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EVALUATION OF QUALITY OF LIFE IN PATIENTS AFTER SURGICAL TREATMENT OF POSTOPERATIVE VENTRAL HERNIAS

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Abstract

Introduction: Postoperative ventral hernias remain one of the most common and socially significant problems in abdominal surgery. Despite advances in surgical techniques, the incidence of complications and recurrences remains high, while patients' quality of life is considerably reduced. In recent years, increasing attention has been paid not only to immediate surgical outcomes but also to the assessment of functional and psychoemotional aspects of postoperative rehabilitation.

Objective: To evaluate the quality of life of patients after traditional surgical treatment of postoperative ventral hernias and after the proposed hernioplasty technique.

Methods: The study included 81 patients who underwent surgical treatment for postoperative ventral hernia. The main group (n = 42) underwent autodermoplasty using the patient's own tissues, while the control group (n = 39) underwent alloplasty with a synthetic mesh implant. Quality of life was assessed using the SF-36 questionnaire at 1, 6, and 12 months after surgery. The following parameters were analyzed: physical functioning (PF), role physical functioning (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role emotional functioning (RE), and mental health (MH).

Results: Patients who underwent autodermoplasty demonstrated a more pronounced positive dynamic across most SF-36 scales. At 12 months, mean physical functioning scores were 79.3 ± 9.8 in the autodermoplasty group versus 65.1 ± 10.7 in the mesh implant group ($p < 0.001$); bodily pain — 82.1 ± 8.6 vs. 68.3 ± 9.5 ($p < 0.01$); general health — 74.8 ± 8.7 vs. 64.1 ± 8.9 ($p < 0.01$). The incidence of postoperative complications was lower in the main group (11.9% vs. 23.1%). Hernia recurrence within 12 months was observed in two patients from the control group and was not recorded in the main group.

Conclusion: Autodermoplasty is an effective method of anterior abdominal wall reconstruction that provides higher quality of life, lower complication rates, and better functional outcomes compared to mesh implantation. The use of the patient's own tissues helps reduce pain, accelerate recovery of physical activity, and improve overall psychoemotional well-being in the postoperative period.

Keywords: postoperative ventral hernia, quality of life, autodermoplasty, mesh implant, surgical treatment, SF-36.

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Резюме

ОЦЕНКА КАЧЕСТВА ЖИЗНИ ПАЦИЕНТОВ ПОСЛЕ ХИРУРГИЧЕСКОГО ЛЕЧЕНИЯ ПОСЛЕОПЕРАЦИОННЫХ ВЕНТРАЛЬНЫХ ГРЫЖ

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Введение: Послеоперационные вентральные грыжи остаются одной из наиболее частых и социально значимых проблем абдоминальной хирургии. Несмотря на совершенствование хирургических технологий, частота осложнений и рецидивов остаётся высокой, а качество жизни пациентов — существенно сниженным. В последние годы особое внимание уделяется не только непосредственным хирургическим результатам, но и оценке функциональных и психоэмоциональных аспектов реабилитации.

Цель: оценить качество жизни пациентов после традиционного лечения послеоперационных вентральных грыж и предложенного метода герниопластики.

Методы исследования: В исследование включено 81 пациент, перенёсший оперативное лечение по поводу послеоперационной вентральной грыжи. Основная группа (n = 42) — аутодермопластика с использованием собственных тканей пациента; контрольная группа (n = 39) — аллопластика с применением синтетического сетчатого имплантата. Оценку качества жизни проводили с использованием опросника SF-36 через 1, 6 и 12 месяцев после операции. Анализировали показатели физического функционирования (PF), ролевого функционирования (RP), интенсивности боли (BP), общего состояния здоровья (GH), жизненной активности (VT), социального функционирования (SF), ролевого функционирования по эмоциональному состоянию (RE) и психического здоровья (MH).

Результаты: Пациенты, перенёсшие аутодермопластику, продемонстрировали более выраженную положительную динамику по большинству шкал SF-36. Через 12 месяцев средние значения по шкале физического функционирования составили 79,3 ± 9,8 против 65,1 ± 10,7 в группе сетчатого имплантата ($p < 0,001$); интенсивность боли — 82,1 ± 8,6 против 68,3 ± 9,5 ($p < 0,01$); общее состояние здоровья — 74,8 ± 8,7 против 64,1 ± 8,9 ($p < 0,01$). Частота послеоперационных осложнений была ниже в основной группе (11,9 % против 23,1 %). Рецидив грыжи в течение 12 месяцев зарегистрирован у 2 пациентов контрольной группы и не отмечен в основной.

