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Original Research Article

A comparative study of sclerotherapy and rubber band ligation versus open hemorrhoidectomy in second degree hemorrhoids

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ABSTRACT

Background: Hemorrhoids affects the quality of life and leads to significant pain and discomfort. The current study was done to evaluate the results of comparative treatment of rubber band ligation, sclerotherapy and open hemorrhoidectomy.
Methods: This was a prospective study done on 90 patients with second grade internal hemorrhoids attended to the Department of General Surgery at S. Nijalingappa Medical and Research Centre, Bagalkot during the study period from 2012 November to 2013 December. Systemic examination and basic investigations were done. According to severity and type of symptoms, patients were subjected for open hemorrhoidectomy (n=30), banding (n=30) and sclerotherapy (n=30).
Results: Occurrence of hemorrhoids was seen between the age group of 36 to 45 years. Out of 90 patients 52 were males and 38 were females. Common presenting complaint was bleeding per rectum and mass per rectum in 33.33% of patients. Postoperative hospital stay was 1 day in the groups treated with rubber band ligation and sclerotherapy and in open hemorrhoidectomy 28 patients stayed for 3 days and 2 patients for 5 days. About 70% of patients belonging to rubber band ligation and sclerotherapy group gave excellent response to the same.
Conclusions: In our study, rubber band ligation technique was found to be more cost effective and reliable to treat second grade hemorrhoids with lesser postoperative complications followed by sclerotherapy and hemorrhoidectomy.

Keywords: Hemorrhoids, Sclerotherapy, Rubber band ligation, Hemorrhoidectomy

INTRODUCTION

Hemorrhoids are one of the common clinical conditions affecting most of the population by the age of 50 years. They occur at any age and can affect both males and females.[1] The exact etiology is unknown but the condition usually encountered in people adopted with westernized life style.[2]

Hemorrrhoids are cushion sinusoids and they can be either external or internal.[3] The main complaints are bleeding during or after defecation, pain, itching, prolapse and perianal soiling.[1] The common non-operative procedure to treat first to third degree hemorrhoids was rubber band ligation. Sclerotherapy is the procedure to treat first, second and some third degree hemorrhoids. Complications are very few with this procedure, though infection and fibrosis have been reported in some studies. The most effective surgical technique employed for treating hemorrhoids is the open hemorrhoidectomy (Milligan-Morgan method). It is the procedure of the choice to treat third and fourth degree hemorrhoids.[4-6]

The present study evaluates the results of comparative treatment of rubber band ligation, sclerotherapy and open hemorrhoidectomy.

METHODS

This was a prospective study done on a total of 90 patients who were diagnosed to have grade II internal hemorrhoids attended to the Department of General Surgery at S. Nijalingappa Medical and Research Centre, Bagalkot during the study period from 2012 November to 2013 December. After getting informed consent from the patients, and permission from institutional ethics committee all the eligible patients were included in the study.

Inclusion criteria were all patients above 18 yrs to 75 yrs of age with second degree hemorrhoids and bleeding piles. Patients with grade 1, grade 3 and grade 4 hemorrhoids, recurrent hemorrhoids and secondary hemorrhoids were excluded.

Patients who were coming to outpatient department with complaints of bleeding per rectum or mass per rectum were subjected for detailed history taking which included symptoms and duration of disease. Then they were subjected for per rectal digital examination. Anoscopy was done to find out the internal hemorrhoids and its degree and position. Systemic examination and basic investigations were done. According to severity and type of symptoms, patients were subjected for open hemorrhoidectomy, banding and sclerotherapy.

Sample size was calculated using open-Epi software 2.3.1 version. Two sided significance (1-α) =95%, α=5% level of significance=0.05 power (1-β)=80% percentage of cases with free of symptoms after 6–8 weeks of sclerotherapy 2=56% percentage of cases with free of symptoms after rubber band ligation 2=89%.

Sample size calculated was 30 in each arm (sclerotherapy arm=30, rubber band ligation=30, open hemorroidectomy=30).

