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Research Article

Rubber Band Ligation in Hemorrhoidal Disease. What do you Expect to Happen in Short Term? Experience in 296 Applications

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Abstract

Background: Hemorrhoidal disease (HD) is a frequent condition with many clinical variants and treatments. Rubber Band Ligation (RBL) is the most used ambulatory procedure in grades II-III for simplicity, safety and low cost. Aim of this study is to analyze the short-term results of RBL, in terms of symptomatic control and morbidity.

Material and Methods: 94 patients with HD degrees II-III with RBL placement were analyzed between August 2016 and January 2018. The patients were evaluated immediately after the procedure and a control was performed after 7 days and 30 days after the last application. Demographic data, clinical response and morbidity were recorded.

Results: A total of 296 RBL were performed in 94 patients. The symptoms were proctorrhagia (91.5%) and hemorrhoidal prolapse (8.5%). 74.5% of the patients presented grade II prolapse and 25.5% grade III. 100% of the patients required multiple ligatures, with an average of 3.1 bands per patient. As complications, there was immediate anal pain after LBE placement in two patients (2.1%), 11 patients (11.7%) had self-limited proctorragia and 4 (4.2%) uncomplicated external thrombosis. No septic complications were recorded. The mean follow-up was 32.5 weeks (4 - 48).

Conclusion: In the short term, RBL is safe and effective procedure with negligible complications in adequately selected patients.

Keywords: *Rubber Band Ligation (RBL); Hemorrhoidal Disease (HD)*

Introduction

Hemorrhoidal disease (HD) is a common condition with different clinical presentations. There are multiple treatment options with different complexities and impact over the patients. Treatment depends on the severity of the symptoms and the anatomical disorder of the hemorrhoidal tissue [1]. RBL is the most used ambulatory procedure for simplicity, safety and low cost. In II and III grades, RBL has demonstrated a similar long-term efficacy for the control of bleeding and prolapse compared with hemorrhoidectomy [2,3]. In contrast, some publications report serious events during treatment (intense pain, massive bleeding, pelvic sepsis) in context of a benign disease [4]. The objective of this study is to analyze RBL short-term results in terms of morbidity and mortality.

Materials and Methods

Patients with symptomatic HD underwent ambulatory RBL between August 2016 and January 2018 were included for the analysis. The patients were included in an institutional treatment protocol and registered in a prospective database. The inclusion criteria to enter the protocol were: Age > 16 years, HD with symptoms of bleeding and prolapse, grades II-III according to the Goligher classifica-

tion, diagnosed by proctological examination with anoscopy. We excluded patients with HD grade I, IV, circumferential mucosal prolapse, non-reversible coagulopathy or immunodeficiency and those with loss of follow-up. In all cases, the diagnosis of colorectal cancer was excluded by rigid proctoscopy or colonoscopy, according to the risk group.

RBL Technique

Patients do not require mechanical preparation prior to the procedure. In anti-aggregate or anticoagulated patients, suspension of medication was indicated according to a cardiological or haematological prescription. The patients were placed in a genupectoral position of choice, using the position of Sims if there was any physical restriction. A lubricating rectal examination was performed with lidocaine jelly and then anoscopy with Welch Allyn® proctoscopy was performed. Congestive hemorrhoidal packages are identified, prioritizing their size and tendency to prolapse to choose the place of RBL. The mucopexy was performed with vacuum aspirator system (Reda Germany vacuum cleaner®), previously checking the minimal distance with the dentate line to avoid pain (Figure 1).

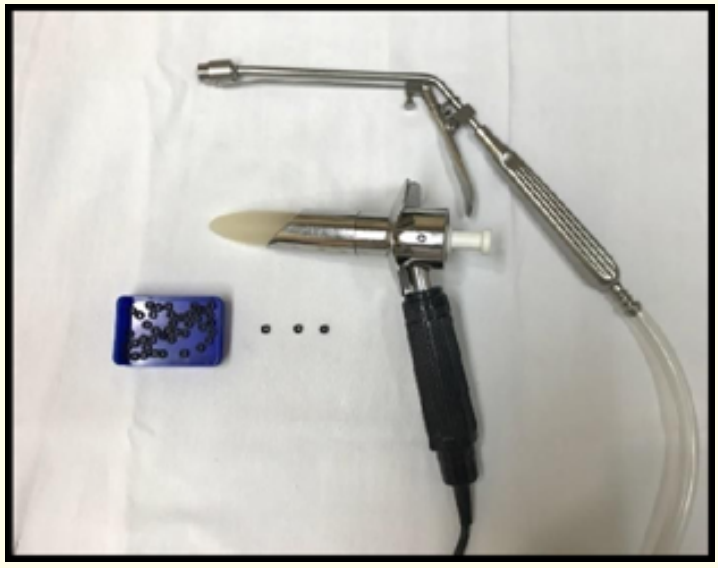

Figure 1: *Anoscope and RBL suction system.*

The procedure was repeated with a weekly interval to complete the pexia of the packages considerably affected in the anoscopic examination. The treatment was considered finished when the patient had no more symptoms (remission of bleeding and prolapse). The clinical follow-up was performed 7 days after each placement. At the end of the treatment, controls were performed at 7 and 30 days. If bleeding or prolapse persisted, a new RBL cycle was performed.

Were analyzed demographic variables, therapeutic responses and morbidity. Immediate pain was defined as the pain referred by the patient at the time of aspiration of the hemorrhoidal tissue and/or firing of RBL. Late pain was defined between 1 and 7 days after placement with analgesic requirements. The presence of bleeding after the placement that was different from a minimal drip or pre-existing hemorrhoidal hemorrhage was also recorded. The accompanying symptoms (pruritus, foreign body sensation or tenesmus) were recorded. The statistical analysis was performed with IBM-SPSS v.20® software.