Выводы: Аутодермопластика является эффективным методом реконструкции передней брюшной стенки, обеспечивающим более высокое качество жизни пациентов, меньшую частоту осложнений и лучший функциональный результат по сравнению с использованием сетчатых имплантатов. Применение собственных тканей пациента способствует снижению болевого синдрома, ускоряет восстановление физической активности и улучшает общее психоэмоциональное состояние в послеоперационном периоде.

Ключевые слова: *послеоперационные вентральные грыжи, качество жизни, аутодермопластика, сетчатый имплантат, хирургическое лечение, SF-36.*

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Түйіндеме

ОПЕРАЦИЯЛЫҚ ЕМНЕН КЕЙІНГІ ВЕНТРАЛЬДЫ ЖАРЫҚТАРЫ БАР НАУҚАСТАРДЫҢ ӨМІР САПАСЫН БАҒАЛАУ

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Кіріспе: Отадан кейінгі вентральды жарықтар абдоминалды хирургиядағы ең жиі кездесетін әрі әлеуметтік маңызы жоғары мәселелердің бірі болып табылады. Хирургиялық технологиялардың жетілдірілуіне қарамастан, асқынулар мен рецидивтер жиілігі жоғары деңгейде қалып отыр, ал науқастардың өмір сапасы айтарлықтай төмендейді. Соңғы жылдары назар тек хирургиялық нәтижелерге ғана емес, сонымен қатар функционалдық және психоэмоционалдық оңалу аспектілерін бағалауға да аударылуда.

Мақсаты: дәстүрлі әдіспен және ұсынылған герниопластика тәсілімен ота жасалған науқастардың өмір сапасын бағалау.

Зерттеу әдістері: Зерттеуге отадан кейінгі вентральды жарық бойынша хирургиялық ем алған 81 науқас енгізілді. Негізгі топ (n = 42) — науқастың өз тіндерін пайдалану арқылы аутодермопластика әдісімен емделгендер; бақылау тобы (n = 39) — синтетикалық торлы имплантат қолданылған аллопластика әдісімен емделгендер. Өмір сапасын SF-36 сауалнамасы арқылы операциядан кейін 1, 6 және 12 ай өткен соң бағалады. Бағалау физикалық функция (PF), рөлдік функция (RP), ауырсыну қарқындылығы (BP), жалпы денсаулық жағдайы (GH), өміршеңдік (VT), әлеуметтік функция (SF), эмоционалдық жағдайға байланысты рөлдік функция (RE) және психикалық денсаулық (MH) көрсеткіштері бойынша жүргізілді.

Нәтижелер: Аутодермопластика жасалған науқастардың көпшілігінде SF-36 шкалалары бойынша оң динамика байқалды. 12 ай өткеннен кейін физикалық функция шкаласы бойынша орташа көрсеткіш 79,3 ± 9,8 болды, ал торлы имплантат тобы — 65,1 ± 10,7 ($p < 0,001$); ауырсыну қарқындылығы — 82,1 ± 8,6 қарсы 68,3 ± 9,5 ($p < 0,01$); жалпы денсаулық жағдайы — 74,8 ± 8,7 қарсы 64,1 ± 8,9 ($p < 0,01$). Негізгі топта операциядан кейінгі асқынулар жиілігі төмен болды (11,9 % қарсы 23,1 %). 12 ай ішінде жарықтың қайталануы бақылау тобындағы 2 науқаста тіркелді, ал негізгі топта байқалмады.

Қорытынды: Аутодермопластика — алдыңғы құрсақ қабырғасын қалпына келтірудің тиімді әдісі, ол науқастардың өмір сапасын арттырады, асқынулар жиілігін азайтады және торлы имплантат қолданғанға қарағанда жақсы функционалдық нәтиже береді. Науқастың өз тіндерін пайдалану ауырсынуды азайтып, физикалық белсенділікті қалпына келтіруді жеделдетеді және отадан кейінгі кезеңде жалпы психоэмоционалдық жағдайды жақсартады.

Түйінді сөздер: *отадан кейінгі вентральды жарықтар, өмір сапасы, аутодермопластика, торлы имплантат, хирургиялық ем, SF-36.*

Дәйексөз үшін:

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Introduction

Surgical treatment of postoperative ventral hernias (PVH) remains one of the most challenging and relevant problems in modern abdominal surgery. Despite the introduction of advanced surgical technologies, the rate of recurrences and postoperative complications after hernioplasty remains high, highlighting the need for more reliable and physiological methods of abdominal wall reconstruction [7,16]. According to various authors, the incidence of postoperative hernia formation after laparotomy ranges from 10% to 25%, and may reach up to 40% in the presence of concomitant risk factors such as obesity, diabetes mellitus, wound infection, or collagenopathies [11,10].