Follow up of patients after treatment was done by history, per rectal examination and anoscopy to assess patient's response and rate of complications like pain, bleeding, recurrence and discharge per anus. Follow–up period on first post op day, third postoperative day and seventh postoperative day and thereafter once at 3rd month and 6th month.

Statistical analysis

Data collected were entered and analyzed using Microsoft Excel and Epi-Info software package. Chi square and z test was used wherever necessary. The data was collected in a pretested proforma, which included the general information and clinical details of the patients.

RESULTS

A total of 90 cases were enrolled in the Department of General Surgery with grade 2 hemorrhoids. Table 1 presents the clinical characteristics of study participants. Maximum numbers of patients were seen between the age group of 36 to 45 years. Out of 90 patients 52 were males and 38 were females. The common presenting complaint was bleeding per rectum and mass per rectum in 33.33% of patients. Patients were randomly selected for treatment. Out of 90 patients with grade 2 hemorrhoids, 30 cases were selected for banding, 30 cases for sclerotherapy and 30 cases for open hemorrhoidectomy. Out of 90, 30 patients underwent hemorrhoidectomy under spinal anaesthesia and 60 patients underwent banding and sclerotherapy under local anaesthesia.

Table 1: Clinical characteristics of study participants (n=90).

Characteristics	Frequency (N)	Percentage (%)
Age group (in years)		
≤25	8	8.9
26-35	19	21.1
36-45	31	34.4
46-55	19	21.1
56-65	9	10.1
>66	4	4.4
Sex		
Male	52	57.8
Female	38	42.2
Symptoms		
Bleeding per rectum	18	20
Mass per rectum	2	2.2
Painful defecation	0	0
Bleeding per rectum+mass per rectum	30	33.33
Bleeding per rectum+painful defecation	10	11.11
Bleeding per rectum+ constipation	10	11.11
Bleeding per rectum+painful defecation Bleeding per rectum+constipation	20	22.23
Type of treatment		
Rubber band ligation	30	33.3
Sclerotherapy	30	33.3
Open hemorrhiodectomy	30	33.3
Type of anaesthesia		
Local	60	66.7
Spinal	30	33.3

Duration of postoperative day varied from one procedure to the other. Out of 30 patients who underwent banding and sclerotherapy in each group, all the patients stayed in

hospital for 1 day. Patients who underwent open haemorrhoidectomy out of which 28 patients stayed for 3 days and 2 patients for 5 days.

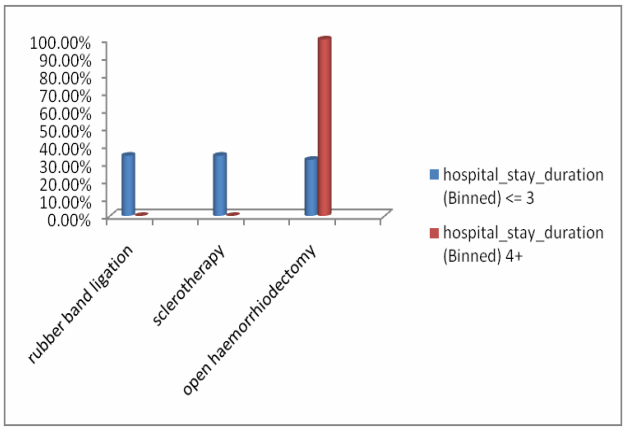

Figure 1: Distribution of postoperative stay.

Postoperative complications

Complications experienced by the patients after surgery was summarized in Table 2. All the patients were followed up on 1st post op day, and seventh post-operative day thereafter once at 3rd month and 6th month.

All the patients with open hemorrhoidectomy had more postoperative complications compared to other procedures. Postoperative pain (n=30) was seen in all patients with open hemorrhoidectomy, bleeding per rectum was in 14 cases, retention of urine and anal stricture was seen in 8 cases respectively. Anal incontinence was seen in 5 cases. No recurrence was seen postoperatively after 3 months.

Patient who underwent rubber band ligation and sclerotherapy were ambulated on the same day of surgery and started the routine work from postoperative day 1. All 30 patients who underwent open hemorrhoidectomy were ambulated on postoperative day 3.

