RUBBER BAND LIGATION VERSUS OPEN
HAEMORRHOIDECTOMY: A STUDY OF 100 CASES

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ABSTRACT

Objective: To compare the rubber band ligation of haemorrhoids with Milligan and Morgan haemorrhoidectomy in 2nd and 3rd degree of haemorrhoids in terms of postoperative complication.

Material and Methods: This study was conducted in Surgical “A” unit PGMI, LRH, Peshawar, from Feb. 2003 to September 2003. A total of 100 patients were selected and admitted through OPD. The patients were randomly allocated into two groups. Group A comprised of Milligan and Morgan haemorrhoidectomy and group B was that of rubber band ligation (RBL). Fifty patients were included in each group. Postoperative clinical course was compared. The SPSS version 10 was applied to the data.

Results: Rubber band Ligation group on average stayed in hospital for 1.2 days. While Haemorrhoidectomy group stayed for 1.5 days on average. Stay range was from 1 to 3 days in both cases. Eighty percent of cases (n=40) in haemorrhoidectomy group had pain and 56% (n=28) had urinary retention. While in RBL group pain was present in 8% of cases (n=4) and urinary retention in 4% (n=2) of cases, (P-value < 0.001 for pain and < 0.001 for urinary retention).

Conclusion: In second and third degree uncomplicated haemorrhoids rubber band ligation is quite safe and simple way of dealing with haemorrhoids in contrast to Milligan and Morgan hemorrhoidectomy. Rubber band ligation is associated with least complications.

Key words: Haemorrhoids, Rubber Band Ligation, Milligan and Morgan Haemorrhoidectomy.

INTRODUCTION

Haemorrhoids are defined as engorged (prolapsed) anal cushions. Anal cushions are part of normal continence mechanism of anal sphincter and they differ from haemorrhoidal disease. Haemorrhoids is a common ailment and 50% of people over 50 years have some degree of discomfort from them.

Hemorrhoids are common cause of perianal complaint and affect 1-10 million people in North America and in Europe.

The high prevalence of this disease stimulated many surgeons to work and devise various methods of management of haemorrhoids. As most of the methods of management do have some complications, studies were conducted to search for the most simplest and cost effective way of management.

Rubber band ligation (RBL) is the most simple and safe technique. RBL is minimally invasive technique used for management of haemorrhoids. Morgan and Milligan Haemorrhoidectomy is the conventional type of surgery, requiring general anesthesia.

There are four grades of haemorrhoids:
1. First degree haemorrhoids present with bleeding per rectum only
2. Second degree haemorrhoids present with prolapse which reduces spontaneously.
3. Third degree present with prolapse and are reduced manually.
4. Fourth degree are permanently prolapsed piles and can not be reduced.

A colonoscopic classification based on range, form and colour signs (RCS) has been proposed. Range is scored from 0-4 and form scored from 0-2. The patient is scored before treatment and then rescoring after treatment.

MATERIAL AND METHODS

A total of 100 patients were selected.
VARIous MODALITIES OF TREATMENT USED BEFORE ADMISSION (n = 100)

<table>
<thead>
<tr>
<th></th>
<th>Male (n = 56)</th>
<th></th>
<th>Female (n = 44)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
</tr>
<tr>
<td>1</td>
<td>No treatment</td>
<td>24</td>
<td>24%</td>
</tr>
<tr>
<td>2</td>
<td>Haemorrhoidectomy</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>3</td>
<td>Sclerotherapy</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>4</td>
<td>Conservatively treated</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>5</td>
<td>Hakim treatment</td>
<td>6</td>
<td>6%</td>
</tr>
</tbody>
</table>

Table 1

They were admitted through out patients department. Patients were randomly allocated groups. "H" group was allocated for Milligan and Morgan haemorrhoidectomy and “B” group was allocated to Rubber Band ligation group.

Patients of 2nd and 3rd degree haemorrhoids were selected for the study. Age was not considered as limit. Patients with bleeding tendencies with associated diseases like large skin tags, fissures and fistulae were excluded from the study. However the patients with small skin tags were not excluded. Pregnant, cirrhotics and HIV positive patients were excluded.

A detailed history of all the patients was taken. Patients were thoroughly examined and digital rectal examination done. After that proctoscopy done and findings noted. Some patients above 40 years of age had also Barium enema done to exclude rectal tumors.

Rubber band ligation is done without general anaesthesia. A proctoscope is passed. A rubber band gun with pistol grip is applied to the fundus of haemorrhoid. Through the circular tip of the gun the fundus of the hemorrhoid is held and gentle traction is applied and gun is fired. Two rubber bands are pushed from the gun to the base of the haemorrhoid.

Milligan Morgan haemorrhoidectomy is done under general anesthesia. Patient is put in lithotomy position. Haemorrhoids are identified by passing a proctoscope and gradually pulling it back. Haemorrhoids are identified as bulge in the proctoscope. A V-shaped incision is given haemorrhoids are dissected from sphincter muscle, ligated and cut.

