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RISK FACTORS FOR THE DEVELOPMENT OF WOUND COMPLICATIONS DURING OPERATIONS FOR STRANGULATED VENTRAL HERNIAS

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ANNOTATION
Relevance. With modern allohernioplasty is the prevention of the development of wound complications. Target. determination of the microbial flora and the degree of contamination of the wound in patients with strangulated ventral hernias. Materials. The authors analyze the analysis of the results of culture in the studied samples of clinical material in 34 patients intraoperatively from the wound after the stage of allohernioplasty and from the drainage discharge in the postoperative period. Results. The results obtained during the study made it possible to choose the most appropriate scheme of systemic antibiotic therapy for patients with strangulated ventral hernias of the anterior abdominal wall, namely, the use of inhibitor-protected cephalosporins on the first day with subsequent transfer to fluoroquinolones. Conclusion. The authors conclude that the average sensitivity to antibacterial drugs when sowing from the surgical wound reached 93.7±2.4%, while in dynamics this indicator significantly decreased to 80.6±5.3% ($t=2.26$; $p<0.05$), which is associated with the development of strain resistance to the selected therapy.

Keywords: Hernia, postoperative, strangulated, bacterium.

In the course of this study, in the comparison group, an analysis of the frequency of wound pyoinflammatory complications was also carried out, followed by verification of risk factors for their development. Thus, the frequency of local complications (seroma, suppuration of the wound, prolonged intake of exudate) according to the culture of the studied samples was 20.0% - 3 out of 15 cases with the growth of microorganisms. Among patients without detected growth (n=19), only 1 (5.3%) case had a long-term flow of exudate through the drains (Table 1).

Table 1 The frequency of local complications in the comparison group with the studied microbial landscape on days 3-5 (n=34)

Seeded flora	No growth (n=19)		With growth (n=15)	
	abs.	%	abs.	%
Seroma	1	5,3%	1	6,7%
Suppuration of the wound	0	0,0%	1	6,7%
Prolonged intake of p / o exudate	0	0,0%	1	6,7%
Total	1	5,3%	3	20,0%

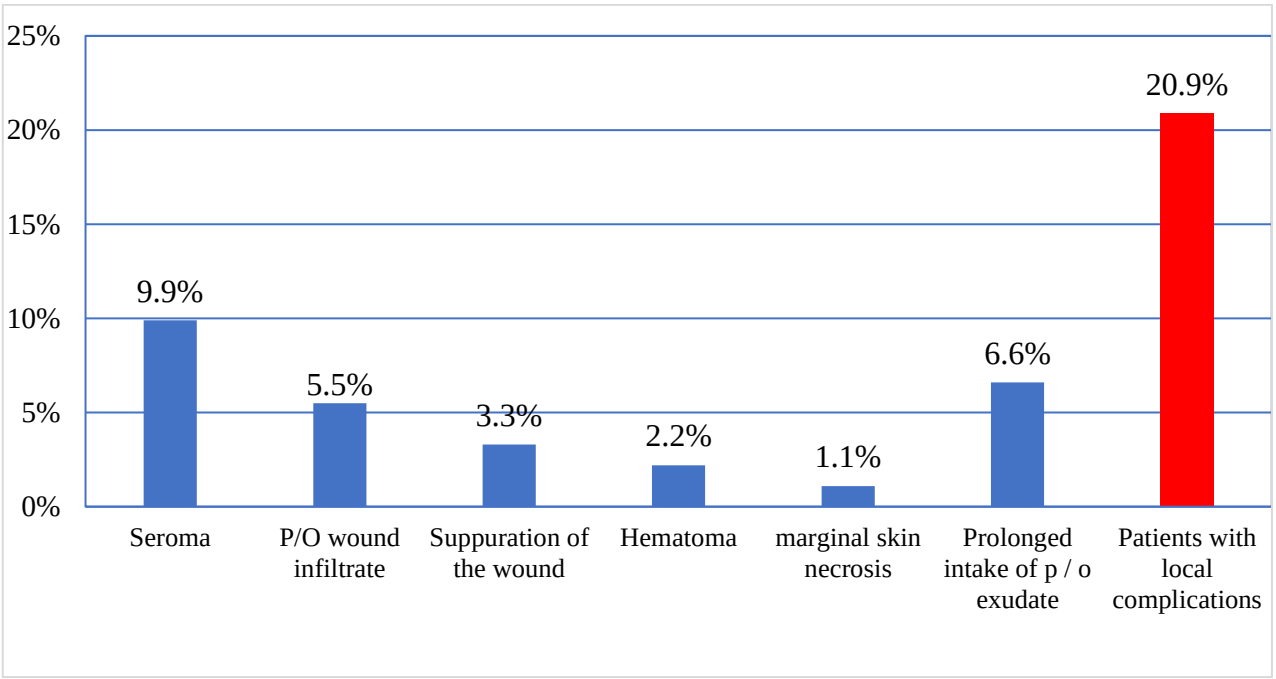
Among the local complications in the comparison group (n=91), long-term inflow of exudate (6.6%), seroma (5.5%) and infiltration of the surgical wound were most often noted before removal of the drainage. (5,5%).

