

## Evaluation of Office Ligation In The Treatment of Hemorrhoids at Nepalgunj Medical College Teaching Hospital

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### ABSTRACT

**Introduction:** Rubber band ligation, an outpatient procedure for treatment of 2<sup>nd</sup> and 3<sup>rd</sup> degree hemorrhoids is an effective mode of management. **Aims and objectives:** To evaluate the effectiveness of rubber band ligation as an office procedure in the treatment of 2<sup>nd</sup> and 3<sup>rd</sup> degree hemorrhoids. **Material and Methods:** This is a cross sectional hospital based study of 30 cases that underwent rubber band ligation as an outpatient procedure for 2<sup>nd</sup> and 3<sup>rd</sup> degree hemorrhoids done in Nepalgunj Medical College Teaching Hospital from the period of August 2014 to June 2015. The patients were followed up for six months for the development of procedure related complications, relief of symptoms, and requirement of any further interventions. The total cost of treatment was calculated and the time off work was noted. Patients were requested to assess the forms of treatment as excellent, moderately successful or of little help based on their results post treatment. Statistical analysis using SPSS software (version 20) was done and p value less than 0.05 was taken as significant. **Results:** Post procedure complications were milder and self-limiting, with discomfort in 57.5% (2<sup>nd</sup> degree) and 60% (3<sup>rd</sup> degree), pain in 5% (2<sup>nd</sup> degree) 40% (3<sup>rd</sup> degree), bleeding in 22.5% (2<sup>nd</sup> degree) and 30% (3<sup>rd</sup> degree) of patients with absence of any major complications (sepsis or death). Majority (77.5% in 2<sup>nd</sup> degree, 70% in 3<sup>rd</sup> degree) of the patients significantly improved after initial treatment with band ligation. Some of the patients treated by band ligation required further intervention i.e. 16.66% in 2<sup>nd</sup> and 16.66% in 3<sup>rd</sup> degree as repeat ligation in the immediate post-op period and were managed subsequently. But none of them required any surgical procedures. Majority of the patients treated by band ligation were able to resume their normal work within three day i.e. 95% in 2<sup>nd</sup> and 90% in 3<sup>rd</sup> degree hemorrhoids. Most of the patients spent Rs 2000-2500 (52.5% in 2<sup>nd</sup> and 40% in 3<sup>rd</sup> degree) which most was on routine checkups and follow-ups but it was very cheaper as compared to others modalities. Most of the patients (77.5% in 2<sup>nd</sup> and 70% in 3<sup>rd</sup> degree) treated by band ligation assessed the treatment as excellent. **Conclusion:** Rubber band ligation is a simple, safe and effective method for treating symptomatic second and third degree hemorrhoids as an outpatient procedure with significant improvement in quality of life. Immediate relief of symptoms can be obtained in the post-operative period and therefore be considered as the treatment of choice for second and third degree hemorrhoid. Though the complications are slightly higher and improvement in symptoms were delayed than in second degree but still Rubber Band Ligation proved to be effective even in 3<sup>rd</sup> degree hemorrhoid.

**Key words:** Efficacy, hemorrhoid, rubber band ligation, sepsis, vasovagal reflex

### INTRODUCTION

For centuries the human race has been plagued by a very common condition called hemorrhoids. Yet the whole subject is still clouded by misconception and folklore. It is almost impossible to calculate its prevalence, for many patients with hemorrhoids never have symptoms so whether such persons should be considered as diseased is still a question. So only symptomatic patients with hemorrhoids should be taken into consideration<sup>1</sup>. Hemorrhoids, the word is derived from Greek,

haima meaning blood and rhoos meaning flowing, the common man's term piles is derived from Latin word pila meaning a ball<sup>2</sup>.

Hemorrhoids have been defined differently over the years from over simplified definition of varicosities of hemorrhoidal plexus to the more recent study describing them as specialized highly vascular "cushions" of discrete masses of thick submucosa, containing blood vessels, smooth muscles, elastic and connective tissue which may slide down due to breakage of collagen and anchoring supporting connective tissue causing symptoms like prolapse, bleeding, pain etc. The cause of which is still hypothesized as erect posture, constipation, straining during defecation, sedentary work and diet low on fiber, heredity, high resting anal pressures<sup>1</sup>.