Patients were followed up till discharge from hospital for any complications. Data collected was analyzed by SPSS version 10.

RESULTS

This study was done in Surgical “A” unit PGMI/LRH Peshawar from February 2003 to September 2003. A total of 100 patients with age range 35 - 65 years were studied. Mean age was 50 years. There were 50 patients in each group. Fifty-six percent of the patients were male while 44% of our patients were female.

Patients receiving some form of therapy were 44% while majority of the patient had no treatment at all. Ten patients had already haemorrhoidectomy done (Table-1).

A large percentage (90%) presented with bleeding per rectum while 80% of patients had prolapse. Ten percent of patients had burning while 55% of patients complained of itching. Majority (85%) of patients had constipation. The haemorrhoid mass prolapsing out of anus was self-reducible in 60% of patients (Table-2).

Pain, bleeding, urinary retention and discharge were the most common immediate post operative complications encountered. In RBL bleeding was observed in two patients only (4%). Four percent (n=2) patients had mucus discharge and 8% of patients (n=4) had pain. In haemorrhoidectomy group 12% of patients (n=6) had bleeding in immediate post op period. 80% (n=40) of patients had pain, requiring analgesics while 56% (n=28) of our patients developed urinary retention (Figure-1).

Chi square test was applied for haemorrhoidectomy and P-values were calculated. Chi-square test value for pain was 49.72 and p-value <0.001. Which is a significant difference of pain between the two procedures (Table-3).

Chi-square test was again applied and values

PRESENTATION OF HAEMORRHOIDS

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Frequency (N = 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleeding P/R</td>
<td>90</td>
</tr>
<tr>
<td>Constipation or straining during defecation</td>
<td>85</td>
</tr>
<tr>
<td>Itching</td>
<td>55</td>
</tr>
<tr>
<td>Self reducible prolapse</td>
<td>60</td>
</tr>
<tr>
<td>Discharge with soiling</td>
<td>42</td>
</tr>
<tr>
<td>Manually reducible prolapse</td>
<td>20</td>
</tr>
<tr>
<td>Without prolapse</td>
<td>20</td>
</tr>
<tr>
<td>Burning Pain</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 2
calculated for bleeding (Table-3). Chi square value for bleeding was 1.22 and P value 0.26 (not significant).

For urinary retention the Chi square value came out to be 29.76 and p-value as 0.0000 which is again very significant (Table-3).

Chi square value for discharge home was 16.84 and p-value as <0.001. This value is again significant (Table-4). So our results have shown a significant difference between the two procedures in terms of pain, urinary retention and discharge while bleeding was not significant.

The average stay in hospital for rubber band ligation group was 1.2 days whereas the average stay for Haemorrhoidectomy group was 1.8 days. T-test was applied. P-value was less than 0.05 which is significant.

**DISCUSSION**

Haemorrhoidectomy (Milligan and Morgan) is a quick way of dealing with Haemorrhoids problem. While new ways of minimum access surgery are introduced, rubber band ligation is quickly gaining popularity because it is safe, (no anaesthesia), quick and simple way of dealing with haemorrhoid disease. RBL was introduced by Blaisdell 1958. Barron popularized the procedure and later on the procedure became known by his name.

In haemorrhoidectomy group the pain was present in 80% of patients. Essa BES, and Makhlouf reported post operative pain in 75% of patients with 70% requiring repeated injections. They also reported the benefit of lateral sphincterotomy along with haemorrhoidectomy. They reported pain in 3% of patients with sphincterotomy. For reducing postoperative pain many surgeons have advocated supplementary caudal anaesthesia and postoperative infiltration with bupivacaine. Asfar et al suggested that pain after ligation and excision of haemorrhoids can be severe, whereas complimentary anal dilatation and sphincterotomy produces a sustained reduction in post operative pain.

In our series post operative pain occurred in 8% of patients in RBL group. Law WL and Chu K reported pain in 32% of patients after triple

**COMPLICATIONS**

<table>
<thead>
<tr>
<th>Complications</th>
<th>RBL group (n=50)</th>
<th>Haemorrhoidectomy group (n=50)</th>
<th>Chi square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td></td>
<td></td>
<td>49.72</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Present</td>
<td>4 (8%)</td>
<td>40 (80%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>46 (92%)</td>
<td>10 (20%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bleeding</td>
<td></td>
<td></td>
<td>1.22</td>
<td>0.26</td>
</tr>
<tr>
<td>Present</td>
<td>2 (4%)</td>
<td>6 (12%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>48 (96%)</td>
<td>44 (88%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinary Retention</td>
<td></td>
<td></td>
<td>29.76</td>
<td>0.000</td>
</tr>
<tr>
<td>Present</td>
<td>2 (4%)</td>
<td>28 (56%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>48 (96%)</td>
<td>22 (44%)</td>
<td></td>
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</tr>
</tbody>
</table>

