

## Milligan – Morgan (Open) Haemorrhoidectomy VS Rubber band ligation

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### ABSTRACT

**Aim:** To assess the result of open haemorrhoidectomy (Milligan & Morgan) & Rubber band ligation in terms of post operative pain, bleeding, urinary retention, anal stenosis and low back pain in second and third degree haemorrhoids and also to assess the mean hospital stay in both groups.

**Study design:** It is a comparative study.

Place and duration: Surgical Unit-I Amna Inayat medical college from April 2011 to June 2014.

**Methodology:** A total of 140 patients were included in the study. They were randomly divided in two groups A and B. Each group had 70 patients. In group A patients having 2<sup>nd</sup> degree haemorrhoids 22(31.43%) and 3<sup>rd</sup> degree haemorrhoids 48(68.57%) and in group B 38(54.28%) patients having 2<sup>nd</sup> degree and 32(45.71%) having 3<sup>rd</sup> degree haemorrhoids. Symptoms of patients in both groups were same i.e., bleeding per rectum, constipation, prolapsed and discharge. Group A patients underwent open haemorrhoidectomy (Milligan–Morgan) while group B patients had rubber band ligation. Post operative complications like pain, bleeding, urinary retention, anal stenosis and low back pain between the two groups were compared.

**Results:** Out of 70 patients in group A 49(70%) had pain, 12(17.14%) had post operative bleeding, 14(20%) had urinary retention, 4(5.71%) had anal stenosis 7(10%) had low back pain while in group B out of 70 patients 7(10%) had pain, 3(4.28%) had bleeding, 2(3%) developed urinary retention, no patient developed anal stenosis and 2(3%) developed low back pain. *P values* for pain <0.01, bleeding 0.007, urinary retention 0.006, anal stenosis 0.029 and for low back pain was 0.04. These values were significantly in favour of group B i.e., rubber band ligation. Duration of hospital stay in group A was longer than group B. Mean hospital stay in group A was 2.47±0.84 days and in group B it was 1.01±11 days (0.001)

**Conclusion:** Rubber band ligation is quick, safe procedure and is associated with less post operative complications particularly pain and bleeding with short hospital stay and is cost effective as compared to open haemorrhoidectomy.

**Keywords:** Second & third degree haemorrhoids, Rubber band ligation, Milligan Morgan haemorrhoidectomy

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### INTRODUCTION

Haemorrhoids are the vascular anal cushion at the right antrolateral, right posterolateral and left lateral position<sup>1</sup>. comprised of anorectal lining with engorged vascular plexus below it in loose areolar tissue<sup>2,3</sup>. Haemorrhoids are internal, external and mixed variety. The internal haemorrhoids are those which have a plexus of superior haemorrhoidal vein and covered by mucous membrane, external haemorrhoids are those which are a plexus of the inferior haemorrhoidal vein covered by epithelium and skin below mucocutaneous junction and drain into the systemic circulation and intero-external haemorrhoids

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are those when the two varieties are associated<sup>3</sup>. It is a common disease in the western world affects in all ages and both gender<sup>4</sup>. It is very common in general population about 5%<sup>5</sup> and 50% of the people are over 50 years of age<sup>6</sup>. The patient usually clinically presents with fresh bleeding per rectum which is the earliest symptom and mucosal prolapse is the protrusion of haemorrhoids beyond the anal verge and is a much later symptom<sup>7</sup>. Perianal discharge with pruritis is common with prolapsed haemorrhoids<sup>7</sup>. Pain is usually absent unless complications supervene<sup>3</sup>. The internal haemorrhoids diagnosis is confirmed at proctoscopy while prolapsed and external haemorrhoids can be visualised at anal inspection<sup>3</sup>. Internal haemorrhoids bleed and prolapse to give a mass effect. Goligher classified haemorrhoids as: Grade 1 haemorrhoids that bleed but do not prolapse. Grade 2– haemorrhoids that prolapse and reduce spontaneously. Grade 3 – haemorrhoids that prolapse but require digital reduction. Grade 4

prolapsed irreducible haemorrhoids<sup>8</sup>. Conservative treatment has been recommended for the treatment of Grade 1 & 2 haemorrhoids which includes dietary and lifestyle changes, increased oral hydration and the use of stool softeners and laxatives. Increased dietary fiber found to be beneficial in relieving symptoms and bleeding<sup>9</sup>. The treatment of haemorrhoids is for alleviating its symptoms<sup>10</sup>. Minimally invasive methods like sclerotherapy, rubber band ligation, infrared photocoagulation and invasive surgical techniques including Milligan–Morgan and closed Ferguson techniques are used in about 10% of cases<sup>11</sup>. Rubber band is the most frequently used nonoperative technique because of its effectiveness and low complication rate as well as its short recovery time compare to the operative procedure<sup>12</sup>.

