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TACTICAL ASPECTS OF SURGICAL TREATMENT OF OBESE PATIENTS WITH POSTOPERATIVE VENTRAL HERNIA

Bozorov N.E*; Nazirkhuzhaev D.K; Abdurakhmadov A.A*****

*Associate Professor, Candidate of Medical Sciences,
Department of Surgery and Urology of Andijan State Medical Institute,
Andijan, UZBEKISTAN

**Master of the Department of Surgery and Urology of Andijan State Medical Institute,
Andijan, UZBEKISTAN

***Master of the Department of Surgery and Urology of Andijan State Medical Institute,
Andijan, UZBEKISTAN

ABSTRACT

The authors analyzed the results of surgical treatment of 98 ventral hernias in obese patients with saggy abdomen. Indications for surgical treatment of patients with large and giant POVH (postoperative ventral hernias), mainly, were decreased ability to work - 43 (43.8%) patients, cosmetic dissatisfaction - in 38 (38.7%), adhesive disease with symptoms of partial intestinal obstruction (coprostasis) - in 17 (17.3%) patients. The analysis of the influence of alloplast and skin autodermal plasty on the development of postoperative complications and healing was carried out.

KEYWORDS: *Ventral Hernia, Alloplasty, Autodermal Plasty.*

INTRODUCTION

Ventral hernia is one of the most common pathologies in general surgical practice and obesity is one of the reasons worsening the results of hernia repair [1,3,10-13]. Similarly, morbid obese patients have high intra-abdominal pressure compared to non-obese patients. Every year in the world, one can observe a tendency to an increase of up to 20–26% in the number of patients with large and giant incisional ventral hernias (POVH), which significantly reduce the quality of life, negatively affect the somatic, psychological and social status of such patients [4,6]. Large and gigantic hernias are diagnosed in 3–7% of the inhabitants of the Earth [7,9]. Most patients with POVH are people of working age. The urgency of the problem of surgical correction of the

ventral in patients with overweight is due not only to a large number of complications of the early and late postoperative period, relapses, but also to uncertainty in tactical and methodological approaches.

Aim of the study: Improvement of treatment results and quality of life in patients with overweight ventral hernias.

Materials and methods

The work is based on the analysis of the results of hernioplasty in 98 obese patients with postoperative, recurrent and primary ventral hernias. All operations were performed in the surgical department of the AndGosMI clinic from 2016 to 2020. The patients were divided into two groups: the control group (53) and the main group (45). Group 1 consisted of 53 people, consisting of patients who underwent only traditional hernioplasty and used standard diagnostic and treatment methods. The second group included 45 patients in whom hernioplasty was supplemented with the implementation of developed and improved methods of treatment and correction of recurrent GV, using autodermal plasty (ADP) and alloplastic grafts (ALG).

To characterize the hernial protrusion, the classification of J. Chevrel and A. Rath (1999) was used, which allows for a statistical study of the reliability of the relationships between different groups of patients and the percentage of relapses and recommended in the resolution of the 5th anniversary conference "Actual problems of herniology" (Moscow, October, 2006) [6,7]. 39 patients suffered from II degree obesity (BMI-36.7 kg / m2), in 28 people. there was degree I obesity (BMI-32.3 kg / m2), in 6 cases - III degree obesity (BMI-> 40.0 kg / m2). In all cases, obesity was combined with abdominoptosis. The classification provides for three positions. S - localization: median hernia (M), lateral (L) and combined (ML). W - the width of the hernial orifice: W1 - up to 5 cm (small hernias), W2 - 5 - 10 cm (medium size), W3 - 11-15 cm (large size), W4 - over 15 cm and over 30 (giant) ... R - presence and frequency of relapse (R0, R1, R2, R3,).

According to the classification (SWR), 10 patients in the control group and 12 in the main group had large (W3) and giant (W4) hernias. The overwhelming majority of patients, 28 (62.2%) and 32 (60.3%), respectively, had supra-umbilical (M1) and peri-umbilical (M2) hernias. The smallest number of patients had ventral hernias of lateral (L) 5 (11.1%), 7 (13.2%) and combined (M + L) locations 12 (26.7%) and 14 (26.4%). Of 98 patients, 12 (26.7%) and 12 (22.6%) of the main group had the first relapse (R1), while two or more relapses were observed in 33 (%) in the control group and in 41 (%) patients in the main group. groups (R2, R3, R4).

