

LAPAROSCOPIC SURGERY FOR RECURRENT ABDOMINAL WALL HERNIAS IN ELDERLY AND SENILE PATIENTS

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Abstract. The proposed model for risk stratification and individualized surgical management of anterior abdominal wall hernias not only reduces the incidence of complications and recurrences but also significantly improves the immediate postoperative period: shortens the hospital stay, accelerates patient mobilization, and facilitates the return to daily activities.

Keywords: hernia, anterior abdominal wall, recurrence

Relevance. Despite the advancement of laparoscopic hernia repair technologies and the introduction of modern implants, the problem of optimizing surgical outcomes in patients with recurrent pelvic hernias remains relevant and requires further resolution based on a comprehensive analysis of risk factors, disease progression characteristics, and modification of surgical tactics [1, 2,3,4, 6]. Overall, an abdominal wall hernia occurs in one in three to five people worldwide. More than 20 million surgical procedures are performed annually worldwide, of which 10-15% are hernias [1, 5, 7,8]. Among surgical procedures, hernia repair ranks third after appendectomy and cholecystectomy [2, 9]. However, inguinal hernias constitute the majority of all hernia patients. The main unresolved problem with this pathology is the recurrence rate, which reaches 10% for direct inguinal hernias, and the recurrence rate for postoperative and inguinal hernia repair can reach 40% [3, 10]. The recurrence rate of indirect inguinal hernias ranges from 5 to 12%, and in cases of significant destruction of the posterior wall of the inguinal canal, it reaches 25-30% of cases [3, 11, 9]. Recurrence of inguinal hernias is a pressing issue in surgery and herniology, as they present significant difficulties in both treatment and prevention. A particularly high rate of recurrence of inguinal hernias is observed in the elderly. According to various data, recurrence 3 years or more after the initial surgery in elderly and senile individuals accounts for 80.5% [3, 12]. According to other data, recurrence in patients 50 years and older accounts for 67.6% [1].

Current developments in Russian medicine include numerous measures aimed at improving treatment outcomes for patients, including those with recurrent hernias in the elderly.

The aim of the study was to analyze the effectiveness of an improved model of risk stratification and individualization of surgical tactics for hernias of the anterior abdominal wall.

Material and Methods. This study provides a clinical and statistical evaluation of the effectiveness of the proposed individualized laparoscopic surgery strategy in patients with recurrent pelvic hernias. Efficacy assessment is based on the incidence of recurrent recurrences, the incidence of postoperative complications, the length of hospital stay, the dynamics of functional recovery, and other clinical and practical indicators.

The study group included 87 patients who underwent laparoscopic surgery for recurrent pelvic hernias. Of these, 51 were elderly (58.6%) and 36 were old (41.4%). All patients were operated on according to uniform inclusion criteria: documented recurrence after a previous hernia repair, confirmed clinically and instrumentally (ultrasound, CT). Patients with inoperable conditions, acute infections, decompensated systemic diseases, and refusal of surgery were excluded.

Results and discussion. Tactical decisions in the study group strictly followed the algorithm proposed above: for low-risk patients, standard IPOM procedures with lightweight implants and minimal fixation were performed; for moderate-risk patients, extended IPOM procedures with combined fixation and two-layer meshes; and for high-risk patients, eTEP, TAR, and retromuscular techniques with suture fixation and extensive mobilization. Thus, the interventional strategy was tailored to the risk level, rather than to the hernia type or surgeon preference, enabling comparable results even in high-risk subgroups.

Analysis of recurrence rates and postoperative complications in the study and control groups showed that the use of an individualized strategy based on a scoring risk stratification model significantly reduces the likelihood of adverse outcomes. The most significant differences were observed in the rate of hernia recurrence, which developed in 9 of 87 patients in the study group (10.3%) versus 22 of 89 patients in the control group (24.7%) ($p < 0.01$). Thus, the implementation of a strategy tailored to the patient's anatomical and functional status reduced the likelihood of hernia recurrence by more than 2.4 times. This is particularly important given that a significant proportion of patients in the study group (26.4%) were in the high-risk category and had previously undergone recurrent plastic surgery.

Differences also affected the pattern of complications. The incidence of wound dehiscence and suture failure in the study group was 5.7% versus 12.4% in the control group ($p=0.04$). This indicator is particularly critical, as it is directly related to the quality of implant fixation and the condition of the aponeurotic edges. In the study group, leaks occurred primarily in patients with a high risk score (over 35), emphasizing the need for enhanced fixation and retromuscular techniques in these cases. The incidence of seromas and hematomas was 9.2% in the study group versus 16.9% in the control group ($p=0.08$). Although the difference did not reach statistical significance, it is clinically significant, particularly given that seroprevention in the study group included limited mobilization in low-risk patients and mandatory drainage in high-risk patients.

In the study group, complications were managed conservatively thanks to the use of barrier-coated meshes and adherence to an expanded prevention algorithm (preoperative debridement, correction of hypoalbuminemia, and antibacterial therapy). The overall incidence of patients experiencing at least one postoperative complication was 25.3% in the study group versus 41.6% in the control group ($p=0.02$). This is a key integrated indicator confirming that tactical personalization reduces the overall surgical burden on the patient, even when using more technically complex techniques (TAR, eTEP, etc.).

A particularly important result is that among high-risk patients (≥ 31 points) in the study group, the complication rate was 39.1%, compared to 64.7% among similar patients in the control group. This suggests that tailored tactics are effective not only in patients with a low surgical burden but also in the clinically most vulnerable group.

Thus, the presented data confirm that the use of a stratified algorithm leads to a significant reduction in both the recurrence rate and the incidence of postoperative complications, demonstrating the true clinical value of the proposed model of an individualized approach to laparoscopic surgery in patients with PWS.

A comparative analysis of the duration of surgery, length of hospital stay, time to patient mobilization, and the rate of functional recovery allowed us to evaluate the impact of the individualized approach not only on long-term outcomes but also on the immediate postoperative course.

In the study group, the average length of inpatient stay was 4.1 ± 1.2 days, compared to 5.6 ± 1.9 days in the control group; the difference was statistically significant ($p < 0.01$). The time to patient mobilization in the study group was 12.4 ± 3.1 hours, compared to 18.7 ± 4.2 hours in the control group ($p < 0.01$). The faster return to activity is due not only to reduced pain (thanks to the use of adhesive or gentle fixation in low- and moderate-risk patients) but also to a more accurate prognosis of the

postoperative course. It is particularly important to note that in patients with PWS (aged 65-74) without severe anatomical changes, activity occurred within 10-12 hours of recovery from anesthesia, enabling early prophylaxis of thromboembolic complications and minimizing hypostatic complications.

The proposed model of risk stratification and individualized surgical approach not only reduces the incidence of complications and recurrences but also significantly improves the immediate postoperative period: shortens the hospital stay, accelerates patient activity, and restores daily activities. This, in turn, increases patient satisfaction with treatment, reduces the burden on hospital resources, and ensures a better clinical and economic profile of surgical care.

Conclusions:

1. A comparative analysis of surgical duration, hospital stay, time to patient mobilization, and rates of functional recovery allowed us to evaluate the impact of individualized strategies not only on long-term outcomes but also on the immediate postoperative course.
2. The proposed model of risk stratification and individualized surgical strategies not only reduces the incidence of complications and relapses but also significantly improves the immediate postoperative period: shortens the hospital stay, accelerates patient mobilization, and accelerates the return to daily activities.

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