## MATERIAL AND METHOD

The study was carried out in surgical unit 1 Kishwar Fazal Teaching Hospital, Amna Inayat Medical College Shaikhupura from April 2011 to June 2014. This prospective comparative study was carried out as double blind randomized clinical trial on 140 patients. These patients were randomly divided into two equal groups of 70 patients in each who were having 2<sup>nd</sup> and 3<sup>rd</sup> degree haemorrhoid, group A & group B. In group A patients open haemorrhoidectomy was done and patients in group B underwent rubber band ligation. The age range of selected patients was 20 to 70 years. A thorough history was taken with special emphasis on haemorrhoidal symptoms, previous conservative or surgical treatment and other anorectal conditions. Clinical abdominal and anorectal examination by digital rectal examination, proctoscopy and rectosigmoidoscopy was performed.

Patients with complicated haemorrhoidal disease like thrombosed or strangulated haemorrhoids, patients with other associated anal pathology like perianal fistula, anal fissure, crohn's disease, polyp, cancers, cirrhotic patients having deranged clotting profile and patients with previous anorectal surgery were excluded from the study. Routine laboratory investigations like Complete blood count, Blood sugar fasting and random, Hepatitis profile by screening, and X-ray chest P.A view was performed in every patient in addition to these investigations ECG was performed in every patient who was above 40 years.

All patients in Group A were prepared with Kleen enema 24 hours before surgery (at 6:00 pm on the day before surgery and other at 6:00 am on the day of surgery). Intravenous injection Cephadrine 1.0gm and Inj. Metronidazole 500mg to cover the aerobes and anaerobes were given at the time of induction of

general anaesthesia. All operations Milligan-Morgan haemorrhoidectomy were performed in lithotomy position under general anaesthesia with endotracheal intubation. Post operatively deep intagluteal analgesia Inj. Diclofenac sodium given 12 hourly given for one day and then same oral analgesia 50 mg after meal twice daily for three days. Inj. Cephadrine 500mg I/V and Inj. Metronidazole 500mg I/V 8 hourly two doses given post operatively. Same antibiotics given orally for three days. Warm sitz bath 8 hourly started. High fiber diet advised.

In group B rubber band ligation were performed in all patients on an outdoor basis. All patients were advised clear liquids a day before procedure and one Kleen enema was given early in the morning on the day of procedure. In lithotomy position proctoscopy was performed on every patient and haemorrhoids were examined that prolapsed into the proctoscope. On second attempt of proctoscopy, on withdrawing of proctoscope the prolapsed haemorrhoid was ligated by loaded ligator above the dentate line. The haemorrhoidal tissue was sucked into the ligator and suction was maintained for about 30 – 45 seconds so that adequate tissue come into the ligator. The band was discharged with the band pusher and vaccum was released. In one sitting one to two haemorrhoidal complex was banded depending upon the size of haemorrhoid and anal canal circumference involved. After an interval of two weeks second or third haemorrhoid complex was ligated. Patients treated with rubber band ligation were given oral tab. Metronidazole 400mg thrice daily for three days, oral analgesia, high fiber diet and warm sitz bath three times a day. Patient discharged in the evening on the same day with fortnightly to one month follow up.

## RESULT

A total of 140 patients were entered in the study. We divided the 140 patients in two equal groups 70 patients in each group A and group B. Clinical examination revealed 2<sup>nd</sup> degree haemorrhoids in 22(31.43%) patients in group A and 38(54.28%) in group B where as 3<sup>rd</sup> degree haemorrhoids found in 48(68.57%) in group A and 32(45.71%) in group B. (Prolapsed and thrombosed haemorrhoids excluded from the study).