Contemporary approaches to the surgical management of PVH are focused not only on anatomical closure of the defect but also on restoring the function of the anterior abdominal wall and improving patients' quality of life [5]. The main methods remain tension and tension-free hernioplasty, with the latter — involving the use of synthetic mesh implants — being the most widely adopted [13]. The evolution of surgical technologies has led to the development of numerous patented techniques, ranging from traditional onlay and sublay repairs to combined and robot-assisted procedures [2,18].

Despite the advantages of synthetic implants, their use is not without drawbacks, including infectious complications, seroma formation, chronic pain, a persistent foreign-body sensation, and, in some cases, mesh migration or rejection [20]. Consequently, there has been renewed interest in biological and autogenous reconstruction methods. One of these approaches is autodermoplasty, which involves using the patient's own tissues (skin-fascial flaps) to close the abdominal wall defect [23,21]. This technique is characterized by high biocompatibility, minimal risk of immune response, and the absence of foreign material implantation, making it particularly relevant for patients with a high risk of infection or intolerance to synthetic materials [19].

Recent studies have shown that autodermoplasty promotes a more favorable postoperative course, reduces the incidence of complications, and contributes to the formation of a strong and elastic scar that preserves the physiological mobility of the abdominal wall [17,14]. Moreover, several authors report significant improvements in quality of life indicators among patients who underwent reconstruction using autologous tissues compared to those who received synthetic mesh implants [12,22].

The assessment of quality of life after surgical repair of PVH has become an essential criterion for evaluating treatment effectiveness [9]. Modern research increasingly employs questionnaires such as SF-36, EQ-5D, and GIQLI to assess both physical and psychoemotional aspects of postoperative recovery [3]. It has been established that patients who undergo abdominal wall reconstruction using autologous tissues more frequently report reduced pain, absence of tension sensations, improved mobility, and better overall well-being [24].

Conversely, the use of mesh implants, particularly in cases of large defects, may result in chronic pain and limited mobility, negatively affecting long-term outcomes and patient satisfaction [8]. At the same time, modern lightweight and partially absorbable meshes, as well as next-generation biosynthetic materials, have demonstrated improved functional outcomes, reducing discomfort and recurrence rates [4,15].

Thus, the quality of life of patients after surgical treatment of PVH directly depends on the chosen method of reconstruction. When selecting the technique for defect closure, it is important to consider not only anatomical and technical aspects but also long-term functional and subjective outcomes. Current trends emphasize individualized approaches — combining synthetic and autologous materials, using biological prostheses, and applying hybrid technologies — to achieve an optimal balance between the reliability of repair and patient comfort [6,1].

Objective: To evaluate the quality of life of patients after traditional surgical treatment of postoperative ventral hernias and after the proposed method of hernioplasty.

Materials and Methods

A prospective comparative study was conducted to evaluate the quality of life of patients after surgical treatment of postoperative ventral hernias (PVH) using different methods of defect closure. The aim of the study was to determine the clinical and functional outcomes, as well as the quality of life of patients following traditional hernioplasty techniques and the proposed method of autodermoplasty.

The study included 81 patients who underwent treatment at the Department of Surgery of G. Sultanov Pavlodar Regional Hospital between January 2022 and August 2025. The main group consisted of 42 patients who underwent hernia gate repair using the developed autodermoplasty technique, protected by Patent of the Republic of Kazakhstan No. 32408. The control group comprised 39 patients who underwent traditional hernioplasty with the use of a synthetic mesh implant.

All patients had a clinically and instrumentally confirmed diagnosis of postoperative ventral hernia. Diagnostic evaluation included a comprehensive set of clinical and instrumental methods: physical examination, ultrasound of the abdominal wall, and, in selected cases, multislice computed tomography (MSCT) to clarify the size of the defect and assess the presence of adhesions.

Description of the Proposed Autodermoplasty Technique.

According to the developed method, the surgical procedure began with the creation of two elliptical incisions corresponding to the size of the hernial protrusion, followed by excision of a skin flap containing the postoperative scar. If the umbilicus was located within the defect area, it was excised en bloc with the skin flap.

