TÉCNICA DE GILBERT OU TÉCNICA DE LIECHTENSTEIN PARA O TRATAMENTO CIRÚRGICO DE PACIENTE COM HÉRNIA INGUINAL PRIMÁRIA UNILATERAL. ESTUDO CLÍNICO PROSPECTIVO E RANDOMIZADO

Gilbert or Liechtenstein technique for surgical treatment of patient with unilateral primary inguinal hernia. A prospective, randomized clinical study.

RESUMO

Introdução: Hérnia inguinal é uma doença de alta prevalência; não há um padrão ouro para o seu tratamento cirúrgico. A operação tem como objetivo a redução do saco herniário e reforço da parede posterior. O reparo realizado com uso de prótese é amplamente utilizado, com relatos de bons resultados, especialmente em relação à recidiva, independentemente da composição e do formato do material. Este estudo foi desenhado para comparar o tratamento cirúrgico de hérnia inguinal primária unilateral realizado pela técnica de PHS ou de Liechtenstein, em relação às variáveis de resultado tempo cirúrgico e complicação no pós-operatório precoce.

Métodos: Foram estudados, de modo prospectivo e randomizado, pacientes operados de hérnia inguinal primária unilateral não complicada no período de Janeiro 2009 a Janeiro de 2010, randomizados em dois grupos: Grupo A (n=25) - técnica de Gilbert; e Grupo B (n=25) - técnica de Liechtenstein. Critérios de inclusão: pacientes do sexo masculino, acima de 18 anos, com hérnia inguinal unilateral, massa corpórea <30 Kg/m2, não diabéticos e classes I – II da Sociedade Americana de Anestesiologia. As variáveis estudadas foram: a) idade b) índice de massa corpórea em Kg/m2 c) ASA d) tempo cirúrgico (minutos), e) complicação precoce, f) tempo de acompanhamento (meses) g) complicação tardia. Todos os pacientes foram examinados no ambulatório nas seguintes datas: a - 7º dia de pós-operatório; b - 1º, 3º e 6º mês da operação. O médico responsável pelo acompanhamento pós-operatório não conhecia a técnica utilizada no paciente.

Resultados: As características clínicas dos pacientes eram semelhantes. Os pacientes operados pela técnica de Gilbert tiveram menor tempo cirúrgico que pacientes operados pela técnica de Liechtenstein (57,6±16,65 vs 74,20±24,90; p=0,007). A média de seguimento (meses) foi 21,64(±8,23) no grupo A e 14,68(±5,50) no grupo B (p=0,001). O grupo B apresentou um risco 50% maior de complicações tardias quando comparado com o grupo A (RR 1,5, p=0,5).

Conclusão: apesar de número pequeno de pacientes e tempo de seguimento restrito, o nosso estudo mostra menor duração da operação com a técnica de Gilbert, porém com resultados semelhantes ao da técnica tradicional de Liechtenstein em relação às complicações precoces, tardias e recuperação pós-cirúrgica. Estudos a longo prazo são necessários para avaliar a eficácia das telas em geral, principalmente em relação às taxas de recorrência e inguinodinia no pós-operatório.

Descritores: hérnia inguinal, cirurgia geral, tela cirúrgica.

INTRODUCTION

Inguinal hernia is a highly prevalent disease. Nowadays about 700 thousand hernias are repaired every year in the United States1. There is no “gold standard” technique for the surgical treatment of hernia, which can be performed by the open or the most recent laparoscopic techniques. Regardless of its access, the surgery objective is to reduce the hernia sac and increase the posterior abdominal wall strength.

Authors::
Bernardo Campos de Figueiredo2; Eison Taveira Adôrno Filho2; Thales Santana Damante3 Bruno de Castro Melo3 Carlos Silhorst Barbosa4; Douglas Almeida de Oliveira Filho4; Cervantes Caporossi1; Declared conflict of interest of all authors: none.

1. Associate Professor of the Clinical Surgery Department - School of Medical Sciences of the Federal University of the State of Mato Grosso, Brazil
2. Adjunct Professor of the University of Cuiabá, State of Mato Grosso, Brazil
3. Former residents of the Medical Residency Program in General Surgery of Santa Rosa Hospital
4. Students at the University of Cuiabá School of Medicine, State of Mato Grosso, Brazil

Corresponding author
Cervantes Caporossi, MD, PhD
Marechal Deodoro 135 apto 901
Ed. Rio Sena
Goiabeiras 78045 350
Cuiabá Mato Grosso
caporosi@terra.com.br
For this purpose, the open technique, which brings near the anatomical structures with simple sutures, is the consecrated model, which has been efficiently performed over many years.

Hernia prosthetic repair, which is considered a tension-free technique that narrows the gap between tissues, is being widely used with reported good results, mostly because of its low rate of recurrence. Liechtenstein, who was the first to describe this procedure that is named after him, is its major promoter.

