THE EVOLUTION IN THE TREATMENT OF PEPTIC ULCER AND ITS COMPLICATIONS

Tutchenko M.I.

Vasylchuk O.V.

Piotrovich S.M.

Yaroshuk D.V.

Andriiets V.S.

Bogomolets National Medical University, Kyiv, Ukraine

dok.vov@gmail.com

Relevance. Duodenal ulcer is complicated by perforation in 5-15% of patients. The priority area of abdominal surgery is the introduction of minimally invasive methods. Laparoscopic surgeries are becoming an alternative to standard technologies.

Objective: to analyze the effectiveness of open and laparoscopic palliative and conditionally radical surgical interventions in patients with perforated duodenal ulcer in the early and late two-year periods.

Materials and methods. The efficacy of open and laparoscopic palliative and conditionally radical surgical interventions was studied in 181 patients with perforated duodenal ulcer in the early and late two-year periods. The patients were divided into two groups: 92 patients who underwent laparoscopic surgery and 89 patients who underwent open surgery. The groups are comparable in age, time from the onset of the disease, and the diameter of the ulcer. After the operation, the intensity of pain was assessed in points using a visual analogue scale, the rate of healing. Complications in the early postoperative period were analyzed (wound suppuration, pneumonia, extrasystole, atrial fibrillation, abscesses, suture failure). Analyzed the development of peritonitis and its characteristics (serous-fibrinous, fibrinous-purulent; local, general).

Results. Laparoscopic operations take less time than open ones. In the first four days after surgery, the average pain score was significantly lower ($p < 0.05$) in patients after minimally invasive surgery. There was a tendency towards earlier activation of patients in the group of laparoscopic operations. The duration of hospital stay after laparoscopic operations averaged 5.11 ± 0.08 days (from 3 to 7 days) and was significantly less ($p < 0.05$) for that in patients who underwent open surgery. The two-year cumulative incidence of ulcer recurrence in the group of laparoscopic operations was 16.3% (15 patients), in the group of open operations - 19.1% (17 patients).

Conclusions. Laparoscopic palliative and conditionally radical surgeries in patients with perforated ulcer have advantages in the early postoperative period, which is associated with minor pain syndrome and earlier activation of patients and, as a consequence, a decrease in the length of hospital stay. In the long-term two-year postoperative period, the results of palliative and conditionally radical operations in the laparoscopic and open versions did not differ significantly.

Key words: ulcer, perforation, laparoscopic treatment.

Relevance. For more than a century of development, surgery of peptic ulcer disease has passed a complex and controversial path. In the history of this section, stages can be distinguished that differed in the technical possibilities of surgical treatment and in the goal set by the surgeons, depending on the views on the etiology and pathogenesis of peptic ulcer that reigned at that time.

The first period – from the 80s of the XIX to the 20s of the XX century, the method of choice is gastroenterology. The second period – 30-60 years of the XX century, the method of choice – gastric resection. The third period – 70-90 years of the XX century – the rapid development of organ-preserving methods, vagotomy led to the expansion of the arsenal of surgical interventions and the use of the principle of individual choice of treatment method «each patient has his own operation» [1].

The successes achieved in the 80-90s of the twentieth century in the study of the pathogenesis of peptic ulcer disease associated with the discovery of the role of

Helicobacter pylori (HP) and the introduction into clinical practice of new antiulcer drugs (different generations of proton pump blockers) made it possible to reconsider the principle of treatment of peptic ulcer disease, to prefer a therapeutic method of treatment.

At the same time, there has been a steady tendency towards a decrease in the number of planned surgical interventions for duodenal ulcer (DU).

However, the use of modern advances in pharmacotherapy did not contribute to a decrease in the incidence of complications in gastroduodenal ulcers; therefore, there is still little hope for a significant reduction in the number of patients with breakthrough ulcers [4, 5]. The course of peptic ulcer disease is complicated by perforation in 5-15% of patients, which is 1.6-3.4% in the structure of acute surgical diseases of the abdominal organs [2, 3].

One of the priority directions in the development of modern abdominal surgery is the development and implementation of minimally invasive methods of

surgical interventions. Laparoscopic operations are becoming an alternative to standard technologies and occupy a certain place in the surgery of perforated duodenal ulcer. The low invasiveness of the method makes it possible not only to save the patient's life, but also predetermines the comfortable course of the postoperative period, a high cosmetic effect, and rapid physical and social rehabilitation of patients [6, 7].

Objective. To analyze the effectiveness of open and laparoscopic palliative and conditionally radical surgical interventions in patients with perforated duodenal ulcer in the early and late two-year periods.

