

# SHORT TERM OUTCOME OF RUBBER BAND LIGATION VERSUS OPEN HEMORRHOIDECTOMY IN TERMS OF POSTOPERATIVE COMPLICATIONS

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## ABSTRACT

**Objectives:** To compare the outcome of Rubber band ligation with open hemorrhoidectomy in short term and its suitability in our social set up.

**Material and Methods:** One hundred and twenty patients were enrolled from November 2007 to May 2009. They were equally divided into group A (open hemorrhoidectomy) and group B (Rubber band ligation). Postoperative complications, recurrence and patient's satisfaction rate were recorded.

**Results:** Pain was the most common complaint. About 91.7% of patients in Group A while 15% in Group B complained of pain which was significant ( $p$ -value = 0.001). Immediate post-operative bleeding was 18.3% in group A and 6.7% in group B. Transient flatus incontinence (5%) was recorded in group A, no incontinence in group B. Anal stenosis was 0.3% in group A while no anal stenosis was recorded in B. recurrence rate was significantly higher in group B (13.3%  $p$ -value = 0.048). Rate of satisfaction was higher in group A (93.3% versus 86.7%), but statistically it was not significant.

**Conclusion:** Rubber band ligation is safe, effective method to treat the 2nd and 3rd degree hemorrhoids with less satisfaction than open hemorrhoidectomy which is statistically insignificant.

**Key Words:** Barron band, Rubber band, ligation, open hemorrhoidectomy, Milligan Morgan hemorrhoidectomy.

## INTRODUCTION

Hemorrhoid is one of the commonest problems presented to the surgical OPD and family physicians<sup>1</sup>. About 80% of the population is suffering from asymptomatic hemorrhoids and of these 4.4% become symptomatic which are presented to the surgeons<sup>2</sup>. Though benign disease, yet it cause significant social and psychological morbidity<sup>3</sup>. Sometimes it is presented very late with severe anemia leading to high output cardiac failure and death<sup>4</sup>. It afflicts the mankind since time immemorial. Hippocrates was the earliest writer on hemorrhoids who treated hemorrhoid with red hot iron with belief that it was caused by inflammation secondary to infection of veins in the anal canal<sup>5</sup>. Napoleon used to treat his hemorrhoids with leeches, since than the journey of hemorrhoid treatment has gone through ligation by Blaisdell<sup>6</sup>, excision by milligan but the modern age has seen an incredible development in the treatment of

hemorrhoids which is an evidence of difficulty of hemorrhoid management and its complications for such a benign condition and hence the need to explore other methods for its optimal management.

Rubber (elastic) band ligation is a safe and effective treatment for the 2nd and 3rd degree hemorrhoids<sup>7</sup>. It is a painless procedure and can be performed without anesthesia. It is considered equally effective for 2nd degree hemorrhoids but less effective than open hemorrhoidectomy for 3rd degree hemorrhoids<sup>8</sup>. Open hemorrhoidectomy, also called "Milligan Morgan hemorrhoidectomy" is the excisional hemorrhoidectomy in which hemorrhoid tissue is excised, the wound is left open and adequate bridge of skin is left intact between the excisions<sup>9</sup>.

The aim of our study is to compare short term outcome of rubber band ligation of hemorrhoid versus Milligan Morgan hemorrhoidectomy in term of postoperative complications. It is to find out which procedure is safe, has less postoperative complications and suits the patients in our setup.

