The American Journal of Medical Sciences and Pharmaceutical Research (ISSN – 2689-1026)
VOLUME 05 ISSUE 06 Pages: 24-31
SJIF IMPACT FACTOR (2020: 5. 286) (2021: 5. 64) (2022: 6. 319) (2023: 7. 396)
OCLC – 1121105510
Publisher: The USA Journals

Journal Website: https://theamericanjournals.com/index.php/tajmspr

Research Article

BASING THE SELECTION CRITERIA FOR HERNIOALLOPLASTY IN POSTOPERATIVE VENTRAL HERNIAS

Submission Date: June 20, 2023, Accepted Date: June 25, 2023,
Published Date: June 30, 2023 |
Crossref doi: https://doi.org/10.37547/TAJMSPR/Volume05Issue06-07

Yuldashov P.A.
Samarkand State Medical University, Uzbekistan

Kurbaniyazov Z.B.
Samarkand State Medical University, Uzbekistan

Sayinaev F.K.
Samarkand State Medical University, Uzbekistan

Abdusamatov A.U.
Samarkand State Medical University, Uzbekistan

ABSTRACT

According to the World Health Organization, hernia of the anterior abdominal wall is one of the most common surgical diseases, it is observed among 3-7% of the population, and the disease is observed mainly among the population of working age. ( ) More than 5% of all laparotomies are complicated by the formation of postoperative ventral hernias. , in addition, their frequency depends on the nature and urgency of the surgical intervention( ). About 10% of all surgical interventions are the operative approach to eliminate ventral hernias (VH). Existing traditional hernioplasty methods are not always effective in treatment. In this case, the recurrence varies from 4.3% to 46%, with wide and large defects, the frequency can be repeated up to 60%. In this regard, at present, various variants of allogenioplasty are the preferred method of surgical treatment, which allowed to significantly improve long-term results. However, ongoing research in this direction, on the basis of existing diseases in patients, the selection of the optimal method as a result of the comparative approach of the operative method, the size and location of hernias, and other factors, indicate the unsatisfactory results of the treatment of such patients and indicate the relevance and social importance of this problem.

KEYWORDS

The American Journal of Medical Sciences and Pharmaceutical Research (ISSN – 2689-1026)
VOLUME 05 ISSUE 06 Pages: 24-31
SJIF IMPACT FACTOR (2020: 5. 286) (2021: 5. 64) (2022: 6. 319) (2023: 7. 396)
OCLC – 1121105510
Publisher: The USA Journals

The operative method, the size and location of hernias, and other factors, indicate the unsatisfactory.

INTRODUCTION

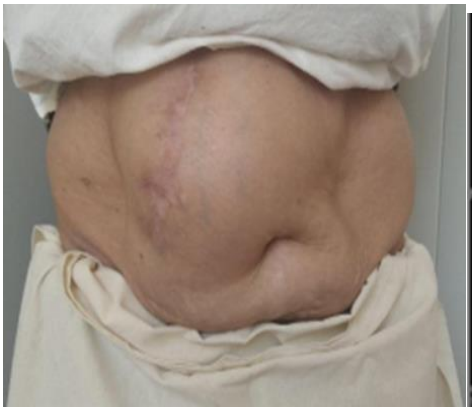
The purpose of the study is to improve the results of surgical treatment of patients with postoperative ventral hernia based on the selection criteria of the hernioalloplasty method.

