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LAPAROSKOPIK HERNİOPLASTİKA – BOĞULMUŞ QASIQ YIRTIĞININ MÜALİCƏ ÜSULU KİMİ

V.P.Krişen¹, N.N.Nor¹, A.V.Kudryavsev², T.S.Komşuk³¹Dnepr Dövlət Tibb Universiteti, Dnepr ş., Ukrayna; ²Dnepr Dövlət Tibb Universitetinin

“Universitet klinikası – əlahiddə struktur bölməsi, Dnepr ş., Ukrayna;

³Kiversi Tibb Kolleci, Kivertsı ş., Ukrayna

Xülasə. Boğulmuş qaşiq yırtığının müalicəsində transabdominal peritoneal hernioplastika (TAPP) metodu üzrə aparılan videolaparoskopik operasiya üsulunun imkanlarını və nəticələrini öyrənmək məqsədilə tədqiqat aparılmışdır. Tədqiqata 2020-2023-cü illər ərzində Dnepr şəhəri dövlət xəstəxanasının ümumi cərrahlik klinikasında boğulmuş qaşiq yırtığı diaqnozu ilə müalicə almış 161 xəstə cəlb edilmişdir. Birinci – əsas qrupa laparoskopik hernioplastika (TAPP) üsulu ilə müalicə edilən 85 xəstə, ikinci qrupa isə Uchtenstein üsulu ilə ənənəvi hernioplastika müalicəsi almış 76 xəstə daxil olmuşdur. Xəstələrdən 127 nəfər (79,3%) kişi, 34 nəfər (20,3%) qadın cinsindən idi.

Tədqiqat göstərmişdir ki, boğulmuş qaşiq yırtığının müalicəsində laparoskopik hernioplastikanın tətbiqi erkən postoperasion ağırlaşmaları ənənəvi operativ müalicə zamanı müşahidə edildiyinə nisbətən 2,16 dəfə ($P<0,05$) azaltmağa imkan verir. Lixtenşteyn üsulu ilə aparılan açıq hernioplastika ilə müqayisədə laparoskopik hernioplastikanın üstünlükləri bunlardan ibarətdir: qarın boşluğunda olan yanaşı patolojiyaların diaqnostikasına imkan olması, yırtıq qapısı sahəsində daha əhatəli vissereoliz aparmağın mümkünlüyü, postoperasion dövrdə ağrı intensivliyinin daha aşağı olması, müalicə və reabilitasiya proseslərinə nisbətən az vaxt sərt edilməsi.

Açar sözlər: boğulmuş qaşiq yırtığı, videolaparoskopik operasiya, erkən postoperasion ağırlaşmalar

Ключевые слова: ущемленная паховая грыжа, видеолaparоскопические операции, методика TAPP, ранние послеоперационные осложнения

Key words: strangulated inguinal hernia, video-laparoscopic surgery, TAPP technique, early postoperative complications

LAPAROSCOPIC HERNIOPLASTY AS A POSSIBLE CHOICE FOR TREATMENT OF STRANGULATED INGUINAL HERNIA

V.P.Kryshen¹, N.N.Nor¹, A.V.Kudriavtsev², T.S.Komshuk³¹Dnipro State Medical University, Dnieper, Ukraine²Separate structural unit "University Clinic" of Dnipro State Medical University, Dnipro, Ukraine.³Kivertsı Medical College, Kivertsı, Ukraine

The study investigated the capabilities and outcomes of video-laparoscopic surgery for strangulated inguinal hernia using the TAPP (Transabdominal Preperitoneal) technique. The study included 161 patients. They were operated on in the period from January 2020 to June 2023 in the General Surgery Clinic of the Dnipro State Hospital and divided into two groups. The first group is the main group of 85 people (MG), who underwent laparoscopic hernioplasty - TAPP and the second is the comparison group of 76 (CG), who underwent traditional hernioalloplasty according to Lichtenstein with a diagnosis of strangulated inguinal hernia, of which 127 (79.3%) are men and 34 (20.7%) are women, the average age was 49.2 (23-75) years. The study found that the use of laparoscopic hernioplasty for strangulated inguinal hernia reduced the incidence of early postoperative complications by 2.16 times ($p<0.05$). The following advantages over open Lichtenstein operation are highlighted. These are the ability to diagnose concomitant pathology in the abdominal cavity, perform extended viscerolysis in hernial orifice area, lower intensity of postoperative pain, early activation of patients, a short general period of treatment and rehabilitation.

