



Comparative Outcomes between Ligasure and THD Techniques for the Management of Haemorrhoidal Disease

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Abstract

Background: The major concern in the surgical management of hemorrhoidal disease has been the postoperative recovery, particularly pain. In recent years new technologies has been developed, such as Ligasure (small jaw) and transanal hemorrhoidal dearterialization (THD), demonstrating encouraging surgical result during the postoperative period.

Aim: To compare ligasure vs. THD in retrospective fashion analyzing a total of 50 cases of hemorrhoidal disease divided in two groups, group A for Ligasure and group B for THD approach in terms of surgical outcomes and recurrences.

Material and Methods: During the period of June 2012 to August 2014 a total of 50 patients were included into two groups. Group A Ligasure and Group B THD. Demographic data as age, sex, surgical outcomes and recurrence rate were analyzed. The patients were treated in several private third level hospitals in Mexico City.

Results: Group A had an average age of 39.5 years old, group B 40.2 years old. In both groups the male sex predominates, 80% and 54% respectively. None patient developed recurrence in both groups, however, 3 patients in Group A developed skin tags.

Conclusion: Our study supports that both Ligasure and THD techniques are probably very similar outcomes in regard to postoperative pain, recovery time and complications in modern surgery for the treatment of hemorrhoidal disease. However, the Ligasure could have slightly more favorable postoperative immediate results as well as technical and economical advantages.

Keywords: Ligasure; THD; Hemorrhoidal disease

Background

Hemorrhoidal disease (HD) is a global health problem. The prevalence of this disease is estimated between 4 and 34%. In the UK it is estimated that from 50 years of age, almost 50% of people present a hemorrhoidal crises [1-3]. A numerous treatments for HD has been proposed, ranging from nonsurgical to minimally invasive surgical approaches such as: a) stapled rectal mucosectomy, b) Doppler guided transanal hemorrhoidal dearterialization (THD) c) LigaSure and traditional hemorrhoidectomy. Although, the latter either open or closed has proven to be the more effective for the treatment of grade 3 and 4 HD, it has been associated with a higher incidence of complications, postoperative pain and prolonged recovery [3]. For these reasons, a minimally invasive procedures such as THD and LigaSure have gained popularity because of their advantages in terms of been less traumatic, decrease in postoperative pain, shorter recovery periods and low recurrence rate with a good safety margin. In regards to the THD surgical dots over the hemorrhoidal artery, that carries blood flow to the hemorrhoidal packages guided by Doppler ultrasound, this maneuver is combined with a pexia of the mucosal hemorrhoidal prolapse, repositioning the mucosal to its original location; while the Ligasure technique involves resection of hemorrhoidal packages by an electrosurgical generator which allows sealing arteries and veins of up to 7 mm in diameter of tissue groups.

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Table 1:

DEMOGRAPHIC DATA	GROUP A (%)	GROUP B (%)
AGE	39.5	40.2
SEX		
Men	80	54
Women	20	46
DISEASE GRADE		
GII	15	20
GIII	80	70
GIV	5	10

Table 2:

VARIABLES	GROUP A	GROUP B
VAS		
DAY 1	4.8 (2-7)	4.7 (2-10)
DAY 2	3.8 (2-7)	2.6 (2-7)
DAY 7	2	2
RETURN TO ACTIVITIES	11.2 DAYS (5-20)	10 DAYS (7-15)

This product works fusing hemostatic collagen and elastin in the vessel walls to create an autologous and permanent seal.

As demonstrated by Albert M *et al.* [3] who after analyzing 175 patients with hemorrhoidal disease grade I-IV, who underwent to THD, with a 17.2 months follow-up of, conclude that this technique is highly effective, with minimal complications, little pain and high patient satisfaction.

Objective

The aim of this study is to compare two techniques for management of hemorrhoidal disease such as: LigaSure vs. THD. A total of 50 cases were divided into two groups, Group A and B, LigaSure vs. THD hemorrhoidectomy, respectively, in terms of surgical results and recurrences.

Material and Methods

During the period of June 2012 to August 2014 a total of 50 patients were divided randomly into Group A (Ligasure) and Group B (THD). All of the patients signed an informed consent and privacy notice. Patients with previous anal surgery and who were immunocompromised were excluded. All patients underwent preoperative evaluation including a detailed medical history, complete Proctologic exploration, in order to rule out other diseases. All patients were operated by the same surgical team. Demographics such as age, sex, as well as surgical results within that time contemplating operative time, bleeding, hospital stay, complications such as urinary retention and recurrent disease were analyzed. Patients were treated at several private third level Mexican hospitals.

Surgical technique

For patients in group A, LigaSure™ Small Jaw Open Instrument was used. For group B, the THD device System was used.