MATERIALS AND METHODS

The analysis of the treatment of 181 patients with perforated duodenal ulcer was carried out. All patients were divided into two groups, according to the method of performing the surgery. The first group consisted of 92 patients who underwent palliative (suturing of the perforated hole) or conditionally radical (excision of an ulcer with duodenoplasty) laparoscopic operations (LO group), the second group – 89 patients who underwent similar operations in an «open» way (OO group).

The studied groups were comparable in terms of the main indicators. The average age of patients in the LO group was 36.2 ± 1.0 years, in the OO group – 35.1 ± 1.1 years ($p=0.502$). In both groups, there were significantly more men than women, 91.3% (LO) and 88.76% (OO), respectively.

The groups also did not differ significantly in the time elapsed from the onset of the disease to surgery. In patients of the LO group, it was 6.91 ± 0.18 hours, in patients of the OO group – 6.65 ± 1.19 hours, $p=0.316$.

In both groups, serous-fibrinous peritonitis was more often observed, less often fibrinous-purulent (Table 1).

Local and general peritonitis occurred with approximately the same frequency. There were no

statistically significant differences between the groups in the nature of peritonitis and its prevalence, $p=0.947$.

The diameter of the ulcer defect in patients of both groups ranged from 3 mm to 15 mm: in the LO group, on average, 6.24 ± 0.23 mm; in the OO group – 6.18 ± 0.22 mm, $p=0.85$.

After surgery, the intensity of pain was assessed in points using a visual analogue scale.

RESULTS AND ITS DISCUSSION

Analysis of the immediate results showed that laparoscopic palliative operations require less time compared to open ones. Thus, in patients of the LO group, the average duration of surgery was 57.8 ± 1.9 min (from 25 min to 100 min), and in the OO group – 83.2 ± 1.7 min (from 45 min to 120 min), $p=0.001$. This reduction in the time of surgical intervention is primarily due to the absence of the stage of suturing the anterior abdominal wall.

In the early postoperative period, patients reported pain in the area of surgery of varying intensity. In the first four days after surgery, the pain intensity was assessed in points using a visual analogue scale. On the first day after surgery, there were no patients in one of the groups who were not worried about pain. At the same time, it should be noted that after laparoscopic interventions pain with an intensity of 5-6 points (severe) was only in 14 (15.2%) patients, and after open interventions – in 42 (47.2%) patients. While weak and tolerant (2-4 points) was found in 78 (84.8%) patients in the LO group versus 47 (52.8%) patients in the OO group, $p<0.05$. In the following days of the postoperative period, a decrease in the intensity of pain was observed in both groups. On the 4th day, no pain or mild pain (0-2 points) was noted in 67 (72.8%) patients in the LO group and 32 (36.0%) in the OO group, $p<0.05$.

Table 2

Complications in the early postoperative period

Complications	Group LO		Group OO		Total		P
	abs.	%	abs.	%	abs.	%	
Suppuration of the wound	3	3,3	4	4,5	7	3,9	0,667
Pneumonia	2	2,2	4	4,5	6	3,3	0,383
Extrasystole, Atrial fibrillation	3	3,3	2	2,2	5	2,8	0,677
Abscesses	0	0,0	1	1,1	1	0,6	0,308
Failure of seams	1	1,1	0	0,0	1	0,6	0,324

Notes: LO – laparoscopic operations; OO – operations in an «open» way.

Table 1

Distribution of patients in groups by the nature of peritoneal exudate

The nature of the exudate	Group LO		Group OO		Total	
	abs.	%	abs.	%	abs.	%
Serous	34	37,0	31	34,8	65	35,9
serous fibrinous	54	58,7	54	60,7	108	59,7
fibrinous-purulent	4	4,3	4	4,5	8	4,4
Total	92	100	89	100	181	100

Notes: LO – laparoscopic operations; OO – operations in an «open» way.

The lower intensity of postoperative pain in the patients of the LO group contributed to the earlier activation of the patients in comparison with the OO group, which, as is known, is the prevention of thromboembolic, pulmonary and cardiovascular complications.

It should be noted that although there were no significant differences in terms of recovery of bowel function between the groups ($p=0.068$), on the third day the motor-evacuation activity of the intestine recovered in 63 (68.5%) patients after laparoscopic operations, and in 52 (58.4%) after open operations. Resumption of food intake was directly related to the timing of recovery of intestinal motility and was also statistically similar in the groups.

In the early postoperative period, a number of patients in both groups were diagnosed with complications, the list of which is given in Table 2.

The duration of hospital stay after laparoscopic operations averaged 5.11 ± 0.08 days (from 3 days to 7 days) and was significantly less than that in patients who underwent open surgery – 7.55 ± 0.11 days (from 5 days to 12 days), $p < 0.001$. This fact can be explained by the earlier activation of patients in the LO group and a slight pain syndrome in most of them, equally with patients in the OO group.

