Original Paper

Quality of Life Analysis after Open and Laparoscopic Inguinal Hernia Repair - Retrospective Study

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KEY WORDS:
Inguinal hernia; Quality of life analysis; Laparoscopy; Thrombosis prophylaxis; Antibiotic prophylaxis

ABSTRACT

Background/Aims: An inguinal hernia is a usual medical problem. The golden standard for its treatment is Lichtenstein's repair. But, there are still some dilemmas about inguinal hernia repair technique, including the role of laparoscopy. The aim of this study is to analyze patient's quality of life after Lichtenstein's or laparoscopic inguinal hernia repair.

Methodology: Retrospective analysis of medical documentation of 216 operated patients during the year 2006 at the Department of digestive surgery, University hospital Split, Croatia using tension free mesh repair procedures: Lichtenstein or laparoscopy (TAPP). Among the other data, the analysis includes use of antibiotic prophylaxis and thrombosis prophylaxis. The quality of life analysis was performed using the Short form 36 questionnaire (SF-36).

Results: We operated 212 (98.15%) males and 4 (1.85%) females. The average age of operated patients was 60.15 ± 13.98 years. The antibiotic prophylaxis was prescribed to 22 (10.19%) patients with some of risk factors for wound infection. We did not register any secondary wound infection. Thrombosis prophylaxis was prescribed to all patients and there were no complications. The quality of life analysis showed no statistically significant differences between Lichtenstein and laparoscopic procedure with slightly better results for laparoscopic procedure in some of the SF-36's domains.

Conclusion: There are no differences in quality of life between the patients operated with Lichtenstein or laparoscopic procedure. Despite that, we believe that laparoscopy has its place for inguinal hernia repair especially for recurrent and bilateral hernias.

INTRODUCTION

An inguinal hernia is usual medical problem which can significantly cause the decrease of the quality of life. The treatment of inguinal hernias is based on inguinal hernia repair procedures. The widespread accepted procedure for inguinal hernia repair is tension free mesh repair, based on Lichtenstein's method, because of low probability of recurrence which is significantly lower than before acceptance of mesh for hernia repair (1). Lichtenstein's procedure has become very popular in last 10-15 years and it has become the gold standard for inguinal hernia repair (2).

Doing a procedure is not the only surgeon's duty. The surgeon has to take care of possible complications and the quality of life after the procedure as well. The same is with the hernia repair procedure. That is why we tried to analyze the quality of life of our patients, operated for inguinal hernias, using short form questionnaire (SF-36).

METHODOLOGY

The retrospective study included 216 patients operated for inguinal hernia between 1st January and 31st December in 2006 at the Department of digestive surgery, University hospital Split, Croatia, using tension free mesh repair procedures: Lichtenstein or laparoscopy (TAPP) procedure. The data were analyzed from medical documentation. We analyzed: age and sex of patients, the electivity or emergency of the procedure (incarceration or not), type or hernia (inguinal, inguinoscrotal, femoral, direct, indirect or recurrent), side of hernia (right-sided, left-sided or bilateral), postoperative complications, usage of antibiotic prophylaxis and thrombosis prophylaxis and length of hospitalization after the procedure.

The basis of this study is the quality of life analysis of the operated patients, using short form questionnaire (SF-36) developed from the RAND Corporation Medical Outcomes Study (RAND Health, Santa Monica, CA, USA) which was translated to Croatian language without the questions' meaning changes. The SF-36 questionnaire is a standardized procedure for the assessment of health-related quality of life which analyzes 8 domains of quality of life: body function, satisfaction of body and emotional roles, social function, pain, psychological status, vitality as well as individual perception of the patient's global health (3). The answers were categorized in the form of scores in the way recommended from RAND, transforming them into linear analogue scale where the score of 100

Hepato-Gastroenterology 2008; 55:2112-2115

indicated the optimal health. After that, they were grouped into the domains. The SF-36 questionnaire was complemented with few questions about the complications or problems specific for inguinal hernia's procedures like: gastrointestinal disorders (adhesions), feeling of flatulence, urinary problems, sex problems and feeling pain in inguinal region during heavy weight which can be directly connected to hernia repair procedure of the patients. We also asked about the appearance of the recurrence. The questionnaire was sent by mail to the addresses of the patients with the accompanying letter, where we explained the kind of research and asked the patients to focus on the hernia repair procedure or, in other words, to connect the questions to inguinal hernia repair procedure.

The data were summarized as mean values with standard deviations (SD). The statistic analysis was performed using Student's t-test and chi square test. The SPSS 11.0 for Windows computer software (SPSS Inc., Chicago, IL) was used for statistic analysis. P value less than 0.05 was considered significant.

