OPEN CONVENTIONAL VERSUS LIGASURE® HEMORRHOIDECTOMY

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ABSTRACT

BACKGROUND:
LigaSure® vessel sealing is a method for ligating vessels of up to 7mm in diameter that is widely used in abdominal and thyroid surgery. The literature describes the benefits of the technique also for treating hemorrhoids.

OBJECTIVES:
In this study we aimed to determine the operative and postoperative characteristics of hemorrhoidectomy using the LigaSure® technique compared with the conventional open technique.

METHODS:
Patients with grade III or IV hemorrhoids, operated between 2010 and 2013, using the LigaSure® (n=18) or the conventional open technique (n=20) were included in the study. Exclusion criteria were thrombosed or strangulated hemorrhoids, concomitant perianal disease, history of recurrent perianal surgery and known tendency for bleeding. Patient characteristics, duration of operation, complications, analgesic requirement, and hospital stay were compared between the two groups retrospectively. Patient characteristics (female: male ratio, mean age, hemorrhoid grade, and symptom duration) were similar between the two groups.

RESULTS:
LigaSure and conventional hemorrhoidectomy patients did not differ significantly in terms of complications or hospital stay. However, the duration of the surgical operation was significantly shorter with LigaSure® (9.4 vs. 26.6 mill, p<0.001). The mean total dose of pethidine requirement was 33.4 mg in the Ligasure®, group and 75 mg in the open conventional group (p <0.001).

CONCLUSION:
In our experience, a shorter duration of surgical intervention, and a lower analgesia requirement, was the only advantage of LigaSure® hemorrhoidectomy. However, the small sample sizes of the study groups, and the retrospective analysis of the results are some limitations of this study.

Keywords: Hemorrhoidectomy, LigaSure®, Milligan-Morgan

INTRODUCTION

Hemorrhoids are a very common anorectal condition, which can be defined as the symptomatic enlargement and protrusion of the normal anal cushions. (1) They affect millions of people around the world and represent a major medical and socioeconomic problem. Hemorrhoidectomy is the best treatment option for symptomatic grade III and grade IV hemorrhoid disease. Protracted healing time, and postoperative pain are major drawbacks of this minor surgery. (2) Some modifications have been proposed to diminish the complications of conventional hemorrhoidectomy. The LigaSure® instrument was first introduced in 1998. It combines pressure and energy to create vessel fusion which can seal vessels up to 7mm in diameter, as well as pedicles, tissue bundles, and lymphatics. (2) This electro-surgical technique is effective in achieving hemo- stasis and is referred to as a ‘vessel sealing system’. The energy is delivered only to the tissue grasped within the jaws of the hand-held instrument, with minimal spread of electrical or thermal energy to adjacent tissues. Complete coagulation of vessels and tissues is achieved with minimal charring in contrast to conventional diathermy. It therefore may be concluded that the LigaSure® system is an ideal instrument for hemorrhoidectomy, as it enables effective, bloodless excision of hemorrhoids with minimal tissue trauma. In this study we aimed to compare the outcome of patients with grade III or IV disease who were subjected to hemorrhoidectomy using LigaSure®, with those who underwent the conventional open technique.

METHODS:
A retrospective study which included 38 patients with symptomatic grade III or IV hemorrhoids operated at the Department of Surgery, El Thora Teaching Hospital, El Beida, between November 2010 and April 2013. Data including patient characteristics, operating time, analgesia requirement, complications, and hospital stay were col-
lected in all patients. All operations performed were by one surgeon. Patients with thrombosed or strangled hemorrhoids, concomitant perianal disease, a history of recurrent perianal surgery and known tendency for bleeding were excluded. 18 patients were treated with LigaSure® haemorrhoidectomy. 20 patients underwent conventional open haemorrhoidectomy. Surgical preparations were the same for both groups. Anaesthesia was either general or spinal according to anaesthesiologist and patient preference. Operations were performed in the lithotomy position for both groups. In the conventional open technique, hemorrhoidal pedicles were ligated with absorbable suture and excision was done with a scalpel. For the LigaSure® group, the procedure was carried out by applying the Ligasure® forceps to the level of the vascular pedicle and scissors were used to cut along the line of the coagulum. The patients received postoperative parenteral injections of diclofenac (75 mg2m1). Additional parenteral analgesics (pethidine) were administered when patients complained of intolerable pain. Follow-up was performed at 1, 2, 4, 6 weeks in all patients. Analysis of data was done by an IBM computer using SPSS 16 (statistical program for social science version 16) Results were expressed as the mean, and standard error / standard deviation. The Chi-square test and Student’s t-test were used to compare the variables between the two groups. A P value of < 0.05 was considered statistically significant.

