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EVOLUTION OF METHODS OF SURGICAL TREATMENT OF INGUINAL HERNIAS

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ЧОВ ЧУРРАЛАРИНИ ХИРУРГИК УСУЛЛАРДА ДАВОЛАШ ЭВОЛЮЦИЯСИ

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ЭВОЛЮЦИЯ МЕТОДОВ ХИРУРГИЧЕСКОГО ЛЕЧЕНИЯ ПАХОВЫХ ГРЫЖ

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Резюме. Чов чурра энг кенг тарқалган жарроҳлик касалликларидан биридир. Дунё бўйлаб ҳар йили тахминан 20 миллион бемор чов чурра билан операция қилинади. Ҳозирги вақтда чов чурраларни операция қилишнинг универсал техникаси (усули) мавжуд эмас, бу эса жарроҳлар томонидан даволаш натижалари қониқарсиз эканлигини таъкидлашмоқда. Статистик маълумотларга кўра дунёда бажариладиган чурра кесиш амалиётлари ичида 13% олдин қайси усулда бажарилган герниопластикадан қатъий назар қайталанган чов чурраларига тўғри келади.

Калит сўзлар: чов чурра, герниопластика, чурра қайталаниши, Лихтенштейн, аутопластика, TAPP, TER, асоратлар, сурункали оғриқ синдроми.

Abstract. Inguinal hernia is one of the most common surgical diseases. Approximately 20 million patients with inguinal hernias undergo surgery worldwide per year. There is currently no universal technique (method) for inguinal hernia repair, which is the reason for surgeons' dissatisfaction with the results of treatment. Statistical reports show that 13% of all hernia surgeries in the world are performed for recurrent inguinal hernia, regardless of the nature of the previous hernioplasty.

Keywords: inguinal hernia, hernioplasty, relapse, Lichtenstein, autoplasty, TARR, TER, complications, chronic pain syndrome.

Inguinal hernia is one of the most common surgical diseases that reach up to 75% in the overall structure of external abdominal hernias, according to some authors [1, 2]. At the same time, it should be noted that the proportion of patients with inguinal hernias in the total number of hernia carriers decreases from year to year. Thus, according to the materials of V.I. Belokonev et al., out of 1299 patients with hernias of the anterior abdominal wall treated in 1990-2011, inguinal hernias were registered in 656 (50.5%) patients [3], and according to A.A. According to Botezatu, among the treated 941 patients with hernias of the anterior abdominal wall, inguinal hernias were noted in 534 (56.7%) [4].

Approximately 20 million patients with inguinal hernias are operated on worldwide per year (Great Britain - 80 thousand, France - 100 thousand, Germany - 200 thousand, USA - 700 thousand) [5]. In recent years, the number of methods and modifications of hernioplasty has been increasing (more than 350 techniques) [1]. However, there is currently no universal technique (method) for inguinal hernia repair, which indicates that surgeons are dissatisfied with the results of treatment. Statistical reports show that 13% of all hernia surgeries in the world are performed for recurrent inguinal hernia, regardless of the nature of the previous hernioplasty [6]. As a rule, there are no accurate statistical data on the use of a particular hernioplasty technique, with the exception of some countries. Thus, inguinal hernia alloplasty in the USA is 90%, in the UK - 70-80%, in France - 45-60%, while in Eastern Europe autoplasty methods prevail: in Poland - 50.5%, Romania - 92.6%; in Russia out of 300 thousand. In patients with hernias of the anterior abdominal wall treated in 2017, autoplasty was used in 88.0%. Thus, autoplasmic methods of hernioplasty with own tissues prevail all over the world.

The main advantages of autogenernioplasty are the relative simplicity and accessibility of performing in any surgical department. The operation is usually performed under local or spinal anesthesia with minimal cost (cost). The disadvantage is the high risk of recurrence of hernias, since most of these operations are performed in tension mode, which can lead to the eruption of sutures [7]. In general, the recurrence rate of hernias after traditional surgical treatment methods reaches 10% in primary and up to 30% in repeated operations [8]. As an alternative to autoplasmic methods of hernioplasty of inguinal hernias, Lichtenstein aloplasty can be considered, which is used worldwide with a frequency of 6.7%, as well as laparoscopic hernioplasty (TARR and tEr) in 7.8% of cases.

