

## **ROLE OF LATERAL INTERNAL SPHINCTEROTOMY IN OPEN HEMORRHOIDECTOMY- A PROSPECTIVE ANALYSIS**

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### **ABSTRACT**

Hemorrhoids are one of the most common disorders of anus. Various treatment modalities have been described. Over the last few years, there has been increasing attention on surgical procedures to treat haemorrhoids. However, Milligan Morgan opens hemorrhoidectomy; mainly for grade 3 and 4 haemorrhoids is still widely used. The main drawback of hemorrhoidectomy is the pain in the early postoperative period. Studies have showed that internal sphincterotomy along with open hemorrhoidectomy significantly reduces the post hemorrhoidectomy pain without any major complications. The aim of this study was to evaluate the effects of internal sphincterotomy in reduction of post-operative pain in open hemorrhoidectomy and compare the incidence of incontinence related to internal sphincterotomy. Over a period of two years 78 patients (48 male, 30 female) aged between 24 & 60 years (mean age 48.24) treated for 3rd and 4th degree hemorrhoids were included in this prospective randomized control study. Patients were divided in to two equal groups. Group I (control group) were subjected to classical open hemorrhoidectomy and Group II (study group) were subjected to classical open hemorrhoidectomy with internal sphincterotomy. Patients above 60 years of age and any patients associated with other colo-rectal or anal diseases were not included in the study. Post-operative pain was assessed using 10 point visual analogue pain scale. Pain perception 12 hours after surgery indicated no difference \*\*18 vs 19 between two groups ( $p^*=0.838$ ), Pain after first bowel movement-moderate to severe pain (score of 7-10) \*\*37 vs 21 ( $p^*=0.034$ ). Pain on pod 7 was \*\*32 vs 19 ( $p^*=0.050$ ). Mean time which took patients to be pain free was 22 days in group 1 and 21 days in group 2 this difference was insignificant. Incontinence in the form of flatulence was noted in 3 patients in group 2 (7.7%) vs 2 patients in group 1 (5.1%) (\***CHI SQUARE TEST**) (\*\* **GROUP1 VS GROUP 2**). **Conclusion:** Addition of internal sphincterotomy to open hemorrhoidectomy is an effective method to reduce post open hemorrhoidectomy pain without significant morbidity.

**Keywords:** Open Hemorrhoidectomy, Posthemorrhoidectomy Pain, Internal Sphincterotomy

### **INTRODUCTION**

Hemorrhoids are one of the most common presentations of the anus. Over the last few years, there has been increasing attention on surgical procedures to treat hemorrhoids. Several comparative studies have been performed to evaluate the procedures already available to treat second, third, and fourth-degree haemorrhoids, and new surgical techniques, such as, for instance, Hemorrhoidectomy with Harmonic scalpel® (Khan *et al.*, 2001; Ramadan *et al.*, 2002; Tan *et al.*, 2001) and ligasure™ (Palazzo *et al.*, 2002), Doppler guided hemorrhoidal plexus ligation (Scheyer *et al.*, (2006) and the stapled haemorrhoidopexy (Longo, 1998; Mehigan *et al.*, 2000; Yh, 2000; Cheetham *et al.*, 2001; Seow-Choen, 2001; Ganio *et al.*, 2001; Maw *et al.*, 2002). The most recent publications provide data on the efficacy, the results and complications from medium and long term studies carried out on ample case series (Ng *et al.*, 2006; Lan *et al.*, 2006; Kanellos *et al.*, 2006; Graviè *et al.*, 2005; Fueglistaler *et al.*, 2006; Lomanto *et al.*, 2007; Jayaraman *et al.*, 2007). Despite the support offered by different authors, none of these techniques proved to reduce pain at such levels to be unanimously chosen (Seow-Choen, 2001). However, still Milligan Morgan open hemorrhoidectomy offers the best chances of permanent cure of symptomatic grades-3 and 4 hemorrhoids. The main drawback of hemorrhoidectomy is the uncomfortable pain in the first postoperative week. The prime cause of unpleasant post-hemorrhoidectomy pain is due to the spasm of

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the internal sphincter that is exposed after open hemorrhoidectomy, especially in younger patients with higher anal tone (Kanellos *et al.*, 2006; Khubchandani, 2002; Wasvary *et al.*, 2001).

