ORIGINAL ARTICLE

OUTCOME OF THE RUBBER BAND LIGATION WITH MILLIGAN MORGAN HAEMORRHOIDECTOMY

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Background: Haemorrhoids is a common anorectal disease seen in our society. Conservative management is usually adopted for 1st and 2nd degree haemorrhoids. Patients who do not respond to above management are the candidates for other modalities of treatment which includes sclerotherapy, rubber band ligation, cryosurgery and stapler gun or open haemorrhoidectomy. The purpose of study was to compare the outcome of the Rubber band ligation with Milligan Morgan haemorrhoidectomy in patients with 2nd and 3rd degree haemorrhoids. **Methods:** Hundred diagnosed admitted patients of uncomplicated 2nd and 3rd degree piles were treated either with rubber band ligation (RBL) or open method of Milligan Morgan (OH) for the period from January 2007 to December 2007 were included in the study. Both procedures were evaluated regarding effectiveness, safety, complications after procedures, hospital stay and return to work on a written Performa. Patients with 1st and 4th degree haemorrhoids, below the age of 12 years, bleeding diathesis, associated local anorectal conditions requiring surgery, complicated haemorrhoids, recurrent and secondary haemorrhoids were excluded from the study. Follow up of all these patients was done in OPD to assess any complication and recurrence**.** Data was analysed through SPSS-16.0. **Results:** One hundred indoor patients with 2nd and 3rd degree haemorrhoids were treated either with rubber band ligation or open technique. Most (>90%) of the patients were males. Majority of the patients were in 30–33 years age group. Fresh bleeding (90%) and constipation (45%) were the commonest symptoms followed by prolapsed, discharge and irritation. Second degree was more common than 3rd degree haemorrhoids. Intensive pain was the commonest complain after both the procedures, however faecal incontinence was not reported in either group. Hospital stay was longer in open technique (70%) compare to few hours to one day in rubber band ligation group. Return to work was earlier in patients treated with rubber band ligation. **Conclusion:** Rubber band ligation is safe and effective method compare to open technique in 2nd and 3rd degree symptomatic haemorrhoids.

Keywords: Haemorrhoids, rubber band ligation, Milligan Morgan Procedure, Outcome

INTRODUCTION

Haemorrhoids [Greek: *haima*=blood, *rhoos*=flowing; synonym: piles (Latin: *pila*=a ball)] are dilated veins occurring in relation to anus.[1] Haemorrhoidal disease is one of the most common anorectal conditions.[2,3] It is a common disease in western societies[4,5] affecting all age groups and both gender.[6] Although the exact incidence is difficult to determine because many people are reluctant to seek medical advice due to various personal, cultural and socioeconomic reasons.[7] Haemorrhoid disease is very commonly encountered in 5% of the general population and 50% of the individual over the age of 50 years[8] and more than 15 million people are affected annually within United State.[9]

Haemorrhoid clinically present most commonly with fresh bleeding per rectum, mucosal prolapsed and puritusani.[10] According to Goligher's classification system: Grade-I: haemorrhoids non prolapsing; Grade-II: haemorrhoids prolapse on straining but reduces spontaneously; Grade-III: haemorrhoids require manual reduction; Grade-IV haemorrhoids are non-reducible.[11]

Conservative treatment has traditionally been recommended for the treatment of Grade-I and II haemorrhoids which includes dietary and lifestyle changes, increased oral hydration and the use of stool softeners and laxatives. Increased dietary fibre has been demonstrated to be consistently beneficial in relieving overall symptoms and bleeding.[12] When patients do not respond to conservative treatment, several different non invasive methods are in practice like rubber band ligation, injection sclerotherapy, cryotherapy, laser therapy, diathermy coagulation and infrared coagulation. These can be performed in an outpatient setting and are considered to be primary options in the treatment of 1st, 2nd and 3rd degree haemorrhoids.[13,14] Meta analysis of outcomes from these interventions has demonstrated rubber band ligation to be the most effective in terms of response to treatment and reduced requirements for further intervention.[15]

Finally surgical intervention is usually the treatment of choice for grade-III, IV haemorrhoids and grade-II haemorrhoids that have failed to respond to non surgical treatments. There are two popular well established methods of surgical excision: the 'open'