Results

A total of 296 RBL were performed in 94 patients. 67.1% were men and 32.9% women. The average population age was 49.7(16-82). The cardinal symptoms of the population were proctorrhagia (91.5%) and prolapse (8.5%). 74.5% of the patients had prolapse grade II and 25.5% grade III. Three patients (3.2%) discontinued antiplatelet therapy 7 days before the first placement without any consequences in the evolution. All patients required a minimum of 3 RBL. The RBL average was 3.1. In 73 patients (77.6%) only 3 RBL were applied. A single patient (1.06%) required 9 RBL. Immediate pain was registered in 2.1% and late pain in 7 (7.4%) of patients. 7 days after placement 11 (11.7%) patients presented self-limited proctorragia and 4 (4.2%) uncomplicated hemorrhoidal thrombosis. There are no septic complications or serious bleeding. Work activity was not interrupted in any case. In 2 (2.1%) patients it was decided to perform a hemorrhoidectomy due to the exacerbation of the symptoms of pre-existing anemia unrelated to RBL. Four patients (4.2%) presented a foreign body sensation. No patient reported pruritus or tenesmus. No new complications were recorded between 7 and 30 days after placement. The mean follow-up of the population was 32.5 (4 - 48) weeks.

Discussion and Conclusion

RBL is the most used therapeutic option in second and third degree hemorrhoidal disease. The benefits in terms of cost-effectiveness are given by their safety, effectiveness, low cost. It is also an excellent procedure for the acquisition of skills by doctors in training in the context of university hospitals [2]. There are multiple publications on the effectiveness of the RBL with respect to other methods. A systematic review of high methodological quality published in Cochrane by Shanmugam., *et al*. in 2005 showed long-term control similar to hemorrhoidectomy with lower risks. He also showed that long-term control can fail up to 20% and require new treatments. As a criticism, this review included only three studies with high heterogeneity totaling 216 patients [2]. It is worth mentioning that currently they should not be compared with surgery, since they would be indicated for different types of HD. However, some experiences in our environment, with macrobands in disease grade III and IV obtained acceptable results [5].

In comparative studies with photocoagulation, radiofrequency, laser, hemorrhoidal dearterialization, bipolar coagulation, PPH, ligation was shown as a superior equation in terms of complications, control of long-term symptoms and costs [3,6-10].

There is a multiplicity of ligation methods described in terms of the device, number and size of bands placed and frequency of the application. In our experience, prior to this series we used the forceps method, which was quickly replaced by aspiration devices because it is more practical, faster, allowing better tissue intakes and does not require an assistant for anoscope support. There is a notable difference when the procedure is performed with suction in the bleeding due to less manipulation and tissue trauma, added to a better visualization of the application area, which frequently seats in friable tissues [4,11].

Regarding the frequency, most of the publications carry out the applications in intervals that vary between 5 and 15 days. It is known that intermittent bleeding and tenesmus sensations that usually remit spontaneously within a week are quite common, so for this reason the frequency in our case was standardized in 7 days with a negligible rate of patients in whom the next placement was postponed due to the presence of symptoms [4].

The numbers of bands applied per session is another controversial aspect because although it proposes a "concentrated" solution in a single procedure (virtue that has hemorrhoidectomy), they generate higher rates of pain (29% vs. 4.5%), vagal symptoms (5.2% vs. 0%) and urinary retention (12.3% vs. 0%) [12,13]. Our protocol was arbitrarily performed with only one placement per session prioritizing patient safety. In our series, most patients (77.6%) obtain control of the disease with only three applications. This result is probably attributable to the fact that most patients presented HD grade II. In any case, drest did not exceed the six placements, except for a single case with nine RBL.

Most common complication reported is pain. Its appearance is related to placement located over or near the dentate line. The different series report pain rates ranging from 1% to 29%, for single placement, and 28% to 79%, for multiple placement [4]. In our conception, pexia and pedicular ligation should be prioritized over the taking of the hemorroidal body. This technique would explain the low pain rate in the series (Immediate pain 2.1% and late pain 7.4%). Other strategies for pain reduction include the previous application of local cold and infiltration with local anesthetics [14,15].

Post-placement bleeding occurs in 20 to 40% of cases, it is rarely severe and usually is self-limited. This complication is linked to anticoagulation and antiplatelet therapy, so it should perform RBL only in selected for patients with a clear contraindication of pharmacological treatment interruption or surgery [4]. A small portion of patients with pre-existing anemia may have persistence or an increase in symptoms during treatment. They will require the interruption of the RBL and surgical resolution.

Some case reports show severe sepsis and massive hemorrhages [16,17]. Infectious complications are directly associated with acquired immunodeficiencies [18]. Fortunately, they are exceptional and no more frequent or severe than those reported for surgical treatments. In our series there were no severe complications. There have been no reports of sphincter dysfunction, a complication much feared by the colorectal surgeon.

Finally, the quality of life in patients treated with RBL is better compared to other techniques, avoids surgical intervention with anesthesia, postoperative pain and potential sphincter damage; It also allows to continue with the daily routine and work while the treatment is performed [19].

As a final conclusion, the short-term results of the RBL allow rapid symptomatic control without major complications. RBL is a safe and effective procedure in appropriately selected patients. It is an excellent alternative to conventional surgical treatments.

Conflict of Interests

The authors declare no conflicts of interest.

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