Introduction. The incidence of inguinal hernias ranges from 3% to 8%. High incidence makes inguinal hernioplasty one of the most common surgeries [1, 2, 3]. In Ukraine, about 40 thousand surgeries are performed annually for inguinal hernias, in England - 80 thousand, in the USA – 700 thousand [4]. The probability of strangulation of an inguinal hernia is 0.29% [5], which makes it a common acute disease of the abdominal cavity. At the same time, the mortality rate can reach 5% [6].

Inguinal hernia surgery has acquired another dimension with the use of laparoscopic techniques. In a short time, laparoscopic methods of inguinal hernia repair have become used in medical centers around the world. There are two methods commonly used in laparoscopic inguinal hernia repair. One of them is total extraperitoneal (TEP) and the other is transabdominal preperitoneal (TAPP) hernia repair [7,8,9]. Although the laparoscopic approach for elective inguinal hernia repair has been a recognized and widely used method in surgical practice, the use of this technique for strangulated inguinal hernia is still controversial. The most important reasons limiting the laparoscopic approach are the technical difficulties encountered in returning the strangulated hernial sac and its contents to the abdominal cavity and the increased risk of iatrogenic injury. On the other hand, the ability to directly visualize the strangulated organ and its condition and also perform resection laparoscopically if necessary is one of the important advantages of this technique [10,11].

The aim of the study: to identify the possibilities and analyze the results of video-laparoscopic surgery for strangulated inguinal hernia using the TAPP technique.

Materials and methods. The study included 161 patients. They were operated on in the period from January 2020 to June 2023 in the General Surgery Clinic of the Dnipro State Hospital and divided into two groups. The first group is the main group of 85 people (MG), who underwent laparoscopic hernioplasty – TAPP and the second group is a comparison group of 76 (CG), who underwent traditional hernioalloplasty according to Lichtenstein with a diagnosis of strangulated inguinal hernia. Patients were retrospectively analyzed by age, gender, length of stay in the emergency department, hernia location, hernia type, the presence of strangulation, hospitalization, surgery time and

prospectively assessed the patient's condition and the presence of complications in the early postoperative period.

Laparoscopic surgeries were performed on laparoscopic stands Smith & Nephew HD (USA), 2013, 1080 camera (1920 x 1080 Full HD), 32-inch monitor, contrast ratio up to 1400:2, block 3 CO2 insufflator 30 l/min with heating, KARL STORZ AUTOCON II 400 SCB high-frequency echocardiograph. Stable EndoPikVES-100 (Republic of Korea), 2014, 1080p camera (1920 x 1080 Full HD), 24-inch monitor, contrast ratio up to 1400:1, LED lighting unit 100 W 20 power levels, CO2 insufflator 40 l/min with heating, KARL STORZ high-frequency echocardiograph. Standard set of laparoscopic instruments: 1 trocar with a diameter of 10 mm, length 100 mm, 2 trocars 5 mm, length 100 mm, laparoscope 10 mm with a viewing angle of 30°, L-shaped monopolar hook 5 mm, clamp. ETHICON Harmonic Gen 04300, Bersi needle.

Mesh prostheses used in hernioplasty were Duzymesh (Turkey), Ultrapro J&J (USA), Promesh® T Surgical IOS (France) and others, without preference for a particular manufacturer. However, lightweight mesh prostheses were predominantly used. The surgical technique was TAPP, with mandatory performance of all stages of the operation: viscerolysis, dissection of the hernial orifice, intestinal revision and drainage of the abdominal cavity at the end of the operation. The dissection of the gate was performed in areas where large vessels and nerves were absent, at 2-3 and 10-11 o'clock on the conventional clock face. For dissection, a dissector was used instead of scissors. In this case, the strangulation ring was pulled with a hook into the abdominal cavity outward from the strangulated organ. The main criterion for the viability of the strangulated intestine was considered to be the difference in color, the presence of peristalsis, and in controversial cases, intraoperative comparative thermometry of the affected and distant intestinal segments was performed. The operation necessarily ended with separate drainage of the abdominal cavity and the cavity between the implant and the transverse fascia.

