



ORIGINAL RESEARCH PAPER

General Surgery

A COMPARATIVE STUDY OF RUBBER BAND LIGATION AND OPEN HEMORRHOIDECTOMY IN GRADE II INTERNAL HEMORRHOIDS

KEY WORDS: Band Ligation, Open Hemorrhoidectomy, Grade II Internal Hemorrhoids.

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ABSTRACT

Hemorrhoids is a common anal disorder and one among the most common findings observed in per-rectal examination. There are various treatment for hemorrhoids available at present. This study is being done to compare Band Ligation and Open Hemorrhoidectomy for Grade II Internal Hemorrhoids. Band Ligation and Open Hemorrhoidectomy in Grade II Internal Hemorrhoids were studied and compared in terms of Post operative complications, Duration of hospital stay and Cost effectiveness. A prospective study was conducted on 120 patients diagnosed with Grade II Internal hemorrhoids in the Department of General Surgery for a period of 18 months from December 2022 to May 2024. 120 patients were randomly grouped into two groups of 60 patients each: Group 1 underwent Rubber Band Ligation and Group 2 underwent Open Hemorrhoidectomy. After the Operative Procedure patients were followed up for 6 months. The mean age of the patients in Group 1 was 40 years and in Group 2 was 39.10 years. 22 out of 60 patients in Group 1 belonged to age group of 31 – 40 years and 26 out of 60 patients in Group 2 belonged to age group of 31 – 40 years. 32 out of 60 patients in Group 1 and 42 out of 60 patients in Group 2 were males. In our study we found that Rubber band ligation had less post-operative complications, less duration of hospital stay and is cost effective compared to Open Hemorrhoidectomy in Grade II Internal Hemorrhoids.

INTRODUCTION

Hemorrhoids is a common anal disorder and one among the most common findings observed in per-rectal examination. They are the clinical manifestation of downward disruption of normal functional anal cushions^[1]. Hemorrhoids commonly occur in those with chronic increased intra-abdominal pressure as well as in pregnant women. Patients with hemorrhoids may present with bleeding per rectum, mass coming out of rectum, perianal itching, anaemia from occult blood loss^[1,2].

The Hemorrhoids are classified into internal and external hemorrhoids based on location of Hemorrhoidal mass above or below the dentate line. External hemorrhoids are those which are located below the dentate line and are covered with anoderm. Internal hemorrhoids are those which are located above the dentate line. Internal hemorrhoids can be further grouped into four degrees^[2]. First degree internal hemorrhoids do not prolapse outside the anal canal but the patients present with bleeding. Second degree internal hemorrhoids prolapse outside anal canal on straining but also reduce spontaneously. Third degree internal hemorrhoids prolapse outside the anal canal and does not reduce spontaneously but requires manual reduction. Fourth degree internal hemorrhoids prolapse outside the anal canal and are irreducible^[4].

Almost 50% of people present at least one episode of symptomatic hemorrhoids during their lifetime and majority of these patients will undergo surgery if conservative treatment does not improve their condition. A number of modalities and techniques have been put forward to treat symptomatic hemorrhoids ranging from simple dietary measures and bowel habit regulation, to a number of non-operative procedures, to different surgical techniques of excision of the diseased anal cushions^[7]. The vast number of treatment options means there is no single treatment modality close to perfection. The surgical hemorrhoidectomy is more definitive in symptom control but it is known for being a painful procedure for a relatively benign condition. The development of the new surgical and outpatient department based procedures has led to reduced postoperative pain and

complications and has also improved long-term outcomes. Nonsurgical methods focus on techniques at tissue fixation (sclerotherapy, photocoagulation, cryotherapy, laser) or on techniques at fixation with tissue excision [rubber band ligation (RBL)]^[6,8]. The surgical techniques include Open Hemorrhoidectomy, Closed Hemorrhoidectomy, Stapler Hemorrhoidopexy. This study is conducted to know the outcome of Band ligation and Open Hemorrhoidectomy for Grade II Internal Hemorrhoids in terms of Post-operative complications, duration of hospital stay and cost effectiveness.

Methodology

A prospective study was conducted on 120 patients diagnosed with Grade II Internal hemorrhoids in the Department of General Surgery at a Tertiary Care Hospital for a period of 18 months from December 2022 to May 2024. 120 patients were randomly grouped into two groups of 60 patients each: Group 1 underwent Rubber Band Ligation and Group 2 underwent Open Hemorrhoidectomy.

Inclusion criteria:

- The patients with Grade II Internal Hemorrhoids were included.
- The patients opting for Band ligation and Open Hemorrhoidectomy are considered.

Exclusion criteria:

- The patients with Grade I, III and IV Internal Hemorrhoids are excluded.
- The patients with Recurrent Hemorrhoids were excluded.
- The patients with Secondary Hemorrhoids were excluded.

Following the Procedure (Rubber band ligation or Open Hemorrhoidectomy), patients were followed up to assess patients response and complications like pain, bleeding, recurrence, anal stenosis, anal fissures and anal incontinence. The patients were followed up on 3rd post operative day and 7th post operative day, weekly for first four weeks and thereafter once at 3rd month and then at 6th month.

