

# A Prospective Interventional Study of Outcome of Internal Sphincterotomy in Closed Haemorrhoidectomy

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## ABSTRACT

### BACKGROUND

Haemorrhoids are nowadays a very common anorectal disease in the community. It may be attributed to increased consumption of more refined and junk food by the present generation of people. We have been seeing symptomatic haemorrhoids as early as late teenagers, and early 20's. Well, there are plenty of treatment options available, among them, in our hospital we have been doing Ferguson's closed haemorrhoidectomy, but pain and urinary retention are frequently seen and sometimes troublesome requiring removal of per-anal pack overnight/Foley's catheterization. And also, in those patients with tight sphincters, because of straining to pass the stools for the first time, the wound margins used to give away, converting into an open haemorrhoidectomy. Aim of this study was to assess the effect of sphincterotomy in patients undergoing closed haemorrhoidectomy, in terms of immediate post-operative pain and urinary retention.

### METHODS

Patients who came with symptomatic haemorrhoids to our hospital during the period January 2018 to August 2019 were assessed and patients requiring haemorrhoidectomy were included in the study according to inclusion and exclusion criteria. Patients included in the study were randomly divided into 2 groups (without/with sphincterotomy) till target of 50 was achieved. Post-operative outcomes of pain and incidence of urinary retention was compared among the 2 groups.

### RESULTS

On analysing the data regarding severity of pain and incidence of urinary retention between the 2 groups, there was significant difference (p value <0.001) in perceiving pain on all the days of assessment, and incidence of urinary retention was significantly low in sphincterotomy group (p value 0.001).

### CONCLUSIONS

Doing internal sphincterotomy at the base of haemorrhoidectomy wound significantly reduces the immediate post-operative pain and urinary retention following closed haemorrhoidectomy. So, when sphincter tone is high, it's better and safer to do sphincterotomy to alleviate immediate post-operative pain and urinary retention.

### KEY WORDS

Haemorrhoids, Closed haemorrhoidectomy, Internal Sphincterotomy, Post Haemorrhoidectomy Pain, Urinary Retention

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**BACKGROUND**

Haemorrhoids are specialized highly vascular cushions or masses containing thick submucosa, blood vessels, smooth muscles, and elastic connective tissue within the normal anal canal.<sup>1</sup> They hypertrophy and cause symptoms in patients with chronic straining habit, which again is called as haemorrhoids or piles. The term haemorrhoid is derived from Greek adjective meaning bleeding (haem-blood, rhoos-flowing). The term Piles is derived from the Latin word Pila, meaning pill or ball.<sup>2</sup> Though there are no relevant data regarding the incidence of haemorrhoids in India, because of increase in junk food consumption and sedentary lifestyles, cases are on the rise, particularly in young adults. Aetiology of haemorrhoids can be attributed to many factors, like erect posture, constipation, sedentary lifestyle, low fiber diet, heredity, high resting anal sphincter tone.<sup>3,4</sup>

Haemorrhoids are the most common anorectal disease to have plagued humans; it's a bane on mankind for attaining erect posture. Haemorrhoids have been broadly classified into 3 groups.<sup>5</sup> Internal haemorrhoids, external haemorrhoids and both. Further internal haemorrhoids are classified into IV grades. Many treatment modalities have been tried in the past, for symptomatic and refractory haemorrhoids.<sup>6-8</sup> Recently stapled haemorrhoidectomy is more popular, but time tested Milligan-Morgan's open haemorrhoidectomy and Ferguson's closed haemorrhoidectomy are still practiced by many surgeons all over the world.<sup>9,10</sup> Among which, Ferguson's closed haemorrhoidectomy is most recommended because of faster wound healing and better overall outcome.

In the surgery department of our hospital, we have been doing both open and closed haemorrhoidectomy based on surgeon's preference, with younger surgeons opting more for closed haemorrhoidectomy. Pain and acute urinary retention were the most common immediate post-operative complications following closed haemorrhoidectomy, requiring attention at late hours. And many patients, even after proper instructions, never followed the advice of high fibre diet, resulting in hard stools. As such the anal verge is narrowed down by surgery itself, so while patients with tight sphincter tried hard for passing stools for first time, the wound margins of closed haemorrhoidectomy gave away leading to further pain, bleeding and delayed wound healing. Pain is mainly because of protective spasm of internal sphincter mediated by sympathetic nervous system activity. This in turn also causes urinary sphincter contraction, leading to urinary retention. This vicious cycle continues leading to further sphincter spasm.

According to old literature's, Internal sphincterotomy is not routinely advised with either open or closed haemorrhoidectomy, but may be recommended if patient has concomitant Fissure.<sup>11</sup> Many recent articles and meta-analysis data suggest internal sphincterotomy is recommended while doing excisional haemorrhoidectomy, with outcome of less immediate post-operative pain and faster recovery.<sup>12-14</sup> Whereas, one article showed no such difference when internal sphincterotomy was done with haemorrhoidectomy.<sup>15</sup> We thought of testing this dilemma in our scenario.