Table 2: Comparison of postoperative complications in three types of surgeries.

Complications	Treatment				Chi square value	P value
	Rubber band ligation	Sclerotherapy	Open hemorrhoidectomy	Total		
	N (%)	N (%)	N (%)	N (%)		
Postoperative pain	2 (3.6)	24 (42.9)	30 (53.6)	56 (100)	61.639	0.0001
Bleeding per rectum	0 (0)	4 (22.2)	14 (77.3)	18 (100)	17.56	0.001
Retention of urine	0 (0)	1 (11.1)	8 (88.9)	9 (100)	14.074	0.001
Anal stricture	0 (0)	1 (11.1)	8 (88.9)	9 (100)	14.074	0.001
Anal incontinence	0 (0)	0 (0)	5 (100)	5 (100)	10.588	0.005
Recurrence at 3 months	0 (0)	2 (100)	0 (0)	2 (100)	3.616	.461

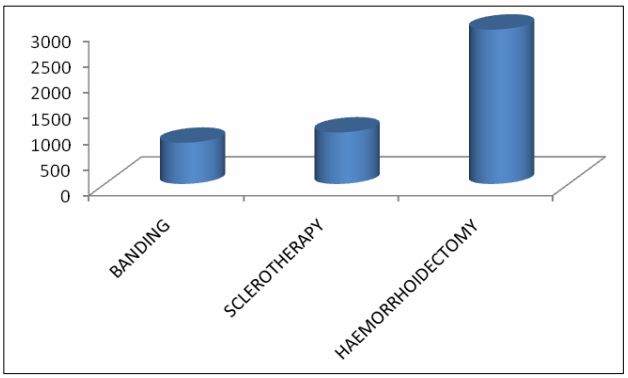

Figure 2: Comparison of cost effectiveness in three types of surgeries.

In our study of 90 patients, the 30 patients who underwent rubber band ligation and sclerotherapy were much more cost effective then who underwent open hemorrhoidectomy. Total cost of patients who underwent banding was Rs.800.00; sclerotherapy was Rs.1000.00 and open hemorrhoidectomy was Rs. 3000.

DISCUSSION

In our study we found that the age distribution was more in age group of 36 to 45 years as seen in Bhuiya et al the upper age limit was higher in all studies ranging from 70-85 years.[7] Jehan et al had age distribution in range of 3rd and 4th decade.[8]

In the present study the sex distribution of cases of hemorrhoids were compared and male:female ratio was 52:38. These finding correlate well with male preponderance noted by Mohan et al.[9] Lee performed rubber band ligation for higher number of female cases with a ratio of 52:48, i.e. male: female respectively.[10]

Among 90 patients, bleeding per rectum and mass per rectum was observed in 30 cases. In a study done by Steinberg et al, the common complaint noticed in the study group was rectal bleeding in 91% patients.[11]

In our study the distribution of post op pain was more in hemorrhoidectomy group then the rubber band ligation

group and sclerotherapy group. In the previous study done by MacRae et al, hemorrhoidectomy was associated with more postoperative complications than rubber band ligation.[12]

In our study hospital stay and return to work was least with rubber band ligation group and sclerotherapy group when compared to open hemorrhoidectomy group. Similarly in the studies done by Arabi et al 12% of people had to stay in hospital.[13]

In our study 70% of patients belonging to rubber band ligation and sclerotherapy group gave excellent response to the same. Similarly study done by Murie et al had 72% excellent response.[14]

CONCLUSION

The findings of the study concludes that of all the three surgical procedures employed in the study to treat hemorrhoids rubber band ligation was found to had less complications, early ambulation, short post-operative stay and cost effective. Bleeding per rectum and recurrence was seen in patient who underwent sclerotherapy. Postoperative pain and minimal bloody discharge from operated site was observed in open hemorrhoidectomy, however cases of recurrence due to surgeries from other modalities were treated with open hemorrhoidectomy. Anal stricture and anal incontinence were observed in open hemorrhoidectomy.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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