Alloplasty. The use of endoprosthesis is associated with a number of problems. Thus, according to V.N. Egiev, "it awakens more questions than answers" [9]. The market for endoprosthesis is quite large and is expanding significantly from year to year. Often the surgeon is faced with a dilemma: which mesh to use for hernioplasty of inguinal hernia. Previously widely used polypropylene nets are now not recommended for use due to the risk of chronic pain syndrome in the postoperative period, which, according to some authors, is facilitated by the fixation of the mesh with suture material, as well as the involvement of inguinal nerves in the scarring process, shrinking of the mesh and violation of spermatogenesis on the side of surgical intervention [10].

In contrast to suture fixation, alternative methods of fixing meshes are proposed, in particular, self-fixing mesh (Progrid, Bard Adhesive), which does not require additional fixation, but is characterized by high cost and complexity of positioning in the

wound; adhesive fixation (Tissukol, Cyanocrylate, Bioglu), which excludes damage to nerve trunks, but is also highly expensive, in connection with which in practice, these methods are rarely used. In addition, many consider it possible not to fix the implant at all, its retention in the appropriate position in the first days after surgery occurs due to intra-abdominal pressure, however, this is rarely used in practice [11]. Regardless of the method of fixation and the composition of the mesh material (polypropylene, PTFE, composite mesh), all meshes tend to migrate from the initial fixation in 31.5% of cases [12].

The Lichtenstein method of inguinal herniation has become popular due to its minimal invasiveness, easy and convenient technique of execution, and low relapse rate. At the same time, many authors note the negative impact of the endoprosthesis on the elements of the spermatic cord, the frequent development of chronic pain in the groin, the feeling of a foreign body in this area, the preservation of the risk of hernia recurrence. Male infertility after alloplasty occurs in 0.8% of cases with open plastic surgery [13] and in 2.5% - after laparoscopic TARR [14]. Lichtenstein's open plastic surgery with a synthetic Lintex implant gave 7.69% of complications in the early postoperative period; scrotal hematoma, seromas reach 37.7% among operated patients [15]; relapse within 6 months - 1 year was 1.9% with small inguinal hernias [16]. However, the percentage of relapses after surgery increases sharply with giant inguinal-scrotal and recurrent hernias (from 2-5% with primary herniation to 10-15% with repeated operations), which also leads to a discussion of herniologists around the world about the most rational method of surgery [17]. In addition, the number of relapses increases with age, reaching 25-30% in elderly and senile people, since degenerative processes of the internal oblique and transverse abdominal muscles increase the risk of wrinkling and detachment of the mesh implant from the fixing tissues [18].

Based on the Lichtenstein method, other methods using mesh implants have been proposed, for example, P.H.S. (Prolene Hemia System) [19]; TGAISSO [20], which in practice, however, are used much less frequently. The widespread introduction of Lichtenstein hernioplasty has allowed us to achieve impressive results: in many randomized trials, there are no relapses or their frequency is extremely low, not exceeding 3%. But the primary importance is not given to the quality of life of operated patients. A decrease in chronic pain and an improvement in the quality of life make it possible not to consider relapses as the main clinical result of hernioplasty of an inguinal hernia according to Lichtenstein. Pain syndrome develops on average in 8-15% of patients, and in some studies its frequency reached 40% [21, 22, 23]. The location of the grid along the course of nerve fibers is the most significant factor in the development of pain syndrome.

After Lichtenstein plastic surgery, other specific problems are also observed, such as discomfort (26.9%) and a foreign body sensation (23.1%) in the area of the postoperative scar, pain in the testicle area (21.2%). Patients report an unsatisfactory result of treatment in 19.2% [24].

