

ENDOVIDEOSURGICAL HERNIOPLASTY FOR INGUINAL HERNIAS

Ashurov Akmal Khusanovich
Samarkand State Medical University

Abstract: The study included 268 male patients with various types of inguinal hernias. Depending on the chosen treatment strategy, the patients were divided into three groups: the comparison groups consisted of 96 (35.8%) patients who underwent hernia autoplasmic repair using traditional techniques, as well as 138 (51.5%) patients who underwent “tension-free” inguinal hernioplasty using the Lichtenstein technique. In the main group, 34 (12.6%) patients underwent transabdominal laparoscopic hernioplasty. The preferential use of tension-free hernioplasty methods—Lichtenstein repair and transabdominal laparoscopic hernioplasty—allowed for a reduction in the frequency of specific complications in the early postoperative period from 13.5% to 7.9% and 5.9%, respectively, as well as a decrease in the recurrence rate from 8.5% in the comparison group to 2.7% in the main group.

Keywords: inguinal hernia, surgical treatment, laparoscopic hernioplasty.

Relevance of the Study. External abdominal hernias are observed in 3–4% of the population, while among the elderly and senile age groups, their prevalence reaches 15–17%, inevitably leading to a decline in quality of life, loss of working capacity, and disability [3]. Among patients with external abdominal hernias, inguinal hernias (IH) account for approximately 80%. Various surgical techniques have been developed for their treatment, with the number of different procedures currently exceeding 1,000, indicating the dissatisfaction of surgeons with the outcomes of treatment for this condition [1,2].

Numerous comparative studies have evaluated open and laparoscopic techniques in IH surgery. However, there is a scarcity of research directly comparing the TAPP and TEP methods [1,4]. Some publications report that the TEP technique is more frequently performed in laparoscopic IH surgery, while other studies present conflicting perspectives [5]. One such study is the German Hernia Registry—Herniamed. This study found that among patients undergoing laparoscopic hernia surgery, 61.9% were treated using TAPP and 38.1% with TEP. However, no significant difference was observed between the two methods in terms of perioperative and postoperative complication rates [6].

Objective of the Study. To improve the outcomes of surgical treatment for inguinal hernias through the application of laparoscopic hernioplasty.

Materials and Methods. This study is based on the examination and treatment results of patients with inguinal hernias who underwent surgery at the surgical department of the Multidisciplinary Clinic of the Samarkand City Medical Association between 2013 and 2022. A total of 268 male patients with various types of inguinal hernias were selected for a prospective dynamic active study. All patients underwent elective surgery, and based on the chosen treatment strategy, they were divided into three groups: the comparison groups included 96 (35.8%) patients who underwent traditional hernia autoplasmic repair and

138 (51.5%) patients who underwent "tension-free" inguinal hernioplasty using the Lichtenstein technique. In the main group, 34 (12.6%) cases underwent transabdominal laparoscopic hernioplasty.

A total of 103 (74.6%) patients received standard monofilament polypropylene mesh prostheses (Esfil, Lintex), while 35 (25.4%) patients received composite mesh implants (Physiomesh or Prosid, Ethicon). In 96 patients, traditional muscle-aponeurotic "tension" repair techniques were used for inguinal canal reconstruction during hernia repair: Girard-Spasokukotsky-Kimbarovsky (n=27, 28.1%) and Postempski (n=69, 71.9%).

The study groups were statistically comparable in terms of mean age: 45.4 ± 0.3 years in the main group and 46.3 ± 1.0 years in the comparison group ($p > 0.05$). The highest number of patients (81, 34.6%) had a disease duration of up to one year. Regarding hernia duration history, 14 (5.9%) patients had a hernia for more than 10 years, with 11 (7.9%) cases in the main group and 3 (3.1%) cases in the comparison group. No statistically significant differences in hernia duration were found between the groups ($p > 0.05$).

According to the L.M. Nyhus classification, hernia types were distributed as follows: oblique inguinal hernias accounted for 179 (76.5%) cases, type IIIA (direct inguinal hernias) were found in 46 (19.6%) cases, and recurrent inguinal hernias were diagnosed in 22 (9.4%) cases. Based on the statistical analysis of hernia types, the study groups were considered homogeneous ($p\chi^2 > 0.05$).