**METHODS**

This is a prospective interventional study of patients admitted with internal and external haemorrhoids coming to the General Surgery OPD in KMCH, Palakkad, from January 2018 to August 2019. 50 cases of closed haemorrhoidectomy cases, divided into group A and group B, 25 cases in each group, for the ease of calculation

**Inclusion Criteria**

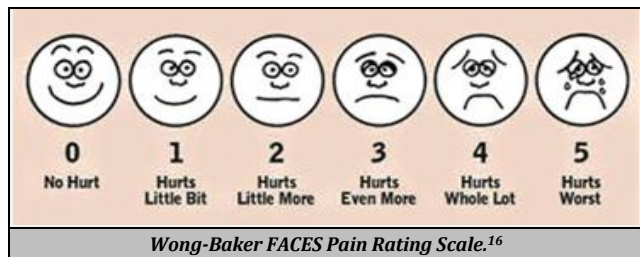
1. Diagnosed to have, refractory grade II haemorrhoids/ grade III/ grade IV Internal haemorrhoids with or without external haemorrhoids.
2. Patient willing for inclusion into the study.

**Exclusion Criteria**

1. Patients not willing to be part of study (2).
2. Grade I & II internal haemorrhoids managed by medical line of the treatment (44).
3. Patients with medical co-morbidities - Diabetes mellitus, hypertension, ischemic heart disease, chronic obstructive pulmonary disease, coagulation disorders, psychiatric ailments, immunosuppression, portal HTN with rectal varices (25).
4. Associated with anal fissures/fistula/perianal abscess (14).
5. Relaxed internal sphincter tone (12).
6. Recurrent haemorrhoids with previously treated by haemorrhoidectomy or sclerotherapy and other modalities for haemorrhoids (18).

**Methodology**

- Ethical committee clearance was obtained.
- Sampling Procedure: All the haemorrhoids patients included in the study, who comply to our inclusion and exclusion criteria were serially given numbers from 1-50. Simple randomization was done, with all odd numbers in group A and even numbers in group B.
- Patient consent for surgery and inclusion into the study was taken for all.
- Both group patients received similar spinal anaesthesia and pre-operative preparations.
- Group A underwent closed haemorrhoidectomy without any sphincterotomy, whereas group B patients underwent closed haemorrhoidectomy with internal sphincterotomy at the base of 3 'O' clock position haemorrhoids.
- All patients received similar analgesics at 8th hourly intervals and other post-operative care.
- Both the group patients were followed up on post-operative day 1, day 3, day of discharge and 2nd week in OPD, based on following criteria-
  1. Pain: Considering the fact many patients found easy interpreting emoji's, Wong-Baker FACES grimace pain rating scale was used. Rating was given as 0, 1, 2, 3, 4, 5 for 6 faces.
  2. Urinary retention in immediate post-operative period.



**Statistical Analysis**

1. Chi-square test.
2. Unpaired student 't' test.

**RESULTS**

**Age Distribution**

Range of age distribution varied from 23-60 years for without sphincterotomy group, whereas for sphincterotomy it was, 21-61 years. Mean age of both the groups is as shown in table 1.

**Sex Distribution**

Among the 50 patients,, 13 (52%) females were present in without sphincterotomy group and 9 (36%) were present in sphincterotomy group, whereas it was 12 and 16 for males with 48% and 64% respectively in without and with sphincterotomy group.

**Distribution of Degree of Haemorrhoids**

Majority of patients we operated were having grade III haemorrhoids in either group. Distributions of cases in both groups are depicted in graph 1.

**Assessment of Pain in Post-Operative Period**

On evaluating the pain score using Wong-Baker pain scale, the severity of pain was significantly high on POD1 for without sphincterotomy with a mean score of 4.68 (SD 0.47), when compared to sphincterotomy group, 2.92 (SD 0.90) and it was statistically very significant (p value <0.001). On POD3, pain severity decreased in both the groups, but the difference between either group was statistically significant as shown in table 2. Although majority patients complained very less pain at the time of discharge in both the group's, on evaluating with pain scale, revealed there was statistically significant difference between the two groups (1.16 vs 0.64, p value <0.001). Even on 1st follow up of patient in 2nd week, the patient's with sphincterotomy were relatively pain free when compared to without sphincterotomy counterparts.

