Received: October 4, 2023
Accepted: November 15, 2023

Acad Med J 2023;3(3):60-66
UDC: 616.147.17-007.64-089.87
DOI: https://www.doi.org/10.53582/AMJ2333060t
Surgical techniques

LIGASURE HEMORRHOIDECTOMY (LH) WITH "NEAR BASE" TECHNIQUE

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Abstract

Aim: In this study we evaluated the use of Milligan-Morgan hemorrhoidectomy with LigaSure vessel sealing using "near base" techniques.

Materials and methods: Grades 3 and 4 hemorrhoidal nodules were operated with LigaSure (LH) by coagulation and cutting of the hemorrhoidal nodules at positions 5, 7 and 11 o'clock. The patient received premedication, analgesia and intravenous 500 mg of metronidazole preoperatively. Under anesthesia, the patient was placed in a modified lithotomy position. By using an anoscope and light retraction, a 5 mm "V" incision was made with a surgical scalpel at the border of the anal canal to the skin. The nodule was raised with a surgical instrument and the LigaSure was placed on the base of the nodule (leaving 2 mm enough mucus above the sphincter), coagulated and incised without additional suture sutures. Revision of hemostasis was made and vaseline gauze was placed without a stopper. A control of the wound was done within 24 hours, the vaseline gauze was removed and the patient was discharged with oral analgesic and metronidazole therapy. Subsequent check-ups were made on 7, 14 and 28 days.

Results: A total of 52 patients undergoing surgery were operated with LH. Their mean age was 42.5 years (18-75); 59.6% were women and 56% had grade III hemorrhoids. The average surgical intervention lasted 17.0+4.1 minutes. The average length of hospital stay was 1.2 days. The average postoperative pain (Visual Analog score- 1-6) was 3. Postoperative urinary retention was found in 0.38% of patients. There was postoperative minor bleeding in 5.76% of patients that was resolved with conservative treatment, pruritus in 5.76%, flatus incontinence at one month in 7.69% of patients. No stenosis or incontinence were observed.

Conclusion: According to our results and the results from the comparative literature, LH is an effective and safe method in the surgical treatment of grades 3-4 hemorrhoidal nodules, and it should be used as a routine.

Keywords: hemorrhoidectomy, vessel sealing

Introduction

Hemorrhoids are submucosal formations that are located in the anal canal and consist of blood vessels and smooth muscle fibers. Hemorrhoidal disease is most common in patients over the age of 40 and affects almost 5% of the general population[1].

Hemorrhoids are essentially a normal anatomical formation in which treatment is indicated only in patients with bleeding, thrombosis, or hemorrhoidal prolapse. It is estimated that 58% of people over the age of 40 have hemorrhoidal disease to some degree[2].

Symptomatic hemorrhoids are one of the most common surgical diseases. Conservative therapy is recommended for grade I or II hemorrhoids and it gives a good result, but degree III and IV hemorrhoidal disease require surgery.

There are two major surgical methods for treating hemorrhoidal disease: the open Morgan - Milligan method and the closed - Ferguson method[3,4]. The complications of these two methods are mostly the same. Bleeding and pain are the most common ones[5]. As an alternative to open hemorrhoidectomy, the LigaSure technique has been introduced, which is commonly used to treat grades 3-4 hemorrhoids[6].

LigaSure is a hemostatic instrument that by combining radiofrequency ablation and pressure closes arteries and veins up to 7 mm in diameter. The method has advantages; it is short, it is easy to learn and makes minimal damage to the surrounding tissue, mild postoperative pain, has good bleeding control[7,8].

Materials and methods

This study included patients with grades III and IV hemorrhoidal disease, including patients with bleeding hemorrhoids. Patients were operated on under general or spinal anesthesia, placed in a modified lithotomy position. They were preoperatively premedicated and 500 mg metronidazole was administered intravenously. After careful cleaning of the perianal and anal region without entering the anus to avoid unnecessary preoperative bleeding, the intervention began (Figure 1).

