



A Comparative study of Open haemorrhoidectomy to rubber band ligation in second and third degree haemorrhoids at a tertiary care hospital in Odisha.

Shrikanta Kumar Behera¹ Subrata Das² Saikh Kasif Sahajada³ Binaya Kumar Padhi⁴

¹ 3rd year Postgraduate, Dept. of General Surgery, Hi-tech Medical College, Bhubaneswar, Odisha.

² Professor, Dept. of General Surgery, Hi-tech Medical College, Bhubaneswar, Odisha.

³ 3rd year Postgraduate, Dept. of General Surgery, Hi-tech Medical College, Bhubaneswar, Odisha.

⁴ 2nd year Postgraduate, Dept. of General Surgery, Hi-tech Medical College, Bhubaneswar, Odisha.

Date of Submission: 20-11-2020

Date of Acceptance: 04-12-2020

ABSTRACT: Background: Haemorrhoids (also known as piles) are swollen and inflamed vascular structures in the rectum or anus. Typical symptoms include pain, itching around the anal area and bleeding during defaecation. It can be internal, external or mixed. The treatment options ranges from conservative, sclerotherapy, rubber band ligation to open haemorrhoidectomy. Here in our study we discuss the comparative features of rubber band ligation to haemorrhoidectomy and the advantage of one procedure over the other if any at a tertiary care hospital of Odisha.

Methods: The diagnosis of hemorrhoids is primarily based on the proctoscopic examination followed by Sigmoidoscopy. The study evaluates comparative results of rubber band ligation (RBL) and hemorrhoidectomy. This study was conducted over a period of 2 year from October 2018 to September 2020 which included 80 patients having second or third degree primary hemorrhoids who attended surgical OPD of our Hospital in Odisha. These 80 patients were selected randomly and divided into two groups of 37 and 43 basing on their wish to undergo the type of treatment. Patients of fissure, fistulae, and malignancy were excluded. All parameters were recorded analysed by making a master chart and conclusions were drawn from it. We compared the outcome and the various complications associated with RBL and haemorrhoidectomy in patients with grade II-III haemorrhoids.

Results: In our study we observed that Hemorrhoidectomy is superior to RBL in terms of less recurrence and improvement in both grade II and III haemorrhoids. However, RBL should be considered the first-line treatment in second degree hemorrhoids because being an outpatient procedure, it is cost effective for the patients. Although RBL is not as effective as hemorrhoidectomy in third-

degree hemorrhoid, it does improve bleeding and prolapse and is highly recommended for patients who are unfit for surgery.

Conclusions: RBL should be considered as the first-line treatment for second-degree hemorrhoid. However, in the third-degree hemorrhoids, hemorrhoidectomy achieves better results, and RBL is recommended as the first-line treatment for those patients in whom there is contraindication for surgery or anesthesia.

KEYWORDS: Haemorrhoids, Open haemorrhoidectomy, Rubber band ligation.

I. INTRODUCTION

The anal canal is lined in upper two-thirds by columnar epithelium and in the lower third by the squamous epithelium, which meets at the dentate line. In the upper anal canal, there are subepithelial vascular cushions continuous with the rectal columns above, which when distended give stellate (triradiate) cross section to anal lumen.^[1] These cushions are suspended in the anal canal by a connective tissue framework derived from internal anal sphincter and longitudinal muscle of the rectum. Within each cushion is a venous plexus that is fed by arteriovenous communication. Hemorrhoids results from the pathological change in prolapsed anal column.^[1] Haemorrhoids result from enlargement of the haemorrhoidal plexus and pathological changes in the anal cushions, a normal component of the anal canal.

Internal hemorrhoids are classified into four degrees depending on the extent of prolapse and the reducibility. This classification is important as basing on this various therapies are decided. Grade I: bleeding without any prolapse
Grade II: prolapse which is spontaneously reduced
Grade III: prolapse which needs manual reduction



Grade IV: incarcerated, irreducible prolapse which is not reducible manually.

Assessment should include proctoscopy and digital rectal examination (DRE) in left lateral position or the Sims position. The haemorrhoids can be viewed (by using proctoscope) in the left lateral, right anterior, and right posterior positions, that is at 3, 7 and 11 O'clock in lithotomy position. Sigmoidoscopic examination is important before any treatment planning.

