ANALYSIS OF SURGICAL TREATMENT OF VENTRAL HERNIA FOR PATIENTS WITH OBESITY

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Abstract

The 65 patients with ventral hernia suffering obesity were examined. As a result of research the used methods of hernioplasty and complications in the early postoperative period were determined. The further results of surgical treatment were observed. The obtained data prove that application of non-tension methods of hernioplasty reduces the percent of complications and recurrences of hernia.

Keywords: Ventral hernia, alloplastica

Relevance

In our time the obesity is widespread problem and it has a tendency to increase. [1, 2]. Obesity is not only primary cause of such serious therapeutic diseases, as arterial hypertension, ischemic heart disease, diabetes mellitus of II type, hormonal disorders, which considerably increase the risk of premature death [3,4,5,6], but also it contributes to the appearance of ventral hernia, both as primary as after different interventions on the organs of abdominal cavity[7,8,9]. As a rule, such contingent of patients presents certain complication for surgeons due to serious concomitant diseases, probable forthcoming technical difficulties during the operation, and high risk of development of complications in postoperative period.The problem of choice of rational method in surgical treatment of hernia of anterior abdominal wall is always actual, because development and application of more than 400 operative methods do not exclude the recurrence of hernia and postoperative complications [10,11,12,13]. In spite of introduction of new surgical technologies in clinical practice frequency of recurrences at use of autoplastic methods in treatment of postoperative ventral hernia exceeds 25% [14,15]. The quantity of recurrences is more considerable at extensive and giant hernia of anterior abdominal wall [16,17,18] . It is equal to64%.
The most effective methods are with use of non-tension technologies of closure of hernia' gate that decrease the recurrence of disease considerably. The introduction of polypropylene reticular endoprosthesis to the clinical practice promotes wide application of these operations. Last years the modern chemical industry produces synthetic prosthesis that possess large durability and biological inertness.

The present existing variety of surgical schools, methodologies of hernioplasty and increase of quantity of patients with obesity demand the necessity of systematization and correct assessment of available knowledge on this issue. It is necessary to reveal the features of surgical treatment of hernia for these patients, to develop optimal non-relapsed surgical method, to determine possible complications in a postoperative period, to work out preventive measures for them, providing success of operation, and strengthening the belief of patient in recovery and in possibility to improve quality of life. So, we conducted the analysis of operative treatment of patients with ventral hernia suffering from obesity.

Material and methods

In the surgical department of Regional Hospital the name of G.Sultanov Pavlodar during one year there was 65 patients with postoperative ventral hernia suffering obesity of different degree. For making a diagnosis we used the classification of ventral hernia (VH) of Chevrel - Rath (SWR - classification) (Chevrel J. and Rath A., 1999). It is based on determination of three basic parameters of hernia : anatomic localization on abdominal wall – middle (M) : M1 – supra umbilical, M2 - paraumbilical, M3 -sub umbilical, M4 - in the area of xiphoid process or bosom; lateral (L) : L1 - subcostal, L2 - transversal, L3 - iliac, L4 - lumbar; width of hernia gate (W) : W1 is till 5 cm (hernia of small sizes), W2 is 5-10 cm (hernia of middle sizes), W3 is 10-15 cm (hernia of large sizes), W4 is more than 15 cm (giant hernia); presence and quantity of hernia relapses after repair (R) : R0, R1, R2, R3 etc. Dimensions of hernia gate (HG) in patients with reducible hernia were defined clinically, with irreducible hernia - on ultrasound investigation, the final size of GW was installed in surgery. All the patients were determined on the presence of obesity due to body mass index (BMI), according to the WHO recommendations (Adolphe Quetelet, 1869) The International Classification of adult underweight, overweight and obesity according to BMI) and other comorbidities .

Method of treatment

The patients were performed herniotomy on traditional way, and closure of hernia gate was conducted by one of two methods: autoplasty or alloplasty with reticular endoprosthesis. Depending on the state of hernia gate there is an alloplasty with reticular endoprosthesis by one of three variants: "Onlay" method, when the hernia gate is closed the edge to the edge, and the net is sew above it on 2-3 cm for the line of sutures on aponeurosis. The "Inlay" plasty (method of patch), at that joining of edges of hernia gate was not conducted, and the last was closed from above by the net going on 2-3 cm from the edges of defect. The net was also fixated to aponeurosis by interrupted suture. The "Sublay" method includes subgaleal location of explant with the subsequent joining of hernial gate by edge to edge on it. Subgaleal plasty prevents contact between the net and intestinal loops. In the basis of autoplastic closure of hernia gate there is a formation of longitudinal or transversal musculo-aponeurotic dublication. After discharge, the survey was conducted after 1, 6, 12 months.

Research methods

We used clinical methods, hardware and tool methods, sociological methods and statistical methods.

Results of the study

Among 65 patients with postoperative ventral hernias suffering obesity were hospitalized - 39 (60 %) patients routinely, by urgency - 26 (40 %) patients. Age of patients ranged from 29 to 79 years, the average age was 56,06 ± 3,4 years . There were operated: 11 men(17 %) patients, 54 women (83%). Duration of illness at patients ranged from 3 months to 10 years. 41 (63%) patients had concomitant diseases: of cardiovascular system - in 28 (43 %) patients, chronic obstructive pulmonary disease in 5 (7,6%) patients, a disease of the gastrointestinal tract in 3 (4,6 %) patients , diabetes mellitus was in 5 (7,6 %) patients.