The statistical method used was the Pearson χ^2 (Chi-square) criterion. $P < 0.05$ was considered significant. The version of the programs used was Microsoft Office 2016, version 18.2008.12711.0., STATISTICA 6.1 Stat Soft Inc No. AGAR909E415818FB.

Results and discussion. Over four years, 884 patients with strangulated hernias of various locations were operated on in the clinic, of which 610 (69%) were treated for strangulated inguinal hernia, 85 (14%) patients underwent laparoscopic transabdominal preperi-

toneal (TAPP) hernioplasty and 525 (86%) traditional hernioalloplasty according to Lichtenstein. 161 patients were examined, of which 127 (79.3%) were men and 34 (20.7%) were women, the average age was 49.2 (23-75) years, the hernias were both incipient, small in size (type according to Nyhus I, II, IIIa) and large direct and oblique (type IIIb), concomitant pathology from ASA-I to ASA-III. The primary indications for surgery were the duration of strangulation of no more than 8 hours, absence of symptoms of complete intestinal obstruction and general contraindications to laparoscopy. Hernioplasties were performed: on the right side in 105 (67%) patients, on the left side in 54 (29.2%) patients, and on both sides in 2 (3.8%) patients, 113 (70.4%) were oblique hernias and 43 (29.6%) were direct hernias.

When comparing the methods of treating patients, we selected the following criteria: pain syndrome in the postoperative period, the time of the patient's stay in the hospital, the duration of labor and social rehabilitation, early postoperative complications, as well as some trends in the course of the postoperative period typical for these surgical interventions. In the postoperative period, patients after the laparoscopic method were activated within a few hours after the operation, the pain was moderate, ketorolac at a dose of 2 ml/day was enough to relieve it. Patients who were operated on using the open method were activated somewhat later – as a rule, on the next day after the operation, and required more powerful pain relief (ketorolac 3-4 ml/day, additionally diclofenac 3 ml/day). Duration of the patient's stay in the hospital. With laparoscopic

hernioplasty TAPP – 1-10 days (3.9 ± 0.8) With hernioalloplasty according to Lichtenstein – 3-14 days (6.2 ± 1.2), $p < 0.05$.

Regarding the terms of labor and social rehabilitation. With laparoscopic hernioplasty, patients not associated with heavy physical labor could return to work on average after 14-21 days, and those associated with such - were additionally transferred by decision of the commission to light work within 2-4 weeks. With the traditional method, the time spent on sick leave increased to 21-28 days, the period of stay on a light work regime - on average up to 4-6 weeks. Early postoperative complications are hematomas, infiltrates of the postoperative wound, funiculitis, orchitis, epididymitis, the presence of transient dysuric disorders, as a tissue reaction to a volumetric intervention and, associated with errors in the performance of certain methods - damage to the lower epigastric vessels, neuralgia of the cutaneous nerves, bladder injuries, etc. (Table).

As can be seen, the use of the TAPP technique allows to reduce the frequency of funiculitis, orchiepididymitis by more than two times, which is associated with less trauma to the spermatic cord, the absence of the risk of incorrect adjustment of the external inguinal ring. People who have undergone the TAPP operation have no complications such as infiltrates, hematomas in the area of the postoperative scar. The incidence of neuralgia has also decreased due to the absence of large skin incisions, as well as more "sighted" manipulations in the area of the hernial orifice. Thus, the use of laparoscopic hernioplasty for strangulated inguinal hernia made it possible

Table. EARLY COMPLICATIONS OF HERNIOPLASTY

Complications	Main group (MG) (n=85)	Comparison group (CG) (n=76)
Funiculitis	1 (1,2%)	2 (2,6%)*
Injury of the epigastric vessels	0	0 (0 %)
Orchitis, epididymitis	1 (1,2%)	1 (1,3%)*
Dysuria	0	1(1,3%)*
Infiltrate	0	1 (1,3%)*
Hematoma	0	1 (1,3%)*
Seroma	1 (1,2%)	1 (1,3%)*
Neuralgia of the superficial nerves	0	1 (1,3%)*
Overall complication rate	3,6%	7,8%*