Treatment is classified in three categories as per the guidelines issued by the American Society of Colon and Rectal surgeons.^[2]

- Conservative treatment, which consists of increasing dietary fiber, avoiding straining at stools, and prolonged staying on toilet. Sitz baths in ointments containing local anesthetic, mild astringent, and steroids that provide short-term relief,
- Minimally invasive procedures which include RBL, injection sclerotherapy, infrared coagulation, anal stretch, cryosurgery, laser hemorrhoidectomy, and Doppler-guided hemorrhoidal artery ligation
- Surgical therapy includes closed hemorrhoidectomy, open hemorrhoidectomy, stapled hemorrhoidectomy and white head hemorrhoidectomy.

Treatment varies from person to person. It depends on various factors like the degree of symptoms and degree of prolapsed. The treatment may range from dietary modification, rubber band ligation (RBL), to operation requiring anaesthesia. Although RBL is cheap and serious complications are rare, recurrence is common, particularly where prolapse is substantial. There are various other methods also which require anaesthesia support e.g. ligasure haemorrhoidectomy surgery, open haemorrhoidectomy or a stapled haemorrhoidectomy.

Open haemorrhoidectomy is associated with considerable postoperative pain, discomfort, sometimes necessitating admission to hospital and delayed return to normal activity, but recurrence is low. Stapled haemorrhoidectomy has a slightly higher recurrence rate but patients return to normal activity more quickly than with traditional haemorrhoidectomy.^[3]

In our study we evaluate the results of RBL, and the hemorrhoidectomy and a comparative evaluation of both the methods at a tertiary care hospital of Odisha.

Methods

The study evaluates comparative results of rubber band ligation (RBL) and open hemorrhoidectomy (OH). This study was conducted over a period of 2 years from October 2018 to September 2020. It includes 80 patients having second or third degree primary hemorrhoids who attended surgical OPD of our Hospital in Odisha. These 80 patients were selected randomly and divided into two groups depending upon their preference to undergo one among the procedures. Of the 80 patients 37 patients opted for RBL and rest 43 patients opted for hemorrhoidectomy. The patients undergoing RBL are termed group A and those undergoing haemorrhoidectomy termed group B. The various data were collected, analysed and compiled together to get the final result.

Detailed clinical history was taken in all the patients with particular reference to bleeding per rectum, constipation, prolapse, painful defecation, discharge per rectum, dietary habits, and family history of hemorrhoids. Detailed general physical exam was done in all. Each patient was subjected to local examination (DRE), proctoscopy, and sigmoidoscopy. All the patients with second or third degree haemorrhoids were included in study. Baseline investigations including CBC, Blood sugar, urine exam, CXR, and ECG were done in all patients. All the patients were given proctoclysis enema in the evening and the morning before surgery or RBL. Patients with perianal sepsis, inflammatory bowel disease, colorectal malignancy, pre-existing sphincter injury, and immunodeficiency, hypercoagulability disorders were excluded from our study.

The patients in haemorrhoidectomy group were kept nil by mouth for 8 hours before surgery. On post op day 2 the patients were discharged. The patients in RBL group were discharged the same day evening. All the patients were advised to contact emergency immediately in case of any complication in the form of bleeding per rectum, pain, fever, swelling, discharge, etc. Final assessment was done at 6 months post procedure regarding effect of treatment on rectal bleeding, prolapse, pain, and subjective improvement. Basic statistical analysis was used to look for the results of the study.

II. RESULTS

The age of patients ranged from 18 to 80 years in both A and B groups with a mean age of 47.5 years. The commonest symptoms were prolapse (90 %) and bleeding P/R (96%), and discharge per rectum (35%).

Of the 80 patients, 60 were males and 20



were females (M: F=3:1) in the rubber band ligation (A) group, 25 patients were males and 12 females (M:F=2.08:1), and in the hemorrhoidectomy (B) group, 35 were males and 08 females (M: F=4.3:1) (Table 1).

All the patients took mixed diet with less fiber in it. Positive family history of hemorrhoids

was present in 40 patients (24 in A group and 16 in B group). Proctoscopic examination revealed that in the A group, 28 of the patients (75.67 %) had grade II and 09 (24.32 %) had grade III hemorrhoids. In the B group, 24 patients (55.8 %) had grade II and 19 patients (44.18%) had grade III hemorrhoids (Tables 2 and 3).

Table 1: Gender of patients in our study.

Gender	Group A	Group B	Total
Male	25	35	60
Female	12	08	20
Ratio(M:F)	2.08:1	4.3:1	3:1

Table 2: Proctoscopic examination of patients in group A.

Findings	No. of cases	Percentage
Grade I hemorrhoid	0	0%
Grade II (spontaneous reduction)	28	75.67%
Grade III (manual reduction)	9	24.32%

Table 3: Proctoscopic examination of patients in group B.