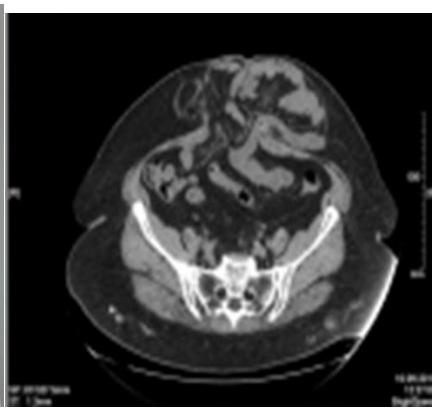
MATERIALS AND METHODS

Research 2018-2022. It was conducted based on the results of examination and treatment of 245 patients with postoperative ventral hernia in the surgical departments of the Samarkand City Medical Association and the 1st Clinic of the Samarkand State Medical University. All patients underwent planned surgery, and patients were divided into 2 groups depending on the choice of treatment tactics. The comparison group consisted of 84 patients who underwent surgery in 2018-2019, and generally accepted standard approaches were used in their treatment. The main group consisted of 161 patients who underwent surgery according to the selection criteria of the hernioalloplasty method in 2020-2022. Out of 245 patients, 73 (29.8%) were men, 172 (70.2%) were women. Age distribution: up to 45 years old - 44 (16.8%), 46-59 years old - 138 (52.9%), 60-74 years old - 56 (21.5%), 75-80 years old - 7 (2.7 %).

In the studied groups, 139 (53.3%) patients had uncomplicated forms of hernia and 106 (46.7%) had complications such as failure to correct. Patients with compressed hernia were not included in our study.

Cherwell J.P. and Rath A.M. According to (1999) classification, the majority of patients (187 - 76.3%) have hernias in the midline of the abdominal cavity - above the navel (M 1), around the navel (M2) and below the navel (M3). The least number of patients were lateral (L) 48 (19.6%) and combined (M + L) 10 (4.1%) postoperative ventral hernias, 116 (47.3%) patients had large (W3) and giant (W4) hernias are formed. 162 (66.2%) of 245 patients have postoperative ventral hernia (R0), 83 (41.3%) patients have postoperative recurrent ventral hernia (Rn). Computed tomography was performed to determine the size of the hernia hole, the size of the contents of the hernia sac, to identify additional defects in the aponeurosis, to determine the simultaneous pathology of the abdominal organs and topographical changes due to their adhesions, as well as to predetermine the method of hernioalloplasty. This method was performed in 69 (42.9%) patients in the main group. (Figure 1).





The American Journal of Medical Sciences and Pharmaceutical Research
(ISSN – 2689-1026)
VOLUME 05 ISSUE 06 Pages: 24-31
SJIF IMPACT FACTOR (2020: 5. 286) (2021: 5. 64) (2022: 6. 319) (2023: 7. 396)
OCLC – 1121105510
Publisher: The USA Journals

Picture. 1. Anterior abdominal wall view and computed tomography of a 56-year-old patient with postoperative ventral hernia (M2W3R0

Of the comparison group patients (n=84), 37 (44.1%) underwent hernioalloplasty using tensioned techniques and 47 (55.9%) patients using non-tensioned techniques.

In the main group, the choice of hernioplasty was differentiated. For this, the criteria for choosing the hernioplasty method in patients with postoperative ventral hernia have been developed (Certificate of state registration of the program for EHM No. DGU 20325, Intellectual Property Agency of the Republic of Uzbekistan - 2022).

According to the results of the program, the following operations were performed on patients of the main group (table 1).

1-table

Types of performed hernioalloplasty in the main group

Group	Types of operation	Number	%
1	Laparoscopic hernioalloplasty (IPOM) 49 30.4	49	30,4
2	"onlay" hernioalloplasty with pre-stitching of the hernia defect 41 25.5	41	25,5
3	Hernioalloplasty without suturing the hernia defect in the "onlay" method (implantation of the endoprosthesis with P-shaped sutures) 57 35.4	57	35,4
4	Hernioalloplasty by the combined "onlay + sublay" method without suturing the hernia defect 14 8.7	14	8,7
	Total	161	100

Laparoscopic hernioalloplasty was performed on patients with a total score of up to 5 and hernia protrusion of up to 5% of the abdominal cavity according to CT data. Hernioalloplasty was performed in the "onlay" method with initial suturing of the defect in the presence of hernia protrusion up to 5 points and 5.1% - 14% of the volume of the abdominal cavity, as well as in the presence of technical difficulties of laparoscopic surgery.