According to the classification, the median hernias (M) were observed in 51 (78,4 %) patients: M1 - in 8 (15,6 %) patients , M2 - in 30 (58,8 %) patients , M3 – in 14 (27,4) patients, M4 - in 8 (15,6 %) patients , lateral (L) - 14 (21,5%) patients. The width of hernial gate was in borders at W1- 8 (12,3%) patients, W2 - in 36 (55,3 %) patients , W3- 13 (20 %) patients , W4 - in 7 (10,7%) patients. Recurrent hernias were observed: R0 - 56 (86,1 %) patients , R1 - 4 (6,1%) patients, R2 - 3 (4,6 %) patients , R3 in 2 (3,07 %) patients.

According to the BMI indexes the patients were divided on the degree of obesity into 4 groups: I degree of obesity found in 14 (21,5%) patients, II degree of obesity in 34 (52,3 %) patients, III degree of obesity in 14 (21,5 %) patients, IV degree of obesity 3 (4,6%).
In 52% (34 persons) of cases the alloplasty of hernial gate using polypropylene reticular prosthesis was performed, and in 48% (31 persons) cases the autoplasty was made. In alloplasty 18 (27,7 %) patients were operated by the «Onlay» method, 6 (9,2%) patients by «Inlay» way,10 (15,4%) patients were used «Sublay». Distribution of the performed operations is represented in Table 1.

Table 1. Distribution of conducted operations in groups

№	Obesity n=65	Types of plasty							
		Autoplasty n=31		Alloplasty n=34					
				«Onlay»		«Inlay»		«Sublay»	
		n	%	n	%	n	%	n	%
1	I degree n=14	12	18,5	2	3,1	-	-	-	-
2	II degree n=34	12	18,5	14	21,5	-	-	8	12,3
3	III degree n=14	7	10,8	-	-	3	4,6	4	6,2
4	IV degree n=3	-	-	-	-	3	4,6	-	-
	Total:	31	48	16	24,6	6	9,2	12	18,5

The data presented in Table 1 shows, that patients with ventral hernias and obesity I degree were mainly performed autoplasty of hernial gate (85,7% cases from I degree obese patients), obese patients II degree - alloplasty with net endoprosthesis (64,7% cases from II degree obese patients), in patients with III degree of obesity- 50% of cases (from obese patients of III degree.) was carried out as autoplasty as alloplasty, and to patients with obesity of IV degree in 100% of cases the alloplasty of hernial gate was made.

After surgery, complications were observed in 16,9% of cases, of which 8 (12,3%) patients after hernial autoplasty (suppuration of surgical wounds in 3 patients, postoperative scar infiltrate - 5 patients) and in 3 (4,6%) patients after alloplasty net endoprosthesis (development of seroma). Data are presented in Table 2.

Table 2. Distribution of early postoperative complications after operations

№	Obesity n=65	Types of plasty							
		Autoplasty n=31		Alloplasty n=34					
				«Onlay»		«Inlay»		«Sublay»	
		n	%	n	%	n	%	n	%
1	I degree n=14	2	3,08	-	-	-	-	-	-
2	II degree n=34	2	3,08	-	-	-	-	-	-
3	III degree n=14	4	6,15	-	-	-	-	-	-
4	IV degree n=3	-	-	-	-	3	4,6	-	-
	Total:	8	12,3	-	-	3	4,6	-	-

From Table 2, we can see, that the largest number of complications observed in patients with third and fourth degree of obesity.
In the study of long-term results after conducted operations a recurrence was observed in 3,1% (2 persons) cases after autoplasty and 1,5% (1 person) after alloplasty cases (Table 3).

Table 3. Frequency of relapse after autoplasty and usage of net for hernia of anterior abdominal wall

Period	Types of plastics			
	Autoplasty n=31		Alloplasty n=34	
	n	%	n	%
1 month	-	-	-	-
6 months	-	-	1	1,5
12 months	2	3,1	-	-

In assigning the groups found that recurrent hernias were observed in patients with obesity-second (1 person) and third degree (1 person) after autoplastic operations. After alloplasty by «Inlay» method one case of recurrence in patients with fourth degree obesity was observed (Table 4).

Table 4. Distribution of hernia recurrences after surgery

№	Obesity n=65	Types of plastics							
		Autoplasty n=31		Alloplasty n=34					
				«Onlay»		«Inlay»		«Sublay»	
		n	%	n	%	n	%	n	%
1	I degree n=14			-	-	-	-	-	-
2	II degree n=34	1	1,5	-	-	-	-	-	-
3	III degree n=14	1	1,5	-	-	-	-	-	-
4	IV degree n=3			-	-	1	1,5	-	-
	Total:	2	3	-	-	1	1,5	-	-

Discussion of results

The study found that most complications were observed in postoperative period in the patients with ventral hernias after autoplasty. Development of purulent wound complications at the use of tension technology we associate with impaired microcirculation, and the presence of obesity exacerbate these disorders in the tissues. The use of polypropylene nets at patients with ventral hernias suffering obesity defined that the application of explants allows tj sew tissues without significant tension, that prevents the violations in microcirculation, providing optimal conditions for the wound healing. The only disadvantage of implants usage is slowly liquidating seroma. At the present time the alloplasty should be regarded as an operation of choice in the treatment of postoperative ventral hernias. In patients with large and giant hernias closure of hernial defect is possible only when you commit explant «Onlay» or «Inlay» + «Onlay», whereby additional pockets are formed , which leads to the formation of hematomas, lymphorrhagia[14 20].

Conclusion

Thus, the introduction in practice of new technologies and materials significantly reduced the number of relapses and complications of abdominal wall plastics in patients with ventral hernias, obese. Decision of this problem is especially important for general surgical hospital district hospitals, which are the main element in the provision of surgical care to patients with hernias of the abdominal wall, and allow making a differential selection of hernioplasty method.

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