A fairly large number of patients (64) were previously operated (65.3%) for postoperative ventral hernias, 12 twice, and 4 6-3 times. Previously, they used plastics of the hernial orifice with local tissues (according to Sapezhko or Mayo), in three cases, plastic was performed with a mesh graft. The aggravating factor was concomitant obesity of varying severity, which took place in 18 (40%) patients in the comparison group and 32 (43.3%) in the main group.

All patients were admitted as planned after a standard preoperative examination on an outpatient basis: general clinical blood and urine tests; blood chemistry; coagulogram; blood test for the presence of hepatitis viruses, syphilis; electrocardiography; X-ray examination of the lungs; examination by a therapist. If necessary, the patients underwent a more complete study:

ultrasound, spirometry, examination by related specialists, etc. Electromyographic (EMG) was used to assess the functional state of the anterior abdominal muscular system.

In 13 (13.2%) studied patients with recurrent GV, the duration of herniation at the time of surgery was up to 1 year. At the same time, herniation for a period of 1 to 3 years was in 38 (39%), and 4-6 years - in 29 (29.6%) patients. The reasons for the duration of the anamnesis: (from 7 to 10 years or more), our patients (18) explained the fear of the operation, the presence of severe concomitant diseases and, in some cases, the abstinence of the surgeons from the operation.

The duration of hernia carriage in this contingent of patients played an extremely significant role in the outcome of surgical treatment: the longer POVH existed, the more often unfavorable conditions were created for the organism to adapt to an increase in intra-abdominal pressure in the early postoperative period.

The probable reasons contributing to the occurrence of large and giant POVH in this contingent of patients were: suppuration of the surgical wound - 21 (21.4%) cases, repeated surgical interventions - 18 (18.3%) cases, early physical activity - 11 (11, 2%) cases and ligature fistulas - 8 (8.1%) patients, cough, which served to increase intra-abdominal pressure in 9 (9.1). Pregnancy soon after surgery was the cause of recurrent GV in 8 (8.1%) patients, which was apparently associated with certain features of the lower median approach.

Hernia repair for recurrent GV, especially in elderly and senile people, is a serious intervention, accompanied by severe trauma, manipulations on pathologically altered tissues of the abdominal wall and abdominal organs. One of the most controversial issues is the problem of reducing the likelihood of developing various postoperative complications in the group of patients with the highest operational risk. This category includes primarily patients with a large defect in combination with obesity.

In this regard, patients with recurrent GV require special preoperative preparation.

The clinic uses a comprehensive preoperative preparation of patients with large and giant hernias with control of the study of cardiopulmonary activity. During the period of preoperative preparation, we solved the following tasks:

1. Prevention of a sharp increase in intra-abdominal pressure in the early postoperative period (bowel cleansing, elimination of cough and straining during urination).

2. Adaptation of the cardiovascular and respiratory systems to increased intra-abdominal pressure - wearing a strong bandage and tight elastic bandaging.

3. Corrective therapy of concomitant diseases (cardiac pathology, arterial hypertension, diabetes mellitus, etc.).

4. Prevention of complications from the postoperative wound by treatment and treatment with disinfectants, alcohol solutions, quartzization (excoriation, trophic ulcers and dermatitis).

Assessment of the state and reserve capabilities of the respiratory system. When studying the effectiveness of standard preoperative preparation, the following feature was noted. Only in 51.2% of patients in the main group, on admission, the function of external respiration (FVD) remained within the normal range. In 34 cases, a decrease in the compensatory capabilities of the

respiratory system was revealed. Respiratory failure was noted in 7 patients. This required treatment to maintain the proper level of ventilation and gas exchange processes. After correction of external respiration in 7-14 days, a repeated study of the FVD was carried out. Against the background of treatment, there was a good dynamics with a significant change in indicators, however, in general, the average value of all parameters was below the recognized norm - 62.2% in terms of VC.

Focusing on the indicators of VC, the value of which, according to spirography data, should not be lower than 70% of the due value, only in 70.2% of patients by the end of treatment, the function of external respiration was within normal limits. Revealed changes after corrective therapy in 23 patients that fit into the 1st stage. DN and 2 grade II, demanded prolonged training.

The program of complex preoperative preparation as a whole had the goal of: drug treatment of diagnosed concomitant therapeutic diseases, vitamin therapy, correction of cardiopulmonary disorders, reduction of the patient's weight (up to 10-15 kg), abdominal volume and adaptation to increased intra-abdominal pressure, and also prevention of thromboembolic and purulent-septic complications from the surgical wound.

