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Ways of Prevention and Treatment of Complications after Hernioplasty for Hernias (An Original Article)

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Abstract The technique of operations performed for hernias of the anterior abdominal wall has achieved tremendous success to date, the uniqueness and respectability of which is given in many literary sources. The aim of the study is to assess the possibilities of modern herniology in the surgical treatment of ventral hernias. Information about the methods of treatment of ventral hernias and the prevention of complications after treatment is provided by examining 114 patients with this pathology. The most frequent complications with methods of their prevention and treatment are considered. In recent surgery, the main place is given to endovideoscopic methods of treating hernias, which, unlike previously existing methods, are more reliable and adequate.

Keywords Ventral hernia, Endovideoscopy, Allohernioplasty

1. Relevance

The technique of operations performed for hernias of the anterior abdominal wall has achieved tremendous success to date, the uniqueness and respectability of which is given in many literary sources [3,5,12]. Since the mid-50s of the last century, the methods of hernia repair went through many stages and improved to the highest point of its development so that it became possible to strengthen the defects in modern surgery without a single suture [4,6,7,9]. The problem that worried the world society of surgeons engaged in herniologyseems to have been resolved, however, despite progress in this area, the question arises about the occurrence of postoperative complications, which, along with the improvement of surgical technique, are noted according to the literature from 12.3% to 19.5% of cases [1,10]. If earlier, when carrying out the method of hernia repair with the use of hernia orifice plastic using one's own tissues, a large number of postoperative complications were observed, such as purulent-necrotic and purulent-septic complications, causing secondary wound healing, and in some cases leading to repeated surgery, due to the traumatic factor in conducting wide incisions for adequate access to the elements of hernias, then at present, recurrence [2,7,8,11].

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To address these issues, we set ourselves a task aimed at eliminating these problems and improving the quality of life of patients.

2. Objective

To review the complications in open and laparoscopic hernioplasty and show the possibilities of increasing the efficiency of surgical treatment of patients with ventral hernias.

3. Material and Methods

The research was carried out at the Department of Faculty and Hospital Surgery, Urology of the Bukhara State Medical Institute together with the Department of Surgery named after N.D. Monastyrsky North-Western State Medical University named after I.I. Mechnikov Ministry of Health of the Russian Federation. The study involved 114 (100%) patients with abdominal hernias of various localization. Of these, 87 (76.3%) were men, 27 (23.7%) were women. The patients' age ranged from 22 ± 1.9 to 68 ± 3.4 years.

The number of patients with inguinal hernia was 61 (53.5%), 17 (14.9%) with bilateral pathology, and the remaining 32 (28.1%) with unilateral lesion. With a hernia of the white line of the abdomen, 28 (24.6%) patients were observed. The number of persons with recurrent hernia was 18 (15.8%). 7 (6.1%) patients with umbilical hernia were

examined. 54 (47.4%) patients underwent endo-video surgery, with 46 (40.4%) performed using the TAPP method, and 8 (7%) patients using the TEPP method. Moreover, 3 (2.6%) patients underwent TAPP surgery with recurrent inguinal hernia. In the remaining 60 (52.6%) cases, laparotomy herniotomy was performed. All patients used endoprostheses - Esfield meshes for the purpose of hernia repairsizes 15×25 cm, 15x30 cm, depending on the size of the defect. To fix the mesh during endovideosurgical interventions, polyacrylate glue was used, in open operations - suture material produced by Ethicon, synthetic threads with a needle with a cross section of 2.0. To diagnose hernias, a clinical method was used to determine the presence of a defect and the contents of the sac, using the symptom of "cough impulse". From instrumental diagnostic methods, ultrasound examination (ultrasound) was used using Sonoscape - 4000 and Vivid devices - M 40. This research method was mandatory for all patients, regardless of the location and size of the hernial protrusion. In addition, all patients underwent clinical and biochemical analyzes of blood and urine. The patients were hospitalized, the timing of discharge was determined depending on the time of wound healing, regression of concomitant diseases, normalization of the general condition and averaged from 3-4 ± 1.3 to 10-11 ± 3.7 days. Dynamic observation of the patients was carried out 1, 3, 6, 9 and 18 months after the operation.

Table 1. Distribution of patients depending on the localization of hernial protrusions

№	Types of hernias	abs. numeric	in %
1.	Inguinal hernia	61	53.5
	- unilateral	32	28.1
	- bilateral	17	14.9
2.	White line of the abdomen	28	24.6
3.	Umbilical hernia	7	6.1
4.	Primarily diagnosed (for all localizations of hernias)	96	84.2
5.	Recurrent (with all localizations of hernias)	18	15.8

4. Results and Its Discussion

The performed surgical interventions showed that complications in the postoperative period depended on the preoperative preparation, technique and materials used during the operation, in compliance with the rules of asepsis and antiseptics. Complications observed after hernioplasty, depending on the method of the operation, were a different ratio, which is shown in Table 2.