Long-term results of surgical treatment of patients were followed by us for up to two years. During this time, 11 patients dropped out of the total number of patients at different times and for various reasons (not related to peptic ulcer disease and surgery) – 6 from the LO group and 5 from the OO group. We considered the results of the examination of these patients as censored data. Ulcer recurrence occurred in 32 (17.7%) patients. The two-year cumulative incidence of ulcer recurrence in the LO group was 16.3% (15 patients), in the OO group – 19.1% (17 patients), there was no significant difference in the results between the groups ($p=0.628$). The main reason for relapse was discontinuation of antiulcer therapy. The largest absolute increase in the frequency of recurrence of peptic ulcer disease occurred in the period from 7 to 12 months, the smallest - in the interval 19-24 months.

CONCLUSIONS

1. Laparoscopic palliative and conditionally radical surgeries in patients with perforated ulcer have

advantages in the early postoperative period, which is associated with minor pain syndrome and earlier activation of patients and, as a consequence, a decrease in the length of hospital stay.

2. In the long-term two-year postoperative period, the results of palliative and conditionally radical operations in the laparoscopic and open versions did not differ significantly.

Конфлікт інтересів: відсутній /

Conflicts of interest: authors have no conflict of interest to declare.

Надійшла до редакції / Received: 25.05.2020

Прийнято до друку / Accepted: 29.06.2020

REFERENCES

1. Balalykin D.A. [The history of the development of surgical treatment of gastric ulcer and duodenal ulcer in Russia (late XIX - XX centuries)] // *Surgery*. 2001; 3: 64-6. [in Russian]. <http://stati3452.narod.ru/gaster/17.pdf>
2. Borisov A.E., Mitin S.E., Peshekhonov S.I. [et al.] [Laparoscopic suturing of perforated gastroduodenal ulcers] // *Endoscopic surgery*. 2000; 2: 12-3. [in Russian].
3. Afendulov S.A., Zhuravlev G.Yu., Kadirov K.M. [Rehabilitation of patients after suturing a perforated gastroduodenal ulcer] // *Scientific medical journal Avicenna Bulletin*. 2011; 4: 25-8. [in Russian]. <https://cyberleninka.ru/article/n/reabilitatsiya-bolnyh-posle-ushivaniya-perforativnoy-gastroduodenalnoy-yazvy/viewer>
4. Satsukevich V.N. [Surgical treatment of perforated gastroduodenal ulcers] // *Surgery*. 2001; 5: 24-7. [in Russian]. <http://stati3452.narod.ru/gaster/23.pdf>
5. Fomin PD, Povch OA. [Modern view on the problem of treatment of perforated gastroduodenal ulcers] // *Collection Science works of Shupika KMAPE*. Kyiv, 2001; 10 (4): 399-405. [in Ukrainian].
6. Minutolo V., Gagliano G., Rinzivillo C., Minutolo O., Carnazza M., Racalbuto A., Dipietro S., Destri G.L. Laparoscopic surgical treatment of perforated duodenal ulcer // *Chirurgia Italiana*. 2009 May-Jun; 61(3): 309-13. PMID: 19694232. <https://pubmed.ncbi.nlm.nih.gov/19694232/>
7. Karimian F., Aminian A., Lebaschi A.H., Mirsharifi R., Alibakhshi A. Perforated Peptic Ulcer, Comparison Between Laparoscopic and Open Repair // *Shiraz E-Medical Journal*. 2008; 10(1): 20-6. <https://sites.kowsarpub.com/semj/articles/73128.html>

ЕВОЛЮЦІЯ В ЛІКУВАННІ ВИРАЗКОВОЇ ХВОРОБИ ТА ЇЇ УСКЛАДНЕНЬ

Тутченко М.І., Васильчук О.В., Піотрович С.М., Ярошук Д.В., Андрієць В.С.

*Національний медичний університет імені О.О.Богомольця, Київ, Україна
dok.vov@gmail.com*

Актуальність. Виразкова хвороба дванадцятипалої кишки ускладнюється перфорацією у 5-15 % хворих. Пріоритетним напрямком абдомінальної хірургії є впровадження малоінвазивних методів. Лапароскопічні операції стають альтернативою стандартним технологіям.

Ціль: проаналізувати ефективність відкритих та лапароскопічних паліативних і умовно радикальних оперативних втручань у хворих з перфоративною виразкою дванадцятипалої кишки в ранньому та віддаленому дворічному періодах.