The prosthetic material’s composition and physical layout has undergone alterations. Gilbert has proposed using a mesh with two faces interconnected by a cone (Prolene Hernia System – PHS), also indicating the technique’s easy employment and very reduced recurrence rate.

After the advent of PHS some studies were published aiming to compare techniques, especially in outcome measures such as operative time, complications in the immediate postoperative period, and recurrence rate.

This study was designed to compare the surgical repair of unilateral primary inguinal hernia performed by the PHS or the Liechtenstein techniques, in relation to the primary endpoints of operative time and early and late postoperative complications.

METHODS

Patients undergoing unilateral primary inguinal hernia repair at the Hernia Center of Santa Helena Hospital during the period January 2009 to January 2010 were prospec-

Our study variables were a) age b) body mass index (BMI) in Kg/m2 c) ASA class d) operative time (minutes), e) early complications, f) follow-up time (months) g) late complications. Early complication was defined as the presence of seroma, surgical site infection and suture dehiscence; late complication was any report of paresthesia or inguinodynia. Regarding anesthesia technique and medication, all the patients received a standard spinal anesthesia, and the perioperative care followed guidelines of the ACERTO project, with abbreviation of the preoperative fasting, reduction of venous hydration and early recovery of food ingestion.

Follow-up of patients was carried out at the General Surgery ambulatory clinic of Santa Helena Hospital. This was a blind study, i.e., the physician in charge of the postoperative follow-up did not know which technique was used for each patient. All the patients were seen at the ambulatory clinic on the following dates: a) 7th postoperative day; and later b) at the 1st, 3rd, and 6th months after surgery.

Results were statistically analyzed by the Epi Info 2000 program version 3.5.1, and SPSS program version 16.0, establishing the significance level at 0.05 (α= 5%). The evaluation comprised a description of the study population and the clinical outcome measures. No deviations from the normality and homogeneity were detected. The evaluation comprised a description of the study population and the clinical outcome measures. No deviations from the normality and homogeneity were detected.
RESULTS

Mean age and BMI of patients who underwent inguinal herniorrhaphy by the Gilbert technique was 45 years old and 24 Kg/m², while those who underwent the Liechtenstein technique was 44 years old and 24 Kg/m². All the patients in group A were in ASA class I, while only 02 patients in group B were in ASA class II because they had hypertension and epilepsy as comorbidities. In ASA class I, while only 02 patients in group B were in ASA class II because they had hypertension and epilepsy as comorbidities. (Table 1)

Table 1. Patients’ demographics

<table>
<thead>
<tr>
<th></th>
<th>Gilbert</th>
<th>Liechtenstein</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>44.56 ± 16.77</td>
<td>44.56 ± 16.77</td>
<td>0.81</td>
</tr>
<tr>
<td>BMI (Kg/m²)</td>
<td>44.56 ± 16.77</td>
<td>44.56 ± 16.77</td>
<td>0.94</td>
</tr>
<tr>
<td>ASA (n/N)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>25/25 (100.0%)</td>
<td>23/25 (92.0%)</td>
<td>----</td>
</tr>
<tr>
<td>II</td>
<td>0/25 (0.0%)</td>
<td>2/25 (8.0%)</td>
<td>----</td>
</tr>
</tbody>
</table>

A seroma was observed as early complication in one patient of group B; in group A no early complications were seen. Regarding late complications, group B presented a 50% higher risk as compared with group A. One patient in group A presented with chronic pain, and another one had paresthesia. In group B one patient presented with chronic pain, and two patients with paresthesia. (Table 2)

Table 2. Early and late complications according to the surgical technique

<table>
<thead>
<tr>
<th></th>
<th>Gilbert</th>
<th>Liechtenstein</th>
<th>Relative Risk</th>
<th>p-value (chi-square)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early complications</td>
<td>0/25 (-)</td>
<td>n/M (%)</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Late complications</td>
<td>2/25 (8.0)</td>
<td>3/25 (12.0)</td>
<td>1.5</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Mean follow-up was approximately 22 months in group A, and 15 months in group B. The patients who were operated by the Gilbert technique had a shorter operative time compared to the patients operated by the Liechtenstein technique (57 minutes and 74 minutes, respectively). (Table 3)

Table 3. Operative time and follow-up of patients according to the surgical technique

<table>
<thead>
<tr>
<th></th>
<th>Gilbert</th>
<th>Liechtenstein</th>
<th>p-value (Student-t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative time (min)</td>
<td>57.6 ± 16.65</td>
<td>74.20 ± 24.90</td>
<td>0.81</td>
</tr>
<tr>
<td>Follow-up (months)</td>
<td>21.64 ± 8.23</td>
<td>14.68 ± 5.50</td>
<td>0.001</td>
</tr>
</tbody>
</table>
DISCUSSION

Inguinal hernia is a highly prevalent disease, which affects patients at a young age and in a productive phase of life. The definitive treatment for this disease is the surgical repair; thus, any surgical technique strategy that may improve early and late outcomes is invaluable.