Review of literature showed that various methods have been tried in order to reduce post hemorrhoidectomy pain (Kanellos *et al.*, 2006). Over the time, internal sphincterotomy was proved as one of the valid addition to the hemorrhoidectomy for a better postoperative period in terms of less postoperative pain and less complications (Safwan, 2003; DiBella *et al.*, 1990). Internal sphincterotomy reduces post hemorrhoidectomy pain by abolishing the hypertonicity (spasm/pressure) of the internal anal sphincter and subsequently reduces the related post hemorrhoidectomy complications as well (DiBella *et al.*, 1990; Mortensen *et al.*, 1987; Eisenhammer, 1994).

The main aim of this study was to compare the postoperative pain in two groups of patients treated with open hemorrhoidectomy and open hemorrhoidectomy with internal sphincterotomy. However, other related complications were also noted and included in the results.

## **MATERIALS AND METHODS**

Over a period of two years 78 patients, suffering from 3rd and 4th degree hemorrhoids attending surgical op of Rajah Muthiah Medical college and Hospital, Chidambaram, were included in this prospective randomized study.

Exclusion criteria: Patients over 65 years of age and hemorrhoids with other anal pathology like fistula, fissure or other colorectal diseases were not included in this study. Disease status was confirmed in all the patients by clinical examinations and proctoscopic examinations. All patients were subjected to routine investigations to look for the fitness to undergo surgery spinal anaesthesia.

Patients were randomized according to their chronological numbers of hospital admission. Prior institutional ethical committee clearance was obtained.

All the patients were explained about their diagnosis and a written informed consent was obtained from each patient. Classical open hemorrhoidectomy (Milligan Morgan) was performed in control group (GR-I) and in study group (GR-II) along with classical open hemorrhoidectomy, internal anal sphincterotomy (is) was also performed. All the patients were operated under spinal anaesthesia in the lithotomy position by the same surgical team. Dissection was carried out with the help of a diathermy knife and scissors. Absolute haemostasis was maintained in the dissection bed in all the patients. Patients from study group, after completion of classical open hemorrhoidectomy, were subjected to lateral internal sphincterotomy through the left sided open hemorrhoidectomy wound up to around one cm (dentate line) upwards. After completion of surgery, a piece of small gauze soaked in lignocaine jelly was used to pack the anal canal lightly in all the patients and the wound was covered with a t-bandage. Anal pack was removed and all patients were allowed to take hip-bath 2 times a day/after passing stool with high fiber diet.

All patients were given 3<sup>rd</sup> generation cephalosporin and metronidazole IV three doses; 1st dose started 30 mins before incision.

Post operative pain during the 12 hours after surgery, first postoperative bowel motion, pain one week after surgery, complications, (urinary retention/reactionary bleeding/flatus or faeces incontinence) duration of hospital stay, mean time to return to normalcy was evaluated. Another doctor (who was not a member of the operative team and also unaware of the group of the patients) was involved in assessment of the severity of postoperative pain and early complications.

Pain is a subjective matter and difficult to measure accurately. We adopted the method described by Afsar *et al.*, and Safwan *et al.*, we assessed severity of post-operative pain according to the frequency of administration of analgesic, needed to control the pain for a patient which followed an “on-the-patient’s-demand” protocol. This method is proved to be quite acceptable. Pain level was assessed using visual analog pain scale ‘mild’ (score 1-4) if required analgesics were 0-2/48hours to control the pain, ‘moderate’ (5-7) if numbers were 3-4/48hours and ‘excruciating’ (8-10) when analgesics were >4 in numbers.

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All the patients were given Tramadol hydrochloride 100mg intra muscularly. Nurses on duty and the patients were well instructed to 'give and take' analgesic when the pain was really intolerable. Details of the injection time and numbers of analgesic used were recorded against each patient.

