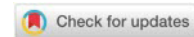


COMPARATIVE ANALYSIS OF CONVENTIONAL AND MINIMALLY INVASIVE TECHNIQUES IN THE TREATMENT OF FEMORAL HERNIAS

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Abstract: Despite the advances in medicine regarding diagnosis and therapeutic options, the treatment of femoral hernias remains a challenge for the surgeon. In the past, this type of hernia was repaired with conventional surgery. Today, mini-invasive techniques are preferred method of choice by many surgeons.

The aim of our study is to compare the results of open and minimally invasive surgery in patients with femoral hernias.

In the present study we include patients with primary unilateral femoral hernias operated in the Surgical Department of EUROHOSPITAL- Plovdiv and the Department of General Surgery of University Hospital "St. George" for the period January 2018 to December 2022. The patients were divided into two groups - conventional and minimally invasive operations. Comparative analysis was performed regarding sex, age, duration of operative intervention, postoperative pain, hospital stay and complications.

33 patients in total were diagnosed and operated for femoral hernias for a period of 5 years. Of these, 16 patients were operated conventionally and 17 underwent laparoscopic surgery. Patients in the minimally-invasive group had a significantly shorter hospital stay (2.1 vs 3.0 days) and less postoperative pain (1.8 vs 3.6 on the 1 to 5 scale). The incidence of the postoperative complications was similar in both groups.

Surgery is the only method of treatment of femoral hernias. Nowadays, minimally invasive techniques became a method of choice compared with conventional surgery. We believe that laparoscopic operations for femoral hernia, performed by experienced surgeon, are effective and safe and could be applied to all type of patients.

Keywords: Femoral hernia; Laparoscopic surgery; TAPP.

Field: Medical Sciences and Health

INTRODUCTION

Hernia repair is one of the most frequently performed benign surgical interventions. Annually, over 20 million operations for hernias are performed worldwide. According to NSI data, for 2020 in Bulgaria 12,754 patients were treated electively or emergency with this pathology. Operations for hernias comprise approximately 2.4% of all surgeries for that period of time. (Hammoud M, Gerken J. (2022), NSI (2021)). Femoral hernias, on the other hand, are rare and consist about 3% of all types of hernias. Surgery remains the best method of treatment of these pathology. In the past, herniorrhaphy was considered the gold standard. (Goethals A et al. (2022)) However, nowadays, more preferences are being given to minimally invasive methods. (The HerniaSurge Group. (2018)) Key factors for that are the relatively shorter learning curve and better postoperative results. Preperitoneal or transabdominal approach in the treatment of femoral hernias is still matter of debate among surgeons.

MATERIALS AND METHODS

The aim of our study is to present and analyze our experience in planned and emergency operative treatment of femoral hernias for the period January 2018 to December 2022. Inclusion criteria were patients with primary unilateral femoral hernias and age over 18 years. In all patients, a detailed anamnesis was taken, physical status was examined, standard laboratory tests and ultrasound were performed. According to the urgency of the condition, in some patients an X-ray of the abdomen and a

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CT scan were additionally performed. We recorded the type of primary surgery performed (hernia repair with or without mesh), with or without laparoscopy performed, the length of hospital stay, postoperative pain and complications.

RESULTS

33 patients with femoral hernias were operated in the surgical departments of UMHAT Eurohospital and UMHAT St George for a period of 5 years. The distribution of patients by gender was following: 5 men and 18 women (ratio 1:3,6) . We used a minimally invasive approach in 17 cases (52%). The mean age of the patients in that group was 55.3 years \pm 19.4 (range 28-85). For conventionally operated patients it was 47.0 years \pm 16.56 (range 32-80) ($p = 0.189$). Regarding the timing of surgery, 24 operations were elective and 9 were emergency (27%). The average operative time of the miniinvasive surgeries was longer - 59.6 min \pm 8.56 (range 45-80). For the open surgeries it was 51 min \pm 9.57 (range 30-135) $p = 0.683$. Regarding postoperative pain (according to the five-point system, where 5 is the strongest pain), lower pain index was reported in the group of laparoscopic operations (1.6 ± 0.62). For the open operations it was 3.2 ± 1.01 ($p = 0.013$). Comparative analysis that we performed regarding the hospital stay did not show significant differences in both groups (2.1 days \pm 0.34 for LS) vs (3 days \pm 1.21 $p = 0.134$ for OP). Regarding the postoperative complications we had 1 wound suppuration and 1 seroma in LS group vs 1 wound suppuration, 1 seroma , 1 hematoma in Open Group ($p = 0.217$).

We have zero mortality rate for this type of surgical procedures.

Distribution of patients regarding gender and timing of surgery is shown in Fig. 1. Distribution of the patients regarding the type of surgical intervention is shown in Fig. 2.

