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Case Report
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Comparison of Bipolar LigaSure Hemorrhoidectomy with Classical Milligan-Morgan Procedure: A Five Year Randomized Prospective Study (2014-2018)

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Abstract

Background: The aim of surgical management of hemorrhoids is to decrease the volume of the swelled hemorrhoidal cushion and to fix the adjacent displaced tissues. However, there are numerous postoperative issues in the term of pain, bleeding etc. impeding to return to daily activities. The occurrence of such postoperative events constitutes a giant proctologic dilemma leading to ongoing debate regarding the best surgical approach for hemorrhoids.

Objective: This prospective study aims to balance the postoperative outcome of two surgical approaches for hemorrhoidal disease, the bipolar Ligasure hemorrhoidectomy, and the classical Milligan-Morgan procedure.

Patients: Consecutive patients from both genders and different ages, presenting with diverse grades of haemorrhoidal disease, and operated in our Department, from 2014 to 2018. We divided them in two groups accordingly to the procedure they were shifted to. We included only patients with primary haemorrhoidal disease and exclude all cases of recurrent hemorrhoids. For each, we collected age, gender, degree of hemorrhoids, postoperative events. The follow-up period was for 12 months.

Results: A total of 4,540 patients were enrolled 2,759 males and 1,781 females, 2650 (58%) patients underwent Ligasure hemorrhoidectomy *vs.* 1890 (42%). In the Ligasure procedure group, the mean operative time was 10 minutes to 20 min *vs.* 15 min to 27 min. In both groups, the majority of patients were males. Regarding postoperative outcome, patients from LigaSure group noticed less postoperative pain (5%, 92% *vs.* 10%, 26%), as well as less recurrence rate (7%, 77% *vs.* 12%, 03%). There was no significant difference between the two procedural groups regarding other postoperative events, such as bleeding, fever, Urinary Retention (UR), Fecal Incontinence (IC), Anal Stenosis (AS). In both groups, pain was more noticed more in patients with 3rd degree haemorrhoids compared to 4th degree. In the ligature group, the recurrence rate was more inflated in 3rd degree haemorrhoids (14%, 14% *vs.* 7%, 04%) and in classical Milligan-Morgan group, the recurrence was noticed more in patients with 4th degree.

Ethical considerations: We receive from each enrolled patients a written informed consent as well as an approval from the scientific board of our Clinic.

Conclusion: According to our five year experience, Ligasure hemorrhoidectomy is a less painful procedure, with law recurrence rate, allowing a quickly return to daily activities. Therefore, it can be stated as an ideal surgical procedure rather than the classical Milligan-Morgan procedure.

Keywords: Hemorrhoids; Classical Milligan-Morgan procedure; Ligasure hemorrhoidectomy

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Introduction

Hemorrhoids constitute the most common proctologic conditions worldwide. The prevalence of symptomatic hemorrhoids is estimated at 4%, 4% in the general population [1]. In the United States of America, up to one third of the 10 million people with hemorrhoids seek medical treatment, resulting in 1.5 million related prescriptions per year. This disease affects more white people from higher socioecomic status as well as from rural areas [2]. There is no known sex predilection moreover, the gestational stat predisposes women. External hemorrhoids affect more young people and middle aged adults than older. The prevalence of hemorrhoids increases with age and the peak is from 45

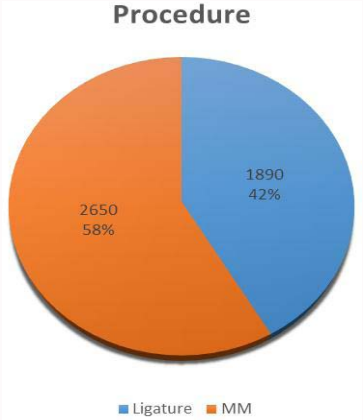

Figure 1: Patients Repartition according to procedures.