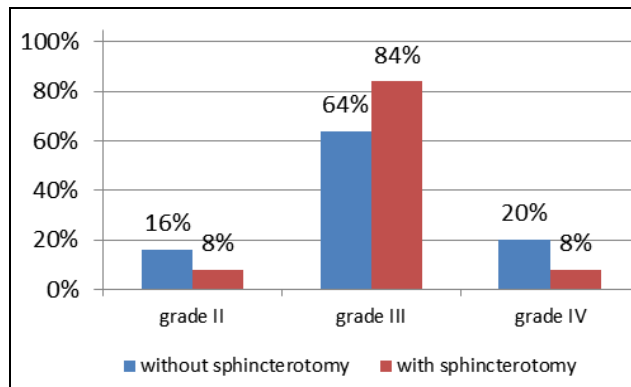
**Post-Operative Urinary Retention**

On comparing the incidence of common acute complication after haemorrhoidectomy, i.e. urinary retention among the 2 groups, the difference was very much evident [13 (52%) vs. 2 (8%)] with significant p value of 0.001, as shown in table 3.

	Without Sphincterotomy (n=25)		With Sphincterotomy (n=25)	
	Mean	SD	Mean	SD
Age (years)	42.16	10.60	39.40	9.72

Table 1. Age Distribution

SD: standard deviation



Graph 1. Distribution of Degree of Haemorrhoids

Post-Operative Period	Without Sphincterotomy (n=25)		With Sphincterotomy (n=25)		P Value
	Mean	SD	Mean	SD	
POD1	4.68	0.47	2.92	0.90	<0.001
POD3	3.00	0.70	1.72	0.61	<0.001
DOD	1.16	0.37	0.64	0.49	<0.001
2 <sup>nd</sup> week	0.56	0.50	0.08	0.27	<0.001

Table 2. Post-Operative Pain Assessment

(Pain Score - Wong-Baker FACES Grimace Pain Rating Scale)

POD: post-operative day, DOD: day of discharge, SD: standard deviation. Unpaired student t test.

Urinary Retention	Group A (n=25)		Group B (n=25)		P Value
	F	P	F	P	
Absent	12	48%	23	92%	0.001
Present	13	52%	2	8%	

Table 3. Assessment of Post-Operative Urinary Retention

F- frequency, P-percentage

**DISCUSSION**

The final outcome of any study or research is to see which method is better for the healing of the patient's suffering. When we tend to update ourselves, we concentrate not only on best post-operative outcome, but also, we consider cost effectiveness, ease of procedure and patient compliance.

Haemorrhoidectomy has been practiced from very long time recently Ferguson's closed haemorrhoidectomy has garnered good responses from all over world. But we noticed the immediate post-operative pain and urinary retention was significantly high, even though healing of wound and other parameters were better than open variety. This may be attributed to more younger patients with normal or increased sphincter tone are suffering from haemorrhoids now a days, courtesy junk foods and sedentary lifestyles. And also, perianal region is a very sensitive area and pain tolerance is very low, and sometimes we have seen patients going in for syncopal attacks in immediate post-operative periods and also younger patients requiring aid for urinary retention.

So in the quest of searching answers for these problems, we came across few original articles, review articles and meta-analysis studies. Few of them mentioned doing internal sphincterotomy at the base of haemorrhoidectomy, to reduce post-operative pain and urinary retention (which was once

considered only when haemorrhoids was associated with fissure). When we were overjoyed for finding the answer, we realized it's not a fool proof method. So, we decided to put this into test ourselves in our scenario.

After randomized prospective study, we found that, doing internal sphincterotomy with closed haemorrhoidectomy is very good method for overcoming the drawbacks we were facing, as suggested by the results of our study. Immediate post-operative pain was significantly less severe in sphincterotomy group than the patient who did not have sphincterotomy, particularly during first 3 days of surgery. On POD1 mean pain score without sphincterotomy was 4.68 (SD 0.47) as compared to sphincterotomy group of 2.92 (SD 0.90) and on POD3 it was 3.0 (SD 0.70) vs 1.72 (SD 0.61). Similar end results were seen by G Galizia et al. in his randomized prospective study of 44 patients.<sup>10</sup> In both occasions, the difference was significant with p value of <0.001. And as observed in our study, urinary retention which may require intervention is significantly low in sphincterotomy patients (52% vs 8%, with p value of 0.001), which was also appreciated by Sameh Hany Emile et al.<sup>11</sup> and Wei-Guo Wang et al.<sup>12</sup> in their analysis. Nonetheless, care must be taken, as few patients developed faecal incontinence (even though transient in all), not to overdo the internal sphincterotomy, and also care must be taken in choosing the patient for sphincterotomy. If internal sphincterotomy is performed in patient who is already having relaxed sphincter, patient may end up having permanent faecal incontinence or in worse case can develop anal/rectal prolapse.

### CONCLUSIONS

In selected patient's internal sphincterotomy is very good additive step in significantly reducing the immediate post-operative pain and also reducing the analgesic dosage. It also had fewer incidences of urinary retention and on long run less anal stenosis complication. Even though, it did not have much significant difference in duration of hospital stay, bleeding and wound healing, few patients with sphincterotomy experienced transient mild faecal incontinence, which recovered without any intervention.

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