Chronic postoperative groin pain is a significant complication after open plastic surgery of an inguinal hernia using a mesh. The exact cause of these pains is still unclear. Neurectomy for hernioplasty according to Lichtenstein is generally recognized. The intersection of the ilio-inguinal nerve during Lichtenstein surgery, significantly reducing chronic groin pain in the postoperative period, at the same time may lead to an increase in the frequency of numbness (paresthesia) in the groin area. Thus, after neurectomy, chronic postoperative pain was observed in 16.7-20% of cases, and paresthesia - in 5.6% of cases [25, 26].

Classical variants of prosthetic hernioplasty do not provide for the restoration of the normal topography of the inguinal canal, which leads to a decrease in the function of the anterior abdominal wall in the postoperative period. Therefore, many authors consider the possibility of combining prosthetic hernioplasty methods with autoplasty in clinical practice. However, when the posterior wall of the inguinal canal is destroyed, the use of combined hernioplasty (autoplasty with additional reinforcement of the hernial gate with a mesh prosthesis) is also problematic, since the use of plastic elements by local tissues in tension mode can lead to the eruption of sutures and recurrence of hernia [27].

According to the Vizient clinical database, the level of infectious complications after open inguinal canal alloplasty reaches 8.33% [28]. Since the use of heavy meshes is possible for hernioplasty of inguinal hernias (Trabucco et al.), the number of complications associated with foreign material may increase, which in some cases requires removal of the mesh. According to some authors, infectious complications (43%) and chronic pain (91%) were indications for excision of the mesh [29].

Laparoscopic hernioplasty. In 1997 M.E. Arregui et al. proposed to fix the mesh implant to the upper pubic ligament and anterior abdominal wall by laparoscopic access, positioning it preperitoneal [30]. After fixing the mesh, the peritoneum is sutured above it, which prevents the development of the adhesive process in the abdominal cavity. This technique is called "laparoscopic transabdominal preperitoneal hernioplasty" (TARR). To date, TARR is an effective surgical method for the treatment of uncomplicated inguinal hernias and is widely used in the USA and Western Europe, but its use in complicated forms of inguinal hernias (recurrent, pinched, sliding, inguinal-scrotal) remains controversial. In 1993, the American surgeon J.B. McKernan et al. a laparoscopic method of extraperitoneal hernia repair (TER - totally extraperitoneal hernia repair) was developed [31]. The principle of this operation is the laparoscopic detachment of the rectus and oblique abdominal muscles from the preperitoneal fatty tissue and the location of the mesh implant preperitoneally, between the muscles and the peritoneum.

At the same time, laparoscopic techniques cannot always be used in severe concomitant diseases, when the probability of general anesthesia is high. Relative contraindications to laparoscopic hernioplasty are previous operations in the lower part of the abdominal cavity, as well as large inguinal-scrotal and strangulated hernias that are not fixed [32]. Endoscopic interventions require general anesthesia, special tools, mesh material and trained specialists. Therefore, TARR and TER are too expensive operations [33]. Thus, according to the chief surgeon of the Samara region E.A. Korymasov, in 2018, TAPP and TEP operations accounted for only 0.87% of the total number of hernioplasty of inguinal hernias in the region. In this case, the economic situation was a deterrent, they were performed only as a paid service to the population in private clinics [34]. With TARR and TER, chronic pain syndrome reaches 23%, and complications with TARR - 13.5%, with TER - 12.0%. The most common complication with

endoprosthetics is seromas, which are observed with TER in 37.8%, with TARR - in 18.3% of cases [35]. Relapses in TER reach 13.5%, in TARR - 12.0% [36], and according to other data - 32% [37, 38].

Autoplasty. For a long time, Bassini plastic surgery has been considered the fundamental technique, which is a pathogenetically justified way to strengthen the posterior wall of the inguinal canal. However, in complex forms of hernias, even in specialized centers, relapse of the disease after Bassini surgery is observed in 10-28% of cases [1]. Of the later methods of hernioplasty with local tissues, the Shoulders operation (1944) [39] (the modern equivalent of the Bassini operation) is recognized as the gold standard for its effectiveness. According to the summary data of the Shoulders clinic, over 35 years of observations, the relapse rate averaged 1.46% [40]. This operation has been recognized by many surgeons. The disadvantage of this technique is that in the presence of destroyed or atrophied tissues of the inguinal canal, the risk of relapse increases to 14.5% [41]. One circumstance hinders the implementation of this operation everywhere - the absence of a special monophilic thread (G. 32-34), with the help of which hernioplasty of the posterior wall of the inguinal canal in 4 tiers is performed in the Shoulders clinic [35].

