Original Articles

EVALUATION OF CHRONIC GROIN PAIN RATES AFTER TEP HERNIOPLASTY – A SINGLE-CENTER STUDY

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Summary

Total extraperitoneal hernioplasty (TEP) has become increasingly used by surgeons. The TEP procedure is technically more challenging due to space constraints and has a higher learning curve. Chronic groin pain after inguinal hernia repair has become the dominant outcome investigated rather than recurrence. We aimed to evaluate the rate of chronic groin pain after TEP inguinal hernia repair performed at the Department of Surgical Oncology in G. Stranski University Hospital – Pleven. The procedures performed totaled 36. There was one conversion, and the patient was excluded from the study because the procedure performed was not laparoscopic. Distribution according to inguinal hernia type was: 41.7% - indirect hernia (15), 36.1% - direct hernia (13), 13.9% combined (5), and 8.3% femoral (3). Twenty-eight of the patients (80%) had preoperative pain. Two of the patients with chronic groin pain had had their meshes fixed with tacks (14.3% from the tack group with p=0.7). Our study showed that the TEP procedure is a safe, feasible operation with minimal risk for complications. Using tacks for mesh fixation is associated with higher rates of chronic groin pain, but it does not affect the recurrence rate, which correlates with the literature review data.

Key words: Laparoscopic TEP herniorrhaphy, chronic pain

Introduction

Abdominal wall hernias are common, and inguinal hernias represent 75% of all hernias. Inguinal hernia repair is one of the most common operations performed worldwide by general surgeons. Ninety-five percent of the patients are male, at a lifetime risk of 27% percent for the development of hernia in the male population. Between 2001 and 2002, 70 000 inguinal hernia repairs were done in England. There are different techniques used for hernia repair, varying from open sutured repairs to open mesh repairs to laparoscopic and robotic repairs [1]. The minimally invasive techniques used for inguinal hernia repair include transabdominal preperitoneal hernia repair (TAPP) and total extraperitoneal hernia repair (TEP). The first TEP procedure was described in 1993. The TEP procedure is technically more challenging due to space

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constraints and has a higher learning curve than TAPP. It can take 30 to 100 procedures to be an expert. However, its main advantage lies in the fact that there is no abdominal cavity entry [2]. Chronic groin pain after inguinal hernia repair has become the outcome investigated, rather than recurrence. In a prospective study, Belyansky et al. compared the results from TEP, TAPP, and modified Lichtenstein repairs. They reported that pain was two times more frequent for TAPP (16.6%) and Lichtenstein repair (16.5%) at three months after surgery, as compared with TEP (8.9%). A randomized clinical trial by Eker et al., comparing TEP with Lichtenstein repair, found that at five years after surgery, the Lichtenstein group reported chronic pain in 28% of the cases. In contrast, in the TEP group, the frequency was 14.9% [3, 4].

We aimed to evaluate the rate of chronic groin pain after TEP inguinal hernia repair performed at the Department of Surgical Oncology in G. Stranski University Hospital – Pleven.

Materials and methods

The study we present is about the TEP procedures performed in our department for five years. The same surgeon performed all the procedures so that the difference in the operative techniques and completeness of the learning curve do not affect the results of the study. The age, sex, type of hernia, preoperative pain, operative time, fixation, patch tailoring, Endoloop use, conversion rate, chronic inguinal pain, recurrence, and postoperative complications according to the Clavien-Dindo (CD) classification were evaluated. Statistical analysis was performed using the chi-squared test. Follow-up was performed 3 and 6 months after the operation with a questionnaire. Follow-up time varied from 3 months to 5 years. The results obtained were analyzed using the Statgraphics plus statistical program. Variational, nonparametric, and correlation statistical methods were used.

Results

The procedures performed totaled 36. We had one conversion, and this patient was excluded from the study because the procedure performed was not laparoscopic. The evaluation of the cohort variables showed a mean age of 47.6 ± 5.24 years, with 88.5% male patients (31). Eighty percent of the patients had a unilateral hernia (29), and 20% had bilateral (7). The distribution according to inguinal hernia type was as follows: 41.7% - indirect hernia (15), 36.1% - direct hernia (13), 13.9% combined (5), and 8.3% femoral (3). Twenty-eight of the patients (80%) had preoperative pain. The results are summarized in Table 1.

