

A retrospective analysis of short and long term efficacy of RBL for hemorrhoids

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Abstract. – **AIMS:** Rubber band ligation is an effective treatment for hemorrhoids. A retrospective analysis was performed to evaluate its short and long-term efficacy.

PATIENTS AND METHODS: From 2000 to 2008, 254 outpatients with II- degree and 114 with III-degree hemorrhoids underwent rubber band ligation. Two or three hemorrhoids were ligated per session. Each haemorrhoid was ligated with two rubber bands through a ligator. All patients were visited after two months and followed up through a telephone after two and eleven years.

RESULTS: Twenty-four or forty-eight hours post treatment, 41% of patients had mild-moderate pain. Four patients showed severe pain and required for haemorrhoidectomy within a few days. Only 2% of patients experienced self-limiting rectal bleeding after one week and 6% of patients had an additional ligation within two months. Two months later, 92% of II-degree patients and 76% of III-degree patients showed no residual symptoms. After two and eleven years, the history of 314 patients (85%) were obtained, of them, 70% was asymptomatic, 27% had some residual symptoms of occasional bleeding and prolapse, and 3% needed further surgery.

CONCLUSIONS: Rubber band ligation is an efficient, cost-effective and simple outpatient procedure for the second and third degree hemorrhoids with minimal complications.

Key Words:

Rubber band ligation, Haemorrhoid, Hemorrhoidectomy.

efficacy are imperfect⁵. Haemorrhoidectomy could produce some satisfying results, but this therapeutic process is relatively painful and of high cost for this benign disease, and what is more, hospitalization is needed⁶. Recently, large clinical papers and data have proposed that rubber band ligation (RBL) is an effective nonsurgical alternative for II- and III-degree hemorrhoids that do not require general anesthesia and hospitalization, with minimal complications^{7, 8}. Therefore, in this study, a retrospective analysis of 368 cases was performed to further evaluate the safety, short and long-term efficacy of RBL for outpatient treatment of hemorrhoids.

Patients and Methods

From 2000 to 2008, 368 patients (221 male and 147 female) underwent RBL in our hospital, with an average age of 46 years (range, from 16 to 88). Among them, 69% of patients (254/368) had II-degree hemorrhoids and 31% of patients (114/368) had III- degree hemorrhoids. According to Goligher's (1976) classification, II-degree hemorrhoids could prolapse, but reduce spontaneously after defaecation; III-degree hemorrhoids needed to be reduced manually. The clinical features of these patients were listed in Table I. Patients excluded from this study were those with a history of surgical intervention in the anus and rectum for colorectal tumor, anal fissure, anal fistula, hypertrophied anal papillae, blood coagulation disorder, immunodeficiency, pregnant woman, fourth-degree hemorrhoids and other complicated hemorrhoids.

Clinical and personal information were recorded, including age, sex, occupation, address and clinical features (bleeding, prolapse, anal pain, abnormal defecation and pruritus). Visual examination and palpation were applied for local check-up. Proctoscopy and sigmoidoscopy were particularly performed for the patients over the 50 years of age.

Introduction

Hemorrhoids are the most common anorectal disease in the western world¹, with high prevalence (nearly 50% of proctological visits in a colorectal unit)². They are involved in any age, with the peak age between 45 and 65 years old, affecting both males and females equally³. The most common symptoms include itching, pain, and bleeding⁴. The currently available treatment methods for hemorrhoids include dietotherapy, infrared photocoagulation, sclerotherapy and several surgical therapies. However, their long-term

Table I. Clinical data for patients.

Variables	Patients, n (%)
Age (mean, range)	46 (16-88)
Sex	
Male	221 (60.1)
Female	147 (39.9)
Grade of haemorrhoids	
G2	254 (69.0)
G3	114 (31.0)
Clinical presentation	
Bleeding	304(82.6)
Constipation	141 (38.3)
Pruritis	35 (9.5)
Pain	11 (3)

All treatments were accomplished in outpatient clinic. With the help of grasping forceps and a proctoscope, each haemorrhoidal nodule was ligated with two rubber rings through a ligator. Two or three hemorrhoids were ligated per session at different distance from the dentate line (range, 0.5-2.0 cm) to avoid annular scarring, which may result in anorectal stenosis subsequently.

After treatment, the patients continued to be observed for 1 or 2 h to detect the early complications (such as bleeding and pain). The patients were recommended to use a high-fibre diet, stool softener, and warm sitz baths. In addition, the patients were required to pay more attention to anal health and excessive straining during defecation. The post-banding symptoms were recorded, consisting of pain, vasovagal symptoms, uroschesis, hemoproctia, and infection. All patients were visited after two months to assess the therapeutic effect. The pain was assessed according to the visual analogue scale. After 2 to 11 years (mean 6.5 years), patients were contacted by telephone for a long-term follow-up using a standard (validated) questionnaire for symptom reevaluation. Therapeutic effect was graded as cure, improvement, and failure (three grades).

Statistical Analysis

The statistical analysis of data was done by using SPSS version 10 (SPSS Inc., Chicago, IL, USA). The description of data was done in form of mean \pm SD for quantitative data; while frequency and proportion for qualitative data. The analysis of data was done to test the statistical significant difference between groups. Student's *t*-test was used to compare between 2 groups for quantitative data, and χ^2 test was used for qualitative data. $p < 0.05$ was considered significant.

Results

From our results shown in Table II, we could find that no patient had immediate complications. A hundred and fifty-one of 368 patients (41%) felt mild or moderate pain 24 or 48 h after the initial treatment, which could be alleviated through warm sitz baths and oral analgesia. There was no pain in 195 of 368 patients (53%). For four patients (1%), conventional haemorrhoidectomy was required to perform one week after RBL owing to considerable pain. A group of 6% of patients experienced a second ligation within two months due to persistent pain. Seven patients (2%) showed self-limiting rectal bleeding one week after RBL. Six patients were reported vasovagal symptoms. All patients displayed rectal tenesmus. No patient had pelvic infection, rectal prolapse and urinary retentions.