* $p < 0.05$ compared to control

to reduce the frequency of early postoperative complications by 2.16 times ($p < 0.05$). The data obtained indicate a more physiological course of the postoperative period and the formation of less pronounced cicatricial changes in tissues after laparoscopic hernioplasty. Strangulated inguinal hernia is the second most common cause of intestinal obstruction. It is easily treated, but can be life-threatening if complications such as strangulation occur. Negative results in these cases are observed in elderly patients, patients with serious comorbidities, and patients who present to the hospital at a late stage [1]. Many authors have published many papers in recent years on the results and benefits of laparoscopic TAPP hernia repair for patients who have undergone elective surgery [12,13]. However, there are significantly fewer publications devoted to the study of the consequences of laparoscopic TAPP hernioplasty in emergency conditions such as strangulated inguinal hernia [14]. This indicates a cautious attitude towards this technique due to concerns about iatrogenic injury. Despite this, the laparoscopic technique of hernioalloplasty for strangulated inguinal hernia has the following

advantages over the open Lichtenstein operation: the ability to diagnose concomitant pathology in the abdominal cavity; the ability to perform extended and at the same time more gentle viscerolysis in the area of the hernial orifice; less intense postoperative pain; earlier activation of patients; a shorter period of treatment and rehabilitation generally; a lower incidence of complications requiring additional treatment; better cosmetic effect.

Conclusions

1. In the surgery of strangulated inguinal hernias, with observance of the technology of the operation and clear indications for the implementation of the TAPP technique, encouraging and hopeful results are possible, with higher rehabilitation potential than with traditional methods.

2. Complications that were observed in the early postoperative period are minor and easily corrected. The disadvantages of the method are the technical complexity of surgical intervention, especially with large hernias and significant adhesive and inflammation process.

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ЛАПАРОСКОПИЧЕСКАЯ ГЕРНИОПЛАСТИКА КАК ВОЗМОЖНЫЙ ВЫБОР ЛЕЧЕНИЯ УЩЕМЛЕННОЙ ПАХОВОЙ ГРЫЖИ

В.П.Крышень¹, Н.Н.Нор², А.В.Кудрявцев², Т.С.Комшук³

¹*Днепропетровский государственный медицинский университет, Днепр, Украина;*

²*«Отдельное структурное подразделение – университетская клиника» Днепропетровского государственного медицинского университета, Днепр, Украина;*

³*Киверцовский медицинский колледж, Украина*

Резюме. В работе изучали возможности и результаты видеолaparоскопической операции при ущемленной паховой грыже путем применения методики трансабдоминальной перитонеальной герниопластики TAPP. В исследование был включен 161 пациент. Они были прооперированы в период с января 2020 года по июнь 2023 года в клинике общей хирургии государственной больницы г. Днепр и разделены на две группы. Первая группа - основная 85 человек (ОГ), которым была проведена лапароскопическая герниопластика - TAPP и, вторая – группа сравнения 76 (ГС), которым проводилась традиционная герниоаллопластика по Lichtenstein с диагнозом ущемленная паховая грыжа, из них 127 (79,3%) – мужчины и 34 (20,7%) – женщины, средний возраст составлял 49,2 (23-75) лет. При проведении исследования было обнаружено, что применение лапароскопической герниопластики при ущемленной паховой грыже снизило частоту ранних послеоперационных осложнений в 2,16 раза ($p < 0,05$). Выделены следующие преимущества перед открытой операцией по Lichtenstein: это возможность диагностики сопутствующей патологии в брюшной полости, проведения расширенного висцеролиза в области грыжевых ворот, меньшая интенсивность послеоперационной боли, ранняя активизация больных, короткий период лечения и реабилитации.

Avtor for correspondence:

Nor Nadejda. Dnipro State Medical University

E-mail: nadenor@i.ua