## MATERIAL AND METHODS

The study was conducted in Surgical B Unit Lady Reading Hospital, Peshawar from November 2007 to

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May 2009. One hundred and twenty patients were randomly divided into two groups, Group A of 60 patients for open hemorrhoidectomy and group B of 60 patients for Rubber Band Ligation. All the adult patients' older than 14 years of either sex, patients with 2<sup>nd</sup> and early 3<sup>rd</sup> degree hemorrhoids were included in the study, all the patients were admitted through OPD. Patients assigned to Band ligation were kept in ward for observation. Patients with anal fissure, large skin tag and perianal abscess, thrombosed piles, pregnant ladies and cirrhotic liver disease were excluded from the study. Two bands were applied at base of each pile with loaded hemorrhoidal gun slide over long forceps holding the tip of pile with slight traction above dentate line. The process was repeated for each pile. Maximum three piles were banded in a session. Open hemorrhoidectomy was performed by Milligan Morgan method. All the patients were called for followed up at 3 week, 8 weeks and 6 months interval. Recurrence was objectively examined by proctoscopy, and anal stenosis by Digital rectal examination (DRE). Data was analyzed using SPSS 17.

## RESULTS

In this study, a total of 120 patients were admitted in surgical B unit. Group A comprise open hemorrhoidectomy and Group B comprise Rubber band ligation. Each group contains 60 patients.

In group A, age of patients ranges from 15 to 75 years with the mean age  $39.80 \pm 16.25$  years while in group B, age of patients ranges from 15 to 80 years with age  $40.016 \pm 17.54$  years chi square test result showed value of 32.733,  $df = 51$ , p-value 0.978. (insignificant), in group A male were 83.3%, female 16.7% while in group B male were 80% while female were 20%. Chi square test result showed p-value of 0.637 (insignificant), 3<sup>rd</sup> degree hemorrhoid at 3, 5, 7, 11 position were 56.7% in group A and 51.7% in group B while 2<sup>nd</sup> degree hemorrhoid at 3, 7, 9, 11 position were 43% in Group A and 48.3% in group B. Chi square test results shows p-value of 0.583 (insignificant). Details of postoperative complications, are shown in Table 1.

## DISCUSSION

Hemorrhoids are the pathologic engorgement of the sub mucosal vascular plexus of anal canal as a result of abnormal dilation and degenerative changes in supporting tissues of hemorrhoidal cushion<sup>10</sup>. Hemorrhoids can be either internal or external or both types. There are four grades of hemorrhoids: 1st degree hemorrhoids bleed only, 2nd degree hemorrhoids prolapse but return spontaneously. A 3rd degree hemorrhoid prolapse but no longer return spontaneously, has to be reduced manually. 4th degree hemorrhoids: are permanently prolapsed hemorrhoids. Various modalities of treatment are

**Table 1: Percentages of postoperative complications and their significance**

Variable		Open	RBL	P-value
Urinary retention	present	26.7%	3.3%	.001
	absent	73.3%	96.7%	
Immediate bleeding	present	18.3%	6.7%	0.053
	absent	81.3%	93.3%	
Secondary bleeding	present	1.7%	10.0%	0.051
	absent	98.3%	90%	
Pain	present	91.7%	15%	0.001
	absent	8.3%	85%	
Anal incontinence	present	5%	0%	0.079
	absent	95%	100%	
Anal stenosis	present	8.3%	0%	.022
	absent	91.7%	100%	
Recurrence	present	3.3%	13.3%	0.048
	absent	96.7%	86.7%	
Satisfaction rate	present	93.3%	86.7%	0.224
	absent	6.7%	13.3%	

available for hemorrhoids like Infra-red coagulation, Stapled hemorrhoidectomy, Elastic banding, Doppler guided hemorrhoidal artery ligation (DG-HAL), Photocoagulation, Sclerotherapy with new agents<sup>11</sup>, Cryotherapy, Hemorrhoidectomy open and closed methods, Laser therapy, Bipolar diathermy are few examples<sup>12,13</sup>.

Complications of rubber band ligations are anal discomfort, Pain, Swelling, Bleeding 5th to 10th postoperative day<sup>14</sup>. The Complications of any procedure for hemorrhoidectomy are early, like Pain, Acute retention of urine, reactionary hemorrhage and late complications like secondary hemorrhage, Anal fissure, anal stenosis, Incontinence<sup>15</sup>.

