Ani (3.3%) and pain (10.0%).

**Table: Early complications within 24 hours.**

Variable	Value	Group		<i>p</i> -value
		'A' (n=30)	'B' (n=30)	
Pain	Mild (1-3)	12 (40.0%)	23 (76.7%)	0.002 (<0.05)
	Moderate (4-6)	10 (33.3%)	4 (13.3%)	
	Severe (7-10)	8 (26.7%)	3 (10.0%)	
Bleeding (n=60)	No	26 (86.7%)	27 (90.0%)	0.648
	Yes	4 (13.3%)	3 (10.0%)	
Acute Urinary Retention	No	27 (90.0%)	26 (86.7%)	0.648
	Yes	3 (10.0%)	4 (13.3%)	

Note: Percentage is within group. 'A':Haemorrhoidectomy alone, 'B': Haemorrhoidectomy plus LIS.

**Post Operative Assessment**

**Within 24 Hours of Procedure**

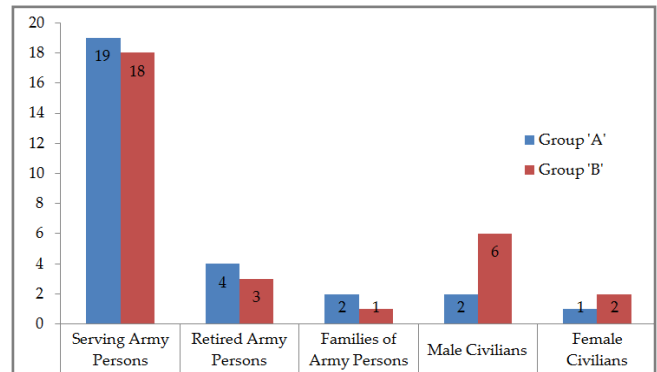
In group 'A' 33.3% patients and in group 'B' 13.3% patients had Moderate Pain (4-6 on VAS). 26.7% in group 'A' and 10.0% in group 'B' had severe pain (7-10 on VAS). Postoperative pain control was better in group 'B' (*p*-value 0.002) (table-I).

**At 1<sup>st</sup> Week**

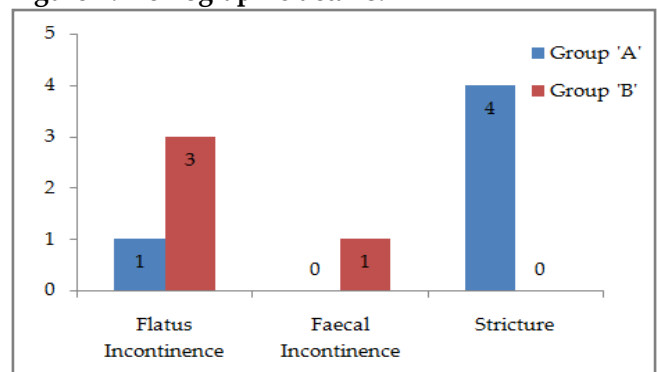
43.3% patients in group 'A' and 73.3% patients in group 'B' had symptomatic relief with no residual pain. 30.0% in group 'A' and 20.0% patients in group 'B' had mild pain (1-3 on VAS). 16.7% patients in group 'A' and only 6.7% patients in group 'B' had moderate pain (4-6 on

VAS). After 1 week, 10.0% in group 'A' and none in group 'B' had severe pain (7-10 on VAS). After 1st week, pain relief in group 'B' was much better than group 'A' (*p*-value 0.022).