Two months later, 92% of II-degree (233/254) and 76% of III-degree haemorrhoid patients (87/114) had no residual symptoms. No anorectal stenosis, burning sensation, pain, secretions and prolapses were observed in all patients (Table III). There was no significant difference in the outcome of RBL between second and third degree hemorrhoids ($p = 0.32$) Table III.

After two to eleven years, a history of 314 patients (85%) was obtained through telephone interview. Among them, 220 cases (70%) showed no symptoms. Eighty-five cases (27%) had some residual symptoms of occasional bleeding and prolapse, however, there were no requirements for further treatment. Only 9 cases (3%) needed further surgical therapy, in which unilateral sphincterotomy was given for 2 cases due to anal fissure after 7 years and haemorrhoidectomy was given for 7 cases after 2, 3 and 8 years due to III-degree hemorrhoids. No patients experienced fecal incontinence (Table IV).

Table II. Common complications of rubber-band ligation within two months.

Complications	Patients	Percentage
Moderate pain	151/368	41%
Severe pain	4/368	1%
Bleeding	7/368	2%
Vasovagal symptoms	6/368	1.6%
Infection	0	0
Uroschesis	0	0
Stenosis	0	0
Prolapse	0	0

Table III. Cure rate of RBL after 2 months in 368 patients n (%).

Total	G2	G3	p
320/368 (87%)	233/254 (92%)	87/114 (76%)	0.32

Discussion

Recently, outpatient treatments for hemorrhoids consist of infrared coagulation, sclerotherapy, conventional surgical resection, stapled haemorrhoidectomy and RBL. RBL is a widely accepted therapeutic method for treatment of I-, II- and III-degree hemorrhoids⁹. Some studies demonstrate RBL is more superior than injection sclerotherapy in controlling symptom^{10,11}. Due to long treatment course and short maintenance time, infra-red coagulation seems not to be recommendable in comparison with RBL^{12,13}. For II-degree hemorrhoids, RBL and haemorrhoidectomy may have the same therapeutic effect, but for III-degree hemorrhoids, haemorrhoidectomy would result in significant pain and more complications although higher recurrence and lower effects of RBL from long-term perspective¹⁴. Stapled haemorrhoidectomy may be more effective for advanced hemorrhoids, but RBL may be suitable for most of hemorrhoids^{8,15}.

Due to mild symptoms present in I-degree haemorrhoid, high fiber diet, drinking lots water, regular defecation or laxatives are prescribed. The symptom of IV-degree haemorrhoid is so severe that RBL is not applicable. Therefore, only the II and III-degree hemorrhoids were selected as our study objects. Two months follow-up indicated that RBL was more effective for II-degree hemorrhoids, with the cure rate of 92%, but only 76% for III-degree hemorrhoids. Only 6% of patients needed additional ligation. Twenty-four or forty-eight hours after treatment, 41% of patients had mild-moderate pain. Four patients had severe pain to require a haemorrhoidectomy which was applied within the first week.

In addition, after one week, 7 cases had haematochezia, of which 6 cases were admitted to hospital. No urgent operation or blood transfu-

sion was performed for them due to self-limiting bleeding. Haematochezia is a common complication for RBL after treatment for 7-15 days, and therefore careful review of anamnesis should be done to exclude the blood coagulation disorder. Before the procedure, it may be necessary to disable anticoagulant therapy and aspirin application for 4 or 5 days. Aspirin is also avoided as an analgesic drug after RBL treatment¹⁶. Although very rare, infection is an underlying deadly complication^{17,18}. Acquired immunodeficiency syndrome is regarded as an absolute contraindication after RBL treatment, and relative contraindications include anal fissure, anal fistula, and anal sphincter spasm. In this study, no patient had infection after treatment and few patients had relative contraindications.

After two to eleven years, a history of 314 patients (85%) was obtained through telephone call. Follow-up of other 54 cases was not completed due to some changes in address and telephone number or death. Among them, 5 cases died of unrelated diseases. Our results indicated that the long-term and short-term efficacy were both excellent, with 70% of no symptom, 27% of occasional bleeding and prolapse. All patients satisfied with their results. These results were in accordance with previous reports, with high rate of successful treatment^{19, 20}. For example, Benzoni et al²¹ found that from 1 to 3 years after the initial RBL procedure, 82.2% of patients with second degree hemorrhoids were either symptom free or improved and didn't need any medical therapy. Nakeeb et al²² predicted that 92.8% of patients were cured with no difference in outcome for second or third degree hemorrhoids after RBL. A total of 6.93% patients had complications from RBL, including pain (4.13%), rectal bleeding (4.13%) and vasovagal symptoms (1.33%), respectively, which all required no hospitalization. At 1 year follow-

Table IV. Long-term results of patients with RBL n (%).

Results	Cure	Improvement	Failure	Total
Patients	220 (70%)	85 (27%)	9 (3%)	314

up, 90% of the patients with second-degree piles and 75% of patients with third-degree piles reported no residual symptoms. A group of 69% was asymptomatic, 28% had residual symptoms, and 3% needed further surgery after 10 and 17 years telephone follow-up²³. Before start of treatment, 6.25% patients complained of bleeding per rectum and 91.25% complained of manually reducible/prolapsed hemorrhoids. Both complaints were cured 100% after RBL treatment²⁴.

Conclusions

RBL is an efficient, cost-effective and simple outpatient procedure for second and third degree hemorrhoids with minimal complications. RBL can be considered as a primary treatment option for hemorrhoids.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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