Preoperative preparation consisted of rectal application of sodium phosphate (Fleet enema[®] 133 ml) one hour before the surgical procedure and the administration of a dose of 500 mg of metronidazole (verifying that no patients were allergic). Spinal block was used in all patients. All patients were operated in a Sevillian knife position. Group A: A Pratt anoscope was introduced, with a previous rectal examination, in order to localize hemorrhoidal packages. Once they were located, dissection with LigaSure caliper was developed. Hemostasis was verified and a local hemostatic (Spongostan[®]) was left into the anal canal and compression bandages in gluteal region, that were withdraw 4 hours after the procedure.

Group B: A Pratt anoscope was introduced, with a previous rectal examination, in order to localize hemorrhoidal packages. Subsequently the THD device was introduced, with a subsequent ligation of them into six different points in the quadrant of the 1,3,5,7,9,11 hrs according to a clockwise direction. Hemostasis was verified and a local hemostatic (Spongostan[®]) was left into the anal canal and compression bandages in gluteal region, that were withdraw 4 hours after the procedure.

Postoperative control

Patients remained hospitalized for six to 24 hours in order to monitor their immediate postoperative evolution. They start normal diet at 6 hrs postoperatively. The pain was controlled with intravenous ketorolac and paracetamol. At discharge they take ketorolac 10 mg tablets, paracetamol 750 mg tablets as well as metronidazole 500 mg three times a day for seven days.

Statistical analysis was performed using SPSS version 19, given a program P value of 0.05 as significant. Also it required the use of chi-square and Student's t test.

Results

Within group A 40 men (80%) and 10 women (20%) were included, while the B group was formed of 27 men (54%) and 23 women (46%). The median age for group A was 39.5 and 40.2 years for group B. In both groups hemorrhoidal disease grade III was the most common, accounting for 80% and 70%, respectively, and followed by grade II and finally grade IV (Table 1). A follow up of 12 to 36 months was recorded. Among the symptoms reported by patients highlights: a) bleeding, b) itching and c) foreign body sensation, without statistically significant difference between the two patient groups.

In analyzing the intra-operative variables such as surgical time, we note that the Ligasure group was faster with 10.1 min, ranging from 8 to 15 min, while the THD group was 18.7 min (ranging from 15 to 20 min), with a p value of 0.05. In regard to pre and postoperative hospital stay and bleeding there were no significant difference between both groups. Any patient required reoperation. The only post-operative complications demonstrated were urinary retention and skin flaps, the former was presented in three patients, two of them belonging to group A and one for group B. Three patients in group A developed skin flaps. The post operative pain was assessed with a visual analog scale, assessing at postoperative day one and seven, without observing statistically significant difference between the two groups. Taking an average of 4.8 pain in group A and 4.7 in group B. During the first day. Significantly decrease was observed at the seventh day. The return to activities was 11.2 and 10 days, respectively, showing no statistically significant difference (Table 2).

Discussion

Hemorrhoidal disease is the most common disease of the anal canal, being hemorrhoidectomy still the gold standard for the management of this pathology; However, this procedure is still associated with significant postoperative pain, bleeding and even structural alterations of the anal canal stenosis.

It is for this reason that various techniques have been developed for the treatment of this disease in order to reduce these complications and postoperative discomfort, THD and Ligasure have been used widely for the last years. Both techniques have been demonstrated in several clinical trials a less postoperative pain and

a speedy resumption of everyday activities, when compared with open or closed hemorrhoidectomy [4-9]. Although both procedures are promising, they are also relatively new, so we still do not have a long term follow up, that reveal their true usefulness, in regard to their recurrence rate and/or possible long-term complications. However, with the information we currently have, we know that both procedures are safe, with low rates of short and midterm recurrence, requiring a less surgical time and reducing the length of hospital stay and the use of postoperative analgesics. It is the last three aspects that definitely outweigh the cost of both devices. Without forgetting that the recovery is also faster, with a speedy reintegration into work activities, with a secondary positive impact in terms of cost that involves this pathology. There are many studies that shown that the use of THD for grade IV hemorrhoidal disease increases the percentage of recurrence at almost 60%, with favorable out-comment when performed in grades II and III [10-11].

Both techniques have proven to be reproducible and consisting of simple and very specific steps to achieve the expected results, which certainly is a plus for both techniques [11] and their minor surgical times and short recovery periods.

In our study we were able to compare both techniques, without observing statistically significant differences between the two, except in the surgical time.

Moreover intra-operative bleeding and postoperative pain control as well as return to daily activities in both groups were similar. In any group, the recurrence rate was recorded.

Any patient require reoperation, since 3 patients only present minor complications, such as urinary retention, requiring two of them physical therapy and the third a bladder poll. The cost of both procedures was excluded in this study; however, considering only the cost of the device, use Ligasure turned out to be more economical when compared to the THD.

It is noteworthy that the authors do not have conflict of interest in this study.

Conclusion

Our study supports that both Ligasure as THD techniques are

probably very similar with respect to postoperative pain, recovery time and complications in modern surgery for treatment of hemorrhoidal disease. However, the Ligasure could have slightly more favorable postoperative immediate results and technical and economic advantages.

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