Milligan Morgan excision and the 'closed' Ferguson method. The Milligan Morgan technique was first described in 1937 and involves dissection of the haemorrhoid off the underlying anal sphincter complex and ligation of the vascular pedicle.[16] The resulting mucosal defects are left open to granulate by secondary intention.[7] The Ferguson operation described in 1959 is essentially a modification of the Milligan Morgan procedure in which the mucosal defect edges and skin are closed with a continuous suture.[17]

MATERIAL AND METHODS

The study was carried out in Surgical Unit-I, Liaquat University Hospital Jamshoro, from January 2007 to December 2007. Hundred diagnosed patients of 2nd and 3rd degree piles admitted through the outpatient department of Liaquat University Hospital Jamshoro, Pakistan were included in the study and treated either with Rubber band ligation or Milligan Morgan haemorrhoidectomy procedures. All data was entered in a specified Performa designed for this purpose. Patients according to the treatment were divided in two groups. Group-A for Rubber band ligation (RBL) and group B for Milligan Morgan haemorrhoidectomy/Open haemorrhoidectomy (OH).

Detailed History was taken from all the patients and Clinical examination was done and recorded in Performa. Systemic review was also done to see any co-morbidity. All patients had their base line investigations including hepatic profile .Inclusion criteria was that all patients diagnosed 2nd and 3rd degree piles after counselling for study and taking written consent were included in this study. Patients with 1st and 4th degree haemorrhoids, below the age of 12 years, bleeding diathesis, associated local anorectal conditions requiring surgery, complicated haemorrhoids, recurrent and secondary haemorrhoids were excluded from the study. Follow up of all these patients was done in OPD after four weeks, 2nd visit after six months and 3rd visit after one year to assess any complication and recurrence**.** Data was analysed through SPSS-16.

RESULTS

The one hundred diagnosed cases of 2nd and 3rd degree haemorrhoids were admitted and divided into two groups, i.e., Group-A comprising of 50 patients who underwent Rubber band ligation procedure (RBL), Group-B comprising of 50 patients who underwent elective open haemorrhoidectomy (Milligan Morgan) procedure (OH).

In Milligan Morgan or open haemorrhoidectomy group 45 (90 %) were male and 5(10 %) female. Ratio male: female ratio of 9:1.

In Rubber band ligation (RBL) group 47 (94%) were male and 3 (6%) female with male: female ratio of 15.6:1 (Table-1).

Table-1: Gender distribution of the patients

	OH Group		RBL Group	
Gender	**No.**	**%**	**No.**	**%**
Male	45	90.0	47	94.0
Female	5	10.0	3	6.0
Total	**50**	**100**	**50**	**100**

Male:Female Ratio: OH Group=9:1, RBL Group=15.6:1.

There was wide variation of age ranging from a minimum of 15 year to 60 year in both groups. The mean age was 32.9±11 years for OH group and 33.76±12 years for RBL group (Table-2).

Table-2: Age Distribution of the cases

	OH Group		RBL Group	
Age (Yrs)	**No.**	**%**	**No.**	**%**
15–30	26	52.0	25	50.0
31–45	13	26.0	15	30.0
46–60	11	22.0	10	20.0
Total	50	100	50	100
Mean±SD	32.9±11		33.76±12	

Symptoms of patients in both groups were almost same. Bleeding per rectum was reported in 43 (86%)patients in OH group and 45 (90%)patients in RBL group, constipation in 22 (44%) patients in OH group and in 21 (42%) patients in RBL group, Prolapse was seen in 15 (30%) patients in OH group and in 20 (40%) patients in RBL group, Discharge was seen in 6 (12%) patients in OH group and 4 (8%) patients in RBL group and irritation was reported in 7 (14%) patients in OH group and in 5 (10%) patients in RBL group. Most of the patients were having more than one symptom (Table-3).

