



ASPECTS OF SURGERY OF ABDOMINAL HERNIATION AND COMBINED PATHOLOGY OF ABDOMINAL ORGANS

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Article history:	Abstract:
Received: December 10 th 2022 Accepted: January 10 th 2023 Published: February 14 th 2023	The study included the results of treatment of 331 patients with ventral hernia and concomitant pathology of the abdominal organs. Simultaneous pathology of the abdominal organs, requiring surgical correction for ventral hernias, was 52.8%. Most often, such diseases as: cholelithiasis (30.1%), pathology of the pelvic organs in women (30.8%), adhesive disease of the abdominal cavity and chronic intestinal obstruction (46.7%), as well as obesity III - IV degrees and abdominoptosis (29.7%). When concomitant abdominal pathology is located at a remote distance from the hernial defect (M1S8 or M3S2), the priority is to perform a simultaneous stage using laparoscopic technique, which was successfully performed in 37.5% of patients, that is more than 1/3 of patients of the main group. Optimization of the tactical and technical aspects of the one-time surgical correction of ventral hernias and combined abdominal pathology with the priority use of endovideosurgical technologies and tension-free alloplasty methods made it possible to reduce the incidence of postoperative complications from 8.6% to 5.3%, to reduce the duration of the operation from 72.5 ± 3.4 min. up to 58.5±4.1 min. and reduce the duration of inpatient treatment from 10.2±0.4 to 8.3±0.6 bed days.

Keywords: abdominal hernia, simultaneous operations

RELEVANCE. According to the literature, 15-20% of patients who underwent herniotomy undergo repeated surgical interventions for other surgical diseases in the coming years after surgery (Belokonev V.I. et al., 2018; Doble J.A. et al., 2019). This determines the relevance of the problem of simultaneous operations. Attention should be paid to the irrationality of performing only herniotomy in ventral hernia (VH), if the patient has a concomitant disease of the abdominal organs. In the case of performing only herniotomy, repeated surgery for abdominal pathology often nullifies the results of hernioplasty.

Simultaneous operations on the abdominal wall and on the abdominal organs increase the complexity of the intervention, but at the same time, the treatment time is reduced, the risk of complications after hernia repair in the form of concomitant diseases is reduced due to additional anesthesia and emotional experiences associated with the need for repeated intervention (Ahoenon-Siirtola M. et al., 2017; Nasirov M. Ya. et al., 2015). In patients with hernias, cholelithiasis is most often detected, in women - pathology of the pelvic organs, in the abdominal cavity - adhesive disease, chronic and subacute intestinal obstruction, abdominoptosis, etc. Approaches to performing simultaneous interventions in patients with

hernias have their own characteristics, since the location of the organs in which there is a pathology may not coincide with the localization of the hernia.

Special problems may be caused by the presence of adhesive disease, adhesive intestinal obstruction and fistulas located at different levels of the gastrointestinal tract (Khakimov M.Sh. et al., 2020; Gillion J. F. et al., 2018). All this requires a detailed study of the operation technique at the stage of hernia repair, at the intra-abdominal stage and at the stage of closing the abdominal cavity.

PURPOSE OF THE STUDY: To improve the results of surgical treatment of patients with ventral hernias and concomitant abdominal pathology by optimizing the tactical and technical aspects of the simultaneous performance of simultaneous operations with the priority use of endovideosurgical technologies and tension-free plasty methods.

MATERIAL AND METHODS. Among the examined patients, 225 (67.9%) patients had various surgical interventions on the abdominal organs in their anamnesis, 106 (42.1%) patients came with a newly diagnosed hernia. According to Chervel J.P. and Rath A.M. (1999) 212 (64.1%) patients had large (W3) and



giant (W4) hernias. The vast majority of patients 265 (80.1%) had hernias in the midline of the abdomen. Of 331 patients, 132 (39.9%) hernias were recurrent (Rn).