Findings	No. of cases	Percentage
Grade I hemorrhoid	0	0%
Grade II (spontaneous reduction)	24	55.8%
Grade III (manual reduction)	19	44.18%

Assessment at 6 months postprocedure revealed the following points: RBL resulted in no bleeding in 68 % of patients compared with 82 % after hemorrhoidectomy.

There were 28 patients in the A group and

24 patients in the B group with grade II hemorrhoids. Out of that 22 patients (78.57 %) had no prolapse following RBL compared with 22 patients (91.66 %) after hemorrhoidectomy. (Tables 4 and 5).

Table 4: Effect on grade II hemorrhoid by RBL.

Effects	No. of cases	Percentage
No prolapse	22	78.57%
Improvement	04	14.28%
No change	02	7.14 %

Table 5: Effect on grade II hemorrhoid by hemorrhoidectomy.

Effects	No. of cases	Percentage
No prolapse	22	91.66%
Improvement	02	8.34%
No change	00	0%

Effect on grade III hemorrhoids; there were 09 patients with grade III hemorrhoids in the A group and 19 patients with grade III hemorrhoids

in the B group. 66.67% of patients showed no prolapse after RBL compared with 78.94% after hemorrhoidectomy (Tables 6 and 7).



Table 6: Effect of RBL in grade III haemorrhoid.

Effects	No. of cases	Percentage
No prolapsed	06	66.67%
Improvement	01	11.1%
No change	02	22.23%

Table 7: Effect of hemorrhoidectomy in grade III haemorrhoid.

Effects	No. of cases	Percentage
No prolapsed	15	78.94%
Improvement	04	21.06%
No change	00	00%

Patient assessment of treatment following RBL showed excellent improvement in 28 patients (75.67%), moderate improvement in 05 patients (13.51%), and no improvement in 04 patients (10.81%) compared to 37(86.04%) showing excellent improvement 6(13.96%) showing moderate improvement and zero patient showing no improvement in OH group.

III. DISCUSSION

After 1 year of follow up the recurrence rate in group A patients was slightly higher than that of group B patients. Haemorrhoidal disease is a benign condition with treatment primarily aimed at associated symptoms. As there is no proper scoring system we took non recurrence of symptoms and no bleeding PR as successful treatment outcome. Where patients had undergone further intervention for haemorrhoids, they were considered to have recurred. Based on this premise, OH appears superior. This apparent superiority should be put in practical context. 15% of the participants in the RBL group underwent repeat banding. This is common practice and patients might find this rebanding a more palatable option than having an operation if it has the same potential for improvement. Indeed some clinicians deem RBL as a course of treatment. Including these patients as a success (if they reported improvement at 12 months) resulted in a reduction in recurrence and no statistical difference between the groups.^[4]

The mean age of patients in our series was 46.5 years (18-80 years). This is comparable to that reported by Murie et al who reported the mean age of 50±12 years, Konings et al who reported the mean age of 51 years and Hosch et al who reported the mean age of 50 years.^[5]

The overall male:female ratio in our study was 60:20 (3:1). These finding correlate well with male preponderance noted by Stefan et al. (M:F=2.4:1), Sohn et al. (2:75:1), Murie et al.^[6]

Rectal prolapse was present in 100 % of our patients. This is comparable to the findings of Murie et al (100 %). However, our study is at variance with that of Steinberg et al. who reported prolapse in 64 % and O'Regan et al. who reported prolapse in 62% of their patients. Discharge per rectum which was present in 20 % of our patients comparable with that of Steinberg et al.^[7] (23.2 %) and varies with the series of Murie et al (53 %). In our series of patients, pain was reported in 50 %. In the series of Murie et al.^[8] pain was reported in 44 % of patients, and in the study by Vellacott and Hardcastle (35%). Constipation in our study was reported in 40 % of patients, which was at variance with that of Broader et al (10 %). This variance could be explained by sociocultural and climatic condition of our region.