We used laparoscopic prosthetic hernioalloplasty by the IPOM method in 49 patients with small and medium-sized postoperative ventral hernias (W1, W2), the size of the aponeurosis defect was up to 5 cm and from 5 to 10 cm, respectively. Depending on the type of implant, the following surgical operations were performed in the main group of patients. 37 (75.5%) patients underwent laparoscopic prosthetic hernioplasty, standard-type polypropylene implants were used. 12 (24.5%) and in the patient, "Physiomesh" or "Prosid" (Ethicon) composite type implants were used.

The American Journal of Medical Sciences and Pharmaceutical Research
(ISSN – 2689-1026)
VOLUME 05 ISSUE 06 Pages: 24-31
SJIF IMPACT FACTOR (2020: 5. 286) (2021: 5. 64) (2022: 6. 319) (2023: 7. 396)
OCLC – 1121105510
Publisher: The USA Journals

Before inserting the implant into the abdominal cavity, the patient's peritoneum was opened, the hernial sac was separated and a "pocket" was created in the preperitoneal space, 5-6 cm along the perimeter of the hernial opening. A coiled mesh implant was then inserted through the trocar into the abdominal cavity, opened, and placed in the preperitoneal "pocket" that had been created. The implant was attached to the anterior wall of the abdomen with the help of ligatures attached to the edge of the implant. Suturing the implant to the anterior abdominal wall was performed using extracorporeal sutures using a modified Endo Close needle by us. (Figure 2).

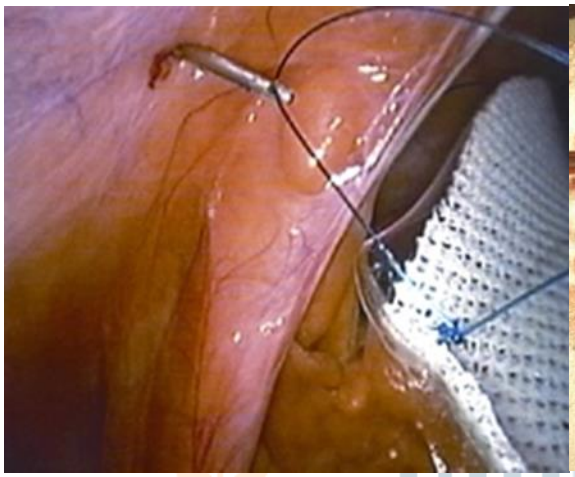


Fig 2. Sutures are fixed to the front wall of the carina using a modified Endo Close needle

Fig. 3. Fixation of the endoprosthesis in the "Sublay" method to the anterior wall of the abdomen with the help of pre-placed P-shaped sutures

In 12 (26.7%) patients, the use of "Physiomesh" or "Prosid" (Ethicon) composite mesh implants did not require the creation of a preperitoneal "pocket" when fixing the prosthesis to the anterior abdominal wall.

At the same time, 41 patients with a total score of up to 5, as well as when the size of the hernia protrusion according to the CT data was up to 14% of the volume of the abdominal cavity, the hernia defect was sutured and endoprosthesis implantation was performed in the "onlay" method. At the same time, in 6 patients, this type of operation was continued as a conversion during laparoscopic hernioalloplasty.

Taking into account CT data with 6 to 10 points and hernia protrusion of more than 14.1% of abdominal volume, we performed "onlay" hernioplasty without suturing the hernia defect with endoprosthesis implantation with P-shaped sutures in 57 patients. To increase the volume of the abdominal cavity, to prevent the development of abdominal compression syndrome (CSS), plastic surgery was performed on the anterior abdominal wall by placing a mesh sutured to the aponeurosis, after delimiting the abdominal cavity with a hernia sac sheet. The endoprosthesis was fixed with P-shaped sutures. Before closing the abdominal cavity with a sheet of the hernia bag, these sutures are

The American Journal of Medical Sciences and Pharmaceutical Research
(ISSN – 2689-1026)
VOLUME 05 ISSUE 06 Pages: 24-31
SJIF IMPACT FACTOR (2020: 5. 286) (2021: 5. 64) (2022: 6. 319) (2023: 7. 396)
OCLC – 1121105510
Publisher: The USA Journals

applied in all layers of the muscle aponeurotic wall up to the peritoneum (Fig. 3).