Table 2 Frequency of local complications in the comparison group (n=34)

Complication	Complication defined			
	before drain removal after drain removal		before drain removal after drain removal	
	абс.	%	абс.	%
Seroma	5	5,5%	4	4,4%
P/O wound infiltrate	5	5,5%	0	0,0%
Suppuration of the wound	0	0,0%	3	3,3%
Hematoma	1	1,1%	1	1,1%
marginal skin necrosis	0	0,0%	1	1,1%
Prolonged intake of p / o exudate	6	6,6%	0	0,0%

At the same time, after removal of the drainage, suppuration of the wound was observed in 3 (3.3%) cases, in 1 (1.1%) case, marginal skin necrosis, which was not noted before removal of the drainage; seroma occurred in 4 (4.4%) cases (Table 2).

From fig. 3.3 shows that the probability of developing local complications associated with inadequate drainage of the postoperative wound or inflammation was 20.9% (19 out of 91). At the same time, seromas accounted for 9.9% (9 of 91), followed by prolonged drainage (6.6%) and infiltration in the surgical wound (5.5%) in frequency.



Rice. 1 Probability of development of local complications associated with inadequate drainage of the postoperative wound or inflammatory process

The accumulation of fluid in the area of the postoperative wound is most often associated with inadequate drainage, especially in cases where "blind" (non-drainable) zones remain after drainage. According to ultrasound data, out of 9 patients with seromas, such zones were found in 4 patients, and

in all patients a prosthesis of the maximum size was used due to a large hernial defect (more than 15 cm). As a rule, due to the installed drainage, fluid accumulations were not observed at a distance of 5-8 cm on both sides of the tube. Accordingly, when draining the area of allohernioplasty, this feature must be taken into account, since limited drainage already in the early period after surgery may result in the development of seromas or hematomas. For the same reason, the risk of developing suppuration of the wound increases, especially with prolonged presence of seromas in conditions of microbial contamination of the wound.

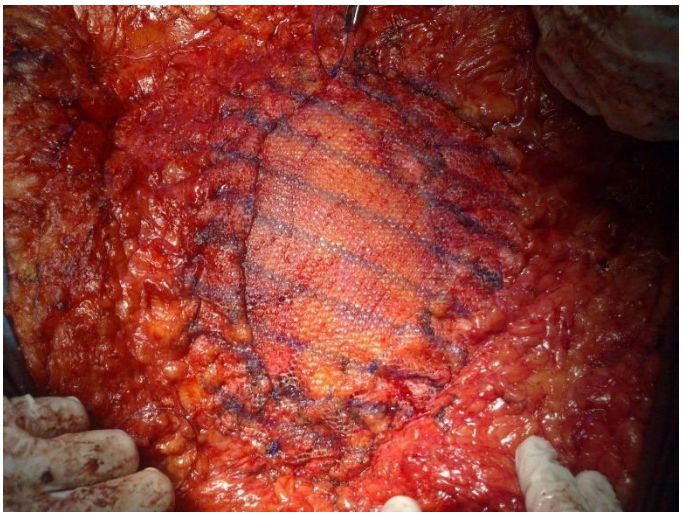
The inflammatory process in the wound area can affect the formation of an infiltrate (together with the surgical trauma) and the long-term flow of serous discharge through the drains. This factor is also directly related to microbial contamination. Therefore, cases with the formation of seromas or hematomas (11 complications - 12.1%) can be attributed to inadequate drainage, and infiltrates, suppuration, marginal necrosis and prolonged exudation (15 complications - 16.5%) can be attributed to the inflammatory etiology of complications. Thus, in order to improve the results of surgical treatment of patients with strangulated ventral hernias, when performing allohernioplasty, it is necessary to take into account such preventive measures as adequate drainage and the state of the microbial landscape in the area of the surgical wound. Another factor is the prevention of systemic postoperative complications characteristic of urgent herniology. In particular, respiratory and cardiovascular complications.