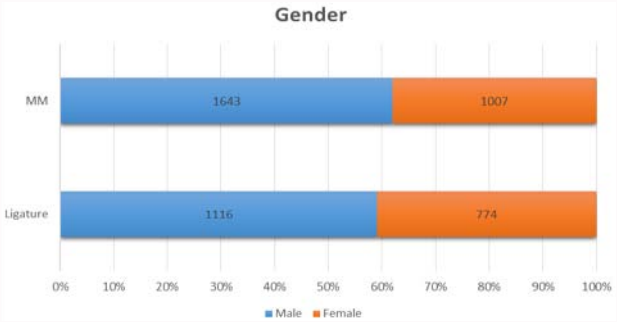

Figure 2: Patients repartition according to genders.

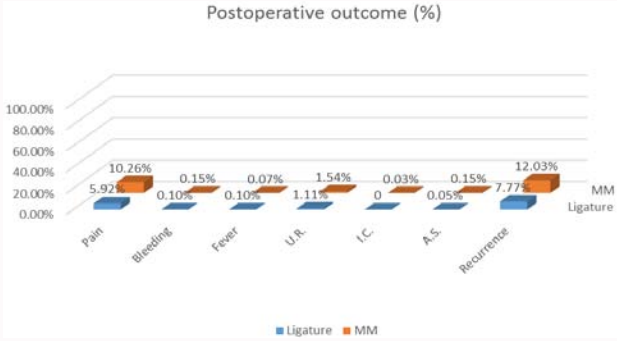

Figure 3: Postoperative outcome per procedure.

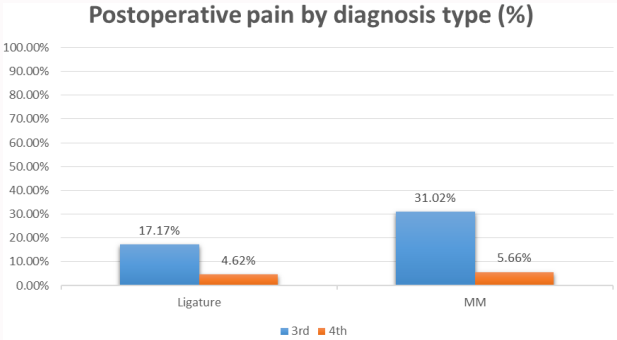

Figure 4: Postoperative pain by diagnosis.

years to 65 years old [3]. For hemorrhoids that have failed to respond to conservative management, surgery is the therapeutic approach of choice [4,5]. Thus, in 1937 an open hemorrhoidectomy was developed by two British surgeons Milligan and Morgan, which was a very crucial contribution in proctologic field. This technique is commonly used and widely considered to be the most effective approach, very often called conventional hemorrhoidectomy. It is still dogmatized as the gold standard for the treatment of hemorrhoids of any degree. Pain is the most important entity of postoperative morbidity following this procedure. Some other possible postoperative complications are early or delayed postoperative hemorrhage, urinary retention, recurrence, passive or urge incontinence, anal Stenosis [6,7]. In the effort to minimize these postoperative issues, many modifications of this technique were attempted. Thus a recent advance in developing sophisticated bipolar electrothermal device (Ligasure-Covidien) has provided effective alternatives, resulting in less postoperative pain as well as perioperative bleeding [8-10]. In the same perspective, this prospective study aims to compare the classical Milligan-Morgan hemorrhoidectomy to the bipolar Ligasure procedure, in the term of postoperative outcome.

Patients and Methods

Consecutive patients from both genders and different ages, presenting with diverse grades of haemorrhoidal disease, and operated in our Department of surgery, from 2014 to 2018. Enrolled patients were divided in two groups accordingly to the procedure they were shifted to. We included only patients with primary haemorrhoidal disease and those with recurrence were excluded from our study. For each of them, the following parameters were collected: age, gender, degree of hemorrhoids, postoperative events. The follow-up period was for 12 months. Patient's characteristics are defined in Table 1.