The table shows that, in contrast to the endoscopic method, with laparotomic approaches, postoperative complications significantly prevail, accounting for 56.1% of their total number, and some of the wound complications, such as purulent-inflammatory complications, the presence of hematomas, and inconsistency of the wound edges are not observed with the first way in general.

Table 2. Early and immediate complications after hernioplasty

№	Types of complications	Laparotomic method	Endo - video surgical method
1.	Wound complications:	57 (50%)	4 (3.5%)
	-infiltration wounds	23 (20.2%)	3 (2.6%)
	- seroma	12 (10.5%)	1 (0.9%)
	- hematomas	7 (6.1%)	-
	- purulent-inflammatory complications over - aponeurotic	5 (4.4%)	-
	- divergence of the edges of the wound	10 (8.8%)	-
2.	Endoprosthesis-related:	7 (6.1%)	17 (14.9%)
	- grid offset	7 (6.1%)	9 (7.9%)
	Total:	64 (56.1%)	27 (23.7%)

Conducting further monitoring of the condition of patients, cases of late complications were identified, which, although they occur in a relatively small number in relation to early ones, can lead to very disastrous results that affect the quality of life of patients (table 3).

Table 3. Late complications after hernioplasty

№	Types of complications	Laparotomic method	Endovideosurgical method
1.	Mesh migration	6 (5.3%)	3 (2.6%)
2.	Chronic pain	19 (16.7%)	4 (3.5%)
3.	Hernia recurrence	11 (9.6%)	3 (2.6%)
	Total:	36 (31.6%)	10 (8.7%)

In both groups, late complications were observed, accounting for 31.6% with laparotomic access, and 12.3% with endoscopic access, respectively. Speaking about complications after surgery for hernias of the anterior abdominal wall, the technical factors causing their occurrence, as well as factors directly related to the presence of a foreign body in the body cavity, were indicated, although it is possible that concomitant diseases play a certain role in this, the presence of which sometimes complicates the course of the postoperative period. Of the total number of patients, concomitant diseases were observed in 93 of them, which amounted to 64% (Table 4).

In most cases, the underlying pathology was accompanied by such diseases as chronic anemia, obesity, and chronic changes in the cardiovascular system, which also caused significant difficulties in the management and correction of the patient's condition both in the preoperative period and in the postoperative period. In patients with concomitant pathology, the percentage of complications was slightly higher, and such diseases as hypertension, diabetes mellitus, anemia of varying severity aggravated the course of the disease. In the preoperative period, these patients were prescribed appropriate therapy, which was then continued in

the postoperative period. The timing of conservative therapy depended on the severity of the concomitant disease and changes in the somatic status of patients. Treatment of concomitant diseases was carried out in all patients in order to prevent possible complications.

Table 4. Concomitant diseases in patients with hernias of the anterior abdominal wall

	Accompanying illnesses	Laparotomic access	Endovideo-surgical method
1.	Hypertonic disease	7 (6.1%)	6 (5.3%)
2.	Chronic anemia	8 (7%)	8 (7%)
3.	Coronary heart disease	5 (4.4%)	4 (3.5%)
4.	Obesity	5 (4.4%)	8 (7%)
5.	Chronical bronchitis	3 (2.6%)	6 (5.3%)
6.	Peptic ulcer of the stomach and duodenum	2 (1.8%)	2 (1.8%)
7.	Chronic cholecystitis	6 (5.3%)	5 (4.4%)
8.	Urolithiasis disease	4 (3.5%)	3 (2.6%)
9.	Having a chronic infection:	5 (4.4%)	6 (5.3%)
	chronic tonsillitis	2 (1.8%)	2 (1.8%)
	Caries	1 (0.9%)	2 (1.8%)
	Metro - endometritis	1 (0.9%)	1 (0.9%)
	fungal diseases	1 (0.9%)	1 (0.9%)
Total:		**45 (39.5%)**	**48 (42.1%)**

5. Conclusions

Currently, various methods of laparoscopic herniotomy are being actively introduced into surgical practice for hernias of the anterior abdominal wall, which have shown themselves as alternative methods of treatment compared to methods of laparotomic access and can be recommended for widespread use. Complications arising both with laparotomy access and with endo video surgery can be associated with the technique of surgical treatment, significantly reducing wound complications with the latter method, the body's response to embedded foreign bodies, such as drainage tubes, which is mainly used in laparotomy method, as well as mesh endoprostheses, which can also cause various pathological manifestations. A thorough study of patients in the preoperative period and an assessment of the volume of the forthcoming operation, considering the size and nature of the hernial protrusion, as well as the prevention and treatment of concomitant diseases, affect the outcome and long-term results in the postoperative period.

Conflicts of Interest

The authors have no conflicts of interest.

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