Patients were prescribed light laxatives, cleansing enemas every 2-3 days. After bowel preparation, the patient drinks only tea and water for 2 days before the operation. The deficiency of salts, carbohydrates and proteins, if necessary, is replenished by parenteral administration of saline preparations, concentrated solutions of glucose, amino acids, protein preparations.

The duration and intensity of preoperative preparation of patients with recurrent GV depended on the shape, size and size of the hernia, the presence or absence of its complications, age, as well as concomitant therapeutic and concomitant surgical pathology. Only a comprehensive preparation of patients for surgery, especially in elderly and senile people, makes it possible to expand the indications for surgical interventions, improves the conditions for performing the operation and contributes to a smoother course of the postoperative period.

For the prevention of thromboembolic complications in patients with recurrent POVH, we investigated the coagulation and anticoagulation systems of the blood. We studied the coagulation and anticoagulation system of the blood in 97 patients (including 15 men and 82 women) aged 32 to 74 years, 8 of them were over 50 years old.

In patients with recurrent GV, the blood clotting activity is significantly increased. This is evidenced by the shortening of the clotting time on average to 214 ± 13.5 sec and the recalcification time to 96 ± 13 sec ($P < 0.001$). At a normal rate of 638 ± 30 sec ($P < 0.05$), the test time for the patient's plasma sensitivity to heparin was shortened. This can be explained by the decrease in blood heparin observed in our patients. The content of procoagulants (prothrombin, proaccelerin, proconvertin), calcium in the blood serum was within the normal range.

In patients of the comparison group, we used the following plastic options: "traditional" - layer-by-layer restoration of the anatomical integrity of the abdominal wall; layer-by-layer suturing and creation of duplication of the musculo-aponeurotic layer according to the Sapezhko and Mayo type.

It should be noted that the "traditional" methods of hernia orifice plasty in this group of patients were not performed with gigantic POVH. At the same time, in these patients, the compared

tissues in all cases were strong, i.e. retained the anatomical structure. At the same time, the convergence of the tissues did not cause tension in the suture line. In addition, all of them did not have diseases from the respiratory system and cardiovascular systems of the body. The overwhelming majority were patients who did not perform heavy physical work.

Our experience in the surgical treatment of POVH indicates that the indications for this method of plasty in the studied patients are justified in the case of large POVH values. With its gigantic size, the indications for this method of plastics should be set strictly individually. This is due to the fact that the reduction of a significant volume of the contents of the hernia itself increases intra-abdominal pressure. At the same time, an additional decrease in the volume of the abdominal cavity due to duplication of the abdominal wall can further increase the intra-abdominal pressure with the ensuing consequences.

Patients of the main group who underwent hernia repair with autodermal plasty and alloplasty with a mesh implant had laxity of the musculo-aponeurotic layer, diseases of the respiratory system or the cardiovascular system or the gastrointestinal tract, most of the patients were engaged in heavy physical labor.

In addition, the majority of women were persons of reproductive age. In the main group, the skin incision was performed along the hernial protrusion. Then subcutaneously fatty tissue was widely separated to aponeurosis around the hernial sac. After that, the hernial sac was treated, hernial defects were repaired, and the diastasis of the rectus abdominis muscles was eliminated. All patients in the study group received a mesh implant. To prevent small abdomen syndrome and respiratory failure, according to indications, tension-free hernioalloplasty without suturing the aponeurosis or reconstruction of the abdominal wall according to Ramirez was performed.

The most optimal should be considered the use of wide bordering incisions with complete excision of the skin-subcutaneous fat flap together with the postoperative scar.

Along with this, it should be noted that the correctly selected shape and direction of the incision allow you to quickly expose the defect of the abdominal wall along its entire circumference and, moreover, does not disfigure the general configuration of the abdomen.

With the localization of recurrent GV, mainly in the epigastric region, it is preferable to make longitudinal and oblique transverse incisions, with localization in the mesogastrium, transverse. When localized in the hypogastrium, transverse or T-shaped with complete removal of the cutaneous and subcutaneous apron, which is especially pronounced in obese women.