Results

A total of 4,540 consecutive patients were enrolled 2,759 males and 1,781 females. 2,650 (58%) patients underwent Ligasure hemorrhoidectomy *vs.* 1,890 (42%). In the Ligasure procedure, theme an operative time was 10 min to 20 min *vs.* 15 min to 27 min. In both groups, more the majority of patients were males. Regarding postoperative outcome, patients from Ligasure group noticed less postoperative pain (5%, 92% *vs.* 10%, 26%) as well as less recurrence rate (7,77% *vs.* 12% ,03%). There was no significant difference between the two procedural groups regarding other postoperative events such as bleeding, fever, Urinary Retention (UR), Fecal Incontinence (IC), Anal Stenosis (AS). In both groups, pain was more noticed more in patients with 3rd degree hemorrhoids compared to 4th degree. In the ligature group, the recurrence rate was more inflated in 3rd degree hemorrhoids (14%, 14% *vs.* 7%, 04%) and in classical Milligan-Morgan group, the recurrence was noticed more in patients with 4th degree.

Discussion

Hemorrhoidectomy is considered to be a radical, definitive procedure for hemorrhoids and is regarded as the gold standard against this proctological condition [5]. Ligasure hemorrhoidectomy results in less postoperative pain, less urinary retention, shorter operation time, shorter hospitalization, less blood loss, faster wound healing and convalescence compared to conventional hemorrhoidectomy [11,12]. In some prospective studies, after 14 days there were no significant differences in the term of pain measurement and complications. Although the Ligasure method is simple and easy to learn, it is more expensive than a conventional technique. Ligasure hemorrhoidectomy for patients with grade III and IV hemorrhoids

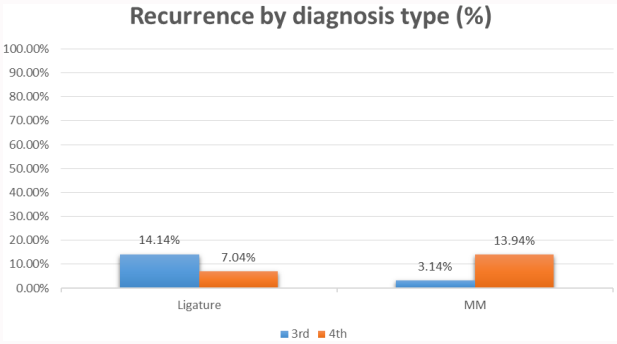

Figure 5: Recurrence rate by diagnosis.

is associated with shorter operative time and less postoperative pain compared to Harmonic Scalpel hemorrhoidectomy [13-18].

In the same perspective, our five year experience prospective study, also found out the results that corroborate with the outcomes of other similar studies performed by different authors [18-22]. We noticed that patients from Ligasure group experienced less postoperative pain compared with those who were shifted to classical Milligan-Morgan procedure. The aim of hemorrhoidectomy is the removal of the dilated veins, ligation of hemorrhoidal arteries and fixation of the anal mucosa to the underlying muscle to prevent prolapse and to obliterate submucosa space. However, the major disadvantage of hemorrhoidectomy is postoperative pain. Early urinary retention is common (2% to 36%), postoperative bleeding (early and delayed) sometimes requires reoperation (0.03% to 6%), bacteremia and septic complications (0%, 5% to 5%, 5%), anal discharge, wound discharge (up to three months), anal Stenosis (0% to 6%) are described complications in medical literature [6,7].

Despite the highest postoperative morbidity rate, hemorrhoidectomy is regarded as the gold standard of treatment of hemorrhoidal disease. However, the ideal surgical approach for hemorrhoids must be the one with decreased morbidity, allowing the rapid return to daily activities [20-22]. In our experience, we realized that, patients operated with Ligasure had decreased pain as well as recurrence rate.

Conclusion

Basing on our five year experience, with 4,540 cases of hemorrhoidectomy, it can be stated that Ligasure hemorrhoidectomy is the ideal procedure for any degree of hemorhhoidal disease despite its cost.

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