In all patients, the main surgical disease was ventral hernia. It should be noted that out of 429 patients with ventral hernias operated in the period 2017-2021. in 227 patients, hernia alloplasty was supplemented by surgical correction of the combined pathology of the abdominal organs. According to our data, the frequency of simultaneous pathology in ventral hernias was 52.8%. Simultaneous pathology was diagnosed at the preoperative stage in 74.6%, intraoperatively - in 25.4%.

A total of 178 associated surgical pathologies were identified in the comparison group, 334 in the main group, and some had two or more. Adhesive disease of the abdominal cavity prevailed among them 67 (37.6%) and 106 (46.7%), obesity III and IV stage. with a sagging abdomen was present in 32 (17.9%) and 67 (29.5%) patients, cholelithiasis in 29 (16.3%) and 69 (30.1%) patients, liver and pancreatic cysts in 8 (4.5%) and 13 (5.7%) patients, 11 (6.2%) and 19 (8.4%) patients had surgical pathology of the anterior abdominal wall (ligature fistulas and pseudocysts of the anterior abdominal wall), pathology pelvic organs in women 33 (18.6%) and 70 (30.8%), respectively, in the comparison groups and the main group of patients.

Computed tomography and computed tomography hernioabdominometry (CTHA) was performed to determine the size of the hernial orifice, the volume of the contents of the hernial sac, identify additional aponeurosis defects, identify concomitant pathology of the abdominal organs, thickness and uniformity of the subcutaneous fat of the anterior abdominal wall, as well as for preliminary determination of the method of hernioallo- and abdominoplasty. This method was performed in 58 (25.9%) patients of the main group.

The method also made it possible to verify the presence of a simultaneous pathology of the abdominal organs. CTGA made it possible to identify defects in the topography of the anterior abdominal wall and to choose the optimal plasty method. When the relative volume of the hernial protrusion was less than 5% of the volume of the abdominal cavity, hernias were considered small. If the relative volume of the hernial protrusion was from 5.1% to 14.0% of the volume of the abdominal cavity, they were considered medium hernias and preference was given to tension methods of hernia alloplasty - implantation of the "on lay" endoprosthesis with suturing of the defect.

When performing simultaneous operations in the comparison group, only traditional wide access was

used, i.e. the herniolaparotomy was expanded to the epigastric or hypogastric region, which allowed the surgeon to perform a simultaneous stage of the operation. At the same time, the elimination of the hernial defect took a lot of time, the duration of the operation increased significantly. In addition, it had a number of serious drawbacks - high invasiveness of the operation, increased risk of postoperative wound and general complications, unsatisfactory cosmetic results, a long period of early rehabilitation, etc. And when surgical diseases were located at a wide distance from each other, each pathology was operated on through separate accesses. In general, in the comparison group of patients, 83 (79.8%) patients underwent simultaneous surgery through a single herniolaparotomy access, 21 (20.2%) patients underwent simultaneous surgery through separate accesses.

In the main study group, 46 (20.3%) patients with ventral hernias and simultaneous pathology of the abdominal cavity both stages of the operation were performed from laparoscopic approaches using EVA. These patients underwent 1-stage LCE in 19 cases, 11 patients underwent supravaginal amputation or extirpation of the uterus for fibroids, 7 patients underwent cystectomy from the ovaries, 2 patients had fenestration of cysts from the liver, and 27 patients underwent adhesiolysis for adhesive disease of the abdominal cavity and chronic intestinal obstruction. . The 2-stage operation was completed by laparoscopic hernioplasty.

In 39 (17.6%) patients of the main group, the 1-stage simultaneous pathology was corrected laparoscopically, the main stage of the operation - hernioplasty was performed through the herniolaparotomy access. At the same time, LCE was performed in 23 patients, supravaginal amputation of the uterus for uterine fibroids - 1, ovarian cystectomy - 4, in 1 observation, a cyst was removed from the liver, 14 patients underwent adhesiolysis.

Thus, out of 227 patients of the main group, laparoscopic correction of both the main and simultaneous pathology was performed in 46 (20.3%), endovideosurgical correction of simultaneous pathology was performed in 39 (17.6%).