From 2nd post-operative day, all the patients were given laxative (lactoluse) 15ml at bed time and advised to continue 3 weeks postoperatively. On the 7th postoperative day (1st follow-up visit for the patients already discharged from hospital) a careful digital-rectal examination (DRE) was done by the author himself in all the patients to assess the anal tone and anal stenosis if present. All the patients were followed-up in the clinic after two and four weeks of the operation and duration for complete pain relief was evaluated. In each visit DRE was performed and enquiry was made about pain, faecal soiling and flatus or faeces incontinence. Incontinence was defined as the inadvertent passing of flatus or faeces and faecal soiling was defined as the staining of underwear with rectal discharge. Data was analyzed using spss programme. Statistical analysis for post-operative pain score and complications between two groups was done using the  $\chi^2$  test. The p value  $<0.01$  was taken as significant.

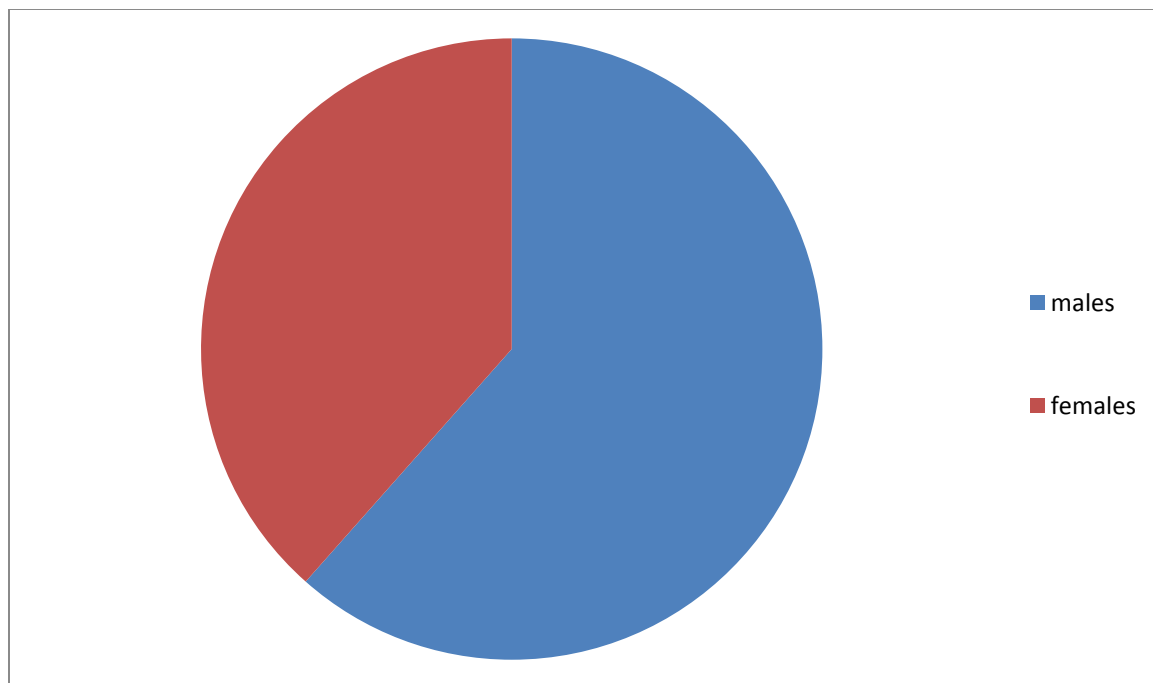
## RESULTS AND DISCUSSION

### Results

Among the total number of patients 48 were male 30 were female and mean age was 58.94.

The pain perception 12 hours of surgery indicated no difference between internal sphincterotomy and non internal sphincterotomy groups ( $p=0.838$ ).

	Hemorrhoidectomy (n-39)	Hemorrhoidectomy with LIS (n-39)
Male (%)	24 (61.5)	24 (61.5)
Female (%)	15 (38.5)	15 (38.5)



**Pain Perception 12 Hours after Surgery**

After the first bowel movement 3 patients (7.7%) in the internal sphincterotomy group did not experience any pain, whereas in the non-internal sphincterotomy group all patients experienced mild or moderate pain. There were also more patients that experienced excruciating pain in the non-internal sphincterotomy

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than in the internal sphincterotomy group (25 vs. 18). This difference were statistically significantly ( $p = 0.034$ ).