RESULTS

In Group 1, 22 belonged to age group of 31-40 years. In Group 2, 26 belonged to the age group of 31-40 years. In Group 1, 32 were males and 28 were females. In Group 2, 42 were males and 18 were females. In Group 1, 40 patients presented with bleeding per rectum and 20 patients presented with mass per rectum. In Group 2, 28 patients presented with bleeding per rectum and 32 patients presented with mass per rectum. On Post operative day 0, 6 patients in Group 1 and all 60 patients in Group 2 complained of pain which was found to be statistically significant with $p < 0.001$. On Post operative day 0, no patients in Group 1 and 8 patients in Group 2 complained of bleeding per rectum which was found to be statistically significant with $p < 0.038$. On Post operative day 0, no patients in Group 1 and 8 patients in Group 2 complained of urinary retention which was found to be statistically significant with $p < 0.038$. On Post operative day 3, no patients in Group 1 and 34 patients in Group 2 complained of pain which was found to be statistically significant. On Post operative day 3, no patients in Group 1 and 8 patients in Group 2 complained of bleeding per rectum which was found to be statistically significant with $p < 0.038$. On Post operative day 3, no patients in Group 1 and 8 patients in Group 2 had edema at operated site which was found to be statistically significant with $p < 0.038$. On Post operative day 7, no patients in Group 1 and 4 patients in Group 2 complained of pain which was statistically not significant. ($p > 0.076$).

No Post operative complications were noted on Post-operative week 2, week 3, week 4, 3rd month and 6th month in both the groups.

In Group 1, 56 patients were discharged on the day of procedure, 4 patients were discharged on post operative day 1 and in Group 2, 50 patients were discharged on post operative day 2, 10 patients were discharged on post operative day 4. The above data was found to be statistically significant with $p < 0.001$. The duration of hospital stay was less in Group 1 than Group 2.



Fig1 Rubber Band ligator and Rubber Bands used for Band Ligation



Fig 2 Intra-operative images of Grade II Internal Hemorrhoids before and after Rubber Band Ligation.

DISCUSSION

In our study, 120 patients with Grade II Internal Hemorrhoids were divided into two groups of 60 patients each. Group 1 underwent Rubber Band Ligation and Group 2 underwent Open Hemorrhoidectomy. The two procedures were studied for the following parameters – Post-operative complications, duration of Hospital Stay and Cost effectiveness.

In our study, the mean age group of the patients in group 1 and group 2 were 40 and 39.10 years respectively. This data is

consistent with the study conducted on 750 cases out of 2200 cases of symptomatic hemorrhoids by Ayman M EL, Nakeeb et al^[1].

In our Study, in group 1, 32 out of 60 patients were males and in group 2, 42 out of 60 patients were males. Male Preponderance was seen. The results were consistent with study conducted by Ayman M EL, Nakeeb et al^[1], Jiazi Yu et al^[5] and Dr Anand Saxena et al^[7].

In our study, 68 patients presented with bleeding per rectum and 52 patients presented with mass per rectum. This data was found to be consistent with study conducted by Ayman M EL, Nakeeb et al^[1], Irfan Nazir Mir et al^[6] and Dr Anand Saxena et al^[7].

In our study, in group 1 who underwent Rubber Band Ligation, 6 out of 60 patients complained of pain on the day of procedure. This data is not consistent with the study conducted by Jiazi Yu et al^[5] and Dr Anand Saxena et al^[7]. But found to be consistent with Vinayak Nikam^[3] and Irfan Nazir Mir^[6].

In our Study, in group 2, on the operative day, all 60 patients complained of pain at operated site, 8 patients complained of bleeding from operated site and 8 patients complained of urinary retention. This data is consistent with study conducted by Pata F et al^[8], L Dekker et al^[4]. In our Study, in group 2, on the post-operative day 3, 34 patients complained of pain, 8 patients complained of bleeding and 8 patients had edema at operated site. This data was found to be consistent with the study conducted by L Dekker et al^[4], Pata F et al^[8], Watson AJM et al^[17].

In our Study, in group 2, on the post operative day 7, 4 patients complained of pain at operated site. This data was found to be consistent with Izadpanah A et al^[20], Brown SR et al^[21].

In our Study, no complications were reported in were reported in post-operative week 2, week 3, week 4, 3rd month and 6th month in both the groups. This data is not consistent with the study conducted by Ayman M EL Nakeeb et al^[1], Andreia Albuquerque et al^[2] and Vinayak Nikam et al^[3].

In our study, in group 1 who underwent Rubber Band Ligation, 56 patients were discharged on the day of procedure and 4 patients were discharged on the next day. This data is consistent with the study conducted by Ayman M EL Nakeeb et al^[1], Andreia Albuquerque et al^[2], Vinayak Nikam et al^[3] and L Dekker et al^[4].

In our study, in group 2 who underwent Open Hemorrhoidectomy, 50 patients were discharged on Post-operative day 2 and 10 patients were discharged on Post-operative day 4. This data is consistent with the study conducted by L Dekker et al^[4], Watson AJM et al^[17], Izadpanah A et al^[20] and Brown SR et al^[21].

CONCLUSION

The Post-operative complications on POD 0 and POD 3 were more in group 2 who underwent Open Hemorrhoidectomy than in Group 1 who underwent Rubber Band Ligation and the data was found to be statistically significant.

The patients in group 1 had a shorter duration of hospital stay in comparison with patients in group 2 and the data was found to be statistically significant.

The mean cost of the procedure in group 1 was less compared to that in group 2 and the data was found to be statistically significant.

In our study, we would like to conclude that Rubber Band Ligation is better than Open Hemorrhoidectomy for Grade II

Internal Hemorrhoids as the former is associated with less Post-operative complications, less duration of hospital stay and less cost in comparison with Open Hemorrhoidectomy.

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