

A Prospective Randomized Study to Evaluate Ferguson Versus Conventional Milligan–Morgan Techniques in the Operative Management of Haemorrhoids and A Review of Literature.

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Abstract: Hemorrhoidal disease being a common problem is better answered by a hemorrhoidectomy. A total number of 68 cases of hemorrhoids, with complaints of bleeding per rectum, pain during defecation, mass per rectum with discharge and irritation were taken up for operation. Patients were selected after recording a detailed history, dietary habits, a thorough clinical assessment to rule out any co-morbidities. A repeat DRE and proctoscopy was routinely done in the ward after a preparation of the rectum.

Bowel was prepared by bulk laxative at night and an enema next morning prior to surgery. Patients were operated in lithotomy position under spinal or general anesthesia. After a gentle four finger anal stretching, the selected procedures were performed. External component of piles is caught with an artery forceps, traction applied and internal component is grasped. With a V-shaped incision given on skin, piles mass is dissected out, transfixed and excised. In closed technique, after excision of piles mass with overlying mucosa the gap is repaired with continuous suture.

Keywords: Hemorrhoidectomy, Open Milligan Morgan, Closed Ferguson, DRE

I. Introduction

Haemorrhoids in Latin is piles, meaning anal swelling, one of the most common ailments to affect the human species as they attained an erect posture. It is the descent of cushions of anal submucosal connective tissue which contains dilated venules and smooth muscle fibers. They present as anal bleeding, pain and mass at the anal region.[1] Out of several modalities of management of hemorrhoids day care procedures like rubber band ligation, sclerosant injections are tried in 1st and 2nd degree hemorrhoids. But patients report back with discomfort, pain, mucosal ulceration and ultimately had to undergo a hemorrhoidectomy for a better outcome.[2] Hemorrhoidectomy is the accepted modality of treatment for grade 3 and 4 hemorrhoids.[3]

Haemorrhoidectomy is done using an open or a closed technique. The open technique is commonly used in Europe, popularized by the surgeons Milligan–Morgan. The closed technique as illustrated by Ferguson gained popularity in the United States. In the open technique the anal mucosa and skin are left open, but in the closed technique the mucosal defect created during hemorrhoid excision is completely sutured.[4] Operative site incision, raw area, sutures for approximating anal mucosa, cautery burns, wound infection are the probable causes of troublesome pain in postoperative period.[5,6,7] Several methods have been tried to reduce the pain, bleeding and anal stricture in postoperative period. Milligan Morgan open technique though followed most commonly throughout the globe, closed Ferguson technique is widely accepted and practiced as believed to be less painful and wound heals faster by primary intention.

II. Objective and Method

This study was conducted to analyze the post operative complications, result of surgery and patient satisfaction and acceptability of either type of procedure and compare the results with other studies. To evaluate optimum choice of the procedure for 3rd or 4th degree hemorrhoids. A randomized study was conducted at Dr. PSIMS and RF Hospital, Vijaywada, from Dec' 2013 to Nov' 2016. This study includes all 3rd and 4th degree hemorrhoids with or without prior medical management and some cases of 2nd degree hemorrhoids refractory to conservative treatment. Failed cases of rubber band ligation were also included in this study. All patients above the age of 21 years were taken up in the study. Patients having associated anal conditions like fissure in ano, inflammatory bowel diseases and ano-rectal malignancy, portal hypertension were excluded from this study. A flexible sigmoidoscopy or colonoscopy was occasionally conducted to rule out proctocolitis, Irritable Bowel Disease and rectosigmoid malignancy, when suspected. In postoperative period all were put on a course of antibiotic, analgesics and a lubricant laxative. Solid food was allowed next morning onwards. Patients were monitored for pain, bleeding, retention of urine etc. They were discharged in 4-5 days time with advice for a follow up at 3weeks, 6 weeks and three months.

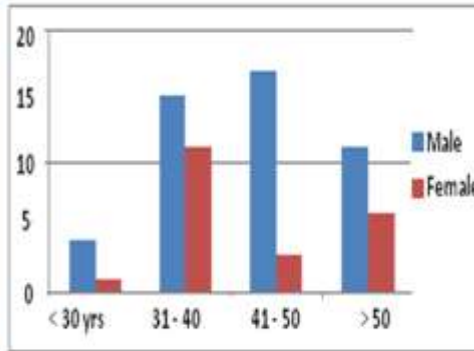
III. Results

In the present study, results of both types of hemorrhoidectomy has been compared in patients with 3rd, 4th degree hemorrhoids and 2nd degree hemorrhoids which did not respond to non surgical methods, who randomly underwent one of these procedures.