Матеріали та методи. Вивчено ефективність відкритих та лапароскопічних паліативних і умовно радикальних оперативних втручань у 181 хворого з перфоративною виразкою дванадцятипалої кишки в ранньому та віддаленому дворічному періодах. Пацієнти були розділені на дві групи: 92 пацієнта, яким виконувалися лапароскопічні операції та 89 хворих, яким операція виконувалася відкритим способом. Групи співставні за віком, часом від початку захворювання, діаметром виразкового дефекту. Після операції оцінювали інтенсивність болю в балах за візуально-аналоговою шкалою, швидкість загоєння. Аналізували ускладнення в ранньому післяопераційному періоді (нагноєння рани, пневмонія, екстрасистоля, миготлива аритмія, абсцеси, неспроможність швів). Аналізували розвиток перитоніту та його характеристики (серозно-фібринозний, фібринозно-гнійний; місцевий, загальний).

Результати. Лапароскопічні операції потребують меншого часу порівняно з відкритими. У перші чотири доби після операції середній бал болю був достовірно нижчим ($p < 0,05$) у хворих після малоінвазивних операцій. Відмічена тенденція до більш ранньої активізації пацієнтів групи лапароскопічних операцій. Тривалість перебування хворих у стаціонарі після лапароскопічних операцій складала в середньому $5,11 \pm 0,08$ доби (від 3 до 7 діб) і була достовірно меншою ($p < 0,05$) за таку у хворих, що перенесли відкриті операції. Дворічна кумулятивна частота рецидиву виразки в групі лапароскопічних операцій склала 16,3 % (15 хворих), в групі відкритих операцій – 19,1 % (17 хворих).

Висновки. Лапароскопічні паліативні і умовно-радикальні операції у хворих з перфоративною виразкою мають переваги в ранньому післяопераційному періоді, що пов'язано з незначним больовим синдромом та більш ранньою активізацією пацієнтів і, як наслідок, зменшенням тривалості перебування у стаціонарі. У віддаленому дворічному післяопераційному періоді результати паліативних і умовно-радикальних операцій в лапароскопічному і відкритому варіанті суттєво не відрізнялись.

Ключові слова: виразка, перфорація, лапароскопічне лікування.

ЭВОЛЮЦИЯ В ЛЕЧЕНИИ ЯЗВЕННОЙ БОЛЕЗНИ И ЕЕ ОСЛОЖНЕНИЙ

Тутченко Н.И., Васильчук А.В., Ярошук Д.В., Пиотрович С.М., Андриец В.С.

*Национальный медицинский университет имени А.А. Богомольца, Киев, Украина
dok.vov@gmail.com*

Актуальность. Язвенная болезнь двенадцатиперстной кишки осложняется перфорацией у 5-15% больных. Приоритетным направлением абдоминальной хирургии является внедрение малоинвазивных методов. Лапароскопические операции становятся альтернативой стандартным технологиям.

Цель: проанализировать эффективность открытых и лапароскопических паллиативных и условно радикальных оперативных вмешательств у больных с перфоративной язвой двенадцатиперстной кишки в раннем и отдаленном двухлетнем периодах.

Материалы и методы. Изучена эффективность открытых и лапароскопических паллиативных и условно радикальных оперативных вмешательств у 181 больного с перфоративной язвой двенадцатиперстной кишки в раннем и отдаленном двухлетнем периодах. Пациенты были разделены на две группы: 92 пациента, которым выполнялись лапароскопические операции и 89 больных, которым операция выполнялась открытым способом. Группы сопоставимыми по возрасту, времени от начала заболевания, диаметру язвенного дефекта. После операции оценивали интенсивность боли в баллах по визуально-аналоговой шкале, скорость заживления. Анализировали осложнения в раннем послеоперационном периоде (нагноение раны, пневмония, экстрасистолия, мерцательная аритмия, абсцессы, несостоятельность швов). Анализировали развитие перитонита и его характеристики (серозно-фибринозный, фибринозно-гнойный; местный, общий).

Результаты. Лапароскопические операции требуют меньше времени по сравнению с открытыми. В первые четверо суток после операции средний балл боли был достоверно ниже ($p < 0,05$) у больных после малоинвазивных операций. Отмечена тенденция к более ранней активизации пациентов группы лапароскопических операций. Продолжительность пребывания больных в стационаре после лапароскопических операций составляла в среднем $5,11 \pm 0,08$ суток (от 3 до 7 суток) и была достоверно меньше ($p < 0,05$) таковой у больных, перенесших открытые операции. Двухлетняя частота рецидива язвы в группе лапароскопических операций составила 16,3 % (15 больных), в группе открытых операций – 19,1% (17 больных).

Выводы. Лапароскопические паллиативные и условно-радикальные операции у больных с перфоративной язвой имеют преимущества в раннем послеоперационном периоде, что связано с незначительным болевым синдромом и более ранней активизацией пациентов и, как следствие, уменьшением продолжительности пребывания в стационаре. В отдаленном двухлетнем послеоперационном периоде результаты паллиативных и условно-радикальных операций в лапароскопическом и открытом варианте существенно не отличались.

Ключевые слова: язва, перфорация, лапароскопическое лечение.