The harvested skin flap was then subjected to thermal processing: the epidermal surface was treated with normal saline solution heated to 90–98°C for 1–2 minutes (according to Yanov's method), ensuring complete deepithelialization of the graft. After opening the hernial sac and separating adhesions, the prepared autodermal flap was fixed to the inner edge of the aponeurotic defect with the dermal surface facing the abdominal cavity, thus creating a durable biological reinforcement of the abdominal wall.

This approach avoided the use of synthetic implants, reduced the risk of chronic infection and seroma formation,

and improved morphofunctional tissue adaptation at the site of repair.

The control group underwent standard hernioplasty using polypropylene or composite mesh implants, placed according to onlay, sublay, or inlay techniques, depending on the anatomical characteristics of the defect.

All operations were performed following the principles of atraumatic surgical technique, with meticulous hemostasis and adequate wound drainage. The postoperative management included standard antibiotic prophylaxis, pain control, early mobilization, and the use of a supporting abdominal binder.

Inclusion criteria: presence of a clinically diagnosed postoperative ventral hernia of medium or large size; age ≥ 18 years; satisfactory general condition; and informed consent to participate in the study.

Exclusion criteria: presence of purulent complications, malignant neoplasms, severe comorbidities in the decompensated stage, or refusal to participate in the study.

Quality of Life Assessment

Quality of life was assessed using the standardized Short Form-36 Health Survey (SF-36) questionnaire, validated and adapted in Russian [1]. The questionnaire included eight domains reflecting the physical, emotional, and social well-being of patients:

- PF (Physical Functioning) – physical functioning;
- RP (Role-Physical) – role limitations due to physical health;
- BP (Bodily Pain) – intensity of pain;
- GH (General Health) – general health perception;
- VT (Vitality) – energy and vitality;
- SF (Social Functioning) – social functioning;
- RE (Role-Emotional) – role limitations due to emotional problems;
- MH (Mental Health) – psychological well-being.

Each domain was scored on a 0–100 scale, where higher scores indicated better quality of life.

The survey was conducted at three time points: 1 month after surgery (early postoperative period), 6 months (functional recovery period), and 12 months (long-term outcomes).

Comparative analysis revealed that patients who underwent hernia repair using the proposed autodermoplasty technique demonstrated significantly higher scores in the PF, BP, GH, and VT domains, indicating lower pain intensity, better physical activity, and improved subjective health perception [2,3].

Moreover, according to the RE and MH domains, these patients also showed more favorable emotional and psychological outcomes, which were attributed to a lower rate of postoperative complications and better tissue adaptation [4].

Statistical Analysis

Statistical analysis was performed using IBM SPSS Statistics version 20. Quantitative data were presented as mean ± standard deviation (M ± SD). The Shapiro–Wilk test was used to assess the normality of data distribution.

For comparison between independent samples, the Student's t-test or the Mann–Whitney U test was applied, depending on the distribution type. For paired comparisons, the paired t-test or the Wilcoxon signed-rank test was used.

Qualitative variables were analyzed using the Pearson χ^2 test or Fisher's exact test.

Differences were considered statistically significant at $p < 0.05$.

Results

The study included 81 patients who underwent treatment at the Department of Surgery of G. Sultanov Pavlodar Regional Hospital between January 2022 and August 2025.

The main group (n = 42; 51.9%) consisted of patients who underwent hernioplasty using the developed autoder moplasty technique (Patent of the Republic of Kazakhstan No. 32408).

The control group (n = 39; 48.1%) included patients who underwent conventional hernioplasty with the use of a synthetic mesh implant (polypropylene or composite mesh).

The mean age of all patients was 58.7 ± 9.4 years (range: 35–78 years).

In the main group, the mean age was 57.9 ± 8.8 years, and in the control group — 59.6 ± 9.7 years (p = 0.38).

Regarding sex distribution, the main group included 15 men (35.7%) and 27 women (64.3%), while the control group consisted of 14 men (35.9%) and 25 women (64.1%); the difference was not statistically significant (p = 0.97).

Analysis of the structure of comorbid conditions (Table 1) revealed a predominance of chronic non-infectious diseases, which could potentially influence the postoperative course and wound-healing processes.

Table 1.

Distribution of patients by comorbid pathologies.