RESULTS

During the year 2006, we operated 216 patients for inguinal hernia. There were 212 (98.15%) males and 4 (1.85%) females. The average age was 60.15±13.98 years. There were 204 (94.44%) elective and 12 (5.56%) emergency procedures. Totally 204 (96.23%) male had inguinal and only 4 (1.87%) had inguino-scrotal hernia. Laparoscopic (TAPP) procedure was performed in 82 (37.96%) patients. It is important to say that laparoscopic procedure was performed in 40 patients with bilateral hernia which was 76.92% of all operated bilateral hernias. Also, the laparoscopic procedure was performed in 16 patients with recurrent inguinal hernia which was 44.44% of all patients operated for recurrent inguinal hernias. The average length of hospitalization after the procedure was 2.38±1.41 days: 2.43±1.52 days after Lichtenstein's repair and 2.29±1.21 days after TAPP repair. There was no significant difference between the length of postoperative hospitalization between TAPP and Lichtenstein's procedure (p=0.614). The side and type of hernia, type of procedure and other data are presented in **Table 1**.

The antibiotic prophylaxis was prescribed to 22 (10.19%) patients. Only 4 (18.18%) of those patients were operated in emergency and others were operated electively. The electively operated patients had some of the infection risk factors such are: diabetes, other implants and heart valvula's disease. The thrombosis prophylaxis was prescribed to all patients using 2500 i.u. sc. per day of low molecular heparin (Fragmin™, Pharmacia AB, Stockholm, Sweden). There were no deep venous thrombotic complications during postoperative recovery.

There were 6 (2.77%) complications only. Totally 3 (50%) of those complications were after laparoscopic procedure. One of those complications was bleeding from the troacar placement which had to be solved with laparotomy and sewing through the bleeding spot. Other two complications after laparoscopy and all 3 (50%) complications after Lichtenstein's procedure were treated conservatively. There were no secondary wound infections and mesh infections. **(Table 2)**

TABLE 1 Characteristics of Patients operated during 2006 for Inguinal Hernia, using Tension Free Mesh Repair Procedures

Caracteristic	Value
Age [mean ± SD]	60.15 ± 13.98
male	60.20 ± 14.07
female	57.50 ± 9.19
Side of hernia [N (%)]	
Right-sided	104 (48.15%)
Left-sided	60 (27.78%)
bilateral	52 (24.07%)
Type of hernia [N (%)]	
direct	126 (40.91%)
indirect	146 (47.40%)
recurrent	36 (11.69%)
Type of procedure [N (%)]	
Lichtenstein	134 (62.04%)
TAPP	82 (37.96%)
Antibiotics [N (%)]	22 (10.19%)
elective patients	18 (8.34%)
emergency patients	4 (1.85%)

TABLE 2 Complications in early postoperative period

Complication	Number
wound haemathoma	1
scrotum haemathoma	2
bleeding from troacar placement	1
pneumonia	1
diarrhea	1

From all operated patients, 130 (60.15%) answered to SF-36 questionnaire. There were no statistically significant differences between the patients operated with Lichtenstein's procedure and the patients operated with laparoscopic procedure (TAPP) in any of eight categories analyzed with SF-36 questionnaire. The results were slightly better for laparoscopy. These patients had better physical functioning, less postoperative fatigue and loss of energy, less pain and better general health but without statistically significant differences compare to Lichtenstein's repair. The results of SF-36 questionnaire analysis are shown in **Table 3**.

There were no statistically significant differences between the patients operated with Lichtenstein's procedure and the patients operated with laparoscopic procedure (TAPP) in the added group of questions where we tried to analyze possible problems connected to hernia repair procedure. The results of analysis of added group of questions are presented in **Table 4**.

DISCUSSION/CONCLUSION

The inguinal hernia can cause the significant decrease of the quality of life which is the reason why it must be treated (4). The golden standard of inguinal hernia treatment is tension free mesh repair based on Lichtenstein's technique, despite the increasing role of

TABLE 3 The average Values of analyzed Categories of SF-36 Questionnaire

Category	Lichtenstein	TAPP	p*
Physical functioning	83.65 ± 19.69	87.70 ± 15.87	0.256
Physical health	55.26 ± 41.16	77.17 ± 32.78	0.210
Emotional problems	71.94 ± 36.82	78.21 ± 35.76	0.555
Energy/ fatigue	71.07 ± 21.96	73.69 ± 19.08	0.857
Emotional well being	82.11 ± 20.19	82.54 ± 21.31	0.599
Social functioning	79.31 ± 18.82	78.79 ± 23.44	1.000
Pain	82.17 ± 18.41	76.34 ± 23.32	0.482
General health	67.11 ± 18.56	71.62 ± 15.23	0.344