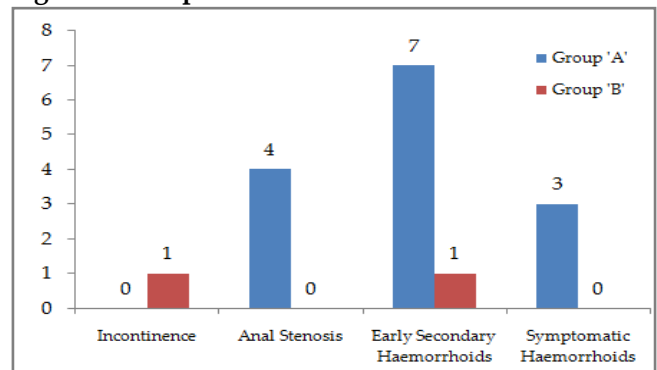
Flatus and faecal incontinence was major



**Figure-1: Demographic details.**



**Figure-2: Complications at 2<sup>nd</sup> week.**



**Figure-3: Complications at 6 months.**

complication in group 'B' after 1 week. 30.0% patients in group 'B' had flatus incontinence as compared to 10.0% patients in group 'A'. Out of them, 16.7% patients in group 'B' had faecal incontinence whereas 3.3% in group 'A' had faecal incontinence at 1 week (*p*-value 0.103).

### At 2<sup>nd</sup> Week

Incontinence was a major complication in group 'B' at week 1 which improved markedly at 2<sup>nd</sup> week. At the end of 2<sup>nd</sup> week follow up, 3.3% patients in group 'A' had flatus incontinence and 13.3% developed post operative stricture due to pain and poor bowel movements. In group 'B', 10.0% patients had flatus incontinence and out of them 3.3% patient had minor faecal leak as well (*p*-value 0.326) (fig-2).

### At 6 Months

In group 'B' 3.3% patients had residual flatus incontinence at 6 months. Anal stenosis was present in 13.3% patients in group 'A' as compared to none in group 'B' (*p*-value 0.043). The patients who complain of difficult or painful bowel movements and/or displaying narrowing of anal canal on anoproctoscopy were considered to have anal stenosis.

Anoproctoscopy at 6 months, revealed early recurrent/secondary haemorrhoids in 23.3% patients in group 'A' and 3.3% in group 'B' (*p*-value 0.031). Ten percent patients from group 'A' presented with bleeding secondary haemorrhoids before completion of 6 months follow-up (*p*-value 0.083) (fig-3).

## DISCUSSION

Haemorrhoids are one of the common surgical problems affecting 4-6% of population at any time in their lives, since haemorrhoidal tissue is present in every human being, serving the normal function of flatus continence<sup>11,12</sup>. The symptoms of haemorrhoidal disease include bleeding, prolapsing tissue, fullness after defecation, and pain. Bleeding can mimic or mask the diagnosis of cancer and must be thoroughly evaluated. In most cases (1<sup>o</sup> and 2<sup>o</sup> haemorrhoids), however, swift, simple, and effective treatment can be given in an outpatient clinic<sup>11</sup>. High grade (3<sup>o</sup> and 4<sup>o</sup>) haemorrhoids merit treatment by surgical excision under anaesthesia.

Haemorrhoids are graded by the degree of prolapse, and this grading determines the most appropriate methods of treatment. 1<sup>o</sup> haemo-

rrhoids are merely visible vessels that bleed, 2<sup>o</sup> lesions prolapse with defecation but return spontaneously, 3<sup>o</sup> lesions prolapse and require manual replacement, and 4<sup>o</sup> lesions remain prolapsed out of the anal canal despite attempts to reduce them.

The treatment choices for internal haemorrhoids include Infrared Coagulation, Radio frequency Coagulation, Direct Current Coagulation, Rubber Band Ligation, Injection Sclerotherapy, Cryosurgery, Scalpel surgery, and Laser surgery.

Surgical procedures are necessary in certain patients for long term symptomatic relief. Surgical treatment is modality of choice for 3<sup>o</sup> and 4<sup>o</sup> haemorrhoids. Haemorrhoidectomy can be performed by various techniques and using variety of cutting tools.

