Section: General Surgery

Original Research Article

A COMPARATIVE PROSPECTIVE STUDY ON OPEN AND CLOSED HEMORRHOIDECTOMY AMONG SECOND AND THIRD-DEGREE HEMORRHOIDS IN A TERTIARY CARE CENTRE

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Abstract

Background: Since the beginning of human civilization, haemorrhoids have been identified and treated; yet, there is ongoing controversy regarding their aetiology, nature, symptomatology, and particularly, available treatments. So, this study aims to compare open haemorrhoidectomy with closed haemorrhoidectomy concerning post-operative pain and rate of healing at the post-operative course for three weeks, six weeks and three months follow up. **Materials and Methods:** A prospective study of sixty haemorrhoids patients who were randomized into two groups, was undertaken in a tertiary care center by non-probability sampling method to assess the post-operative course of two surgical methods. **Result:** The participants were predominately male and above thirty years with the main complaints of bleeding and mass per rectum. The post-operative complications like pain and soiling do not differ among both groups. However, the wound healing rate was higher in a closed group during the three and six-week follow-up period. **Conclusion:** Almost both open and closed techniques appeared to be the same, the extent of wound healing was higher in closed haemorrhoidectomy.

INTRODUCTION

One of the most prevalent anorectal conditions is haemorrhoids.[1] Enlarged vascular cushions within the anal canal, known as haemorrhoids or "piles," have been documented for centuries and continue to account for a significant portion of the cases that a colorectal surgeon treats.[2]

Haemorrhoids are thought to affect 4.4% of the general population globally.[3] It has been estimated that over 50% of people will experience haemorrhoids at some point in their lives, most likely by the time they are 50, and that 5% of people get haemorrhoids at any given moment.[4] Both men and women can be affected by haemorrhoids, which can happen at any age. Although the precise prevalence is unknown in developing nations, the disease is becoming more common there, maybe as a result of a more westernized lifestyle.[5]

The aetiopathogenesis of haemorrhoids was not clear. There are numerous arguments supporting the theory that the prolapse in the anal canal is the result of a steady degradation of the internal hemorrhoidal plexus' fibromuscular structure.[6] There are two types of haemorrhoids: internal and external. External haemorrhoids are typically painful and appear below the dentate line. Proximal to the dentate line, internal haemorrhoids are typically painless.[7] Haemorrhoids are classified as grade I if they protrude into the anal canal and do not prolapse out of it; grade II if they prolapse after bowel movements but spontaneously reduce; grade III if they must be manually reduced; and grade IV if they cannot be reduced. If haemorrhoids continue to prolapse, they may result in gangrene and thrombosis.[7]

Haemorrhoids may cause bleeding, faecal or mucosal soiling, itching, and in rare cases, pain. Outpatient treatments include sclerotherapy, photocoagulation, rubber band ligation, and cryotherapy may be suitable for people with grade I or grade II haemorrhoids or those with greater haemorrhoids but want to avoid surgical treatment.[7]

When large symptomatic haemorrhoids do not improve with outpatient therapy, surgery is the only option.[2] The surgical management of haemorrhoids evolved over centuries. Anal stretching or rectal bouginage was used during the nineteenth century. Fredrick Salmon developed a combination excision and ligation technique for haemorrhoids in 1888.[5] This involved cutting the peri-anal skin, dissecting

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the hemorrhoidal plexus and muscles, and then ligating the haemorrhoid. The methods used by Ferguson and Milligan-Morgan today are thought to be an adaptation of Salmon's methods. Three further innovations in the late 20th century were the stapled haemorrhoidectomy by Longo, rubber band ligation by Barron, and diathermy haemorrhoidectomy by Alexander Williams. The care of haemorrhoid patients depends upon the extent of haemorrhoids.[8]

In Milligan – Morgan (Open haemorrhoidectomy) technique, the ligasure vessel sealing system, electrocauterization, laser surgery, harmonic scalpel (an ultrasonic cutting and coagulating device), or scissors are used to remove the haemorrhoid from the underlying anal sphincter complex. By secondary intention, the vascular pedicle is kept under control and the mucosal defects are left open for granulation. The Ferguson closed method follows the same principle, but the skin and mucosal margins are closed with a continuous suture. There is still disagreement among surgeons worldwide over the best way to stitch closed or leave open the wounds from hemorrhoidal excision. So, this study aims to compare open haemorrhoidectomy with closed haemorrhoidectomy concerning post-operative pain and rate of healing at the post-operative course for three weeks, six weeks and three months follow up.