Table 1. Clinical characteristic of the patients

Variable	Value
Age	47.6 ± 5.24 years
Sex	Male – 32 Female – 4
Side of hernia	Unilateral – 29 Bilateral – 7
Hernia type	Indirect – 15 Direct – 13 Combined – 5 Femoral – 3
Preoperative pain	Yes – 29 No - 7

Table 2. Intraoperative and postoperative results

Variable	Value
Operative time	110 ± 14.44 min
Conversion rate	1 procedure 2.7%
Fixation	Tack – 14 No fixation – 12 Patch – 9
Chronic groin pain	Yes – 2 No – 30 No info – 3
Recurrence	1
Complications according CD	CD-1 – 4 suffusion CD-1 – 3 seroma formation CD-1 – 2 subcutaneous emphysema

The postoperative results showed a mean operative time of 110 ± 14.44 min. Fixation of the mesh was performed in 14 patients (40%), either with non-absorbable or absorbable tacks, 12 patients (34.3%) had no fixation of the mesh, and 9 (25.7%) had a mesh tailored with a patch. Endoloop was used in 15 patients (42.85%) for primary closure of indirect hernia closure. In our group, we had one conversion to open surgery (2.7%), one early recurrence (2.85%), and nine patients (25.7%) with CD-1 complications: 4

had suffusion, 3 had seroma formation, and 2 had subcutaneous emphysema. Chronic groin pain was present in 2 patients (5.7%), and three patients were unavailable for contact. The results are summarized on Table 2.

Both patients presenting with chronic groin pain had their meshes fixed with tacks (14.3% from the tack group with p=0.7).

Discussion

Introducing meshes for inguinal hernia repair has contributed to a significant drop in recurrence rates, which now vary from 0.4% to 1.34% between the TEP, TAPP. Regarding Lichtenstein repair, no statistically significant difference has been reported. This has led to the shift of researched outcomes from recurrence seen in the different types of repair to the quality of life in patients with chronic groin pain as a significant indicator [3]. Different studies have shown that chronic groin pain three months after open hernia repair can vary from 20% to as high as 40% of the cases [2]. This led to the search for less traumatizing techniques for hernia repair with lower chronic pain. TEP and TAPP have both been used. Many trials have tried to compare them, but no definitive answer to the question as to which method is better has been reached. In their study, Bansal et al. reported that pain scored after TAPP procedures in the first and sixth weeks were significantly higher than those in the TEP group. However, there was no statistically significant difference in the chronic groin pain rate after three months between the groups: 1.25% for the TEP group and 1.29% in the TAPP group [5]. There are five types of mesh fixation used: no fixation, glue fixation, suture fixation, metallic tack fixation, and absorbable tack fixation. Comparing metallic and absorbable tacks, Belyansky found out that absorbable tacks were associated with higher rates of chronic groin pain one month after the operation. When further analysis was done, it showed that when using absorbable tacks, surgeons tend to use >10 tacks. In 33% of the cases with absorbable tacks, more than ten tacks were used, whereas, in the metallic tacks group, more than ten tacks were used only in 2.7% of the cases. At 6 and 12 months, there was no significant difference in chronic groin pain. The authors advise that caution be taken when utilizing them as they increase the rate of chronic groin pain until they are absorbed and lead to no improvement in the recurrence rate [3]. Mesh fixation in TEP has been studied, and a network meta-analysis has been done. The results from the analysis have shown that postoperative pain is significantly lower when using no fixation and glue fixation techniques. Both techniques carry a lower risk of chronic groin pain, as compared with metallic tacks. However, the difference did not reach statistical significance in the meta-analysis, and the conclusion was that a precise randomized controlled trial would be necessary to confirm the findings [6]. In our group, of the 35 patients that underwent the TEP procedure for inguinal hernia repair, 2 of them complained of chronic groin pain (5.7%). Both patients had their mesh fixed during the procedure. When a chi-squared test was performed, it showed no statistical difference regarding the use of tacks for chronic groin pain (p=0.7). We attribute this to the fact that our group was small, and only 2 of the 14 patients with fixed meshes were symptomatic. Metallic tacks provide higher fixation strength than absorbable ones, but they are associated with more complications such as dense adhesion formation, tack erosion into hollow viscera, and tack hernia formation [7]. Using no tacks lowers the risk of chronic groin pain while it does not affect the recurrence rate.

Conclusion

In our study, the TEP procedure proved to be a safe, feasible operation with minimal risk for complications. Using tacks for mesh fixation is associated with higher rates of chronic groin pain but does not affect the recurrence rate, which correlates with the literature review data.

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