* p - comparison between Lichtenstein and TAPP procedure

TABLE 4 The Results of Analysis of added Group of Questions connected to Inguinal Hernia Repair

Problem	Lichtenstein	TAPP	p*
Gastrointestinal disorders	8 (10.26%)	2 (4%)	0.564
Feeling of flatulence	8 (10.56%)	14 (28%)	0.317
Urinary problems	14 (17.95%)	6 (12%)	0.481
Sex problems	14 (17.95%)	8 (16%)	1.000
Feeling pain in inguinal region during heavy weight	30 (38.46%)	14 (28%)	0.564
Recurrence	2 (2.56%)	2 (4%)	1.000

*p - comparison between Lichtenstein and TAPP procedure

laparoscopy for hernia repair (1,2).

One of the questions of hernia repair, besides the kind of procedure, is the need of antibiotic prophylaxis and thrombosis prophylaxis. Hernia repair is considered as one of the 'clean' operations which may not require antibiotic coverage. Despite that fact, many surgeons use antibiotic prophylaxis for inguinal hernia repair because of the fear of infection caused by implantation of foreign body (non-absorbable mesh), defending themselves with prophylactic antibiotic usage in other procedures with foreign body implantation such are: arthoplasties and vascular grafts implantations (5,6). The incidence of wound infection is 0 - 9% during postoperative period after inguinal hernia repair (7). However, there are many dilemmas about antibiotic prophylaxis today. There are many controlled, randomized, double-blind, prospective trials which show that antibiotic prophylaxis isn't necessary in patients with low-risk for infection (8-10). On the other side, there are controlled, randomized, double-blind, prospective trials which show that antibiotic prophylaxis is necessary for prevention of infection in patients operated for inguinal hernia (11,12). Some of those trials are stopped because of the ethical reasons after the fortification of the advantages of antibiotic prophylaxis (11). However, it is important to say that the sample was relatively small in those trials (13). The widespread accepted opinion about the antibiotic prophylaxis is that antibiotic prophylaxis must be used only on patients with high risk of infection (14). Basing our opinion on literature sources, on our experience and on the results of retrospective study where we prescribed prophylaxis in only 10.19% of high-risk patients (long duration of incarceration, diabetes, earlier implants) and where we didn't have any wound infection, we consider that the antibiotic prophylaxis is necessary, not as a routine process for all patients but only for patients with the high risk for infections.

Considering the fact that every operation is a kind of stress, including inguinal hernia repair as a routine procedure, our opinion is that thrombosis prophylaxis must be used in all patients in the way of low molecular heparin (Fragmin™, Pharmacia AB, Stockholm, Sweden). It is also important if we consider the average age of the patients of 60.15 ± 13.98 years which is another risk for deep venous thrombosis as well.

When we talk about the quality of life analysis of patients operated for inguinal hernia and the differences between the open (Lichtenstein) methods and laparoscopy (TAPP), as the central theme of this research, we can find different expert opinions. There is doubtless evidence of better quality of life of patients operated with laparoscopic procedure (15). On the other side, there are some other quality of life analyses which don't show any advantages of laparoscopic procedure over the open methods (16). We showed that there are no statistically significant differences in quality of life between the patients operated with Lichtenstein and TAPP procedure regardless the fact that the results of some domains (physical functioning, loss of energy and fatigue, pain and general health) showed the advantages to laparoscopy. Laparoscopic procedure has advantages during the early postoperative period where it improves the quality of life more quickly, especially for the bilateral hernias, but these advantages of minimal invasive surgery are loosing during the time and there are no quality of life advantages of laparoscopy in the long-term restoration (17). There were two recurrences in analyzed patients, one form each group. We didn't find any statistically significant differences between the Lichtenstein and TAPP procedure analyzing the patient's problems which can be connected to inguinal hernia repair. However, it's important to accentuate that 14 (28%) of the patients, who answered to questionnaire and who were operated with laparoscopic procedure, have stated the feeling of flatulence after the procedure. It is also important to say that 30 (38.46%) patients, who answered to questionnaire and were operated with Lichtenstein's procedure, and 14 (28%) patients, who answered to questionnaire and were operated with laparoscopic procedure (TAPP), have stated the feeling of pain in inguinal region during heavy weight. Some of them have been operated almost year and half ago. These problems can be connected to surgeon's technique.

No matter about the results of quality of life analysis, we believe that laparoscopy has its place in inguinal hernia repair, especially in bilateral and recurrent inguinal hernia repair which can be confirmed with the fact that over 3/4 of our patients with bilateral and almost 1/2 of our patients with the recurrent hernia were operated using laparoscopic procedure.

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