Table-3: Presentation/Symptoms of Patients

	OH Group		RBL Group	
Symptoms	**No.**	**%**	**No.**	**%**
Bleeding	43	86.0	45	90.0
Constipation	22	44.0	23	46.0
Prolapse	15	30.0	20	40.0
Discharge	6	12.0	4	8.0
Irritation	7	14.0	5	10.0

Clinical examination revealed 2nd degree in 27 (54%) patients of OH group and 24 (48%) patients of RBL group where as 3rd degree in 17 (34%) patients of OH group and 19 (38%) patients of RBL group, combine 2nd and 3rd degree in 6 (12%)patients in OH group and 7 (14 %) patients in RBL group (Table-4).

Table-4: Stage of haemorrhoids in subjects

	OH Group		RBL Group	
Grade	**No.**	**%**	**No.**	**%**
2nd Degree	27	54.0	24	48.0
3rd Degree	17	34.0	19	38.0
2nd & 3rd degree	6	12.0	7	14.0
Total	50	100%	50	100

The common complications seen in this study were intense pain, observed in 20 (40%) patients in OH vs 10 (20%) patients in RBL group, urinary retention in 6 (12%) patients in OH vs 1 (2%) patients in RBL

group, bleeding in 5 (10%) patients in OH vs 1 (2%) patient in RBL group. However anal stenosis in 3 (6%) cases, Flatus incontinence in 2 (4%) patient and low back pain 2 (4%) were other specific complications observed in HO group. Recurrence were high 9 (18%) in RBL group as compare to OH (4%) group (Table-5)

Table-5: Post Operative Complication

Complications	OH Group		RBL Group	
	No.	%	No.	%
Intensive pain	20	40.0	10	20.0
Urinary retention	6	12.0	1	2.0
Bleeding	5	10.0	1	2.0
Anal stenosis	3	6.0	0	0
Faecal incontinence	0	0	0	0
Flatus incontinence	3	6.0	0	0
Low back Pain	2	4.0	0	0
Recurrence	2	4.0	9	18.0
p- value	<0.001			

The duration of hospital stay varied from 1–5 days. It was longer (90%) in patients of OH group compared to RBL group where majority (98%) were discharged on same day (Table-6).

The mean hospital stay in OH group was 2.94±0.65 days and RBL group was 1.02±0.14 days (p<0.001).

Table-6: Hospital stay

Hospital Stay	OH Group		RBL Group	
	No.	%	No.	%
1 day	0	0	49	98.0
2 day	10	20.0	1	2.0
3 day	35	70.0	0	0
4 day	3	6.0	0	0
5 day	2	4.0	0	0
Total	50	100	50	100
Mean±SD	2.94±0.65		1.02±0.14	
***p*-Value**	<0.001			

DISCUSSION

Haemorrhoids are the most common anorectal disorder of our society and patients are reluctant to undergo surgery because of shyness to show their anal region, fear of pain of operation (haemorrhoidectomy) and hospitalization.[18] Although a wide range of methods have been described in the treatment of haemorrhoids. Ligation, excision and cautery of haemorrhoids have been practiced since antiquity. They were used by Hippocrates in the treatment of piles. Salmon in 1888 introduced the operation of haemorrhoidectomy.[19] Modification of this operation was subsequently described by Miles in 1919, Milligan –Morgan[20] in 1937, Park[21] in 1956 and Ferguson[22] in 1956.

The search for a simple method of ligation haemorrhoids without the need for a general anaesthesia or admission to hospital results in the development of the first rubber band ligator by Laisdell in 1956. This method was later refined by Barron in 1963.[23]

This study was carried out to compare the outcome of the Rubber band ligation with Milligan Morgan haemorrhoidectomy in patients with 2nd and 3rd degree haemorrhoid disease regarding effectiveness, safety, complications after procedures, hospital stay and return to work.

The male to female ratio seen in OH group was 9:1 as compared to RBL group where it was 15.6:1.However the male to female ratio given by Hetzer[24] is 14:6, Qureshi[25] is 3:1 and Lyer[26] is 1.6:1 which is quite different from present study.

The age ranged from 10 to 60 years in both groups with mean age was 32.9±11 years for OH group and 33.76±12 year for RBL group. The peak age group for presentation of haemorrhoids in our study is 15–30 years. However Malik reported age range 18–73 year with a mean age of 46 years[27], Greenberg showed mean age 42 year[28] and Cho[29] reported mean age 50.2±15 years.