Cutting tools in use are scalpel, fine diathermy point, harmonic scalpel and laser light with pinpoint accuracy. Various operative techniques include open haemorrhoidectomy, closed haemorrhoidectomy, stapled haemorrhoidopexy and Doppler guided haemorrhoidal artery ligation.

Open haemorrhoidectomy (Milligan-Morgan Technique) is most popular and gold standard procedure<sup>12</sup>. In this method, three major haemorrhoidal tissues are excised, leaving three pear shaped incisions open to avoid anal stenosis. We used the same technique for haemorrhoidectomy in both groups. Complications associated with MMH are severe postoperative pain, postoperative bleeding, anal stenosis and recurrence.

Addition of lateral internal sphincterotomy (LIS) to gold standard MMH is still controversial<sup>12,13</sup>. High resting anal pressure is one important factor responsible for recurrence after MMH alone<sup>14</sup>. Anal canal dilatation for reducing anal pressure was first described by lord in 1969<sup>6</sup>. But due to uncontrolled damage to internal sphincter, the procedure did not get acceptance<sup>7</sup>. LIS is another way to reduce anal canal pressure. Haemorrhoidectomy plus LIS results in reduced early postoperative complications associated with MMH alone<sup>10,12</sup>. But addition to LIS is not free

from complications like incontinence for flatus and faeces, which can be serious sometimes. Because of these serious complications, haemorrhoidectomy plus LIS is recommended procedure in relatively younger patients with good anal tone and recurrent haemorrhoids. Alper *et al* noticed significant reduction in anal pressure after one month of procedure but a gradual increase in anal pressure after 12 months, showing evidence of healing in internal sphincter<sup>7,14</sup>.

The results of this study indicate that postoperative pain intensity was less in patients undergoing haemorrhoidectomy plus LIS as compared to haemorrhoidectomy alone, resulting in lesser hospital stay. 73.3% patients in group 'B' had no or minimal pain after 1<sup>st</sup> week of operation as compared to 43.3% patients in group 'A'. Kanellos *et al* also noticed a considerable reduction in postoperative pain after haemorrhoidectomy plus LIS<sup>15</sup>. Hosseini *et al* recorded no significant difference in postoperative pain and bleeding after haemorrhoidectomy and haemorrhoidectomy plus LIS<sup>12</sup>.

Flatus and faecal incontinence was a significant problem in group 'B' after 1<sup>st</sup> week. After 2<sup>nd</sup> week, there was marked improvement in faecal and flatus incontinence in group 'B'. Hosseini *et al* also recorded acceptable improvement in faecal incontinence after 2<sup>nd</sup> week of procedure<sup>12</sup>.

At 6 months, only 3.3% in group 'B' had residual flatus incontinence. Anal stenosis and recurrent/secondary haemorrhoids were major issues in group 'A' at 6 months. Ten percent patients from group 'A' presented with bleeding secondary haemorrhoids before 6 months.

The advantages of haemorrhoidectomy plus LIS like, reduced early post-operative pain and bleeding, low recurrence rates and reduced anal pressure are clear<sup>16</sup>. Due to grave complications like incontinence for flatus and faeces, the procedure should be reserved for young patients with good anal sphincter tone and cases of recurrent haemorrhoids<sup>17,18</sup>.

## CONCLUSION

Depending on the degree of haemorrhoids, there are many treatment options for management of haemorrhoids. Haemorrhoidectomy alone is still the gold standard for the treatment of 3<sup>o</sup> and/or 4<sup>o</sup> haemorrhoids. Pain due to spasm of anal sphincter is invariably experienced after haemorrhoidectomy alone. Haemorrhoidectomy plus LIS is efficacious in reducing postoperative bleeding and pain. Addition of LIS to standard haemorrhoidectomy also reduces recurrence of haemorrhoids by reducing anal canal pressure. As far as postoperative flatus and faecal incontinence is concerned, haemorrhoidectomy plus LIS is safe in young patients with good anal tone and recurrent haemorrhoids.

## CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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