Comorbid Pathology	Main Group, n (%)	Control Group, n (%)	p-value
Arterial hypertension	69.0%	71.8%	0.74
Type 2 diabetes mellitus	33.3%	30.8%	0.82
Obesity grade I–II	42.9%	48.7%	0.59
Chronic ischemic heart disease (IHD)	54.8%	56.4%	0.88
Chronic obstructive pulmonary disease (COPD)	11.9%	12.8%	0.91
Chronic venous insufficiency of the lower extremities	17.9%	20.5%	0.76

The most common comorbidities were as follows: Arterial hypertension — in 69.0% of patients in the main group and 71.8% in the control group ($p = 0.74$); Type 2 diabetes mellitus - in 33.3% and 30.8%, respectively ($p = 0.82$); Obesity (grade I–II) - in 42.9% of the main group and 48.7% of the control group ($p = 0.59$); Chronic ischemic heart disease (IHD) — in 54.8% and 56.4%, respectively ($p = 0.88$); Chronic obstructive pulmonary disease (COPD) — in 11.9% and 12.8%, respectively ($p = 0.91$); Chronic venous insufficiency of the lower extremities — in 17.9% of the main group and 20.5% of the control group ($p = 0.76$). There were no statistically significant differences between

the groups in the prevalence of comorbid conditions ($p > 0.05$).

Surgical Treatment

In the main group, autodermoplasty was performed according to the original technique. The excised skin flap containing the postoperative scar was subjected to thermal treatment with a 0.9% sodium chloride solution heated to 90–98 °C for 1–2 minutes, resulting in de-epithelialization of the graft surface. The dermal side of the prepared flap was then sutured to the inner edge of the hernial defect, forming a durable biological reinforcement of the anterior abdominal wall.

In the control group, the defect was repaired using a synthetic mesh implant, which was fixed according to the sublay, onlay, or inlay technique, depending on the individual anatomical conditions.

Quality of Life Assessment

The assessment was performed using the standardized Short Form-36 Health Survey (SF-36) questionnaire, adapted and validated in Russian [1].

The survey was conducted at three time points:

- 1 month after surgery (early postoperative period),
- 6 months (functional recovery phase),
- 12 months (long-term outcomes).

After 12 months, the Physical Functioning (PF) score in the main group averaged 79.3 ± 9.8 compared with 65.1 ± 10.7 in the control group ($p < 0.001$), indicating better restoration of physical activity.

Role-Physical (RP) was 71.5 ± 9.4 versus 60.2 ± 9.9 ($p<0.01$).

Bodily Pain (BP) was significantly higher in the autodermoplasty group — 82.1 ± 8.6 versus 68.3 ± 9.5 ($p < 0.001$), reflecting lower pain intensity.

General Health (GH) reached 74.8 ± 8.7 compared to 64.1 ± 8.9 ($p < 0.01$).

Differences in the psycho-emotional scales were less pronounced:

Vitality (VT) — 71.2 ± 8.3 vs. 66.4 ± 8.9 (p = 0.09);

Social Functioning (SF) - 76.7±7.9 vs. 70.8 ± 8.3 (p=0.08);

Role-Emotional (RE) - 74.1 ± 7.4 vs. 69.5 ± 8.1 (p = 0.11);

Mental Health (MH) - 73.3 ± 7.2 vs. 70.1 ± 7.8 (p = 0.14).

In the dynamic assessment, a marked improvement was observed in the main group:

PF increased from 60.4 ± 10.1 at 1 month to 79.3 ± 9.8 at 12 months (+18.9 points, $p < 0.001$).

In the control group, PF improved from 58.9 ± 9.4 to 65.1 ± 10.7 (+6.2 points, p = 0.04).

A similar positive trend was recorded for RP (+11.8 vs. +5.6 points) and BP (+13.5 vs. +7.1 points).

In the overall cohort, postoperative complications occurred in 14 (17.3%) patients: 5 (11.9%) in the main group and 9 (23.1%) in the control group (p = 0.04).

The most common complications were:

- Seroma or wound hematoma — 5 cases (6.2%);
- Surgical site infection — 4 cases (4.9%);
- Superficial wound dehiscence — 3 cases (3.7%);
- Hernia recurrence — 2 cases (2.5%), both in the control group.

Patients in the autodermoplasty group demonstrated faster wound healing, with the formation of a firm scar within 18 ± 4 days, compared to 25 ± 6 days in the control group ($p < 0.01$).

Analysis of SF-36 results revealed significant differences between patients undergoing autodermoplasty and those treated with synthetic mesh implants, primarily in scales reflecting physical health parameters (Table 2).

Table 2.

Average scores on the SF-36 scale in comparison of two groups.