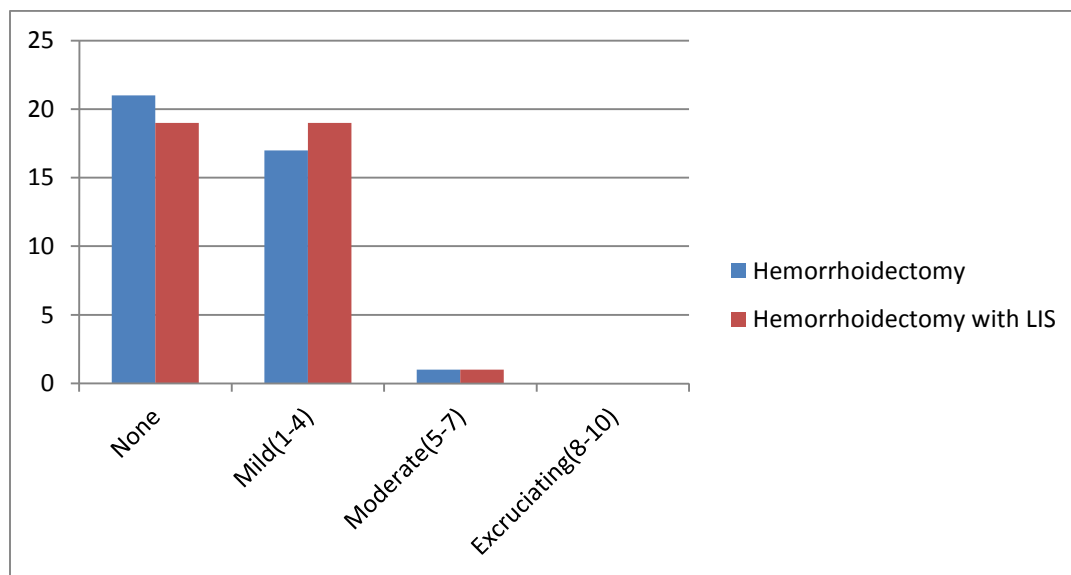
One week after surgery 4 patients (10.3 %) in the internal sphincterotomy group did not experience any pain, whereas in the non-internal sphincterotomy group all patients experienced mild or moderate pain. there was also more patients that experienced excruciating pain in the non-internal sphincterotomy than in the internal sphincterotomy group (13 vs. 7). this difference were statistically significantly ( $p = 0.050$ ).

The mean time until the patients were pain free after surgery was 22 days (range 14- 28) in the non - internal sphincterotomy group and 21 days (range 0-28) in the internal sphincterotomy group. This difference was not significant

A small proportion of patients required catheterization and it was similar in both groups. No patient suffered excessive postoperative bleeding. There was no significant difference incontinence between the groups. Only five patients (3 patients in the internal sphincterotomy and two patients in the non-internal sphincterotomy) experience gas incontinence.

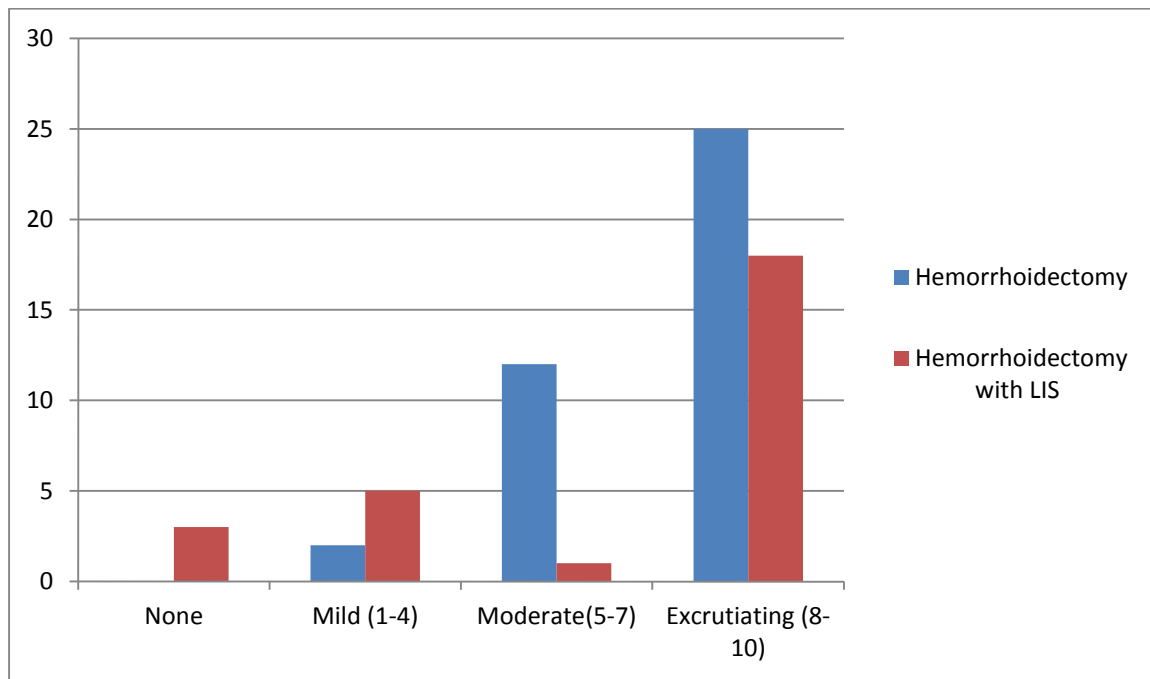
**Pain Perception 12 Hours after Surgery**