We present clinical examples of the complicated course of the postoperative period in the comparison group.

Clinical example 1. Patient A., 46 years old, was operated on in April 2018 for a postoperative ventral hernia complicated by strangulation.

The operation was performed Herniotomy, resection of the loop of the small intestine, prosthetics "onlay" without suturing the defect of the aponeurosis (Pic. 1).

In the early postoperative period after extubation, the patient has respiratory failure, respiratory rate up to 35 per minute, a decrease in saturation to 85%, hemodynamic disorders with a tendency to hypertension and tachycardia. Respiratory disorders were due to an increase in intra-abdominal pressure up to 20 mm Hg. Art. and inadequate analgesia. The patient has a history of ischemic heart disease, arrhythmic form. The patient was consulted by a cardiologist, appropriate therapy was prescribed.



Picture. 2. Stage of allohernioplasty

The increase in respiratory failure required re-intubation of the trachea and transfer to mechanical ventilation. A day later, the patient was extubated after stabilization of respiratory and hemodynamic parameters. To stimulate the intestines, prokinetics were prescribed; on the 3rd day after the operation, it was decided to perform epidural analgesia. Non-steroidal analgesics were also added to the anesthesia puncture. Also, the patient had a long flow of exudate, which required increased antibiotic therapy and prolonged drainage.

The hospital period was 9 days. The patient was discharged in a satisfactory condition.

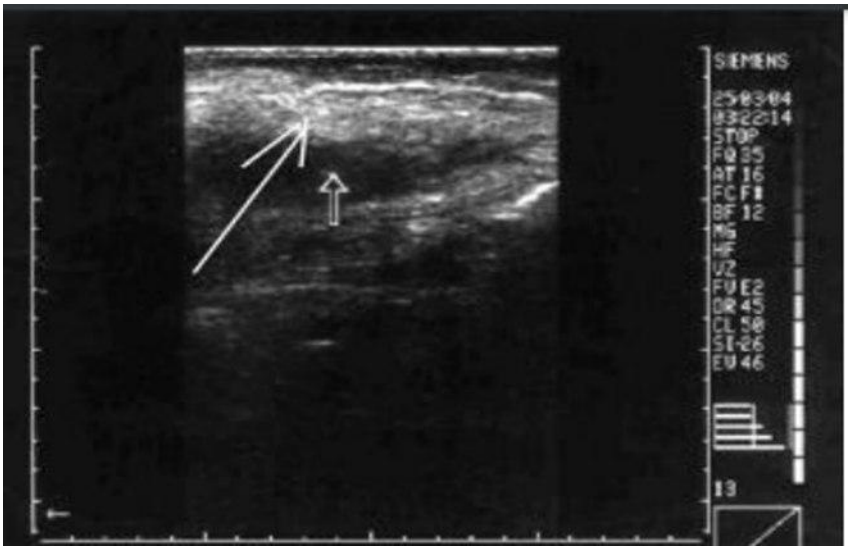
Clinical example 2. Patient N., 52 years old, was operated on in May 2017 for a postoperative ventral hernia complicated by strangulation (Pict. 3).

Picture. 3. Patient N., 52 years old, with postoperative ventral hernia complicated by strangulation

The operation was performed Herniotomy, resection of the strand of the greater omentum, onlay prosthetics with suturing of the aponeurosis defect (Pict. 4).