Grade	Group A	Group B
2 <sup>nd</sup> degree haemorrhoids	22(31.43%)	38(54.28%)
3 <sup>rd</sup> degree haemorrhoids	48(68.57%)	32(45.71%)
Total	70(100%)	70(100%)

In group A we performed Milligan-Morgan haemorrhoidectomy. In this group 54(77.14%) patients were male and 16(22.85%) were female with male to female ratio of 3.3:1. In Group B rubber band ligation was performed on 70 patients. In this group 61 (87.14%)patients were male and 9 (12.85%) were female with male to female ratio 7.7:1

Table: Milligan-Morgan groupRubber band ligation group

Gender	Group A	Group B
Male	54(77.14%)	61(87.14%)
Female	16(22.85%)	9(12.85%)
total	70(100%)	70(100%)

Male to female ratio (Milligan-Morgan group) group A = 3.3:1 Male to female ratio (Rubber band ligation group) group B =7.7:1. The mean age in group A was 47±2 years and 35±2 years for group B.

Symptoms of patients are almost same in both groups.

Complications	Group A	Group B
Bleeding per rectum	55(78.57%)	60(85.71%)
Constipation	43(61.42%)	45(64.28%)
Prolapse	39(55.71%)	30(42.85%)
Discharge	10(14.28%)	6(8.57%)

The common complication seen in this study after the procedures

Complications	Group A	Group B	P value
Pain	49(70%)	7(10%)	< 0.01
Bleeding	12(17.14%)	3(4.28%)	0.007
Urinary retention	14(20%)	2(2.83%)	0.006
Anal stenosis	4(5.71%)	0	0.02
Low back pain	7(10%)	2(2.83%)	0.04

The duration of hospital stay was varied from patient to patient but it was 2–5 days for Group A and for Group B most of the patients were discharged on the same day.

Hospital stay	Group A	Group B
Day 1	0	69(98.51%)
Day 2	50(71.42%)	1((1.42%)
Day 3	10(14.28%)	0
Day 4	7(10%)	0
Day 5	3(4.28%)	0
Total	70(100%)	70(100%)
Mean± SD	2.47±0.84	1.01± 0.1

P value<0.001

Duration of hospital stay was varied from 1 – 5 days. It was longer in Group A (85.7%) as compared to Group B, in this group majority (98%) of patients were discharged on the same day. Mean hospital

stay in Group A 2.47±0.84 days and in Group B it was 1.01±0.11 days (0.001).

## DISCUSSION

Haemorrhoids are the most common anorectal disorder in our society and is a major cause of bleeding per rectum<sup>13</sup>. In our society patients are usually reluctant for surgery because of fear of operation. Many treatment options have been proposed and tried for different stages of haemorrhoids<sup>14</sup>. In the past different procedures were performed, in the era of Hippocrates simple ligation, excision and diathermy or cautery had been practiced<sup>15</sup>, In 1888 Saluran introduced the haemorrhoidectomy<sup>16</sup>. Later on modification of this operation was described Miles, Milligan – Morgan, Park and Furguson<sup>17</sup>. In 1956 there was great revolution in the treatment of bleeding haemorrhoids, when Laisdell developed a simple technique of ligation of haemorrhoids without general or spinal anaesthesia by rubber band ligator and later on this method was modified by Barron in 1963<sup>18</sup>. This is a comparative study, in which effectiveness, safety, post operative complications, hospital stay and return to work have been compared.

In our study the male to female ratio in group A is 3.3:1 where as it is 7.7:1 in group B. The range of age is from 20 – 70 years in both groups with mean age 47±2 in group A and 35±2 in group B. However in our study the peak age is 36 – 50 years in group A and it is 20–30 years in group B. The patients who underwent band ligation were younger than patients who underwent open haemorrhoidectomy. But Misra reported age range 18 – 73 years with mean age of 45.5±1 years<sup>19</sup>. La Torre F, reported mean age 42 years<sup>20</sup>. Mad off showed mean age 50.2±15years<sup>21</sup>.

In western world quite a number of patients about 90% presented with bleeding per rectum and about 80% of patients had prolapsed haemorrhoids, 55% of patients had itching while 10% of patients had pain and burning sensation<sup>22</sup>. The commonest presentation in our study is bleeding per rectum. It is 78.57% in group A and 85.7% in group B. The second problem is constipation that is that is 61.42% in group A and 42.85% in group B. The discharge with irritation found in 14.28% in group A and 8.57% in group B.