Numerous modalities and techniques have been developed to treat symptomatic hemorrhoids ranging from simple dietary measures and bowel habit regulation, through a number of non-operative procedures, to different techniques of excision of diseased anal cushions. The vast amount of treatment

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options means none are close to perfection. While many non-operative procedures are effective in controlling symptoms, at least from the patient's perspective, they all share the common problem of recurrence. Although, surgical hemorrhoidectomy is more definitive in symptom control, it has a reputation for being a painful procedure for a relatively benign disorder. First, second and third degree hemorrhoids can be treated by non-surgical methods in outpatient clinics while severe prolapsed or circumferential hemorrhoids can be treated using a variety of surgical techniques, e.g. Milligan Morgan, Longo and others. Nonsurgical methods aim at tissue fixation (sclerotherapy, cryotherapy, photocoagulation, laser), or fixation with tissue excision rubber band ligation (RBL). RBL is considered the most widely used procedure, and it offers the possibility to resolve haemorrhoidal disease without the need for hospitalization or anesthesia, and with lower incidence of complications<sup>3</sup>.

Rubber band ligation is one of the non-surgical interventional procedures. It has shown to be superior to injection sclerotherapy in 2<sup>nd</sup> and 3<sup>rd</sup> degree haemorrhoid and other treatment modality though it bears mild degree of morbidity like vasovagal episodes, pain, bleeding, urinary discomfort and discharge per rectum, fistula in ano and anal stenosis. The disadvantages of this procedure are that, no pathological specimen is obtained, therefore some cases of anal cancer may be overseen. However rubber band ligation of hemorrhoids is a widely used method for the treatment of symptomatic hemorrhoids<sup>4</sup>.

**MATERIAL AND METHODS**

This is a hospital based cross sectional study done in Nepalgunj Medical College Teaching Hospital in general surgery outpatient department from the period of August 2014 to June 2015. Total 30 patients were enrolled with the diagnosis of 2<sup>nd</sup> and 3<sup>rd</sup> degree internal haemorrhoids. Patients of immunocompromised, bleeding disorder, deranged liver function test, uncontrolled hypertension and pregnant were excluded.

Soap water enema was given to evacuate the rectum before beginning of procedure and patients were put in left lateral (SIMS) position for the procedure. With the help of proctoscope, light source, Barron band applicator and Alligator forcep. Barron band (Rubber band) was used to ligate the pedicle of mucosa of internal haemorrhoids causing ischemia, necrosis and scarring. Further the haemorrhoidal tissue sloughed off with in a period of 7 to 10 days. Post-procedure pain was relieved by oral analgesia if necessary. Warm sitz bath was also advised in case of pain<sup>1</sup>. Patients were advised to take up liquids and semisolids for one day, following the procedure so that attempts at defecation were minimal. Oral intake of bulk forming agents for 6-8 weeks was advised to the patients.

The patients were watched for post procedure pain, discomfort, bleeding, urinary retention, sepsis, cost of treatment and days off work were evaluated. Patients were

followed up regularly at intervals of one, three and six months for symptoms as pain, bleeding, prolapse, irritation, mucous discharge and to look out for anal stenosis or incontinence and were enquired whether pre-procedure symptoms had mostly resolved or residual symptoms were present. Patients were requested to assess the form of treatment as excellent, moderately successful or of little help based on their results post-procedure.

**RESULT**

Post Procedure Complications	Second Degree (n=24)%	Third Degree (n=6)%
Discomfort	57.5	60.0
Pain	5.0	40.0
Bleeding	22.5	30.0
Urinary Retention	-	-
Sepsis	-	-
Vasovagal Reflex	-	-

**Table I: Patients of post procedure complications**

In second degree haemorrhoid maximum number of cases about 57.5% had discomfort, bleeding was seen in least number of cases around 22.5% and pain in about 5% cases. In third degree also maximum number of cases had discomfort (60%) followed by pain and bleeding 40% and 30% respectively.

Further Intervention	Second Degree (n=24)%	Third Degree (n=6)%
Repeat banding	16.66	16.66

**Table II: Further Intervention**

83.33% in 2<sup>nd</sup> degree and 83.33% in 3<sup>rd</sup> degree patients improved with the first setting while 16.66% in 2<sup>nd</sup> and 16.66% in 3<sup>rd</sup> degree required second setting of ligation in their early follow up at one week. They underwent repeat banding at same session and subsequently followed up.