Picture. 4. Stage of allohernioplasty

In the early postoperative period, the patient had wound complications in the form of seroma (confirmed by ultrasound, Pict. 5) and prolonged exudation, which required prolonged drainage.



Picture. 5. Ultrasound picture of the seroma of the postoperative wound

Hyperthermia up to 38.5°C was also noted, which required the use of systemic antibiotics and an antifungal drug with the achievement of normothermia on the 4th day after surgery.
The hospital period was 10 days.
Thus, in order to improve the results of surgical treatment of patients with strangulated ventral hernias, when performing allohernioplasty, it is necessary to take into account such preventive measures as adequate drainage and the state of the microbial landscape in the area of the surgical wound, which will allow influencing the main links in the pathogenesis of the development of specific wound complications, in turn, optimization postoperative rehabilitation program will ensure a reduction in the frequency of systemic complications.

Literature

1. Bacterial contamination of the surgical wound in patients with strangulated postoperative ventral hernias. Samarkand medical university biology and medicine 2021-y Abdullajanov B.R., Isakov P.M
2. Features of prevention of wound complications in alloplasty of incarcerated incisional ventral hernias. Abdullajanov B.R., Babadjanov A.Kh., Nishanov M.F., Isakov P.M. Bulletin of the Tashkent Medical Academy 2021-y 1.101-105/P
3. Rosen MJ. Atlas of abdominal wall reconstruction. Philidelphia: Elsevier; 2012.
4. Rothman JP, Gunnarsson U, Bisgaard T. Abdominal binders may reduce pain and improve physical function after major abdominal surgery—a systematic review. Dan Med J 2014 Nov 6;61(11):A4941.
5. Sanchez VM, Abi-Haidar YE, Itani KMF. Mesh infection in ventral incisional hernia repair: incidence, contributing factors, and treatment. Surg Infect (Larchmt) 2011;12:205-10.
6. Sbitany H, Kwon E, Chern H, Finlayson E, Varma MG, Hansen SL. Outcomes Analysis of Biologic Mesh Use for Abdominal Wall Reconstruction in Clean-Contaminated and Contaminated Ventral Hernia Repair. Ann Plast Surg. 2015;75(2):201-4.

7. Szczerba SR, Dumanian GA. Definitive surgical treatment of infected or exposed ventral hernia mesh. Ann Surg 2003;237:437-41.
8. Saulis AS, Dumanian GA. Periumbilical rectus abdominis perforator preservation significantly reduces superficial wound complications in "separation of parts" hernia repairs. Plast Reconstr Surg 2002;109:2275-80.
9. Schecter WP. Management of enterocutaneous fistulas. Surg Clin North Am 2011;91:481-91.
10. Sood A, Kotamarti VS, Therattil PJ, Lee ES. Sclerotherapy for the management of seromas: a systematic review. Eplasty 2017;17:e25.
11. Townsend CM Jr, Beauchamp RD, Evers BM, Mattox KL. Sabiston textbook of surgery: The biological basis of modern surgical practice. 19th ed. Philadelphia, PA: Elsevier Saunders; 2012.
12. Warren JA, McGrath SP, Hale AL, Ewing JA, Carbonell AM, et al. Patterns of recurrence and mechanisms of failure after open ventral hernia repair with mesh. Am Surg 2017;83:1275-82.
13. Weyhe D, Cobb W, Lecuivre J, Alves A, Ladet S, et al. Large pore size and controlled mesh elongation are relevant predictors for mesh integration quality and low shrinkage - systematic analysis of key parameters of meshes in a novel minipig hernia model. Int J Surg 2015;22:46-53.
14. Wolf LL, Scott JW, Zogg CK, et al. Predictors of emergency ventral hernia repair: targets to improve patient access and guide patient selection for elective repair. Surgery (United States). 2016. 1379–1391.
15. World Health Organization. Geneva: World Health Organization; 2018. Global Guidelines for the Prevention of Surgical Site Infection, 2nd Ed. pp. 10665–277399.