Objective

To compare open haemorrhoidectomy with closed haemorrhoidectomy concerning post-operative pain and rate of healing at the post-operative course for three weeks, six weeks and three months follow up among haemorrhoid patients.

MATERIALS AND METHODS

A prospective study was undertaken among patients having Haemorrhoids with second and third degree for two years duration attending outpatient department of the Department of Surgery, Trichy SRM Medical College Hospital and Research Centre. A total of sixty patients were recruited for the study by non-probability sampling method to evaluate the post-operative course of open and closed haemorrhoidectomy for two years duration from May 2021 – May 2023.

Patients with complaints of bleeding per rectum, mass per rectum, pain, irritation and discharge per rectum and the patients with 2nd and 3rd degree haemorrhoids suitable for surgery were included in this study and patients with Haemorrhoids associated with complications like

A detailed history of each patient was taken with personal history, family history, diet history, with systemic examination of respiratory, cardiovascular, per abdominal examination to know any associated disease and to rule out any cause predisposing to haemorrhoids and local examination including proctoscopy as per the proforma made for the study and entered in the proforma. Investigations included haemoglobin, total count, differential count, erythrocyte sedimentation rate, blood sugar, bleeding time, clotting time, blood urea, serum creatinine and urine routine. Other investigations like chest X-ray, electrocardiogram, sigmoidoscopy and colonoscopy were done only in selected few cases.

They were divided into two equal groups with their willingness of participation in this study. The patients were explained in detail about their disease and the various modalities of treatment as open haemorrhoidectomy, closed haemorrhoidectomy, rubber band ligation, cryotherapy, sclerotherapy with advantages and disadvantages of each. The selected participants recruited in the group and investigated as per proforma. Data were entered and analysed using Microsoft excel 2010 and SPSS software 21 version using descriptive and inferential statistics. The proportions were used to interpret categorical variables and the association was tested by using chi square test. The ethics clearance was sought from the Trichy SRM Medical College Hospital and Research Centre.

RESULTS

This study was conducted among seventy haemorrhoids patients prepared for surgery. They were divided into equal groups based on their willingness of the surgery, open or closed respectively. Table 1 describes the descriptive data of haemorrhoid patients. The frequency of the age group more than thirty years and male gender was high among both groups. The frequency of degree of haemorrhoids was almost similar in both groups. The patients underwent open surgery had the complaints like bleeding per rectum (60%), mass per rectum (56.66%), pain (20%), constipation (36.66%) and discharge (3.33%). The patients underwent open surgery had the complaints like bleeding per rectum (80%), mass per rectum (73.33%), pain (46.66%), constipation (56.66%), discharge (3.33%) and irritation (3.33%).

The mean duration of surgery was 27.14±3.45 minutes in open surgery method and 30.34±4.12 minutes in closed method and it was found to be statistically significant.

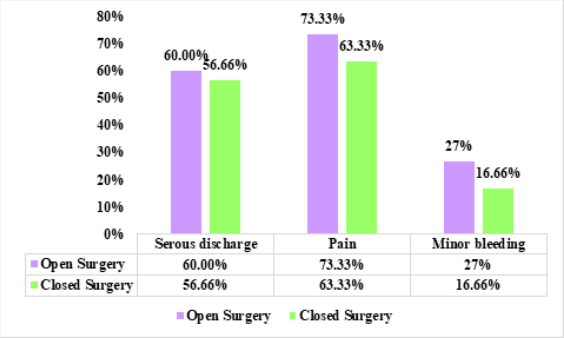

Figure 1: Post Procedure Complications among participants

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[Figure 1] shows post procedure complications of both procedures. The patients of both procedures were reported serous discharge (18 patients vs 17 patients), pain (22 patients vs 19 patients), and minor bleeding (8 patients vs 5 patients), in varying proportions. There were no cases of urinary retention in both the techniques.