Table 1: Age and Sex Distribution

Age	Male	Female	Total
<30 yrs	4	1	5
31 -40	15	11	26
41- 50	17	3	20
>50	11	6	17
	47	21	68

Figure 1: Bar diagram of age & sex distribution



The age of patients reported to us range between 25-77 yrs. The most common age group was 31-40 yrs and mean age of presentation is 39.52 yrs. The age and sex distribution among both procedures were compared with a study done by Arbmman et al [8], and Abdul Razaque Shaik et al [9] Also a comparison was done with study by Hamid I. Jasim et al [10] where the mean age presentation in open group is 39 yrs. Number of males sufferers were more than the females in all studies.

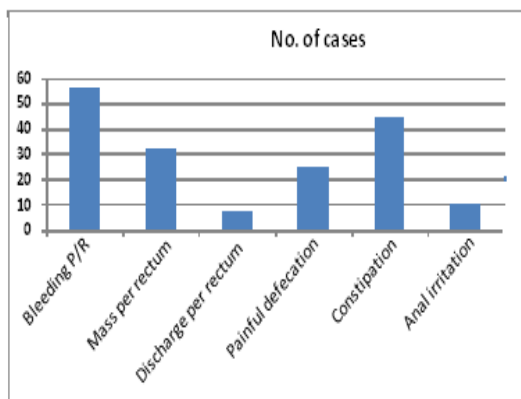
Table 2: A comparative study of Mean age, sex distribution

Procedure		Open haemorrhoidectomy			Closed haemorrhoidectomy	
Study	Present study	Arbmman et al	Abdul Razaque shaik et al	Present study	Arbmman et al	Abdul Razaque shaik et
Mean age (in years)	42.93	48	45	36.11	49	46
Male / Female	29/12	26/13	90/20	18/9	22/16	80/23

Majority of patients presented with bleeding per rectum, next common was mass per rectum followed by constipation. Defecation aggravates symptoms. So, patients hesitate to pass stools leading to constipation. Next common symptom was discharge and anal irritation. These findings are similar to other studies by Hamid I. Jasim et al, Johannsson H.O.et al and Henry MM, 1991. [10,11,12]

Table 3: Presenting symptoms Figure 2: Bar diagram of Presenting symptoms

Presenting symptoms	Cases	Percentage
Bleeding per rectum	56	82.35 %
Mass per rectum	32	47.05 %
Discharge per rectum	7	10.29 %
Painful defecation	25	36.76 %
Constipation	44	64.7 %
Anal irritation	10	14.7 %



Out of 68 patients in the present study, open hemorrhoidectomy was done in 41 cases and rest 27 underwent closed hemorrhoidectomy, cases being selected randomly for the procedures.

Table 4: A comparative study of Preoperative characteristics

Main symptoms	Present study		Abdul Razaque Shaik et al	Abdul Razaque Shaik et al
	Open	Closed	Open	Closed
Bleeding P/R	37 (90.24%)	22 (81.48%)	110 (100%)	103 (100%)
Mass per rectum	22 (53.65%)	14 (46.7%)	110 (100%)	103 (100%)
Constipation	25 (60.97%)	22 (81.48%)	78 (70.90%)	90 (87.37%)
Discharge	5 (12.19%)	1 (3.7%)	71 (64.54%)	79 (76.69%)
Anal irritation	8 (19.51%)	2 (7.4%)	76 (69.9%)	68 (66.01%)

Postoperative complications: Hemorrhoidectomy cases commonly had pain, soiling, minor bleeding, urinary retention in immediate postoperative period and wound infection,[10] wound dehiscence and anal canal stenosis as long term complication. Each of which was analyzed and also was compared with other studies. Hemorrhoidectomy cases commonly had pain, soiling, minor bleeding, urinary retention in immediate postoperative period and wound infection,[10] wound dehiscence and anal canal stenosis as long term complication. Each of which was analyzed and also was compared with other studies.

The surface lining of anus is richly innervated, thus highly sensitive to pain, Also the raw area of anal canal following open hemorrhoidectomy is one of the reason for pain,[10] which is less in closed hemorrhoidectomy. Pain assessment in present study was done by visual Analogue scale as per pain intensity by observing the facial expression, which ranges from mild pain to severe distressing pain, noted as nil, mild, moderate, severe, and very severe.

The VAS Score in open hemorrhoidectomy in immediate post operative period ranges around 7-10 indicating worst pain and in closed hemorrhoidectomy it is 3-6 indicating uncomfortable feeling. So there was significant difference in pain in both the techniques. Finally, most of the studies show significant pain in postoperative period in open technique when compared with closed technique as also noted in our Study. But Ho et al [13] and Arbman et al [8] reported that there is no difference in post operative pain in both of these techniques.