Postoperative pain after open hemorrhoidectomy results in reluctance of patients to undergo the procedure although it is considered as gold standard even in modern age especially for prolapsed hemorrhoids<sup>16</sup>. The cause for intense postoperative pain is unknown but it may be due to spasm of internal sphincter. Diana G reported that internal sphincterotomy reduced postoperative pain after hemorrhoidectomy<sup>17</sup>. Ali SA have reported that intense pain was commonest complaints in both open and

rubber band ligations but many other authors have reported pain as a much less common complication of RBL<sup>18,19,20</sup>. In our study 91.7% in open hemorrhoidectomy while only 15% of patients in RBL were complaining of pain. Kanellos I and Ding JH have reported 64% and 94.3% of patients with pain in open hemorrhoidectomy respectively<sup>21,22</sup>. Similarly Hadi A observed 6% with severe and 46% with moderate pain in open hemorrhoidectomy<sup>23</sup>.

Postoperative bleeding is common during open hemorrhoidectomy but also occurs during band ligation as a result of crushing piles by forceps or due to congestion of piles. Secondary hemorrhage after 5th to 10<sup>th</sup> postoperative day in open hemorrhoidectomy is a rare complication but may be the manifestation of infection of the wound and should not be taken for granted, however it is common in RBL as result of sloughing of piles. In our study, immediate postoperative bleeding was less common in RBL than open hemorrhoidectomy (6.7% versus 18.3%). In both the cases, the bleeding was mild which stopped spontaneously. However, secondary hemorrhage was more common in rubber band ligation (10% versus 1.7%), which responded to the conservative measures. The study of literature showed 03-15% of immediate postoperative bleeding<sup>24,25</sup>. Longmore RJ and Linare Santiago E observed 2-10% of secondary bleeding in Rubber band ligation<sup>26,27</sup>.

Urinary retention was the most common complication in our study causing considerable embarrassment to the patients and their attendants. All of the patients were managed without catheterization by giving analgesics and providing privacy. 26.7% of patients in open while 3.3% of patients in RBL were observed in our study. Gupta PJ has reported 17% of patients with urinary retention in open hemorrhoidectomy<sup>28</sup>. Kumar N, on the other hand, reported 8.1% of patients with urinary retention in RBL<sup>29</sup>.

Anal incontinence was the most serious complication which socially isolates the patients. In our study, 5% patients were observed with mild flatus incontinence in open hemorrhoidectomy which settled without surgical intervention. Incontinence was not reported in RBL. Faecal incontinence was not reported in any group. According to Shanmugam v, who studied 26 patients, 8% (2/26) of patients reported to have flatus incontinence<sup>30</sup>.

According to Wang JY, who studied 32 patients, 6.5% patients were found to be complicated by anal stenosis<sup>31</sup>. Similar result was reported by Madoff RD<sup>24</sup>. In our study, 8.3% patients were observed with anal stenosis in open group while none of the patients had anal stenosis in RBL group which is comparable to the results reported by Peng BC<sup>32</sup>.

Recurrence was more common in band ligation than open hemorrhoidectomy. In our study, 13.3% patients were seen to have recurrence of hemorrhoid in RBL while 3.3% patients experienced recurrence of hemorrhoid in open hemorrhoidectomy over 6 month follow up. Qureshi M and Peng BC reported recurrence rate of 8% and 11% respectively<sup>32,33</sup>.

In our study, 93.3% of patients were satisfied from the procedure of open hemorrhoidectomy, though some of them had asymptomatic recurrence on proctoscopic examination over 6 months. On the other hand, 86% patients were satisfied from the procedure of RBL, rest of them were not satisfied for they had to repeat the procedure as the recurrence was higher in RBL. Eam TD and Scholefield have reported 80% success with satisfaction and Kumar N has 72% satisfaction rate in RBL, the difference is the large sample they have studied<sup>34,29</sup>.

## CONCLUSION

RBL has comparatively less post-operative complications. It is safe, effective but the satisfaction rate of patients in our society is not comparable to open hemorrhoidectomy in short term due to repeated procedure. Young and middle aged people are equally affected in both groups with male predominance.

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