At the same time, in 142 (62.6%) patients of the main group, both stages of the operation were performed through the herniolaparotomy approach. The reason for this was the proximity of the pathology of the abdominal organs to the hernial defect. 67 (29.5%) patients of the main group who had concomitant pathology in the form of obesity II-III st. after completion of the plasty of the anterior abdominal wall, dermatolipidectomy was performed.

In the main group, when the simultaneous pathology is located at a wide distance from the



hernial defect, the simultaneous stages of the operation using laparoscopic technique were performed in 85 (37.5%) patients, i.e. more than 1/3 of patients of the main group.

Patients in the comparison group (n=104) underwent hernia alloplasty in 62 (59.6%) patients using tension methods and in 42 (40.4%) patients using non-tension methods, i.e. preferably, tension methods of plasticity are performed.

In the main group (n=181), the choice of hernioplasty was differentiated and based on the criteria we developed, according to which the patients were divided into 5 subgroups.

When the volume of the hernial protrusion was up to 5% of the volume of the abdominal cavity, according to CT data, laparoscopic hernia alloplasty was performed as a priority (I subgroup). Laparoscopic prosthetic hernioplasty according to the IPOM technique for postoperative ventral hernias was used by us in 49 patients with small and medium hernias (W1, W2), with the corresponding dimensions of the aponeurosis defect up to 5 cm and from 5 to 10 cm.

Patients of the 2nd subgroup with the volume of hernial protrusion up to 14% of the volume of the abdominal cavity according to CTHA underwent implantation of the onlay endoprosthesis with suturing of the defect. This group consisted of 78 (43.1%) patients.

In the 3rd subgroup (n=38), according to CTGA, with a hernial protrusion volume of more than 14.1% of the volume of the abdominal cavity, we performed tension-free plastic surgery. In order to increase the volume of the abdominal cavity, to prevent the development of compartment syndrome, after delimiting the abdominal cavity with a hernial sac flap, plastic surgery of the anterior abdominal wall was performed by applying a mesh to the aponeurosis without suturing it. The endoprosthesis was fixed with U-shaped sutures. Before closing the abdominal cavity with a flap of the hernial sac, these sutures were previously applied with the capture of all layers of the muscular-aponeurotic wall up to the peritoneum.

In 32 (17.7%) patients in the 4th subgroup with a hernial defect larger than 10 cm and a hernial protrusion volume of more than 18% of the volume of the abdominal cavity according to CTGA, a combined tension-free hernioplasty "onlay + sublay" was performed, i.e. one implant was placed behind the muscular-aponeurotic layer after the abdominal cavity was delimited by a hernial sac flap, the second implant was placed above the aponeurosis. After delimiting the abdominal cavity with the peritoneum, an implant was cut out, the size of which along the perimeter was 3 cm larger than the size of the hernial defect, then the edges of the mesh implant were sutured in advance with U-shaped sutures, the preliminary suturing of the

implant greatly simplified the technique of its fixation. Next, the endoprosthesis was placed according to the "sublay" type, the previously applied U-shaped sutures were passed through all layers above the aponeurosis, and the second endoprosthesis of the placed "onlay" was fixed to these sutures. Interrupted sutures were also applied between the endoprostheses, creating an artificial "white line" of the abdomen. Of particular importance of this method is the anatomical and physiological reconstruction of the anterior abdominal wall, as well as the white line of the abdomen. The use of this method in the clinic gave a good functional result.

In the 5th subgroup in 13 patients, where there was a high risk of tissue tension and increased intra-abdominal pressure, we applied tension-free alloplasty with mobilization of the sheaths of the rectus abdominis muscles according to Ramirez (1990).

Thus, in the main group of patients, where hernial alloplasty was performed through herniolaparotomy access, tension-free plastic surgery was performed in 56.9% of cases.

RESULTS AND ITS DISCUSSION. To assess the effectiveness of the treatment results of patients in the compared groups, the following parameters were used as the main criteria: - abdominal complications of the early postoperative period; extra-abdominal complications of the early postoperative period; - wound complications in the early postoperative period. In the comparison group, 2 (1.9%) patients had compartment syndrome. According to the comparative sign, the number of complications was equal in both groups of patients (Criterion $\chi^2=4.043$; Df=1; p=0.045).