For prosthetic repairs, the graft was fixed using the “onlay” technique. If necessary, in order to increase the volume of the abdominal cavity, to prevent the development of ACS, the plasty of the anterior abdominal wall was performed using a tension-free method, i.e., the mesh was applied to the aponeurosis without it. Suturing, as well as a combined method with the addition of mobilization of the sheaths of the rectus abdominis muscles according to Ramirez.

In the event of a deficiency and a defect in the aponeurosis, the peripheral sections of the explant were placed over the edges of the aponeurosis and fixed to it with a twisted suture. This method is a true tension-free hernioplasty. The mesh explant replaced the aponeurosis defect formed by the hernial protrusion. This type of surgery is indicated for large hernias that correspond to W3 – W4 according to the "SWR" classification.

After the completion of the plasty of the anterior abdominal wall, dermatolipidectomy was performed, along a line previously applied to the anterior abdominal wall before the operation, which borders the hernial protrusion, the old postoperative scar and the skin and fat fold. The weight of the excess skin and fat flap ranged from 4 to 12 kg. After the completion of hernioplasty, all patients in the control and study groups left a perforated drainage tube above the aponeurosis, the free ends of which were removed below the horizontal incision and fixed to the skin and drained. In the postoperative period, patients of both groups were prescribed banding of the anterior abdominal wall, antibiotic prophylaxis, early rising, breathing exercises, anticoagulants, and physiotherapy. The drainage tube was removed within 2 to 8 days under dynamic ultrasound observation.

Results. To assess the effectiveness of treatment results in patients in the groups under discussion, the following comparison parameters were used as the main criteria: 1. Abdominal complications of the early postoperative period. 2. Extra-abdominal complications of the early postoperative period. 3. Wound complications in the early postoperative period. 4. Long-term results of surgical treatment.

In patients of both groups, at the stages of treatment, the level of intra-abdominal pressure was measured over time. Based on the data obtained, regular changes in the indices of intra-abdominal pressure were revealed in the direction of their increase at the stages of the operation, associated with immersion of the hernial contents and hernioplasty. Tension-free hernioalloplasty and combined technique with mobilization of rectus muscles according to Ramirez, applied to 10 patients in the control group and 58 patients in the main group, which achieved an increase in the volume of the abdominal cavity, allowed avoiding an increase in intra-abdominal pressure.

The results of using various methods of hernioplasty in patients with recurrent GV were assessed according to the following criteria: the effectiveness of treatment; the percentage of complications in the postoperative period; postoperative mortality: the average number of bed-days in the postoperative period.

At the same time, we identified complications associated with surgical intervention and general complications that occur after various surgical interventions.

Postoperative complications from the wound in the studied patients were diagnosed in 30 cases. At the same time, hematoma was diagnosed in 6 (13.3%) patients of the comparison group and in 3 (5.6%) of the main group, wound infiltration - in 7 (15.5%) of the comparison group and in 2 (3.7%) of the main group. group, ligature fistula was observed only in 5 (11.1%) patients in the comparison group, wound suppuration - in 6 (13.3%) patients in the comparison group and in 1 (3.5%) of the main group.

In general, after hernia repair with hernia orifice repair using the "traditional" method, wound complications were diagnosed in 24 (53.3%) patients, and after ADP in 3 (12%) patients, after ALP also in 3 (10.7%). It should be noted that in the initial period of our work, we drained the subcutaneous fat only in obese patients.

In the long term, after plasty by the "traditional" method, good results were diagnosed in 28 (62.2%) patients, after ARP - in 23 (92%), after ALP in 27 (96.4%) patients.

Along with this, in 10 (22.2%) patients, we noted a satisfactory result - after plastic surgery by the "traditional" method, in 1 (4%) - ADP and in 1 (3.5%) with ALP.

CONCLUSIONS

Thus, a feature of the clinical course in patients with ventral hernias and obesity is the presence of concomitant pathology, which requires special preoperative preparation. For medium and large hernias, alternatively, alloplasty with biologically inert polypropylene explants is applicable. For all forms of postoperative median ventral hernias, it is advisable to perform autodermoplasty, with placement and fixation using the "onlay" or "sublay" method with similar suture material, as well as tension-free methods of plastic surgery together with mesh allograft or autoderal plastic. The choice of plastic surgery for ventral hernias depends on the size of the hernial orifice according to the "SWR" classification (Chevrel J.P., Rath A.M., 2000). In case of W1, both plastic surgery with local tissues and explants using the “onlay” and “sublay” techniques is possible.

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