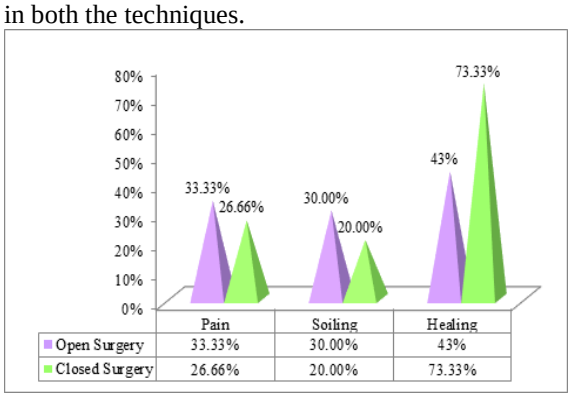

Figure 2: Post procedure complications after three weeks follow up

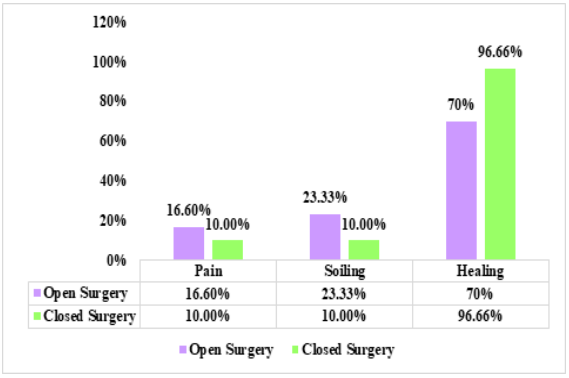

Figure 3: Post procedure complications after six weeks follow up period

The association of post procedure complications like serous discharge, pain and minor bleeding was found to be insignificant between open surgery group compared with closed surgery group. [Table 2] describes the association between post procedure complications.

[Figure 2] shows the post procedure complications after three weeks of follow up period. Pain is almost similar in both open (33.33%) and closed haemorrhoidectomy (26.66%) techniques after 3 weeks of follow up in the present study. Soiling is seen higher in open haemorrhoidectomy (30%) than in closed technique (20%) in the present study. By the end of 3 weeks 43% of the cases of open technique healed, where as 73.33% healing is seen in cases of closed technique.

[Table 3] shows the association of post procedural complication after three weeks of follow up period. The association was not found to be statistically significant as there was no difference in post procedural complications like pain and soiling after three weeks follow up period. The proportion of wound healing was significantly higher in closed surgery compared with open surgery.

[Figure 3] shows the post procedure complications after six weeks of follow up period.

[Table 4] shows the association of post procedural complication after six weeks of follow up period. The association was not found to be statistically significant as there was no difference in post procedural complications like pain and soiling after six weeks follow up period. The proportion of wound healing was significantly higher in closed surgery compared with open surgery.

Table 1: Descriptive data of participants

S No	Variables		Open Surgery (n = 30)	Closed surgery (n = 30)
1	Age group	≤ 30 years	2 (6.66%)	3 (10%)
		> 30 years	28 (93.33%)	27 (90%)
2	Gender	Male	22 (73.33%)	23 (76.66%)
		Female	8 (26.66%)	7 (23.33%)
3	Presenting complaints*	Bleeding per rectum	18 (60%)	24 (80%)
		Mass per rectum	17 (56.66%)	22 (73.33%)
		Pain	6 (20%)	14 (46.66%)
		Constipation	11 (36.66%)	17 (56.66%)
		Discharge	1 (3.33%)	1 (3.33%)
		Irritation	0	1 (3.33%)
4	Degree of hemorrhoids	Second	16 (53.33%)	13 (43.33%)
		Third	14 (46.66%)	17 (56.66%)