When considering time periods, it was noted that the improvement of tactical and technical aspects ensured the reduction of all major perioperative periods.

Long-term results were analyzed in 260 (78.5%) patients out of 331 operated. Recurrence of ventral hernia was noted in 6 (1.8%), while in the comparison group this figure was 2.9% (3 patients), and in the main group - 1.1% (3 patients). In the comparison group, in the late postoperative period, 1 (0.9%) had complications after the simultaneous stage of the operation - an external biliary fistula after echinococcectomy from the liver.

Thus, according to the results of the study, complications in the compared groups in the immediate postoperative period were as follows: - abdominal complications in 4.8% and 2.2%; - extra-abdominal complications (bronchopulmonary and cardiovascular system) in 6.7% and 2.2%; - development of compartment syndrome 1.9% (only in the comparison group); - wound complications in 6.7%



and 1.7%; - lethality 0.9% (only in the comparison group) in the main and comparison groups, respectively. When considering the time characteristics, it was noted that the duration of treatment in the hospital was in the main group. - 8.3 ± 0.6 days (10.2 ± 0.4 comparison group), the average duration of the operation in the main group. patients – 58.5 ± 4.1 min. (72.5 ± 3.4 g of comparison). An analysis of the quality of life of patients showed that the optimization of the tactical and technical aspects of the one-time surgical correction of ventral hernia and combined abdominal pathology with the priority use of endovideosurgical technologies and tension-free alloplasty methods made it possible to increase the proportion of positive treatment results to 98.7%.

CONCLUSIONS:

1. According to our study, the simultaneous pathology of the abdominal organs, requiring surgical correction for ventral hernias, was 52.8%, most often cholelithiasis (30.1%), pathology of the pelvic organs in women (30.8%), adhesive disease of the abdominal cavity and chronic intestinal obstruction (46.7%), as well as obesity III - IV st. and abdominoptosis (29.7%). With an increase in the size of hernias, the number of patients requiring simultaneous interventions increases, so with W3 - 59.6%, and with W4 - 66.3%.

2. When concomitant abdominal pathology is located at a remote distance from the hernial defect (M1S8 or M3S2), the priority is to perform a simultaneous stage using laparoscopic technique, which was successfully performed in 37.5% of patients, i.e. more than 1/3 of patients of the main group.

3. Endovideosurgical hernia alloplasty is methodologically justified and effective in the surgical treatment of ventral hernias of small (W1) and medium (W2) sizes, which was applied in 20.3% of cases in the main group of patients. Improving aspects of laparoscopic hernia alloplasty using composite mesh implants, as well as using a modified Endo Close needle with extracorporeal knotting at the stage of prosthesis fixation, greatly simplifies the surgical technique.

4. CT hernioabdominometry allows identifying defects in the topography of the anterior abdominal wall and choosing the optimal plasty method. If the volume of hernial protrusion according to CTHA is up to 14% of the volume of the abdominal cavity, it is possible to implant an onlay endoprosthesis with suturing of the hernial defect, with more than 14.1%, tension-free plastic surgery is recommended.

5. Improvement of the technical aspects of performing tension-free methods of hernia alloplasty

with implantation of the endoprosthesis using the combined method "onlay + sublay" for hernias W3, W4 made it possible to avoid the development of the compartment syndrome and level the recurrence of the hernia.

6. Optimization of the tactical and technical aspects of the one-time surgical correction of ventral hernias and combined abdominal pathology with the priority use of endovideosurgical technologies and tension-free alloplasty methods allowed to reduce the incidence of postoperative complications from 8.6% to 5.3%, reduce the duration of the operation from 72.5 ± 3.4 min. up to 58.5 ± 4.1 min. and reduce the duration of inpatient treatment from 10.2 ± 0.4 to 8.3 ± 0.6 bed days. At the same time, the cure of a patient from several surgical diseases within the framework of one anesthesia and surgical intervention substantiates the need for simultaneous operations.

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