According to Ali a large percentage (90%) of patients presented with bleeding per rectum while 80% of patients had prolapsed piles.[30] Ten percent patients had burning while 55% of patients complained of itching. Majority (85%) of the patients had constipation. The haemorrhoid mass prolapsed out of anus was self reducible in 60% patients. In our study the bleeding per rectum was the commonest presentation (90%) followed by constipation (46%) in both group, prolapse (OH=30% vs RBL=40%) and irritation (OH=14% vs RBL=10%).

The clinical parameters were further supported by per rectal examination which revealed 2nd degree (OH=54% vs RBL=48%) and 3rd degree (OH=34% VS RBL=38%) piles. Moreover 2nd and 3rd degree haemorrhoids together were found in (OH=12% vs RBL=14%) cases , where as Bernal JC *et al* reported 2nd degree haemorrhoids in 51.93% and 3rd degree haemorrhoids in 29.83% respectively.[31]

In our study majority of complications after procedure were found higher in OH as compared to RBL group (p<0.001). The pain observed is 2 times (OH=40% VS RBL=20%), higher than RBL group. Severe pain in RBL group means band is applied close to dentate line, it is not relieved by narcotic analgesics and band must be removed under general anaesthesia in theatre. Mild to moderate pain in RBL can be managed by injection of 1 ml 2% lignocaine in each haemorrhoidal mass; this is also recommended by other researchers.[32] Pain in OH group required simple analgesic (Diclofenac Sodium) for all patients which is also supported by Pokharel study.[33]

In our study bleeding is a significant complication of OH group (10%) compare to RBL (2%) group. It was mild and treated conservatively in all cases without hospitalisation or blood transfusion. Band ligation is safe in patients with cirrhosis and portal hypertension as reported by Vassillios *et al*[34] Bayer *et al*[35] reported that only 2.2% of his patients complicated

by rectal bleeding in RBL compare to 25 % in OH group.

In our study urinary retention was common complication in OH group as compare to RBL group (OH=12% vs RBL=2%) cases. However in other studies the urinary retention reported by Lohsiriwat[36] is 11.7% in OH group and Nasiruddin[37] report only 2% in RBL group.

Anal stenosis is a serious complication of anorectal surgery. Stenosis can complicate a haemorrhoidectomy procedure in 5–10% of cases.[38] In our study anal stenosis occurred in 6% of OH group and there were no documented cases of anal stenosis and fecal incontinence after rubber band ligation, which is also reported by Benzoni *et al*[39] and Watson *et al*.[40]

Backache is a common postoperative complaint. Wang[41] reported the incidence of post epidural backache in 2–31% cases. In our study low backache was seen in only 4% cases in OH group.

In our study recurrence rate was higher in RBL group as compare to OH group (OH=4% vs RBL=18%). Komorozos[42] reported a recurrence of 11.9% after 2 years follow-up while Walker *et al*[43] have reported a high recurrence rate of 27% at 1 year in band ligation. However long-term results of rubber band ligation are good compare to OH group. Recurrence is common unless the patient alter their dietary habits.

In our study RBL procedure is associated with shorter hospital stay as compared to Open haemorrhoidectomy; in fact patients are send home after the rubber band application. The hospital stay in this study ranged 1–5 days in both group with mean hospital stay in OH group was 2.94±0.65 days and RBL group was 1.02±0.14 days (p<0.001). It is comparable to studies by Tan[44] with a mean post procedure hospital stay of 4 hours to one day in RBL group and 2.1to 3.5±0.5 days in OH group.[45]

Return to normal work may be extended from 1–15 days in OH group and few hours to one day in RBL group. In our study mean resumption time to work was 11±3.6 days for OH group 1±0.5 days for RBL group patients. Over all time of return to normal activity and work is shorter in RBL group as compared to OH group patients which is also supported by other studies.[46]

CONCLUSION

We conclude that Rubber band ligation for symptomatic haemorrhoids is both safe and effective method providing convenient and economical way of treating haemorrhoids and can be performed on an outpatient basis. We also recommend Patients with 2nd degree and 3rd degree haemorrhoids not responding to medical treatment should undergo RBL as treatment of choice.

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