Another method of autoplasty, which is becoming more widespread, is the Desarda operation [42]. The essence of the technique is to strengthen the posterior wall of the inguinal canal with a split leaf of aponeurosis of the external oblique abdominal muscle. According to foreign surgeons, the Desarda method is currently the best option for inguinal autogernioplasty and can be used for small first-time inguinal hernias in men of reproductive age. According to some authors, the operation is as effective as Lichtenstein's operation, and the number of relapses and postoperative complications is almost the same [43]. M.P. Desard's operation as a non-stretching autoplasmic method has become widespread in Western countries, in particular in Poland, where in 2007 it was included in the "Polish standard for the treatment of inguinal hernias" along with alloplastic methods [44, 45]. However, the technique proposed by M.P. Desarda is acceptable only for small inguinal hernias with a height of the inguinal gap up to 3 cm. With high inguinal gaps (more than 5-6 cm) with significant destruction of the posterior wall of the inguinal canal, it is not recommended for use [46, 47, 48].

The search for relapse-free hernioplasty techniques using own tissues remains relevant. The choice of the method of inguinal canal plasty should be based on preoperative examination, including ultrasound of the inguinal gap, electromyography of the muscles forming the inguinal gap, allowing to determine the main metric parameters of the muscular-aponeurotic structures: the height of the inguinal gap, the thickness of the muscles of the upper wall of the inguinal canal, the diameter of the inner inguinal ring, the degree of degenerative changes of muscular-aponeurotic structures, forming the inguinal gap [49, 50, 51]. Leading in the pathogenesis of inguinal hernia formation is inadequate resistance of the abdominal wall to increased intra-abdominal pressure. Therefore, the task of surgical treatment of inguinal hernia is to create a powerful tissue structure in the area of defective and weakened muscular-aponeurotic structures of the abdominal wall.

We have developed and put into practice a method of autoplasty that allows us to reliably close the posterior wall of the inguinal canal with functioning muscle-aponeurotic tissue with consolidation of autoplasty with an autodermal graft [4]. In order to increase the effectiveness of autoplasmic hernioplasty methods, some authors have developed methods of relaxing incisions of the vagina of the rectus muscle. Due to these laxative incisions, tissue tension is significantly reduced during autoplasmic operations of inguinal hernias, especially in the area of the medial angle of the inguinal gap [52].

Autodermotransplants. An alternative to open alloplasty according to Lichtenstein is autodermoplasty. In this case, autoplasty of the posterior wall of the inguinal canal is combined with consolidation with an autodermal flap. Patients operated with combined plastic surgery, combining autoplasty with autodermoplasty, are not characterized by such specific problems as chronic pain, foreign body sensation, paresthesia, which are quite common after alloplasty. Autologous skin grafts of full thickness are a reliable material for consolidation in inguinal hernia autoplasty. An important factor is the cheapness of the method. The number of early postoperative complications and relapses does not exceed the number of those after alloplasty. There are many reports in the literature confirming this [53]. Thus, according to A.A. Botezatu et al., among 705 patients with inguinal hernias treated in 1999-2018. with the use of combined methods of plastic surgery with relaxing incisions of the anterior vaginal wall of the rectus muscle in combination with autodermoplasty, the number of complications in the early postoperative period was 16 (2.3%), and relapses in the long term after surgery - 9 (1.3%) cases.

An alternative to autodermoplasty with a full-fledged autodermal flap is a biological mesh made of collagen-rich tissues of humans, pigs and cattle (calf pericardium). The tissues are decellulated, after which a matrix of collagen and elastin remains, which serves as a framework for cellular repopulation and revascularization. These meshes retain their structure after transplantation for a longer time than autodermal grafts [20]. The disadvantages of biological nets can be called their commercial cost (about 10 thousand euros) and a high risk of relapse (17.1%) [54].