Table 5: Post operative day 1, present study

Postoperative complications	Open haemorrhoidectomy	Closed haemorrhoidectomy
Pain	Moderate	Mild to moderate
Serous discharge	23 (56.09%)	8 (29.62%)
Minor bleeding	15 (36.58%)	2 (7.40%)
Retention of urine	11 (26.82%)	3 (11.11%)

Table 6: Postoperative Urinary retention, a comparison

Postoperative Urinary retention	Open haemorrhoidectomy	Closed haemorrhoidectomy
Present study	26.82%	11.11%
Abdul Razaque Shaik et al	11.81%	3.88%

Soiling was seen in 29 (70.73%) of cases in open technique and in closed technique 7 (25.92%) had soiling which is significant. The raw area in open technique was left behind to heal by secondary intention was the main reason. Post operative wound infection is claimed to be less after closed hemorrhoidectomy. Abdul Razaque Shaik et al [9] group one (0.9%) in open group and two (1.9%) in closed group. We found 8 (19.51%) cases of wound infection in open technique and 2 (7.40%) cases of wound infection in closed technique, which is not statistically significant.

Follow up at 3weeks : At 3 weeks follow up pain was considerably decreased in open hemorrhoidectomy and mild to no pain in closed hemorrhoidectomy. So pain was statistically significant in open group when compared with closed group. Healing occurs by secondary intention in open hemorrhoidectomy and by primary intention in closed hemorrhoidectomy. Delayed healing of large wound area is responsible for pain and when wound heals with scars retraction, leads to anal stenosis. In present group 25 (92.59%) healing seen in closed hemorrhoidectomy when compared with 23 (56.09%) of healing seen in open hemorrhoidectomy which is statistically significant.

Table 7: Postoperative complications

Postoperative complications	Open haemorrhoidectomy	Closed haemorrhoidectomy
Pain	Mild to moderate	Nil to mild
Soiling	29 (70.73%)	7 (25.92%)
Wound infection	8 (19.51%)	2 (7.40%)

Table 8: A comparative study of Soiling at 3 weeks

Procedure	Open haemorrhoidectomy		Closed haemorrhoidectomy	
	Present study	Arbmann et al	Present study	Arbmann et al
Soiling	70.73%	78%	25.92%	27%

Table 9: A comparative study of Healing at 3 weeks

Procedure	Open Haemorrhoidectomy			Closed Haemorrhoidectomy		
	You et al	Arbmann et al	Abdul Razaque	Present study	You et al	Arbmann et al
Present study 56.09%	18%	18%	28.18%	92.59%	75%	86% 74.75%

Table 10: A comparative study of wound dehiscence at 3 weeks

Procedure	Open haemorrhoidectomy		Closed haemorrhoidectomy	
	Present study	Abdul Razaque	Present study	Abdul Razaque
Wound dehiscence	Not applicable	Not applicable	1 (3.70%)	3 (2.91%)

Follow up at 6 weeks: Pain was negligible in both groups. Soiling was statistically significant in open hemorrhoidectomy. Healing was better in almost all cases of closed hemorrhoidectomy. 2 cases of open hemorrhoidectomy resulted in anal stenosis and were treated with regular anal dilatation by St. Marks anal dilator for few weeks. In Arbmann et al [8] series soiling in open hemorrhoidectomy is 52% and in closed hemorrhoidectomy it is 28%. We never came across any fecal incontinence as a sequel after hemorrhoidectomy, though a 4 finger anal stretching done prior to surgery in almost all cases but with extreme gentleness.

Ho et al [13], Arroyo et al [14], Ahmed et al[15] described wound healing time was shorter in closed hemorrhoidectomy. Gulzar Ahmed Malik et al[16], Johannsson et al [11] observed that in closed hemorrhoidectomy wound heals faster. In open hemorrhoidectomy, wound healing by secondary intention, contraction of the scar tissue in the anal canal may lead to stenosis. In our study, 2 (4.87%) cases of anal stenosis were found. In present study the results showed that closed hemorrhoidectomy is better than open hemorrhoidectomy in relation to postoperative pain which is less, less postoperative minor bleeding, faster wound healing lesser postoperative complications. Mean hospital stay for open group was 5 days and closed group was 3 days [17].

IV. Conclusion

Hemorrhoids is one of the oldest diseases suffered by mankind causing significant discomfort, and the most common clinical presentation being bleeding and mass per rectum. Though the commonly done surgical procedure is open hemorrhoidectomy, both procedures are simple, performed with ease under spinal anaesthesia, with no need for sophisticated set up or instruments[2]. This study was done to compare both the procedures. The results of the study concluded that closed technique described by Ferguson, more than half a century back, is obviously a more acceptable procedure because of a better post operative course, less post operative pain, faster healing[7]. For high patient satisfaction and very low rates of perioperative morbidity it could be the gold standard technique.[5,10,14,18,19,20,21]

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