In 14 (17.9%) patients in the main group, in which the hernia defect was larger than 10 cm and the size of the hernia protrusion was more than 18% of the volume of the abdominal cavity according to the CT data, the combined non-tensioned hernioplasty was performed by the "onlay + sublay" method, that is, the abdominal cavity after limiting the hernial sac with a sheet, one implant was placed behind the muscle-aponeurotic layer, and the second implant was placed above the aponeurosis. Then, the endoprosthesis was placed in the "sublay" method, P-shaped sutures with which the endoprosthesis was previously sewn were passed through all layers above the aponeurosis, and the second endoprosthesis was fixed to these sutures in the "onlay" method. Knotted sutures were also placed between the endoprostheses and an artificial "white line" of the anterior abdominal wall was created. The special importance of this method is the anatomical and physiological reconstruction of the front wall of the abdomen, as well as the white line of the newly created abdomen. The use of this method in the clinic gave a good functional result.

Based on a comparative analysis of the effectiveness of the recommended tactical and technical aspects in postoperative ventral hernias, an algorithm of criteria for the selection of the hernioalloaloplasty method was developed.

Results and discussion

In the compared groups, the following indicators were used as the main criteria for evaluating the effectiveness of the treatment results of patients with ventral hernia: early postoperative abdominal complications, extra-abdominal complications, and wound complications.

In 241 (98.3%) patients, normal function of the gastrointestinal tract was preserved after surgery, only 4 (1.6%) patients, intestinal paresis in 2 patients in each of the research groups and 2 (2.4%) in the comparison group patient and 2 (1.2%) patients from the main group had urinary retention. Bronchopulmonary complications were noted in 3 (3.6%) and 4 (2.2%) patients in the control group and the main group, respectively. The development of QSS (compartment syndrome) occurred in 2 (2.4%) patients of the comparison group, the patients required long-term artificial mechanical ventilation, which was successfully eliminated conservatively. Cardiovascular complications were observed in 2 (2.4%) patients in the comparison group. Respiratory and cardiovascular complications were associated with abdominal compression due to tension hernioalloplasty.

Among the wound complications, postoperative hematomas occurred in 2 (2.4%) and 1 (0.6%) cases in the comparison group, seromas in 2 (2.4%) and 3 (1.8%) patients, 3 lymphorrhea was noted in 1 (1.2%) patients. Patients had wound suppuration in 1 (1.2%) patient in the comparison group and skin necrosis in 2 (2.4%) and 1 (1%) patients in the comparison group and 1 case, respectively (0.6 % of cases) was observed. It should be noted that one patient in the comparison group had, on average, 2-3 complications in the form of combined bronchopulmonary and cardiovascular complications with wound complications. Overall, 10 (11.9%) patients in the comparison group had various complications, including 9 (10.7%) wound complications and 10 (11.9%) general extra-abdominal complications.

In the main group, 7 (4.3%) patients had various complications, 6 (3.7%) had wound complications, and 8 (4.9%) had general complications. According to the comparative sign of the number of complications, a