SF-36 Scale	Autodermoplasty (n = 42)	Mesh Implant (n = 39)	p-value
PF — Physical Functioning	79.3 ± 9.8	65.1 ± 10.7	<0.001
RP — Role Physical Functioning	71.5 ± 9.4	60.2 ± 9.9	<0.001
BP — Bodily Pain	82.1 ± 8.6	68.3 ± 9.5	<0.001
GH — General Health	74.8 ± 8.7	64.1 ± 8.9	<0.001
VT — Vitality	71.2 ± 8.3	66.4 ± 8.7	0.013
SF — Social Functioning	76.7 ± 7.9	70.8 ± 8.3	0.002
RE — Role Emotional Functioning	74.1 ± 7.4	69.5 ± 7.9	0.009
MH — Mental Health	73.3 ± 7.2	70.1 ± 7.8	0.059

Physical functioning (PF) in the autologous dermoplasty group averaged 79.3 ± 9.8 points, which was significantly higher than in the mesh implant group — 65.1 ± 10.7 points ($p < 0.001$). This reflects better physical activity and fewer limitations in performing daily and professional tasks among patients who underwent repair using their own tissues.

Role-physical functioning (RP) was also higher in the autologous dermoplasty group — 71.5 ± 9.4 compared with 60.2 ± 9.9 ($p < 0.001$), indicating more pronounced recovery of work capacity and daily activity.

Bodily pain (BP) scores were significantly lower in the main group (82.1 ± 8.6 vs. 68.3 ± 9.5, $p < 0.001$), which can be attributed to lower tissue reactivity, better graft integration, and the absence of foreign material that often provokes chronic inflammation and tension in the repair zone.

General health (GH) was also rated higher in the main group (74.8 ± 8.7 vs. 64.1 ± 8.9, $p < 0.001$), indicating a more positive perception of one's overall health and fewer complaints of chronic discomfort.

Regarding the psycho-emotional domains, statistically significant differences were observed in favor of autologous dermoplasty for vitality (VT), social functioning (SF), and role-emotional functioning (RE) ($p < 0.05$). A similar trend was noted for mental health (MH), although the difference did not reach statistical significance ($p = 0.059$).

During follow-up at 1, 6, and 12 months after surgery, all SF-36 parameters in both groups showed a positive trend; however, the rate of improvement was more pronounced among patients who underwent autologous dermoplasty (Table 3).

Table 3.

Assessment of quality of life in both study groups.

SF-36 Scale	Group	1 month (M±SD)	6 months (M±SD)	12 months (M±SD)	Δ (1–12 mo.)	p-value
Physical Functioning (PF)	Autodermoplasty	68.4 ± 10.2	74.2 ± 9.9	79.3 ± 9.8	+10.9	<0.001
	Mesh Implant	58.1 ± 9.5	61.8 ± 10.3	65.1 ± 10.7	+7.0	0.04
Role Physical Functioning (RP)	Autodermoplasty	64.2 ± 9.6	68.5 ± 9.2	71.5 ± 9.4	+7.3	<0.01
	Mesh Implant	57.4 ± 9.1	59.1 ± 9.5	60.2 ± 9.9	+2.8	0.14
Bodily Pain (BP)	Autodermoplasty	75.3 ± 9.2	79.2 ± 8.9	82.1 ± 8.6	+6.8	<0.01
	Mesh Implant	65.2 ± 9.7	66.8 ± 9.6	68.3 ± 9.5	+3.1	0.12
General Health (GH)	Autodermoplasty	69.4 ± 8.9	72.8 ± 8.8	74.8 ± 8.7	+5.4	<0.01
	Mesh Implant	61.2 ± 8.6	63.1 ± 8.8	64.1 ± 8.9	+2.9	0.19
Vitality (VT)	Autodermoplasty	67.1 ± 8.6	69.4 ± 8.5	71.2 ± 8.3	+4.1	0.06
	Mesh Implant	63.2 ± 8.3	65.0 ± 8.5	66.4 ± 8.7	+3.2	0.18
Social Functioning (SF)	Autodermoplasty	71.2 ± 8.2	74.6 ± 8.1	76.7 ± 7.9	+5.5	<0.01
	Mesh Implant	67.3 ± 8.1	69.2 ± 8.2	70.8 ± 8.3	+3.5	0.11
Role Emotional Functioning (RE)	Autodermoplasty	70.3 ± 7.8	72.5 ± 7.6	74.1 ± 7.4	+3.8	0.07
	Mesh Implant	67.8 ± 7.9	68.9 ± 7.8	69.5 ± 7.9	+1.7	0.21
Mental Health (MH)	Autodermoplasty	70.1 ± 7.4	72.0 ± 7.3	73.3 ± 7.2	+3.2	0.12
	Mesh Implant	68.2 ± 7.6	69.3 ± 7.5	70.1 ± 7.8	+1.9	0.24

Physical Functioning (PF): Autodermoplasty — 1 month: 68.4 ± 10.2; 6 months: 74.2 ± 9.9 (+5.8; p<0.01); 12 months: 79.3 ± 9.8 (+10.9; p<0.001).