At 6-month follow-up we observed no bleeding in 70 % in the B group and 80 % in the A group. Above findings closely correlated with those of Murie et al and Steinberg et al and Panda et al. These findings suggest RBL as an excellent method and equally efficient as hemorrhoidectomy in control of bleeding.^[9]

In our study, 78.57 % patients had no prolapse following RBL compared with 91.66 % following hemorrhoidectomy in grade II hemorrhoids. These findings closely correlate with findings of Murie et al, Steinberg et al, Panda et al.^[8- 10] These findings indicate that RBL produces comparable results to hemorrhoidectomy in prolapse with spontaneous reduction (grade II) Murie et al. Cheng et al, report that hemorrhoidectomy is good in curing the disease, but higher possibility of post-op pain, complications and longer hospital study would not justify its use in the treatment of second hemorrhoid. Lewis et al are of view that RBL is cheaper alternative to hemorrhoidectomy and reduces the demand for beds and pressure on surgical waiting list.^[11]



For grade III hemorrhoids (prolapse requiring manual reduction). We reported no prolapse in 66.67% of our patients following RBL compared with 78.94% following hemorrhoidectomy, improvement in prolapse following RBL in 11% compare to 21% after hemorrhoidectomy and no change in 22% in RBL group compared to 0% in Hemorrhoidectomy group.^[12] These findings are age comparable to those of Murie et al. These findings suggest that RBL is not as effective as hemorrhoidectomy in the treatment of large hemorrhoid requiring manual reduction (grade III). Lewis et al, reported that cryotherapy and RBL are unsuitable for treatment of large prolapsing hemorrhoids; however, they may be considered as cost-effective and acceptable treatment in short term, but in long term some patients will develop recurrence, requiring hemorrhoidectomy.^[13]

IV. CONCLUSION

As per our observations the recurrence of prolapse was less in the group undergoing open hemorrhoidectomy as compared to the group undergoing RBL for both grade II and grade III prolapse. Open hemorrhoidectomy is associated with more post operative pain and more post operative discomfort as compared to RBL. From our study we conclude that for grade II hemorrhoid RBL should be considered as it is a day care procedure. For grade III hemorrhoids open hemorrhoidectomy should be considered first. In case of contraindications to anaesthesia RBL should be considered as first line therapy irrespective of the grade of hemorrhoid.

REFERENCES

- [1]. Thomson WH. The nature of hemorrhoids. *BJS* 1975;62:542-52.
- [2]. American society of colon and rectal surgeons. Practice parameters for the treatment of haemorrhoids. *Dis Colon Rectum*. 1993;36:1118-20.
- [3]. Lord PH. A day case procedure for the cure of third degree hemorrhoids. *Br J Surg*. 1969;56:747-9.
- [4]. Iyer VS, Shrier I, Gordon PH. Long-term outcome of rubber band ligation for symptomatic primary and recurrent internal hemorrhoids. *Dis Colon Rectum*. 2004;364-70.
- [5]. Ferguson JA, Mazier WP, Ganchrow MI, Friend WG. The closed technique of hemorrhoidectomy. *Surgery*. 1971;70:480.
- [6]. Infantino A, Altomare DF, Bottini C, Bonanno M, Mancini S. Prospective randomized multicentre study comparing stapler haemorrhoidopexy with Doppler-guided transanal haemorrhoid dearterialization for third-degree haemorrhoids. *Colorectal Dis*. 2012;14:205-11.
- [7]. Pucher PH, Qurashi M, Howell AM, Faiz O, Ziprin P, Darzi A, et al. Development and validation of a symptom-based severity score for haemorrhoidal disease: the Sodergren score. *Colorectal Dis*. 2015;17:612-18.
- [8]. Murie JA, Mackenzie I, Sim AJ. Comparison of rubber band ligation and hemorrhoidectomy for second and third degree haemorrhoids: a prospective clinical trial. *BJS*. 1980;67(11):786-8.
- [9]. Steinberg DA, Liegois HJ, Willaims A. Long term review of the results of rubber band ligation of haemorrhoids. *BJS*. 1975;62:144-6.
- [10]. Cheng FC, Shum DW, Ong GB. The treatment of second degree haemorrhoids by injection, rubber band ligation, maximalanal dilatation and haemorrhoidectomy: a prospective clinical trial. *Aust NZ J Surg*. 1981;51(5):458-62.
- [11]. Konings M, Debets JM, Baeten CG. Rubber band ligation of hemorrhoids: symptoms almost gone after 6 weeks but many patients need retreatment in the long run. *Ned Tijdschr Geneesk*. 1999;143(24):1265-8.
- [12]. Hosch SB, Knoefel WT, Pichlmeier U, Schulze V, Busch C, Gawad KA, et al. Surgical treatment of piles. *Diseases of the colon & rectum*. 1998 Feb 1;41(2):159-64.
- [13]. Sohn N, Aronoff JS, Cohen FS, Weinstein MA. Transanal hemorrhoidal dearterialization is an alternative to operative hemorrhoidectomy. *Am J Surg*. 2001 Nov 1;182(5):515-9.