Fig. 1. Soft cleaning of the anal and perianal region without entering the anal canal

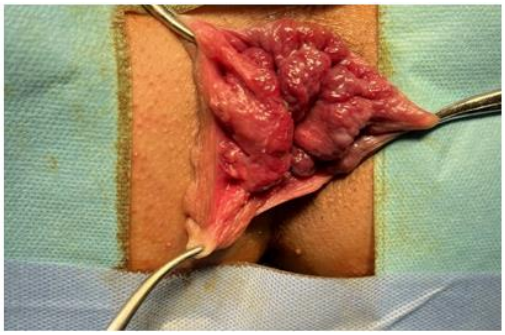

Fig. 2, 3. Locating the hemorrhoidal nodules of III-IV grade at 5, 7 and 11 o'clock

At the beginning of the procedure, hemorrhoids at 5, 7 and 11 o'clock were located (Figures 2 and 3). By using an anoscope and light retraction, a 5 mm "V" incision was made with a scalpel at the border of the anal canal to the skin (Figure 4). The hemorrhoidal node was raised with a surgical clamp and the LigaSure was placed at its base (leaving 2 mm enough mucosa above the anal sphincter ("near base" techniques), and than was coagulated and incised without additional sutures (Figures 5 and 6).

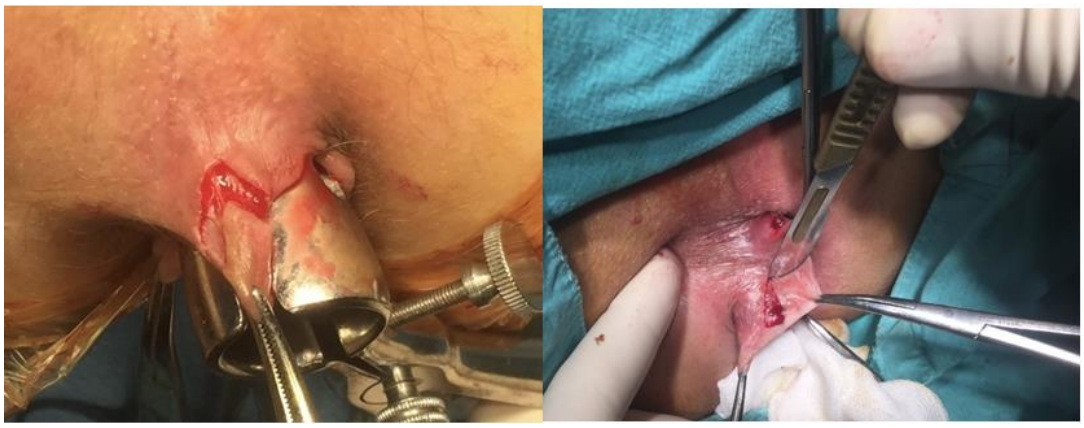

Fig. 4. "V" incision with surgical scalpel

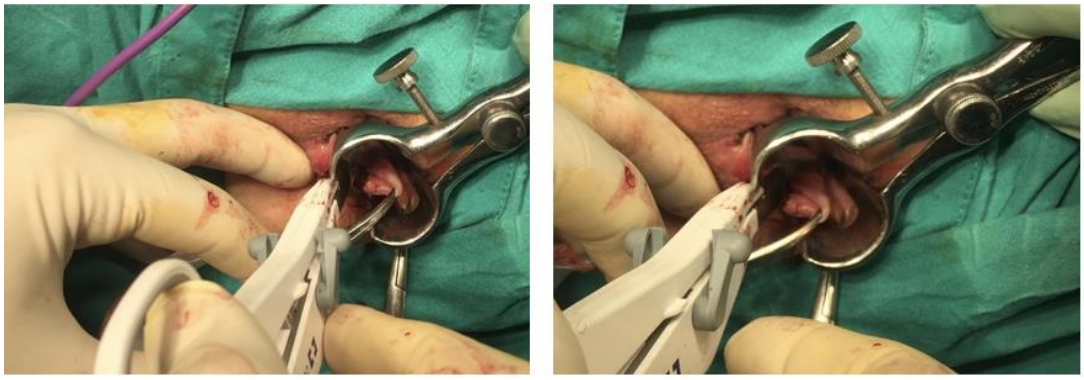

Fig. 5, 6. Hemorrhoidal node is raised with a surgical clamp
and the LigaSure is placed on its base

Fig. 7. Hemostasis and vaseline gauze (only in exceptional cases)

Revision of hemostasis was made and vaseline gauze was placed without a stopper (Figures 7 and 8). A control of the wound was done within 24 hours; the vaseline gauze was removed and the patient was discharged with oral analgesic and metronidazole therapy. Subsequent checks were made on 7, 14 and 28 days.

