Rubber Band Ligation for Hemorrhoids: an Office Experience

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Abstract The objective of this study was to analyze the effectiveness, safety, quality of life, and the results of the treatment for second- and third-degree hemorrhoids using rubber band ligation (RBL). This is a retrospective study for 890 patients who came to outpatient clinic from August 2007 to March 2013; all underwent rubber band ligation using the Barron applicator on an outpatient basis for second- and third-degree internal symptomatic hemorrhoids. Data were collected from the patients' files. The patients were asked to return to outpatient clinic for follow-up at 2 weeks and 1 and 6 months and by telephone call every 6 months for 2 years. Six hundred seventy-seven patients (76 %) were cured ($P=0.31$). Symptomatic recurrence was detected in 178 cases (20 %) after 2 years. Thirty-five patients (4 %) had some complications from RBL, which required no hospitalization. The complications were pain, rectal bleeding, and vasovagal symptoms (2.6, 1, and 0.4 % of patients, respectively). Seven hundred fifty-six (85 %) of the patients are males; the mean age was 45 years (range, 16–86 years). RBL 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.

Keywords Rectal bleeding · Barron banding · Hemorrhoidectomy · Rubber band ligation

Introduction

Rubber band ligation (RBL) is the most common outpatient non-surgical procedure available for hemorrhoids. It had been advised to be an outpatient procedure because it is safe, effective, and easy to perform [1–4].

The risk factors of hemorrhoids include past history of hemorrhoidal symptoms, age less than 50 years, history of anal fissure, occupational activity, spicy diet, constipation, physical activity, and alcohol intake. Stress protected against hemorrhoids. For younger women, no significant risk factor related with genital activity was found for hemorrhoidal disease [5].

High body mass index (BMI) is regarded as an independent risk factor [6] and khat chewing may play a role [7]. The most common presentation of hemorrhoids is rectal bleeding and prolapsing. Constipation, pruritus, and pain might also be presented [8].

The treatment of hemorrhoids is either conservative, includes hot sitz bath, medication, diet, and defecation, or surgical which is either non-invasive, which includes sclerotherapy, RBL, cryosurgery, infrared coagulation, laser coagulation, bipolar diathermy, anal dilatation, ultroid, and diode laser treatment, or invasive modality, which includes excision and ligation, closed hemorrhoidectomy, submucosal hemorrhoidectomy, whitehead operation, stapled hemorrhoidopexy (PPH), and excision with ligasure [9–11].

Complications of some of these modalities may be developed such as pain, anal stricture, and incontinence [12]. Nevertheless, some other modalities are regarded superior to others such as PPH and Ligasure hemorrhoidectomy [13, 14].

RBL may be complicated by pain, rectal bleeding, vasovagal symptoms (dizziness or fainting), and severe perianal sepsis in some occasions [15].

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Degree I and II symptomatic hemorrhoids should be treated initially with a rich-fiber diet. The technique of Barron is an effective therapy to treat the hemorrhoids, degrees 1, 2, and in many cases with 3 [16], especially in elderly patients with comorbidity or with moderate prolapse [17], and for selected patients with grade 4 hemorrhoids [18].

In this retrospective study, we analyze the effectiveness, safety, quality of life, and results of RBL in the management of symptomatic hemorrhoids as outpatient procedure.

Methods

This is a retrospective study of patients with symptomatic hemorrhoids who were managed by RBL at the outpatient clinic from August 2007 to March 2013. Data from 890 patients were retrieved from archived files. The inclusion and exclusion criteria of which patients are at any age with first, second, or third degree internal piles were included, while patients with fourth-degree hemorrhoids and complicated piles were excluded.

Thorough history taking was performed and age, sex, occupation, residence, and presentation (bleeding, prolapse, anal pain, discharge, and pruritus) were recorded.

Anal examination was carried out by inspection, palpation, P.R. examination, proctoscopic examination, and sigmoidoscopic examination for patients above 50 years.

My policy is that all piles are ligated in the same session. The patient was observed in the clinic 1–2 h in order to detect any early complication such as hemorrhage and pain. They were informed about the progress of the treatment (fall of the necrosed hemorrhoidal nodule).

The patients were asked to return to outpatient clinic for follow up at 2 weeks and 1 and 6 months and then through telephone call every 6 months for 2 years. Subsequent ligations were performed at 1 month after the prior one, if the patients still had symptoms. Post ligation complications were recorded.

Statistical analysis of data was done by using SPSS (Statistical Package for Social Science) version 11. The description of data was done in form of mean $\pm$ SD for quantitative data while frequency and proportion for qualitative data.

Results

Eight hundred ninety patients are with hemorrhoidal disease with the mean age of 45 $\pm$ 14.75 years (ranging from 16 to 86 years old). Seven hundred fifty-six (85 %) were males, while 134 patients (15 %) were females. Male to female ratio was 5.75:1 (Table 1).

Demographic data, clinical presentation, and severity of hemorrhoids for all patients are shown in 677 patients

Table 1 Demographic and clinical data for patients (*n* (%))

Age (years)	45 $\pm$ 14.75 (16–86)
Sex	
Male	756 (85)
Female	134 (15)
Grade of hemorrhoids	
G2	674 (75)
G3	216 (25)
Clinical presentation	
Bleeding	318 (36)
Prolapse	227 (26)
Constipation	186 (21)
Pruritus	083 (9)
Pain	076 (8)

(76 %) who were cured after the end of treatment, whereas 178 patients (20 %) had recurrence. Thirty-five patients (4 %) had complications. There was no significant difference in the outcome of RBL between second- and third-degree hemorrhoids ($P=0.31$) (Table 2).

