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APPLICATION OF ENDOVIDEOSURGICAL TECHNOLOGIES IN THE TREATMENT OF VENTRAL HERNIATIONS AFTER GUNSHOT WOUNDS OF THE ABDOMEN

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Abstract

Gunshot wounds of the abdomen are often accompanied by a significant destruction of the abdominal cavity with the development of peritonitis, and in the future - various complications (failure of anastomoses, abscess formation, repeated bleeding, etc.), which requires repeated surgical interventions, and as a consequence - the formation of postoperative ventral hernias. The aim of the study is to improve the results of surgical treatment of ventral hernias after gunshot wounds of the abdomen due to the use of laparoscopic techniques. The analysis of treatment of 21 patients with postoperative ventral hernias formed as a result of operations concerning gunshot wounds of the abdomen was carried out. 14 wounded suffered one operation on the abdominal organs in the past (66.7%), 5 - two operations (23.8%), 1 - three operations (4.8%), 1 - five operations (4.8%). The dimensions of the hernial gates and the risk of recurrence were determined according to the SWE classification: W1 - 9 patients (42.9%), W2 - 8 (38.1%), W3 - (9.5%), W4 - 2 (9.5%). The third patients underwent laparoscopic allogernioplasty according to the IROM technique with a Teflon allograft, which

was fixed in 2 cases with the help of a hernostepler, in the 1st - with transdermal separate seams with Teflon filament. Complications after laparoscopic operations were not. The use of laparoscopic techniques can significantly reduce bed-day, avoid the development of abdominal compartment syndrome, previously to activate the patient. Laparoscopic allogernioplasty according to the method of IPOM by the Teflon graft is considered to be the operation of choice.

Key words: ventral hernia; gunshot wounds of the abdomen; endovideosurgical technologies.

Анотація. Вогнепальні поранення живота нерідко супроводжуються значним руйнуванням органів черевної порожнини з розвитком перитоніту, а в подальшому – різноманітних ускладнень (неспроможність анастомозів, формування абсцесів, повторні кровотечі та ін.), що потребує повторних операційних втручань, та як наслідок – формування післяопераційних вентральних гриж. Метою дослідження є покращення результатів хірургічного лікування вентральних гриж після вогнепальних поранень живота завдяки застосуванню лапароскопічних методик. Проведений аналіз лікування 21 пацієнта з післяопераційними вентральними грижами, що утворилися внаслідок проведення операцій з приводу вогнепальних поранень живота. 14 поранених перенесли одну операцію на органах черевної порожнини в минулому (66,7%), 5 – дві операції (23,8%), 1 – три операції (4,8%), 1 – пять операцій (4,8%). Розміри грижових воріт та ступінь ризику рецидивування визначали згідно класифікації SWE: W1 – 9 пацієнтів (42,9%), W2 – 8 (38,1%), W3 – (9,5%), W4 – 2 (9,5%). 3-м пацієнтам була виконана лапароскопічна аллогерніопластика за методикою IPOM тефлоновим аллотрансплантантом, який в 2-х випадках фіксували за допомогою герніостеплера, в 1-му – трансдермальними окремими швами тефлоновою ниттю. Ускладнень після лапароскопічних операцій не було. Застосування лапароскопічних методик дозволяє значно скоротити ліжко-день, уникнути розвитку абдомінального компартмент-синдрому, раніше активізувати пацієнта. Лапароскопічну аллогерніопластику за методикою IPOM тефлоновими трансплантантом вважаємо операцією вибору.

Ключові слова: вентральні грижі; вогнепальні поранення живота; ендовідеохірургічні технології.

Аннотация. Огнестрельные ранения живота нередко сопровождаются значительным разрушением органов брюшной полости с развитием перитонита, а в

дальнейшем – различных осложнений (несостоятельность анастомозов, формирование абсцессов, повторные кровотечения и др.), что требует повторных оперативных вмешательств, и как следствие – формирование послеоперационных вентральных грыж. Целью исследования является улучшение результатов хирургического лечения вентральных грыж после огнестрельных ранений живота благодаря применению лапароскопических методик. Проведен анализ лечения 21 пациента с послеоперационными вентральными грыжами, образовавшимися в результате операций по поводу огнестрельных ранений живота. 14 раненых перенесли одну операцию на органах брюшной полости в прошлом (66,7%), 5 - две операции (23,8%), 1 - три операции (4,8%), 1 - пять операций (4,8%). Размеры грыжевых ворот и степень риска рецидивирования определяли по классификации SWE: W1 - 9 пациентов (42,9%), W2 - 8 (38,1%), W3 - (9,5%), W4 - 2 (9,5%). 3-м пациентам была выполнена лапароскопическая аллогерниопластика по методике IPOM тефлоновым аллотрансплантантом, который в 2-х случаях фиксировали при помощи герниостеплера, в 1-м - трансдермальными отдельными швами тефлоновой нитью. Осложнений после лапароскопических операций не было. Применение лапароскопических методик позволяет значительно сократить койко-день, избежать развития абдоминального компартмент-синдрома, ранее активизировать пациента. Лапароскопическую аллогерниопластику по методике IPOM тефлоновыми трансплантатом считаем операцией выбора.