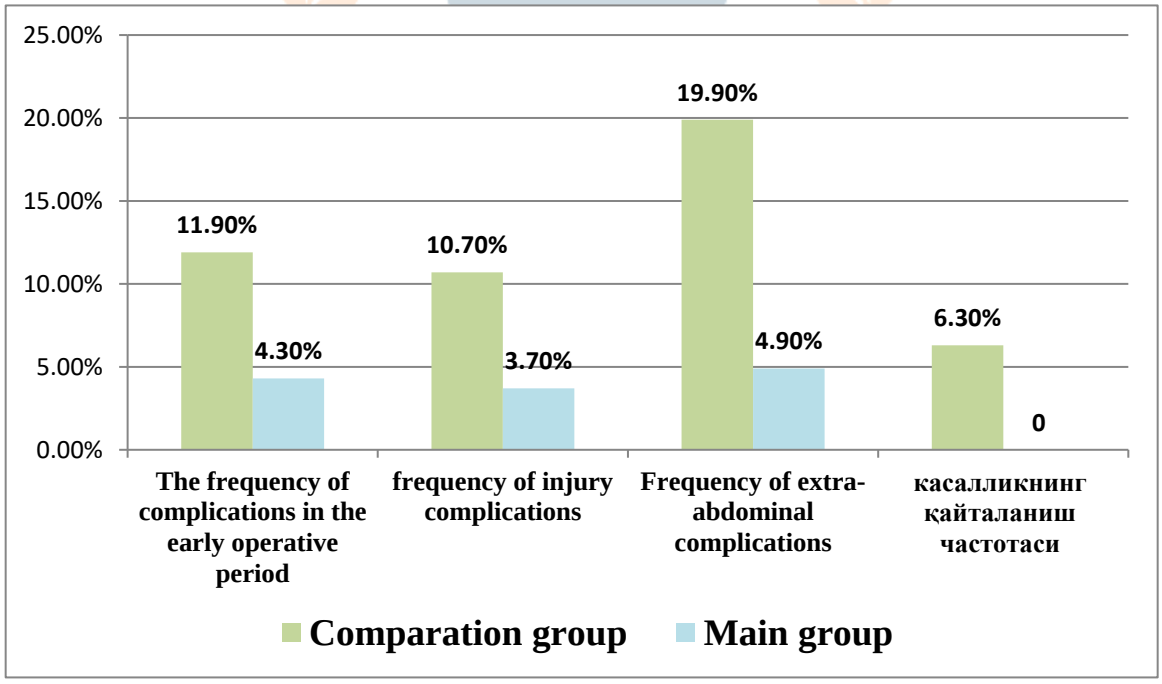
The American Journal of Medical Sciences and Pharmaceutical Research
(ISSN – 2689-1026)
VOLUME 05 ISSUE 06 Pages: 24-31
SJIF IMPACT FACTOR (2020: 5. 286) (2021: 5. 64) (2022: 6. 319) (2023: 7. 396)
OCLC – 1121105510
Publisher: The USA Journals

significant improvement was achieved in the main group ($\chi 2$ =4.043; Δf=1; r=0.045).

The dynamics of intra-abdominal pressure levels were measured during the treatment stages. Based on the obtained data, a systematic change of intra-abdominal pressure indicators was determined in the direction of their increase during the operative stages, which is related to the immersion of the hernia contents and hernioplasty using the tension method. Performance of non-tensioned hernioplasty with implantation of endoprosthesis with P-shaped sutures - the combined method of "onlay + sublay" without suturing the suture and defect applied to 71 patients in the main group allowed to prevent an increase in intra-abdominal pressure.

Thus, the use of the algorithm in the surgical treatment of patients with postoperative ventral hernia, taking into account the criteria for choosing a plastic method, made it possible to reduce the total frequency of postoperative complications from 11.9% to 4.3% (p= 0.045), including wound complications 10, From 7% to 3.7% and extra-abdominal from 19.1% to 4.9%, it also significantly reduced the duration of surgical treatment, rehabilitation periods and the total length of hospital treatment after various hernioplasty options.

Long-term results from 1 to 5 years were analyzed in 187 of 245 patients (75.9%). Recurrence of ventral hernia was noted in 5 (6.3%) patients only in the comparison group (Figure 4).



Picture. 4. The frequency of complications in the postoperative and late period in the compared groups

According to the developed program for determining the quality of life of patients, 187 (90.8%) patients observed in the late postoperative period were evaluated. Of these, 79 were from the comparison group, and 119 were from the main group.

The American Journal of Medical Sciences and Pharmaceutical Research (ISSN – 2689-1026)
VOLUME 05 ISSUE 06 Pages: 24-31
SJIF IMPACT FACTOR (2020: 5. 286) (2021: 5. 64) (2022: 6. 319) (2023: 7. 396)
OCLC – 1121105510
Publisher: The USA Journals

In the comparison group, 30.5% of patients had excellent results, 47.2% had good results, 13.9% had satisfactory results, and 8.3% had unsatisfactory results. On the other hand, in the main group, 54.9% of patients had excellent results, 37.2% of patients had good results, 5.9% had satisfactory results, and only 1.9% had unsatisfactory results.