Results and Discussion

Transabdominal laparoscopic hernioplasty was performed under general anesthesia. A 10 mm port for the camera was inserted into the abdominal cavity in the periumbilical region. Given the presence of comorbidities, the level of created carboxyperitoneum was maintained at 11–12 mmHg. A revision of the abdominal cavity and the inguinal canal fossae on both sides was performed (Fig. 1). Under laparoscopic monitoring, 5 mm trocars were introduced at points along the right and left anterior axillary lines.

Subsequently, access to the preperitoneal adipose tissue of the inguinal region was created from the abdominal cavity. An incision of the peritoneum was made 2 cm above the inguinal region, allowing for precise differentiation of vascular structures in the inguinal area on the pathological side using color visualization.

Then, an incision was made from the internal inguinal ring to the medial fold, with a length of approximately 10 cm. Following this, dissection of the preperitoneal space was performed, along with the isolation of the elements of the spermatic cord.

Careful separation of the hernia sac, pubic tubercle, and pectineal ligament was carried out using surgical instruments. Special attention was given to the meticulous differentiation of the epigastric and iliac vessels to prevent vascular injury.

Subsequently, thorough hemostasis was ensured, after which a synthetic mesh prosthesis was introduced through the pre-established 10 mm port into the abdominal cavity and positioned in the inguinal region.

The mesh was then secured to Cooper's ligament and the surrounding soft tissues using a herniostapler (Fig. 1). Careful hemostasis control was considered a crucial step of the procedure after mesh fixation, serving as an essential preventive measure against specific postoperative complications.

Peritonealization of the endoprosthesis was performed using a herniostapler. The fixation and peritonealization of the mesh material were conducted in accordance with standard recommendations, ensuring the avoidance of the "triangle of doom" to prevent the development of severe complications (Fig. 2).



Figure 1. Mesh Endoprosthesis Fixation

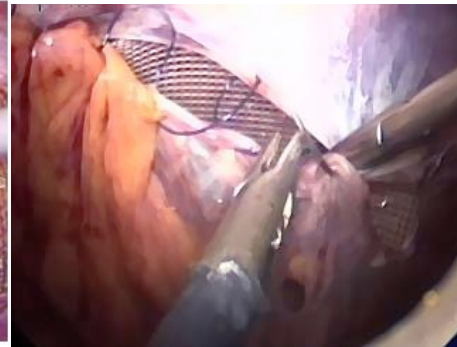


Figure 2. Final Stage: Peritonealization of the Endoprosthesis

Upon completion of the procedure

After the final revision of the abdominal cavity and desufflation, layered suturing of the trocar wounds was performed. Closure of the muscular aponeurosis was done only for the 10 mm incision located above the umbilicus.

Early postoperative complications occurred in 7.9% of cases following Lichtenstein hernioplasty and in 13.5% of cases after autoplasmic hernioplasty in the comparison group. In the postoperative period after transabdominal laparoscopic hernioplasty, complications were observed in 5.9% of cases.

The average length of hospital stay did not differ significantly between the compared groups, amounting to 6.3 ± 0.04 and 6.8 ± 0.03 days ($p > 0.05$), which corresponds to the standard duration specified in the classification of inpatient medical services.

Among 201 patients examined in the long-term follow-up, inguinal hernia recurrence was observed in 9 cases (4.5%). In the comparison group, this rate was 8.5%, whereas in the main group, it was 2.7%.

Conclusions

1. The preferential use of tension-free hernioplasty methods—Lichtenstein repair and transabdominal laparoscopic hernioplasty—allowed for a reduction in the rate of specific early postoperative complications from 13.5% to 7.9% and 5.9%, respectively, as well as a decrease in hernia recurrence rates from 8.5% in the comparison group to 2.7% in the main group.
2. Complete rehabilitation of patients who underwent laparoscopic surgery was shorter (3.8 ± 0.1 weeks) compared to those who underwent traditional open surgery (7.7 ± 0.1 weeks). An important factor to consider is the size of the incision, which directly affects the intensity of postoperative pain. Laparoscopic hernioplasty was performed using 3–4 punctures with 5.0 mm and 10.0 mm trocars, while traditional hernioplasty involved incisions of 10 cm or more.

Literature

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