* Multiple responses

Table 2: Association between post procedure complications

S No	Variables	Open Surgery	Closed Surgery	p value
1	Serous discharge	18 (51.4%)	17 (48.57%)	0.793
2	Pain	22 (53.65%)	19 (46.34%)	0.405
3	Minor bleeding	8 (61.53%)	5 (38.46%)	0.347

Table 3: Association between post procedure complications after three weeks of follow up period

S No	post procedure complications	Open Surgery	Closed Surgery	p value
1	Pain	10	8	0.573
2	Soiling	9	6	0.371
3	Healing	13	22	0.018

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Table 4: Association between post procedure complications after six weeks of follow up period.

S No	Post procedure complications	Open Surgery	Closed Surgery	p value
1	Pain	5	3	0.447
2	Soiling	7	3	0.165
3	Healing	21	29	0.01

DISCUSSION

This study was conducted among sixty patients with haemorrhoids for the evaluation of postoperative course in closed and open haemorrhoidectomy. The open surgery method was done quickly compared with closed surgery and also the post operative complications like pain and soiling was common among both groups. However, the wound healing was significanly higher in closed group compared with open group. Arbman G et al,[9] in randomised trial compared open with closed haemorrhoidectomy and found that there was no statistical difference based on complications , pain and post-operative stay. But at follow up after three weeks patients' undergone Ferguson had 86%of healed wounds and in Milligan-Morgan only 18% of them had healed wounds. It was said that although closed method should not have significant post-operative pain reduction but is showed higher rate of wound healing.

A Study by Rehman K et al,[10] also described complete wound healing at two weeks of closed surgery, while half of the patients from open surgery method showed healing rates. Mohapatra R et al,[11] from Andhra Pradesh was also compared both surgeries and reported his findings that there was no statistical difference based on complications, pain and post-operative stay. One week following surgery, every patient in the closed group reported mild to moderate discomfort, while just one patient (3.3%) had no pain at all in the open group. There was little change in the patient's excruciating pain. Three weeks later, during follow-up, 78% of the patients in the closed group had fully healed wounds, and none showed any symptoms of infection. Just 26% of the patients in the open group had fully healed wounds, and there was a noticeably higher frequency of symptoms associated with delayed wound healing. Nancharaiah et al,[12] also showed that the post operative complications was similar in both groups which was similar to our study results. Mahmood K et al,[13] also reported that closed surgery resulted in faster wound healing and also the operating time too higher.

Majeed S et al,[14] showed that there was no difference in wound healing between open and closed group in their study. The results was contrast to our study findings could be due to post operative complications like haemorrhage, and urinary retention was reported in Majeed S et al,[14] research which were not found in our study. Uba AF et al,[15] reported post operative urinary retention among both group of patients which was contrast to our study results might be due to patient characteristics.

A meta-analysis reported by Ho Y H et al,[16] describes that among six trials there was no significant difference in cure rates between open and closed methods. Open method could be quickly performed but closer method showed faster wound healing rates which shows similar results of the study. But the hospital stay, maximum pain score and complication rates was not differed significantly among both groups.

The studies were confirmed that the post operative complications had no significant difference in both groups except wound healing. According to Milligan et al,[17] in Open haemorrhoidectomy, leaving the wounds exposed permits free wound drainage, which may lessen the risk of infection-related problems. Closing the wounds in the manner Ferguson and Heaton,[18] describe, however, might promote quicker primary healing and less scarring.

CONCLUSION

Open Haemorrhoidectomy and closed Haemorrhoidectomy surgical procedures almost had similar results. The Closed surgery procedure took some more time to finish, but open surgery could be done quickly. The complications like pain and soiling were almost the same between both procedures. The wound healing achieved at the earliest in closed procedure compared with open procedure.

Limitations

The larger sample size might be considered for generalising results.

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