Liechtenstein introduced in 1984 the routine use of prosthesis, considering that ill or damaged structures should not be sutured under tension, thus creating the concept of “tension-free repair”. This technique is recognized as having a lower recurrence rate compared to the conventional techniques for hernia repair. The use of prosthetic mesh was thus established for the treatment of inguinal hernias.

The video laparoscopy technique has been increasingly employed and has proved to be safe and efficient; however, it demands a long learning curve and its performance involves considerably high costs.

Alzahem, in a meta-analysis (n=2699) comparing inguinal hernia repair performed by open surgery versus laparoscopy in young people, reported a higher trend for recurrence in the laparoscopy group (OR=1.81; 95% CI 0.89-3.67; p=0.10), as well as longer operative time (WMD=10.23; 95% CI 8.82-11.64; p<0.00001).

The open surgery technique, with anterior approach of the surgical field and use of prosthesis, is largely used and is the most employed in our Country and in our city. At the hernia surgery center of Cuiabá city, nearly 95% of the procedures are done by the open surgery approach.

The use of double layer prolene mesh system (PHS - Prolene Hernia System) combining anterior and posterior mesh with minimal fixation, is becoming an acceptable technique, with low rates of recurrence and morbidity.

Several randomized clinical trials were performed comparing PHS with Liechtenstein, which is a widely used technique in some hospitals in the Netherlands. Despite a significant reduction of operative time in favor of the PHS technique, such studies reported comparable results regarding recurrence rates and recovery after surgery.

However, there is a lack of studies with longer follow-up of patients.

Kingsnorth et al. investigated short- and medium-term outcomes in patients treated by the PHS technique in comparison with those who were treated by the Liechtenstein technique. Although both techniques displayed longer operative time than reports from the literature, which may likely be due to the fact that most procedures were performed by resident physicians, their study showed a 10% reduction in operative time with the use of PHS. No recurrences were reported in the group who was operated with the PHS technique, while two recurrences were reported after the Liechtenstein technique.

Although performed with a smaller number of patients and restricted follow-up time, our study showed shorter duration of the surgery with the Gilbert technique; however, our results are similar to the ones obtained with the traditional Liechtenstein technique in what refers to early and late complications and postoperative recovery. Long-term studies are needed to evaluate the efficacy of prosthetic mesh in general, mainly regarding recurrence and inguinody in the postoperative period.
ABSTRACT

Introduction: Inguinal hernia is highly prevalent, and no gold-standard technique has been established for its surgical repair. The objective of the surgery is to reduce the hernia sac and increase the posterior abdominal wall strength. Hernia prosthetic repair has been widely employed, with reported good results, mostly because of its low recurrence rate, independently of the composition and physical layout of the material used. This study was designed to compare unilateral primary inguinal hernia surgical repair performed by the PHS or the Liechtenstein techniques, in relation to the primary endpoints of operative time and early and late postoperative complications.

Methods: Patients undergoing non-complicated unilateral primary inguinal hernia repair during the period January 2009 to January 2010 were prospectively studied, and randomly assigned to two groups: Group A (n=25) - Gilbert technique; and Group B (n=25) - Liechtenstein technique. Inclusion criteria were: male patients over 18 years of age, with unilateral inguinal hernia, body mass index (BMI) <30 Kg/m2, non-diabetics, class I-II of the American Society of Anesthesiology (ASA). Primary outcome variables were a) age b) body mass index (BMI) in Kg/m2 c) ASA class d) operative time (minutes), e) early complications, f) follow-up time (months) g) late complications. All patients were seen at the ambulatory clinic on the following dates: a – 7th postoperative day; and b – at 1st, 3rd and 6th month after operation. The physician in charge of postoperative follow-up was blinded to the technique used.

Results: Both groups of patients displayed similar clinical characteristics. Group A (Gilbert) had shorter operative time compared to group B (Liechtenstein) (57.6±16.65 vs 74.20±24.90; p=0.007). Mean follow-up (months) was 21.64±8.23 in group A, and 14.68±5.50 in group B (p=0.001). Group B showed 50% higher risk for late complications compared with group A (RR 1.5, p=0.5).

Conclusion: Despite the small number of patients and restricted follow-up time, our study showed shorter operative time with Gilbert technique; however, results are similar to those obtained with the traditional Liechtenstein technique regarding early and late complications and postoperative recovery. Long-term studies are needed to evaluate the efficacy of mesh prostheses in general, especially about postoperative recurrence and inguinodynia rates.

Keywords: Inguinal hernia, general surgery, surgical mesh

REFERENCES