Pain	Hemorrhoidectomy (n-39)	Hemorrhoidectomy with LIS (n-39)
None	21(53.8 %)	19(48.7%)
Mild(1-4)	17(43.6%)	19(48.7%)
Moderate(5-7)	1(2.6%)	1(2.6%)
Excruciating(8-10)	0(0)	0(0)
p value *	0.83	-

**Pain Perception after First Bowel Movement****Pain Perception after First Bowel Movement**

Pain	Hemorrhoidectomy (n-39)	Hemorrhoidectomy with LIS (n-39)
None	0 (0)	3 (7.7%)
Mild(1-4)	2 (5.1%)	5 (12.8%)
Moderate(5-7)	12 (30.85%)	1(2.6%)
Excruciating(8-10)	25 (64.1%)	18 (46.2%)
p value *	0.034	-

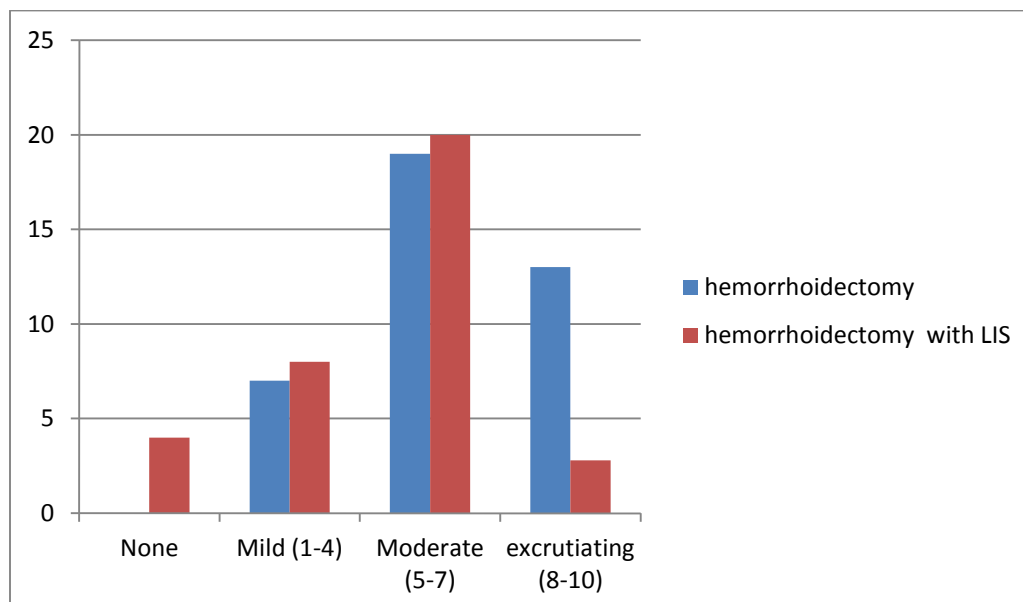
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Pain one week after surgery

### Pain one week after surgery

Pain	Hemorrhoidectomy (n-39)	Hemorrhoidectomy with LIS (n-39)
None	0 (0)	4 (10.3%)
Mild(1-4)	7 (17.9%)	8 (20.5%)
Moderate(5-7)	19 (48.7%)	20(51.3%)
Excrutiating(8-10)	13 (33.3%)	7(17.9%)
p value	0.050	-