Complications from RBL were encountered in 35 patients (4 %). Pain occurred in 21 patients (2.3). Twelve cases (1.3 %) had second-degree hemorrhoids and nine cases (1 %) had third-degree hemorrhoids with no statistical significance ($P=0.8$).

Mild rectal bleeding was reported in eight cases (0.9 %), and it occurred 5–10 days after the procedure. Post-banding bleeding occurred in five cases (0.6 %) with second-degree hemorrhoids, and in third-degree hemorrhoids, only three cases (0.3 %) with no statistical significance ($P=0.35$).

Post-banding vasovagal symptoms were reported in five cases (0.6 %). Perianal abscess occurred in one case (0.1 %) after RBL. It was drained, but 2 months later, the patient developed low anal fistula that was treated by fistulectomy (Table 3).

Discussion

Hemorrhoidal disease affects younger patients according to many studies, 48 years according to Bernal et al. [2] and 47 years according to Francois et al. [5]; this is consistent with our results.

Table 2 Early results of RBL in 890 patients (*n* (%))

Results	Grade 2	Grade 3	Total	<i>P</i> value
Cured	530 (59.5)	147 (16.5)	677 (76)	0.31
Recurrence	86 (10)	92 (10)	178 (20)	
Complications	12 (1.3)	23 (2.7)	35 (4)	
Total	628 (70.5)	262 (29.5)	890 (100)	

Table 3 Post-band complications (*n* (%))

Complications	Degree of hemorrhoids		Total	<i>P</i> value
	Second, <i>n</i> =20	Third, <i>n</i> =15		
Pain	12 (1.3)	9 (1)	21 (2.3)	0.8
Bleeding	5 (0.6)	3 (0.3)	8 (0.9)	0.35
Vasovagal symptoms	3 (0.3)	2 (0.2)	5 (0.6)	0.25
Infection	0	1 (0.1)	1 (0.1)	
Total	20 (2.2)	15 (1.8)	35 (4)	

Males were affected more than females according to Francois [5], which is also consistent with our results, although we consider the social and psychological causes as an added explanation.

RBL is regarded as the most effective and safe office procedure for all grades of hemorrhoids in terms of short- and long-term results and less complications [1–4]. There are new and recent modalities which seems to be similar to RBL in regard to complications, for example, electrotherapy which was proven to be of little post procedural pain [19] and endoscopic ligation [20] and cryotherapy [21] and infrared coagulation, or sometimes superior to RBL like hemorrhoidal laser procedure with less postoperative pain according to Giamundo.

The success rates of RBL range is between 79 and 91.8 % [22]. So, there is no difference in success rates of RBL in first-, second-, and third-degree hemorrhoids. In our study, successful results were achieved in 677 patients (76 %), who were cured at the end of the treatment. In Ayman et al. [4], symptomatic recurrence was detected in 11.04 % after 2 years, while Vassillios et al. [22] reported 11.9 % (53/445) of symptomatic recurrence 2 years after RBL, with repeat RBL or surgery in (41/445) 9.2 % cases.

In our study, symptomatic recurrence was detected in 20 % (178/890) after 2 years of follow-up.

Most of the complications of RBL were minor and self-limiting and requires no hospitalization. Vassillios et al. [22] reported that in 94 patients (18.8 %), complications occurred. In our series, complications from RBL encountered in 35 patients (4 %) were minor and no hospitalization was needed. Post-banding pain was frequently observed even during careful placement above the dentate line. Furthermore, pain and anal discomfort were reported to be greater when multiple bandings were performed. Gupta [23] found that out of 44 patients that underwent RBL, seven patients (15.9 %) reported pain. Ayman et al. [4] found pain in 31 patients (4.13 %) out of the 750 studied group. We found that pain occurred in 21 patients (2.3 %), and in all cases, the pain appeared immediately or few hours after the ligation and lasted less than 2–3 days. Patients with multiple hemorrhoidal banding in one session had greater discomfort and pain. These results are in

accordance with those of Vassillios et al. [22], who reported that patients with multiple hemorrhoidal banding in a single session compared with patients with single banding had greater discomfort and pain (9.35 vs 1.96 %).

Bleeding is a significant complication of RBL, and it cannot be prevented. It is the result of the fall of the hemorrhoidal nodule and local inflammation; bleeding in our series occurred in eight cases (0.9 %). It was mild and treated conservatively in all cases without hospitalization or blood transfusion. Ayman et al. [4] in their study of 750 cases found that 31 patients (4.13 %) had bleeding which is slightly higher than our results.

In our study, Post-banding vasovagal symptoms occurred in five cases (0.6 %). There were no cases of urine retention that necessitate catheterization, fecal incontinence, or cases complicated by anal stenosis after band ligation. This result is lower than that of Ayman et al. [4] who found this complication in ten cases (1.33 %) in their study.

Conclusion

RBL is a simple, safe, and effective method for treating symptomatic second- and third-degree hemorrhoids and an outpatient procedure that contributes significant improvement in quality of life. RBL can be used to treat grade 2 and 3 hemorrhoids with similar effectiveness. RBL does not alter anorectal functions.

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Conflict of Interest The author declares that he has no competing interest.

Compliance with Ethical Standards Ethical approval is considered, but unfortunately, we have no ethical committee in the hospital where we are working and where the data was collected. Informed consent was obtained from all individual participants included in the study

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