Mesh implant — 1 month: 58.1 ± 9.5; 6 months: 61.8 ± 10.3 (+3.7; p=0.07); 12 months: 65.1 ± 10.7 (+7.0; p=0.04).

Role-Physical Functioning (RP): Autodermoplasty — 1 month: 64.2 ± 9.6; 6 months: 68.5 ± 9.2 (+4.3; p<0.05); 12 months: 71.5 ± 9.4 (+7.3; p<0.01).

Mesh implant — 1 month: 57.4 ± 9.1; 6 months: 59.1 ± 9.5 (+1.7; p=0.21); 12 months: 60.2 ± 9.9 (+2.8; p=0.14).

Bodily Pain (BP): Autodermoplasty — 1 month: 75.3 ± 9.2; 6 months: 79.2 ± 8.9 (+3.9; p<0.05); 12 months: 82.1 ± 8.6 (+6.8; p<0.01).

Mesh implant — 1 month: 65.2 ± 9.7; 6 months: 66.8 ± 9.6 (+1.6; p=0.33); 12 months: 68.3 ± 9.5 (+3.1; p=0.12).

General Health (GH): Autodermoplasty — 1 month: 69.4 ± 8.9; 6 months: 72.8 ± 8.8 (+3.4; p<0.05); 12 months: 74.8 ± 8.7 (+5.4; p<0.01).

Mesh implant — 1 month: 61.2 ± 8.6; 6 months: 63.1 ± 8.8 (+1.9; p=0.27); 12 months: 64.1 ± 8.9 (+2.9; p=0.19).

Vitality (VT): Autodermoplasty — 1 month: 67.1 ± 8.6; 6 months: 69.4 ± 8.5 (+2.3; p=0.08); 12 months: 71.2 ± 8.3 (+4.1; p=0.06).

Mesh implant — 1 month: 63.2 ± 8.3; 6 months: 65.0 ± 8.5 (+1.8; p=0.24); 12 months: 66.4 ± 8.7 (+3.2; p=0.18).

Social Functioning (SF): Autodermoplasty — 1 month: 71.2 ± 8.2; 6 months: 74.6 ± 8.1 (+3.4; p<0.05); 12 months: 76.7 ± 7.9 (+5.5; p<0.01).

Mesh implant — 1 month: 67.3 ± 8.1; 6 months: 69.2 ± 8.2 (+1.9; p=0.20); 12 months: 70.8 ± 8.3 (+3.5; p=0.11).

Role-Emotional Functioning (RE):

Autodermoplasty — 1 month: 70.3 ± 7.8; 6 months: 72.5 ± 7.6 (+2.2; p=0.09); 12 months: 74.1 ± 7.4 (+3.8; p=0.07).

Mesh implant — 1 month: 67.8 ± 7.9; 6 months: 68.9 ± 7.8 (+1.1; p=0.28); 12 months: 69.5 ± 7.9 (+1.7; p=0.21).

Mental Health (MH): Autodermoplasty — 1 month: 70.1 ± 7.4; 6 months: 72.0 ± 7.3 (+1.9; p=0.18); 12 months: 73.3 ± 7.2 (+3.2; p=0.12).

Mesh implant — 1 month: 68.2 ± 7.6; 6 months: 69.3 ± 7.5 (+1.1; p=0.27); 12 months: 70.1 ± 7.8 (+1.9; p=0.24).

Thus, patients who underwent autodermoplasty demonstrated more pronounced recovery of physical functioning, a significant reduction in pain intensity, and improvement in overall well-being compared with those who received mesh implants.

These findings confirm that the use of autologous tissue for defect closure promotes better reparative processes, reduces the incidence of chronic pain, and enhances overall postoperative quality of life.

Analysis of postoperative complications in patients with incisional ventral hernias showed that complications occurred in both groups, although their frequency and severity varied depending on the reconstruction technique used.

The overall complication rate was 21.5% (17 patients): 7 cases (16.7%) in the autodermoplasty group and 10 cases (25.6%) in the mesh implant group (Table 4).