Per rectal clinical examination revealed 2 degree haemorrhoids in group A 31.43% and 54.28% in group B. 3<sup>rd</sup> degree haemorrhoids in group A 68.57% and in group B it was 45.71%.But Zollinger et al reported 2<sup>nd</sup> haemorrhoids in 51%,93% and 3<sup>rd</sup> degree haemorrhoids in 29%,83% respectively<sup>23</sup>.

In our study majority of complications are found in group A – Milligan Morgan haemorrhoidectomy as compared to band ligation.

The pain is the commonest symptom in our study, it is in group A (70%) than rubber band ligation group B (10%). The pain in group A was managed by Inj. Diclofenac Sodium 75 mg deep I/G. The pain in group B was managed by oral analgesia. The intense pain in RBL is usually due to application of band below the dentate line in the somatic nerve supply of the anal canal. The pain is so intense that it does not relieve even by narcotic analgesics and must be removed under general anaesthesia in operation theater. The pain in RBL is usually managed by 1ml 2% lignocain injection in each haemorrhoidal mass reported by Tan<sup>24</sup>. But in case of Milligan Morgan haemorrhoidectomy pain is usually relieved by simple analgesic like diclofenac sodium. (25)(26) Post-operative bleeding is another complication but in our study it is found in only 12(17.14%) patients in group A and in group B there is only 3(4.28%) patient. It is managed in group A by giving analgesia and shifting the patients to operation theater re-examined the wound under general anaesthesia it was simply an ooze which was managed by diathermy and anal packing in all patients without hospitalization and blood transfusion and in group B there was nothing and only reassure the patients.

The rest of other complications are urinary retention, anal stenosis and low back pain all found in open haemorrhoidectomy. In our study urinary retention is 14(20%) in group A and 2(2.85%) in group B which is quite comparable with other studies. In international studies it is 11.7% in open haemorrhoidectomy and 2% in rubber band ligation<sup>27</sup>. Anal stenosis is a serious complication of anorectal surgery. Stenosis can complicate a haemorrhoidectomy procedure in 5 – 10% of cases<sup>28</sup>. In our study there is 4(5.71%) patient who developed anal stenosis in group A and in group B there was no patient who developed anal stenosis. Anal stenosis can be avoided by careful dissection and by maintaining the mucocutaneous bridge between the two haemorrhoids during haemorrhoidectomy and rubber band ligation<sup>29</sup>.

Backache is a common post-operative problem, Wang reported the incidence of post-operative epidural or spinal backache in 3 patients 3% of cases<sup>30</sup>. In our study low back ache is seen in 7(10%) patients in group A and 2 patients 2.85% of cases.

In our study we followed our patients for a 06 months period and during this period we found only in 4 patients 5.41% recurrence of symptoms where as Bernal et al reported a recurrence rate of 13.8% for 287 procedures<sup>31</sup>.

In our study 4 patients 5.71% required three session of banding while all other patients received two session for the completion of treatment. We have one patient 1(1.4%) of recurrent bleeding who belong to those who received one banding session. Iyer et al reported that number of ligations performed in a treatment series affect the success rate, more the number of ligations there is drop in the success rate and this will increase the subsequent rate of haemorrhoidectomy<sup>32</sup>.

The hospital stay in our study with group B is shorter than group A. In fact patients were sent home after rubber band ligation on the same day in majority of the patients 69(98.57%). The hospital stay in this study ranged 1–5 days in both groups with mean hospital stay in group A (2.47±0.84) and group B is (1.01±0.11) days (P<0.001). It is comparable to studies by Tan who reported a mean post procedure hospital stay of 4 hours to one day in rubber band ligation group and 2.1 to 3.5±0.5 days in open haemorrhoidectomy group<sup>33</sup>. After recovery patients resumed normal work ranges from 3 – 15 days with mean 9 days in open haemorrhoidectomy and few hours to one day in rubber band ligation in international study<sup>33</sup>.

## CONCLUSIONS

Considering these results together with degree of satisfaction revealed by patients we can conclude that rubber band ligation for symptomatic all degrees of haemorrhoid particularly in second and third degree haemorrhoids is safe and effective method providing convenient economical way of treating haemorrhoids and can be performed on an outpatient basis with few complications with short hospital stay enable us to recommend it as the procedure of choice for the management of these conditions.

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