Thus, the conducted research made it possible to draw the following conclusions. In patients with postoperative ventral hernia, the proposed algorithm based on the criteria for selecting the hernioalloplasty method allowed to reduce postoperative complications from 11.9% to 4.3% (n = 0.045). Improvement of the technical aspects of performing non-tensioned methods of hernioalloplasty using the "onlay" method of endoprosthesis implantation using P-shaped sutures and the combined "onlay + sublay" methods reduced the recurrence of the disease and improved the quality indicator. The percentage of excellent and good long-term results increased from 77.7% to 92.1% and reduced from 8.3% to 1.9% of poor results (p = 0.030).

CONCLUSION

1. The method of hernialoplasty in postoperative ventral hernias should be determined, the size of the defect of the front wall of the cornea and the ratio of the size of the hernia to the size of the cornea should be based on the data of computer tomography.

2. Improvement of the technical aspects of endoprosthesis fixation with ventral hernias after IPOM method laparoscopic hernioaloplasty of small and upper (W1-W2) operation greatly simplified the technique of performing the operation and reduced its total volume.

3. Optimizing the tactical and technical aspects of the "onlau" technique and the combined "onlay + sublay" joint endoprosthesis implantation in the area of previously installed II-sion sutures. made it possible to reduce the development of compartment syndrome and recurrence of the disease in large and giant (W3-W4) size hernias after surgery.

4. Based on the selection criteria of the hernioalloplasty method, the recommended algorithm for the treatment of patients with ventral hernia after surgery reduced the frequency of postoperative complications from 11.9% to 4.3%, the compartment syndrome did not develop, and the recurrence of the disease was reduced (main 2.4% and 6.3% respectively in the group and in the comparison group).

REFERENCES

1. Kalish Yu. I. i dr. Recurrent hernias after prosthetic plasticity "Obzor literatury" // Chirurg. – 2015. – no. 10. – S. 52-60.
2. Kulikova N. A. Preventive endoprosthesis of anterior abdominal wall after middle laparotomy // Operative surgery and clinical anatomy. - 2018. - T. 2. – no. 3. - S. 38-45.
3. World Health Organization. Hernia: fact sheet no. 199. World Health Organization website. 2017. www.who.. Int/iris/handle/10589/1111189.
4. Magerramov D.M., Medeubekov U.Sh. Surgical correction of deformation of the anterior abdominal cavity. Reality and perspective (obzor literatury) //Vestnik khirurgii Kazakhstan. – 2017. – no. 1 (50).
5. Mukhtarov Z. M., Malkov I. S., Alyshev O. T. Prophylaxis of ranevyx posleoperatsionnyx oslojneniy and bolnyx with posleoperatsionnymi ventralnymi gryjami //Prakticheskaya meditsina. – 2014. – no. 5 (81).

The American Journal of Medical Sciences and Pharmaceutical Research (ISSN – 2689-1026)
VOLUME 05 ISSUE 06 Pages: 24-31
SJIF IMPACT FACTOR (2020: 5. 286) (2021: 5. 64) (2022: 6. 319) (2023: 7. 396)
OCLC – 1121105510
Publisher: The USA Journals

6. Teshaev O. R., Khaitov I. B. Experimental modeling of herniated anterior abdominal wall with abdomino-visceral hernia //Journal of theoretical and clinical medicine. – 2016. – no. 4. – S. 23-25.
7. Baylon K. et al. Past, present and future of surgical meshes: a review //Membranes. - 2017. - T. 7. – no. 3. - S. 47.
8. Berrevoet F. et al. A multicenter prospective study of patients undergoing open ventral hernia repair with intraperitoneal positioning using the monofilament polyester composite ventral patch: interim results of the PANACEA study //Medical devices (Auckland, NZ). - 2017. - T. 10. – S. 81.
9. Elstner K. E. et al. Preoperative progressive pneumoperitoneum complementing chemical component relaxation in complex ventral hernia repair //Surgical endoscopy. - 2017. - T. 31. – no. 4. – S. 1914-1922.