Table 3
rubber band ligation. They conducted a study on reduction of post operative pain after bupivacaine injection in triple rubber band ligation group. Their results showed insignificant effect. There is no contraindication to banding of all haemorrhoids but still most surgeons would prefer to band 1-2 haemorrhoids in a single session. Barron himself ligated one haemorrhoid at a time. The reason behind avoiding triple band ligation is stretching of mucosa leading to pain and sometimes stenosis. The cause of pain in rubber banding is banding below the dentate line. Gupta PJ compared RBL with infrared therapy. He reported more pain with RBL but less chances of recurrence. Mattana and associates reported severe pain in 7.5% of cases. Tichikow and associates have recommended injection of local anaesthetic solution into the haemorrhoids bundle. Ahmad R and Hussain M reported pain in 30% of patients with RBL requiring injections. Wehrmann T and colleagues reported pain in 25% of patients with RBL. Arroyo A and associates concluded that open haemorrhoidectomy was associated with significant pain.

Post operative bleeding occurred in 12% of patients in haemorrhoidectomy group. Most of them responded to conservative measures and 2% required re-suturing under G.A. Sheikh AR reported bleeding in 5% of patients with haemorrhoidectomy group. Johnstone and Isbister reported haemorrhage in 4.2% of cases. Mehanna D and PlateL C reported 4% of patients with RBL had minor bleed, which required no active surgical management. In our study there was minor bleeding in 4% of our RBL patients. Sheikh AR reported no bleeding after RBL. Ilyev VS and associates reported bleeding in 2.8% of patients. They concluded that placement of 4 or more bands were associated with higher complications. Their success rate was 70.5%. Su MY and associates reported control of bleeding and prolapse in 93% and 91% of patients after RBL. Peng BC and associates concluded that RBL and haemorrhoidectomy both are equally effective in controlling symptomatic prolapse but RBL was associated with increased incidence of recurrent bleeding. O’Regan PJ reported excellent results with no bleeding with a disposable RBL device.

Urinary retention occurred in 56% of our patients in hemorrhoid group. Uba AF and associates reported that postoperative retention of urine was the commonest complication occurring in 20% of patients of hemorrhoid group.

Infection leading to abscess formation was not observed in our series. Sheikh AR reported no infection. Scarpa et al reported severe cellullites after RBL which was life threatening.

The average stay for RBL was 1.2 days while for hemorrhoidectomy group it was 1.5 days. Patients stayed from 1-3 days in hospital in both groups of our study. Morandi E reported no infection. Johnstone and Isbister reported stay for 1-4 days in hospital. T-test was applied for average stay which showed significant difference between two procedures.

After haemorrhoidectomy 90% of the patients were asymptomatic while 10% showed improvement. Sheikh AR reported 96% improvement after rubber band ligation, 91% patients were asymptomatic, 6% improved and 3% had no improvement at all. Jones and Schofield reported 92% success rate. Recurrence rate was 4%.

Fakuda A and associates reported excellent results in 89% of patients, good in 9% and poor in 2% in patients with RBL. Bursies A and associates reported that both basal and squeeze pressure dropped after hemorrhoidectomy, whereas they remained unchanged in RBL. Chew SS and associates reported excellent results with 3.1% complications (only bleeding) with RBL. Cermak and associates have reported band ligature to be excellent in 75% of cases, good in 22 while no improvement in 3%. Vicente P and associates reported excellent results with 6% complications. The most frequent complications were rectal tenesmus, dysuria and transient anal bleeding. GoKalp and associates recommended local anaesthesia with RBL as it significantly reduces the pain.

Sheikh AR and Ahmad reported good results and recommended it as a first line management and as an alternative to haemorrhoidectomy. Ahmad R presented that rubber band ligation is an effective form of therapy that control pain, itching, bleeding and

### Table 4

<table>
<thead>
<tr>
<th></th>
<th>Present</th>
<th>Absent</th>
<th>Chisquare</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>RBL group (n=50)</td>
<td>2</td>
<td>4%</td>
<td>48</td>
<td>96%</td>
</tr>
<tr>
<td>Haemorrhoidectomy group (n=50)</td>
<td>20</td>
<td>40%</td>
<td>30</td>
<td>60%</td>
</tr>
<tr>
<td></td>
<td>16.84</td>
<td></td>
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<td>0.000</td>
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discharge. Haemorrhoidal banding remains the most successful method to manage haemorrhoids in outpatient clinic.

CONCLUSION

Rubber band ligation is a simple, quick and safe way of dealing with haemorrhoids. It can be used very safely in those patients who are old, frail and otherwise unfit for anaesthesia.

Rubber band ligation can be done in outpatient department and just needs evacuation of rectum. On the other hand haemorrhoidectomy needs general anesthesia. So the patients has to be investigated and admitted before operation. Our study showed rubber band ligation procedure to be significantly better than hemorrhoidectomy.

REFERENCES


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