RESULTS

Conventional open hemorrhoidectomy was used in 20 patients (mean age, 36.3±4.5 years), while LigaSure® hemorrhoidectomy was used in 18 patients (mean age, 37.2±4.2 years). There was no significant difference between patients subjected to conventional or LigaSure® hemorrhoidectomy in terms of age, gender, or hemorrhoid grade. The duration of the surgical operation was significantly shorter with the LigaSure® procedure compared with conventional hemorrhoidectomy i.e. 9.4 minutes versus 26.6 minutes, respectively (p<0.001). Pethidine requirement was significantly less in the LigaSure® group compared with the conventional group (P <0.001). In the conventional hemorrhoidectomy group, one patient had anal incontinence, one patient had bleeding, and two patients had urinary retention. In the LigaSure® group one patient had anal stenosis. Hospital stay did not differ significantly between conventional and LigaSure® hemorrhoidectomy groups (Table 1).

DISCUSSION

Hemorrhoids constitute one of the most common problems in surgical practice. The gold standard surgical treatment for prolapsed hemorrhoids is excisional hemorrhoidectomy. While this method seems to have the best long-term result in terms of recurrence of disease, it has several drawbacks. These include significant postoperative pain, bleeding, constipation, urinary retention, and long-term complications such as anal stenosis, nonhealing wounds, and anal incontinence.

The introduction of LigaSure® vessel sealing led to the publication of several articles describing its use in hemorrhoidectomy leading to a statistically significant reduction in operation time and post-operative pain, reductions in blood loss, less need for analgesia, and a significantly faster return to work. (3-7)

Consistent with previous clinical studies the LigaSure® hemorrhoidectomy offers technical advantages over conventional hemorrhoidectomy by reducing the operating time. (8-10) This may be attributed to the better hemostatic control, and lack of any need to ligate the pedicles as a result of which less time is required. (8)

Pain after conventional surgery continues to be a major problem for hemorrhoidectomy patients. Many researchers have shown that hemorrhoidectomy via LigaSure® is a safe and effective alternative to conventional hemorrhoidectomy with the benefits of less postoperative pain. (6,11-13) There is also less need for analgesics postoperatively. (14-16) The reduction in pain may be attributed to the fact that the LigaSure® system seals tissue bundles without dissection, and with minimal lateral thermal injuries and tissue charring. (7) As our study is a retrospective study we couldn’t evaluate the pain suffered by patients. However, analgesia requirement was significantly less in the LigaSure® group compared with the conventional group. With regard to the early postoperative complications, two patients developed urinary retention in the conventional group, while no cases were observed in the LigaSure

Table 1: Characteristics of hemorrhoidectomy patients operated using LigaSure® versus the conventional open technique

<table>
<thead>
<tr>
<th>Parameters</th>
<th>LigaSure® technique (n = 18)</th>
<th>Open technique (n = 20)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years), Mean±SD</td>
<td>±4.2 37.2</td>
<td>±4.5 36.3</td>
<td>NS</td>
</tr>
<tr>
<td>Male/Female ratio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hemorrhoid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade III</td>
<td>14</td>
<td>14</td>
<td>NS</td>
</tr>
<tr>
<td>Grade IV</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Operating time (min), Mean±SD</td>
<td>2±9.4</td>
<td>2±3.6.26</td>
<td>0.001&gt;</td>
</tr>
<tr>
<td>Pethidine requirement (mg), Mean±SD</td>
<td>±50.33.4</td>
<td>65±22</td>
<td></td>
</tr>
<tr>
<td>Postoperative complications</td>
<td>0</td>
<td>2</td>
<td>NS</td>
</tr>
<tr>
<td>Urinary retention</td>
<td>0</td>
<td>1</td>
<td>NS</td>
</tr>
<tr>
<td>Bleeding</td>
<td>0</td>
<td>1</td>
<td>NS</td>
</tr>
<tr>
<td>Incontinence Stenosis</td>
<td>1</td>
<td>0</td>
<td>NS</td>
</tr>
<tr>
<td>Hospital stay (days), Mean±SD</td>
<td>±0.3 1.2</td>
<td>±0.4 1.5</td>
<td>NS</td>
</tr>
</tbody>
</table>
CONCLUSION
LigaSure® technique and conventional open hemorrhoidectomy were similar on postoperative complications, and the duration of hospitalization. In our experience, a shorter duration of operation and lesser requirement for analgesia were the only advantage of LigaSure® hemorrhoidectomy. However, the small sample sizes and the retrospective analysis of the results are some limitations of this study.

REFERENCES
10. Thorbeck CV, Montes MF. Haemorrhoidectomy: randomized controlled clinical trial of Ligasure®, compared with MilliganMorgan operation.
A Tattoo Sparks An Ethics

A Florida man's unusual tattoo sparked an ethical debate among his doctors. The man, who arrived unconscious at the hospital, had the words "do not resuscitate" tattooed on his chest.

His doctors were torn: Should they honor the tattoo, without an official "do not resuscitate" (DNR) order? Or should they plan to resuscitate the man anyway, since they were uncertain if the tattoo really reflected his wishes?

A medical ethics expert advised the doctors to honor the patient's tattoo, because it was reasonable to assume the tattoo "expressed an authentic preference."

Later, the hospital found that the man actually did have an official DNR order with the Florida Department of Health. The man's condition soon deteriorated, and he died without undergoing CPR or invasive life-support methods, according to his wishes.

A report of the case was published Nov. 30 in The New England Journal of Medicine.

The Question Is:
When Do We Start Such Debates?