Post ligation discomfort	Second Degree (n=24)%	Third Degree (n=6)%
No	7.5	0.0
Slight(1-2days)	60.0	60.0
Moderate(≥3 days)	32.5	40.0
Severe	0.0	0.0

**Table III: Post-ligation discomfort**

None of the cases had severe discomfort whereas 60% had slight discomfort in both the degrees of hemorrhoids.

Time off work	Second Degree (n=24)%	Third Degree (n=6)%
None	77.5	70.0
1-3 days	17.5	20.0
>4 days	5.0	10.0

**Table IV: Time off work**

Maximum number of cases i.e 70% returned to work the next day in 3<sup>rd</sup> degree whereas 77.5% in second degree, only 5% cases took off work for more than 4 days in 2<sup>nd</sup> degree and 10% in 3<sup>rd</sup> degree, whereas 17.5% and 20% were off work for 1 to 3 days in 2<sup>nd</sup> and 3<sup>rd</sup> degree hemorrhoids respectively.

Cost of treatment in Rupees	Second Degree (n=24)%	Third Degree (n=6)%
2000 - 2500	52.5	40.0
2500 - 3000	25.0	30.0
3000 - 3500	22.5	30.0

**Table V: Cost of treatment**

The amount of money spent on routine check-ups, post procedure for pain relief and to manage complications with hospital visits were arbitrarily divided into groups who spent Rs.2000-2500, Rs.2500-3000 rupees and Rs.3000-3500. Maximum number of cases spent Rs, 2000-2500 following rubber band ligation i.e. 52.5% and 40% in 2<sup>nd</sup> and 3<sup>rd</sup> degree haemorrhoid respectively.

In 2<sup>nd</sup> degree, at one-month post rubber band ligation, bleeding which was seen in 97.5% cases at presentation decreased to 27.5%, which further decreased to 22.5% at 3 months. Pain seen in 5% cases at presentation decreased to 5% at one month and still 5% at 3 months. Prolapse observed in 97.5% cases at presentation decreased to 7.5% at one month and 2.5% at 3 months. At 6 months 2.5% cases still had bleeding, 2.5% had pain and 2.5% had prolapsed.

Symptoms	Second degree	Third degree	Second degree	Third degree	Second degree	Third degree	Second degree	Third degree
Bleeding	97.5	90.0	27.5	20.0	22.5	10.0	2.5	0.0
Pain	5.0	60.0	5.0	10.0	5.0	10.0	2.5	0.0
Prolapse	97.5	100.0	7.5	20.0	2.5	20.0	2.5	10.0
Anal stenosis	-	-	-	-	-	-	-	-
Anal incontinence	-	-	-	-	-	-	-	-
Irritation	-	-	-	-	-	-	-	-
Discharge	-	-	-	-	-	-	-	-

**Table VI: Effect of Rubber band treatment on symptom improvement**

Patient assessment of treatment	Second Degree (n=60%)	Third Degree (n=15%)
Excellent	77.5	70.0
Moderate	22.5	30.0
Little help	-	-

**Table VII: Patient assessment of treatment**

**DISCUSSION**

The present study was conducted on 30 patients of 2<sup>nd</sup> and 3<sup>rd</sup> degree internal haemorrhoids who underwent rubber band ligation in outpatient department. The patients were watched for post procedure pain, discomfort, bleeding, urinary retention, sepsis, cost of treatment and days off work were evaluated.

- Post- procedure complication:** In second degree hemorrhoid 57.5% patients in present study were comparable with Kumar et al<sup>5</sup> who had just 21% discomfort, pain was noted only in 5% in the present study and 29% in Kumar et al. 22.5% of the cases of present study had bleeding comparable to 11% of Lee et al<sup>6</sup> whereas only 1% Kumar et al had bleeding. In third degree hemorrhoid, immediate post operative complication in our study was discomfort (60%) followed by pain (40%) and bleeding (30%). Kombarozos et al<sup>7</sup> in his study found pain and haemorrhage as the most frequent complications of which pain comprise of 8.6% and bleeding 2.2%. Pain being a subjective complaint is primarily very difficult to assess, so the accuracy may be false and discrepancy in the result can occur as in our study. Kumar et al<sup>5</sup> in their prospective study found immediate complication in 67.3% of which pain was the predominant symptom in 51% vasovagal attack in 15.3% while bleeding in 1% of the case.
- Further intervention:** In the present study, out of 30 patients treated by RBL, 20(83.3%) in 2<sup>nd</sup> degree and 5(83.3%) in 3<sup>rd</sup> degree, patients did not require any further intervention. 16.66% in 2<sup>nd</sup> and 16.66% in 3<sup>rd</sup> degree in 2<sup>nd</sup> required repeat RBL due to persistent prolapse and

bleeding but no one required open hemorrhoidectomy. Patients with repeat ligation improved after the treatment. Similar findings were noted in the study by Keighley et al<sup>8</sup> where only 14.28% of the patients treated by RBL needed an alternative treatment or were no better compared to 62.12% after high fiber diet ( $p < 0.001$ ).