Fig. 8. At the end of procedure

Results

A total of 52 patients with a mean age of 42.5 years (18-75) were operated on using LigaSure. Of the total number, 59.6% were women, 40.4% were men, 56% were grade III and 44% were grade IV hemorrhoids (Table 1).

Table 1. LigaSure hemorrhoidectomy: number of excised nodules, and other pathology

	Female	Male	Total
Excised 3 nodules	26	18	44
Excised >3 nodules	3	2	5
3 nodules + fissure	2	1	3
Total	31 (59.6%)	21 (40.4%)	52 (100%)

The mean duration of the operation was 17.0±4.1 minutes. The average length of hospital stay was 1.2 days. The average postoperative pain score on the Visual analog score (1-6) was 3. Postoperative urinary retention occurred in 0.38% of patients and postoperative minor bleeding in 5.76% of patients that was resolved with a conservative treatment. Pruritus occurred in 5.76%. Flatus incontinence in the first month was 7.69% (Table 2). There were no patients with stenosis or incontinence as complications.

Table 2. Complications after LigaSure hemorrhoidectomy

	Female	Male	Total	%
Urinary retention	1	1	2	0.38%
Minor bleeding	1	2	3	5.76%
Pruritus	2	1	3	5.76%
Flatus incontinence	2	2	4	7.69%
Stenosis/Incontinence	0	0	/	

Discussion

Symptoms associated with hemorrhoids are quite common in the Western world and industrialized countries. Although the prevalence varies, hemorrhoidal disease is one of the most common surgical diseases[9].

Although hemorrhoidal disease is common in medical practice, the presence of hemorrhoids alone may not be an indication for surgical treatment. The indication for surgical treatment should be aimed at relieving symptoms and correcting anatomical deformity[10].

The diagnosis of hemorrhoids is made clinically and should always begin with a medical history that should be carefully obtained, and the symptoms suggestive of hemorrhoidal disease and other risk factors such as constipation should be noted. A significant sign of internal hemorrhoids is painless anal bleeding[11].

Surgeons generally agree that grade IV hemorrhoids that protrude without the possibility of retraction and grade III hemorrhoids that protrude during defecation are an indication for surgical treatment[12-14].

Surgical treatment may also be indicated for grade II hemorrhoids with mucosal prolapse or recurrent bleeding. However, rapid hemorrhoidectomy may also be indicated in patients with thrombosed or strangulated prolapsed hemorrhoids[15].

Morgan and Milligan were the first to describe the excision and ligation procedure, which has been widely accepted and used in many countries around the world[13,16].

There are many modifications to the basic Morgan-Milligan procedure, but very little has been produced to prove that the modifications contribute to more effective surgical treatment of hemorrhoidal disease. The use of LigaSure contributes in shortening the duration of the operation and significantly improves hemostasis. Improved hemostasis, in addition to reducing blood loss, also means increasing visibility, which allows increased accuracy for more adequate dissection. The shortened time to perform the procedure is again associated with the reduced need to suture the blood vessels due to the use of electrocautery.

Complications of hemorrhoid surgery are small, with the most common occurrence of postoperative bleeding and the largest series showing an incidence of 1 to 2%[17].

Acute urinary retention occurs between 5 and 15% and is the most common reason for delayed hospital discharge[18].

Surgical excision of hemorrhoids remains a very effective method for patients with grade III or IV hemorrhoidal disease or in patients with protruded skin folds. This method gives the best effect in grade III hemorrhoidal disease.

Treatment of hemorrhoids remains a challenge in surgery. New surgical techniques are less painful but the evidence for their efficiency is low. Grade I and II hemorrhoidal disease is treated conservatively. The duration of surgery and the returning to normal life postoperatively are much shorter when using LigaSure than any other method, while the hospital stay and complications are the same[19]. Also, the postoperative need for analgesics is statistically significantly lower when hemorrhoidectomy is performed with LigaSure.

Conclusion

According to our results and the results of the available literature, hemorrhoidectomy with LigaSure is an effective and safe method in the surgical treatment of grade III-IV hemorrhoids and it should be used routinely. It has a significant contribution in shortening the duration of the procedure itself, improves hemostasis thus reducing blood loss and the likelihood of injuries to the sphincter system by increasing the visibility of the operative field.

Conflict of interest statement. None declared.

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