Conclusions. Lichtenstein's alloplasty does not completely prevent recurrence of inguinal hernias. Shrinking of the mesh and its reduction is the reason for the separation of allografts from their fixation sites and ultimately leads to relapse. The body's reaction to the implantation of non-absorbable meshes is expressed in chronic inguinal pain, orchalgia, and this significantly reduces the quality of life of patients.

Alloplasty by TARR and TER methods is not recommended for large (pantaloon), unrecoverable, sliding hernias, in patients with concomitant pulmonary and cardiac diseases (consequences of anesthesia), in which it is preferable to immediately abandon these techniques, and if an attempt is made to solve the problem with TARR or TER, it is necessary to convert to an open method. An important factor is the high cost of these methods.

The search for relapse-free hernioplasty methods using own tissues remains relevant. In our opinion, methods of covering the posterior wall of the inguinal canal with functioning muscle tissue under conditions of minimal tension with the use of relaxing incisions for these purposes are promising. Autoplasty should be consolidated by autodermoplasty.

It is not enough for patients with inguinal hernias to perform a routine preoperative examination (ultrasound, electromyography). The determined metric data (the height of the inguinal space, the size of the deep inguinal ring, the state of the muscular-aponeurotic structures of the inguinal space) should be the basis of the chosen technique of hernioplasty of the inguinal hernia.

Literature:

1. Everhart J.E. Abdominal wall hernia. In: Everhart JE, editor. The burden of digestive diseases in the United States. US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases. Washington, DC: US Government Print; 2008:93-5.
2. Rutkow I.M. Demographic and socioeconomic aspects of hernia repair in the United States in 2003. *Surg Clin North Am.* 2003;83:1045-51.
3. Ein S.H., Njere I., Ein A. Six thousand three hundred sixty-one pediatric inguinal hernias: a 35-year review. *J Pediatr Surg.* 2006;41:980-6.
4. Abramson J.H., Gofin J., Hopp C., Makler A. & Epstein. The epidemiology of inguinal hernia. A survey in western Jerusalem J. *Epidemiol. Community Health.* 1978;32:59-67.
5. Akpo E.E. Bilateral giant inguinoscrotal Hernia: psychosocial issues and a new classification. *African Health Sciences.* Mar 2013;13(1):166-170.
6. Glassow F. Femoral hernia. Review of 1143 consecutive repair. *Am. Surg.* 1966. 163: 227-232. 9.
7. Wantz G.E. Abdominal wall hernias. In: Schwartz S.I., ed. *Principles of Surgery.* 7th ed. New York, NY: McGraw- Hill; 1999:1585-1611.
8. Bax T., Sheppard B.C., Crass R.A. Surgical options in the management of groin hernias. *Am FamPhysician.* 1999;59(1). <http://www.aafp.org/afp/990101ap/143.html>. Accessed May 13, 2008.
9. Kingsnorth A., LeBlanc K. Hernias: inguinal and incisional. *Lancet.* 2003;362:1561-1571.
10. Fitzgibbons R.J., Ramanan B., Arya S. et al. Long-term results of a randomized controlled trial of a nonoperative strategy (watchful waiting) for men with minimally symptomatic inguinal hernias. *Ann Surg.* 2013;258(3):508- 515.
11. Simons M.P., Aufenacker T., Bay-Nielsen M. et al. European Hernia Society guidelines on the treatment of in-guinal hernia in adult patients. *Hernia.* 2009;13:343-403.
12. Simons M.P., Aufenacker T., Bay-Nielsen M. European Hernia Society guidelines on the treatment of inguinal hernia in adult patients. *Hernia.* 2009; 13 (4):343-403.
13. Uzzaman M.M., Ratnasingham K., Ashraf N. Meta-analysis of randomized controlled trials comparing light-weight and heavy-weight mesh for Lichtenstein inguinal hernia repair. *Hernia.* 2012;6 (5):505-518.
14. Wantz G.E. Abdominal wall hernias. In: Schwartz S.I., ed. *Principles of Surgery.* 7th ed. New York, NY: McGraw- Hill; 1999:1585-1611.
15. Kurt N. et al. Risk and outcome of bowel resection in patients with incarcerated groin hernias: retrospective study. *World J Surg.* Jun 2003;27(6):741-743.
16. Alvarez J.A. et al. Incarcerated groin hernias in adults: presentation and outcome. *Hernia.* May 2004;8(2):121- 126.
17. Malek S. et al. Emergency repair of groin herniae: outcome and implications for elective surgery waiting times. *IntJ ClinPract.* Feb 2004;58(2):207-209.
18. Hjaltason E. Incarcerated hernia. *Acta Chir Scand.* 1981;147(4):263-267.
19. Dahlstrand U. Femoral and inguinal hernia. How to minimize adverse outcomes following repair: Department of surgical sciences, colorectal surgery. Uppsala, Uppsala; 2011.
20. Glassow F. Femoral hernia. Review of 2,105 repairs in a 17 year period. *Am J Surg.* Sep 1985;150(3):353-356.
21. Mikkelsen T. et al. Risk of femoral hernia after inguinal herniorrhaphy. *Br J Surg.* Apr 2002;89(4):486-488.
22. Koch A. et al. Prospective evaluation of 6895 groin hernia repairs in women. *Br J Surg.* Dec 2005;92(12):1553- 1558.
23. Bay-Nielsen M., Kehlet H. Inguinal herniorrhaphy in women. *Hernia.* Mar 2006;10(1):30-33.
24. Dahlstrand U. et al. Emergency femoral hernia repair: a study based on a national register. *Ann Surg.* Apr 2009;249(4):672-676.
25. Andrews N.J. Presentation and outcome of strangulated external hernia in a district general hospital. *Br J Surg.* May 1981;68(5):329-332.
26. Kurt N, et al. Risk and outcome of bowel resection in patients with incarcerated groin hernias: retrospective study. *World J Surg.* Jun 2003;27(6):741-743.
27. Alvarez J.A. et al. Incarcerated groin hernias in adults: presentation and outcome. *Hernia.* May 2004;8(2):121- 126.
28. Gallegos N.C. et al. Risk of strangulation in groin hernias. *Br J Surg.* Oct 1991;78(10):1171-1173.
29. Sandblom G, et al. Femoral hernias: a register analysis of 588 repairs. *Hernia.* 1999/09/01 1999;3(3):131-134.
30. Rai S. et al. A study of the risk of strangulation and obstruction in groin hernias. *Aust N Z J Surg.* Sep 1998;68(9):650-654.
31. Blake R., Lynn J. Emergency abdominal surgery in the aged. *Br J Surg.* Dec 1976;63(12):956-960.
32. Malek S. et al. Emergency repair of groin herniae: outcome and implications for elective surgery waiting times. *Int J ClinPract.* Feb 2004;58(2):207-209.
33. Whalen H.R., Gillian A., Kidd P.J.O. Easily missed? Femoral hernias. *BMJ.* 2011;343:7668.
34. Depasquale R, Landes C, Doyle G. Audit of ultrasound and decision to operate in groin pain of unknown aetiology with ultrasound technique explained. *Clin. Radiol.* 2009;64(6):608-614.
35. Kim B, Robinson P, Modi H, Gupta H, Horgan K, Achuthan R. Evaluation of the usage and influence of groin ultrasound in