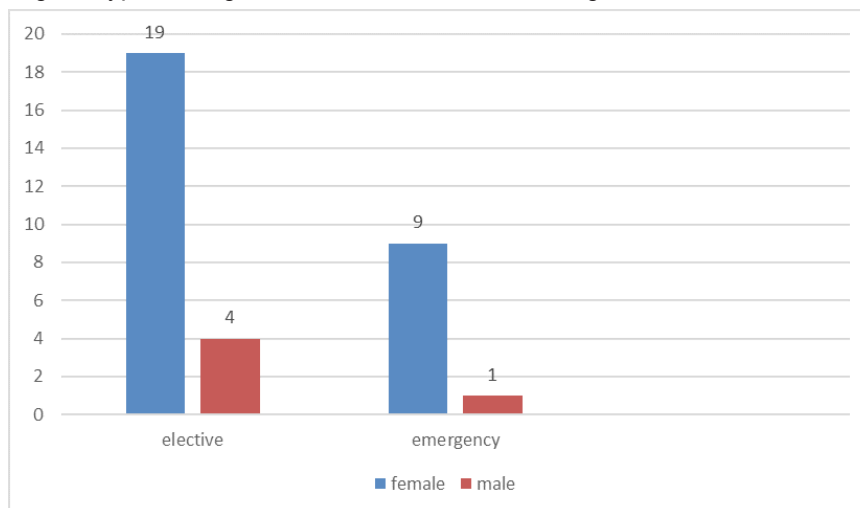


Fig.1 Distribution of patients regarding gender and timing of surgery

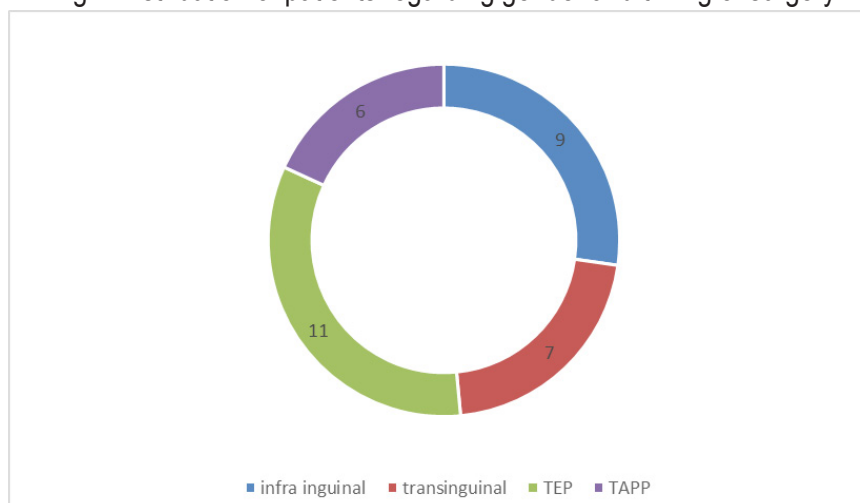


Fig.2 Distribution of the patients regarding the type of surgical intervention

DISCUSSION

The accurate diagnosis and choosing the most appropriate surgical technique remain a challenge for all surgeons. The frequency of femoral hernias reaches 5% of all diagnosed abdominal hernias and takes second place after inguinal hernias. According to the literature, they occur more often in women, which was confirmed in our study as well (n=28; 85 %). Surgery is the only method of definitive treatment for femoral hernias. (van Veenendaal et al.(2020), Coelho et al.(2021), Peitsch WK. (2014)) Three classical approaches are known for this type of pathology: infra-, trans- and suprainguinal. In addition to standard repair with own tissues, there are also tension free techniques with mesh. On the other hand, the diagnostic and therapeutic advantages of laparoscopy make it a surgical method of choice for hernias. (Sorelli P et al.(2009), Białecki J et al.(2021), Lockhart K et al.(2018)) In our series, 52% (n=17) of the patients underwent minimally invasive hernioplasty. A limiting factor in our study was the various teams with their surgical techniques that performed the operations. The most common surgery we performed in our patients was totally extraperitoneal inguinal hernia repair - TEP (33.3%). We did not find any statistically significant differences comparing open and minimally invasive hernioplasty groups regarding gender, age, complications and operative time ($p > 0.05$). In our study we found that the laparoscopic procedures were of greater advantage than open surgery in terms of pain intensity and the hospital stay ($p = 0.013$). Due to the incomplete follow-up of our patients operated for femoral hernias an analysis regarding the recurrence rate in both groups was not performed.

CONCLUSIONS

The diagnosis and operative treatment of femoral hernias remain a challenge for all surgeons. Nowadays, minimally invasive techniques became a method of choice compared with conventional surgery. We believe that laparoscopic operations for femoral hernia, performed by experienced surgeon in leading hernia centers, are effective and safe. These types of operations have shorter hospital stay, less pain in the postoperative period, low recurrence rate and could be applied to all type of patients.

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