3. **Post ligation discomfort:** Maximum patients 60% in present study in both grades and 62% in both Ruffinhood et al<sup>9</sup> and Groves et al<sup>10</sup> study had slight discomfort lasting for 1-2 days were comparable. Moderate discomfort in present study was seen in 32.5% in 2<sup>nd</sup> degree and 40% in 3<sup>rd</sup> degree cases comparable to 33% in Ruffinhood et al and 40% in Poon et al.<sup>11</sup> Severe discomfort was not seen in the present study comparable to 4% in Ruffinhood et al and 12% of Groves et al study.
4. **Time off work:** In 2<sup>nd</sup> and 3<sup>rd</sup> degree hemorrhoid 77.5% and 70% of the present study group lost no days off work respectively, comparable with 68% of Groves et al.<sup>10</sup> 17.5% (2<sup>nd</sup>) and 20% (3<sup>rd</sup>) had 1-3 days off work comparable to 12% of Arabi et al<sup>12</sup> and at least of only 5% cases in 2<sup>nd</sup> and 10% in 3<sup>rd</sup> degree in present study had > 4 days of work in comparable to 5.8% in Arabi et al and 6% in Groves et al study.
5. **Cost of treatment:** In 2<sup>nd</sup> degree 52.5% and in 3<sup>rd</sup> degree 40%, cases reported as saying they spent 2000-2500 rupees, 25% in 2<sup>nd</sup> and 30% in 3<sup>rd</sup> degree as 2500-3000 rupees and 22.5% in 2<sup>nd</sup> and 30% in 3<sup>rd</sup> degree as 3000-3500 rupees. This being an outpatient procedure is much less expenditure other forms of treatment as assessed by Barzital who found office procedure of Rubber band ligation 1/10<sup>th</sup> the cost of surgery Poon et al<sup>11</sup> and Lee et al<sup>6</sup> have also acknowledged the cost effectiveness of Rubber band ligation.
6. **Symptom improvement:** In 2<sup>nd</sup> degree haemorrhoid, at one-month post rubber band ligation, bleeding was seen in 97.5% cases at presentation that decreased to 27.5% which further decreased to 22.5% at 3 months which further decreased to 2.5% at 6 months. Pain was seen in 5% cases at presentation remained 5% at one and 3 months and decreased to 2.5% at 6 months. Prolapse observed in 97.5% cases at presentation decreased to 7.5% at one month and 2.5% at 3 and 6 months. In third degree hemorrhoid, bleeding seen in 90% cases at presentation decreased to 20% at 1 month which further decreased to 10% at 3 months. Pain seen in 60% cases at presentation decreased to 10% at one month and 10% at 3 months. Prolapse observed in 100% cases at presentation decreased to 20% at one month, 20% at 3 months and reduced to 10% at 6 months. This was the similar result found as per study done by Kumar et al<sup>5</sup>.

7. **Patient assessment of treatment:** In 2<sup>nd</sup> degree 77.5% and in 3<sup>rd</sup> degree 70% of present study cases remarked as excellent, comparable to 72% in Murie et al<sup>13</sup>, 22.5% in second degree and 30% in 3<sup>rd</sup> degree assessed treatment as of moderate help similar to 16.% in Murie et al. None of the cases assessed it as of any help in both degrees.

## CONCLUSION

Rubber band ligation is a simple, safe and effective method for treating symptomatic second and third degree hemorrhoids as an outpatient procedure with significant improvement in quality of life. It is effective in most of the cases in the first session and therefore be considered as the treatment of choice for second degree hemorrhoid. Though the complications are slightly higher than in second degree but still RBL proved to be effective even in 3<sup>rd</sup> degree hemorrhoid. Treatment of persistent or recurrent symptoms with repeat RBL is effective and increases the overall success rate of this form of therapy.

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