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### Discussion

High anal canal pressure was documented in patients with hemorrhoids (Schouten *et al.*, 1986; Favetta *et al.*, 1996; Mathai *et al.*, 1996), especially in the younger patients. Anal canal pressure remains mostly higher in younger patients due to tight internal sphincter (high tone) than the older people. This tight (over active) sphincter is the prime cause of unpleasant post hemorrhoidectomy pain (Kanellos *et al.*, 2006; Khubchandani, 2002; Wasvary *et al.*, 2001; Lord, 1989). Keeping it in mind, in our study, patients above 65 years were not included as low anal tone in these patients can have less post hemorrhoidectomy pain even without internal sphincterotomy.

Anal canal dilatation was described by Lord in 1989, but incidence of uncontrolled damage to the internal sphincter fibres was high. Nataraj in 1971 proposed internal sphincterotomy is an alternative of anal dilatation. Subsequently Di Bella and Estienne in 1990 stated that internal sphincterotomy reduce anal pain by reduction of the sphincter tonicity. Over the decade several authors reported that significant reduction of post hemorrhoidectomy pain and associated complications can be achieved by adding internal sphincterotomy to hemorrhoidectomy (Khubchandani, 2002) finally Asfar *et al.*, reported that the routine performance of internal sphincterotomy through one of the hemorrhoidectomy wounds significantly reduces post hemorrhoidectomy pain and associated complications.

In our study, it was very obvious and statistically significant that the addition of internal sphincterotomy to hemorrhoidectomy, significantly reduced post hemorrhoidectomy pain and other associated complications in comparison to hemorrhoidectomy alone. The pain perception 12 hours of surgery indicated no difference between internal sphincterotomy and non-internal sphincterotomy groups ( $p=0.838$ ).

The cases of urinary retention observed in our study (8.97%) are less than those indicated by Toyonaga *et al.*, (2006), Pescatori (2001) (21.9%), and they are near the data provided by Chik *et al.*, (2006) (7.77%) In a study on stapled haemorrhoidopexy. This complication affects more male subjects, mostly aged between 40 and 60 years. Pain perception after first bowel movement, there were more patients that experienced excruciating pain in the non-internal sphincterotomy than in the internal sphincterotomy group (25 vs. 18). This difference were statistically significantly ( $p = 0.034$ ).

One week after surgery 4 patients (10.3 %) in the internal sphincterotomy group did not experience any pain, whereas in the non-internal sphincterotomy group all patients experienced mild or moderate pain. There were also more patients that experienced excruciating pain in the non-internal sphincterotomy than in the internal sphincterotomy group (13 vs. 7). This difference were statistically significantly ( $p = 0.050$ ). There was no significant difference incontinence between the groups. Only five patients (3 patients in the internal sphincterotomy and two patients in the non-internal sphincterotomy) experience gas incontinence. No patient suffered excessive postoperative bleeding postoperative bleeding is a particularly important complication in treating haemorrhoids due to its frequency, which vary between 0.6% and 10% (Pescatori, 2000; Chik *et al.*, 2006) depending on the study considered. Sometimes bleeding may be alarming because it may cause anemia very rapidly in patients. The causes of such bleeding are not easily explained: In some cases it should be attributed to falling off of a scar due to electrocoagulation, whereas in other cases it is due to the lack of a thrombus, its expulsion or its dissolution, concomitant with the falling or reabsorption of the transfixed stitch. However, it is mentioned in literature that these complications are transient and acceptable in comparison the benefits of internal sphincterotomy when added to hemorrhoidectomy (Whitehead, 1993; Leong *et al.*, 1994; Hananel *et al.*, 1997) addition of internal sphincterotomy was found to be a suitable procedure to reduce post hemorrhoidectomy pain, but it is not totally devoid of transient complications in early postoperative period. It is more useful in young patients with higher anal pressure.

### Limitation of the Study

Anal manometry was not performed due to logistic problems.

### Conclusion

Addition of internal sphincterotomy to open hemorrhoidectomy is an effective method to reduce post open hemorrhoidectomy pain without significant morbidity, especially in younger patients.



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