Ключевые слова: вентральные грыжи; огнестрельные ранения живота; эндовидеохирургические технологии.

Introduction. Recent decades have been marked by an increase in the number of armed conflicts, accompanied by a sharp increase in the number of patients with gunshot wounds. According to the ATO in eastern Ukraine, the proportion of abdominal injuries is 4-7%. Such injuries are often accompanied by significant destruction of abdominal organs with the development of peritonitis, and subsequently - various complications (failure of anastomoses, abscesses, recurrent bleeding, etc.), which requires repeated surgery, and as a consequence - the formation of postoperative ventral hernias [2, 4, 8, 9, 11, 14]. During operations for ventral hernias after gunshot wounds to the abdomen, surgeons usually face problems such as a significant ligation process in the abdominal cavity (regardless of the time elapsed since the injury and the last surgery on the abdominal cavity) [1, 3, 6, 12]; difficulties

in closing extensive defects of the musculo-aponeurotic component of the anterior abdominal wall [5, 10, 15]; contracture of the anterior abdominal wall [7, 13]; development of abdominal compartment syndrome in the postoperative period [3, 8, 17]. The choice of terms, method and volume of surgical intervention for ventral hernias, which were formed after surgical treatment of gunshot wounds of the abdomen [1, 2, 3, 5, 6, 9, 16, 18], remains debatable.

The purpose of the work. Improve the results of surgical treatment of ventral hernias after gunshot wounds to the abdomen by using laparoscopic techniques.

Materials and methods. An analysis of the treatment of 21 patients with postoperative ventral hernias, formed as a result of operations for gunshot wounds to the abdomen.

All patients were men aged 21 to 48 years. In 7 of them injuries were isolated (33.3%), in 12 - multiple (57.2%), in 2 - combined (9.5%). Bullet wounds to the abdomen were observed in 9 patients (42.8%), shrapnel - in 12 (57.2%). 14 wounded underwent one operation on the abdominal organs (66.7%), 5 - two operations (23.8%), 1 - three operations (4.8%), 1 - five operations (4.8%). The size of the hernia gate and the degree of risk of recurrence were determined according to the SWE classification: W1 - 9 patients (42.9%), W2 - 8 (38.1%), W3 - (9.5%), W4 - 2 (9.5%)). The 3rd patient underwent laparoscopic allogernioplasty according to the IROM method with a Teflon allograft, which in 2 cases was fixed with a herniostepler, and in the 1st case with transdermal individual sutures with a Teflon thread. 10 patients underwent allogeneic plastic surgery with a prolene mesh graft by sub lay method with submucosal (in 6 cases) or peritoneal placement (in 4 cases) mesh. 7 patients underwent alloplasty according to the on lay method, and the 1st autoplasty was performed with local tissues.

Results and discussion. During operations on ventral hernias after gunshot wounds of the abdomen, viscerolysis was performed simultaneously in 11 patients (2 during laparoscopy, 9 during herniolaparotomy). According to OI Blinnikov's classification, the prevalence of the connective process in the abdominal cavity was limited to the area of the postoperative scar in 2 patients (I degree), the area of the scar and single adhesions of other anatomical areas (II degree according to Blinnikov) - in 2 patients, III degree (1st floor of the abdominal cavity) - in 3, IV degree (2/3 of the abdominal cavity and more) - in 4 patients. Excision of granulomas and ligature fistulas (11), cholecystectomy (2), resection of the scarred large omentum (3), and resection of the small intestine (2) were also performed simultaneously. The average duration of laparoscopic operations was 72 ± 9.5 minutes, open operations - 107 ± 12.4 minutes. Wound suppuration was not observed, accumulation of serous fluid under the mesh was observed in 9 cases (42.9%), namely - in all patients with

plastic surgery on lay and in 2 - sub lay. The seroma was removed by puncture under ultrasound navigation until complete recovery of patients. The average bed-day after laparoscopic hernioplasty was 9.4 days, after open surgery - 16.2 days, which is 1.7 times more.

Thus, there is an advantage of laparoscopic interventions for ventral hernias after gunshot wounds of the abdomen before open operations in the form of early activation of patients, significantly lower pain in the early postoperative period, reducing the number of postoperative complications and bed-day.

Conclusions and prospects for further research

1. Postoperative ventral hernias most often develop after combined and multiple gunshot wounds to the abdomen, which required multi-stage surgical interventions in the past.

2. The use of laparoscopic techniques can significantly reduce the bed-day, avoid the development of abdominal compartment syndrome, earlier activate the patient.

3. Laparoscopic allogernioplasty according to the method of IROM Teflon transplant is considered the operation of choice.

4. Simultaneous operations on the abdominal organs during hernioplasty are mandatory.

5. Prospects for further research are the introduction of preventive methods aimed at preventing the formation of hernias in the wounded, who underwent several programmed relaparotomies on the tactics of damage control surgery. The final stage of the last surgical intervention (laparotomy) is proposed to install a polycomposite mesh allograft with collagen coating on the side of the abdominal cavity before closing the abdominal cavity. After that, the abdominal cavity is closed by one of the methods. In our opinion, this will prevent the occurrence of ventral hernias in the future in the wounded, who are at risk.

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