- primary and secondary healthcare settings. *Hernia*. 2015;19(3) :367-371.
36. LeBlanc KE, LeBlanc LL, LeBlanc KA. Inguinal hernias: diagnosis and management. *Am Fam Phys*. 2013;87(12):844-848.
37. Lilly M.C., Arregui M.E. Ultrasound of the inguinal floor for evaluation of hernias. *Surg Endosc*. 2002;16(4):659-662.
38. Murphy K.P., O'Connor O.J., Maher M.M. Adult abdominal hernias. *AJR Am J Roentgenol*. 2014;202(6):W506- W511. doi: 10.2214/AJR.13.12071.
39. Grant T., Neuschler E., Hartz W. 3rd Groin pain in women: use of sonography to detect occult hernias. *J Ultra-sound Med*. 2011;30(12):1701-1707.
40. Lechner M., Fortelny R., Ofner D., Mayer F. Suspected inguinal hernias in pregnancy-handle with care! *Her-nia*. 2014;18(3):375-379.
41. Pilkington S.A., Rees M., Jones O.G.I. Ultrasound diagnosis of round ligament varicosities mimicking inguinal hernias in pregnancy. *Ann R Coll Surg Engl*. 2004;86(5):400-401.
42. van den Berg J.C., de Valois J.C., Go P.M., Rosenbusch G. Detection of groin hernia with physical examination, ultrasound, and MRI compared with laparoscopic findings. *Investig Radiol*. 1999;34(12):739-743.
43. Robinson A., Light D., Kasim A., Nice C. A systematic review and meta-analysis of the role of radiology in the diagnosis of occult inguinal hernia. *SurgEndosc*. 2013;27(1):11-18.
44. Kraft B.M., Kolb H., Kuckuk B., Haaga S., Leibl B.J., Kraft K., Bittner R. Diagnosis and classification of inguinal hernias. *Surg Endosc*. 2003; 17:2021-2024.
45. Amid P.K. Classification of biomaterials and their related complications in abdominal wall hernia surgery. *Hernia*. 1997;1(1):15-21.
46. Kingsnorth A.N., Wright D., Porter C.S., Robertson G. Prolene Hernia System compared with Lichtenstein patch: a randomized double blind study of short-term and medium-term outcomes in primary inguinal hernia repair. *Hernia*. 2002;6(3) :113-119.
47. Kingsnorth A.N., Wright D., Porter C.S., Robertson G. Prolene Hernia System compared with Lichtenstein patch: a randomized double blind study of short-term and medium-term outcomes in primary inguinal hernia repair. *Hernia*. 2002;6(3):113-119.
48. McKernan J.B., Laws H.L. Laparoscopic repair of inguinal hernias using a totally extraperitoneal prosthetic approach. *Surg Endosc*. 1993;7(1):26-28.
49. Arregui M.E., Navarrete J., Davis C.J. et al. Laparoscopic inguinal herniorrhaphy techniques and controversies. *Surg Clin North Am*. 1993;73(3):513-527.
50. The Society for Surgery of the Alimentary Tract. SSAT patient care guidelines. Surgical repair of groin hernias. <http://www.ssat.com/cgi-bin/hernia6.cgi>. Accessed May 13, 2008.
51. O'Dwyer P.J., Norrie J., Alani A., Walker A., Duffy F., Horgan P. Observation or operation for patients with an asymptomatic inguinal hernia: a randomized clinical trial. *Ann Surg*. 2006;244(2):167-173.
52. Collaboration I.T. Operation compared with watchful waiting in elderly male inguinal hernia patients: a review and data analysis. *J Am Coll Surg*. 2011;212(2):251-259.
53. Cox T.C., Pearl J.P., Parreno D., Moore R.R.E. Fellowship training eliminates the learning curve for laparoscopy inguinal hernia repair. *Surg Endosc*. 2011;25:S216.
54. Voitek AJ. The learning curve in laparoscopic inguinal hernia repair for the community general surgeon. *Can J Surg*. 1998;41(6):446-450.

ЭВОЛЮЦИЯ МЕТОДОВ ХИРУРГИЧЕСКОГО ЛЕЧЕНИЯ ПАХОВЫХ ГРЫЖ

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Резюме. Паховая грыжа является одним из распространенных хирургических заболеваний. Во всем мире операциям подвергаются примерно 20 млн больных с паховыми грыжами в год. Универсальной методики (способа) грыжесечения паховой грыжи в настоящее время не существует, что является причиной неудовлетворенности хирургов результатами лечения. Статистические отчеты показывают, что 13% всех операций грыжесечений в мире выполняются по поводу рецидива паховой грыжи независимо от характера предыдущей герниопластики.

Ключевые слова: паховая грыжа, герниопластика, рецидив, Лихтенштейн, аутопластика, TAPP, TEP, осложнения, хронический болевой синдром.