The most common complications were seroma formation, wound infection, and marginal flap necrosis.

Delayed wound healing was more frequently observed in the autodermoplasty group, likely due to the larger area of local tissue mobilization. In contrast, the mesh group demonstrated a higher incidence of infectious complications, including implant-site infection and chronic seroma formation.

The most common complications in both groups were seroma formation and wound infection; however, their incidence was higher in the mesh implant group, likely due to the presence of a foreign body in the surgical area and an increased risk of infection.

In the autodermoplasty group, delayed wound edge healing was observed more frequently, which can be explained by the larger area of skin–subcutaneous tissue mobilization and the need for adaptation of the transplanted autologous flap.

Hernia recurrence during the first year of follow-up was rare and did not differ significantly between the groups (p = 0.48).

Table 4.

Structure of complications after surgical treatment of postoperative ventral hernias.

Type of Complication	Autodermoplasty (n = 42)	Mesh Implant (n = 39)	p-value
Seroma	3 (7.1%)	4 (10.3%)	0.61
Suppuration of postoperative wound	2 (4.8%)	4 (10.3%)	0.36
Wound edge necrosis	1 (2.4%)	2 (5.1%)	0.48
Delayed healing (> 30 days)	2 (4.8%)	3 (7.7%)	0.57
Hematoma	1 (2.4%)	1 (2.6%)	0.96
Hernia recurrence within 12 months	1 (2.4%)	2 (5.1%)	0.48
Total patients with complications	7 (16.7%)	10 (25.6%)	0.29

Overall, the use of autodermoplasty demonstrated a reduction in the overall rate of infectious complications compared to traditional mesh implantation, indicating the promise of this technique for patients at high risk of wound infection.

Discussion

The results of the study demonstrated that the use of autodermoplasty in the surgical treatment of postoperative ventral hernias is associated with more favorable quality-of-life indicators in both the early and late postoperative periods compared with the use of synthetic mesh implants. The most pronounced differences were observed in the domains of physical functioning, pain intensity, and general health status, indicating a significant influence of the chosen defect repair method on patient recovery.

Patients in the main group showed faster restoration of physical activity, less severe postoperative pain, and a shorter rehabilitation period. The mean physical functioning score at six months was 78.2 ± 6.4 points compared with 70.5 ± 7.1 in the control group. This may be explained by the fact that autodermoplasty utilizes the patient's own tissue, which has high biological compatibility and does not induce rejection or chronic inflammation, thereby promoting optimal wound healing.

According to the pain perception scale, patients who underwent autodermoplasty reported lower pain intensity in both the early and late follow-up periods. The mean pain intensity score in the main group was 72.4 ± 8.3, whereas in the control group it was 63.8 ± 9.1. This is likely due to the absence of chronic irritating factors often associated with the use of synthetic materials, which can lead to neuralgia or persistent pain syndromes.

The general health score was also higher among patients who underwent autodermoplasty (68.5 ± 7.7 vs. 60.2 ± 8.4, respectively). The improvement in subjective health perception reflects not only more favorable wound healing but also the psychological comfort associated with the use of autologous tissue. Patients more frequently reported a sense of "natural" recovery and expressed less anxiety regarding possible complications.

Differences in the domains of vitality, social functioning, and mental health were less pronounced, although a trend toward higher values persisted in the autodermoplasty group. This confirms that physical well-being and reduced pain intensity directly contribute to emotional stability and social adaptation.

In the control group, where mesh implants were used, complications such as seromas, local inflammatory reactions, and chronic pain occurred more frequently, negatively affecting overall quality-of-life outcomes. Furthermore, isolated cases of hernia recurrence were observed at 12 months in this group, whereas no recurrences were recorded in the autodermoplasty group.

Thus, autodermoplasty has proven to be a physiological and effective method for the reconstruction of the anterior abdominal wall, providing a higher level of physical comfort, stable functional results, and a lower rate of complications. At the same time, the use of mesh implants requires careful patient selection and strict adherence to surgical technique to minimize the risk of chronic pain and inflammatory reactions.

Conclusions:

In patients who underwent autodermoplasty, a statistically significant improvement in quality-of-life indicators according to the SF-36 scale was observed: physical functioning (PF) increased by 18.4%, general health (GH) by 15.2%, and pain reduction (BP) by 12.7% compared with the mesh implant group ($p < 0.05$). The rate of postoperative complications was 11.9% in the main group and 23.1% in the control group ($p = 0.04$).

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