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MILLIGAN–MORGAN OPEN HEMORRHOIDECTOMY VS HEMORRHOIDAL ARTERIES LIGATION WITH MUCOPEXY, COMBINED WITH POSTERIOR COLPORRAPHY AND LEVATOROPLASTY IN PATIENTS WITH OBSTRUCTED DEFECATION SYNDROM

Research article

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Abstract

According to modern concepts, hemorrhoids is one of the manifestations of prolapse in the posterior segment of the pelvis floor in women, which is clinically manifested by obstructed defecation syndrome (ODS).

The aim of the study was to improve the results of surgical treatment of hemorrhoidal disease in combination with obstructed defecation syndrome.

The study included 2 groups of 25 patients each with isolated grade III middle rectocele, ODS and grade 3–4 hemorrhoids. Group 1 patients underwent posterior colporraphy and anterior levatoroplasty for rectocele and Milligan–Morgan open hemorrhoidectomy in combination. Patients of the 2nd group underwent rectocele correction by a similar method, and hemorrhoids were treated with hemorrhoidal arteries' ligation with mucopexy (HAL–RAR). Pelvic prolapse and ODS were confirmed clinically, by ultrasound, MRI and defecography.

The main results were evaluated in the immediate postoperative period, after 6 months and 2 years. In the immediate postoperative period, 2 cases of bleeding were recorded in patients of the 1st group, no bleeding was observed in patients of the 2nd group. In patients of the 2nd group, the pain syndrome was characterized by a shorter duration and intensity and, in general, was relieved by 3–4 days, in patients of the 1st group – by 6–7 days after surgery. Self-defecation was restored 1–2 days earlier in most patients of the 2nd group. Edema in the perianal area after the first act of defecation was noted in 4 out of 25(16%) patients of the 1st group, in contrast to the 2nd group, where this complication was not noted ($p < 0.01$). After 6 months, no complications were recorded in either group. Clinical signs of a decrease in symptoms of obstructive defecation were noted in both groups, the severity of which was 4.5 ± 0.9 points in group 1 and 4.7 ± 0.7 points in group 2 ($p = 0.65$) according to the questionnaire of D.F.Altomare et al. (2008). These data were confirmed by the results of defecography. After 2 years, recurrence of hemorrhoidal prolapse was noted in 5(20%) patients of the 2nd group. There was no recurrence of prolapse in patients of the 1st group. Satisfaction with the operation was higher in patients of the 2nd group after 6 months, and in patients of the 1st group 2 years after the operation.

The undoubted advantage of HAL–RAR is the minimally invasive procedure. Long-term results are better after rectocele correction in combination with hemorrhoidectomy.

Keywords: rectocele, obstructed defecation syndrome, hemorrhoids, surgical treatment.

СРАВНИТЕЛЬНЫЕ РЕЗУЛЬТАТЫ ОТКРЫТОЙ ГЕМОРРОИДЭКТОМИИ ПО МИЛЛИГАНУ–МОРГАНУ И ЛИГИРОВАНИЯ ГЕМОРРОИДАЛЬНЫХ АРТЕРИЙ С МУКОПЕКСИЕЙ В КОМПЛЕКСЕ С ЗАДНЕЙ КОЛЬПОРАФИЕЙ И ПЕРЕДНЕЙ ЛЕВАТОРОПЛАСТИКОЙ ПО ПОВОДУ СИНДРОМА ОБСТРУКТИВНОЙ ДЕФЕКАЦИИ

Научная статья

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Аннотация

По современным представлениям, геморрой является одним из проявлений пролапса в области заднего сегмента таза у женщин, который клинически проявляется синдромом обструктивной дефекации (СОД).

Целью исследования явилось улучшение результатов хирургического лечения геморроидальной болезни в комплексе с СОД.

В исследование было включено 2 группы пациенток по 25 человек в каждой с изолированным средним ректоцеле III степени, проявляющимся синдромом обструктивной дефекации и геморроем 3–4-ой степени. Пациенткам 1-ой группы производилась задняя кольпорафия и передняя леваторопластика по поводу ректоцеле и открытая геморроидэктомия по Миллигану–Моргану в комбинации. Пациенткам 2-ой группы выполнялась коррекция ректоцеле аналогичным методом, а по поводу геморроя производилась лигирование геморроидальных артерий с мукопексией (HAL–RAR). Тазовый пролапс и синдром обструктивной дефекации подтверждался клинически, УЗИ, МРТ и дефекографией.

Результаты оценивались в ближайшем послеоперационном периоде, через 6 месяцев и 2 года. В ближайшем послеоперационном периоде у больных 1-ой группы было зафиксировано 2 случая кровотечения, у пациенток 2-ой группы кровотечения не отмечалось. У пациенток 2-ой группы болевой синдром отличался меньшей продолжительностью и интенсивностью и купировался к 3–4-ым суткам, у пациенток 1-ой группы – к 6–7-ым суткам после операции. Самостоятельная дефекация на 1–2 суток раньше восстанавливалась у большинства пациенток 2-ой группы. Отёк перианальной области после первого акта дефекации имел место у 4 из 25 (16 %) пациенток 1-ой группы, в отличие от 2-ой группы, где это осложнение не отмечалось ($p < 0,01$). Через 6 месяцев, осложнений не было зафиксировано ни в одной, ни в другой группе. Отмечены клинические признаки уменьшения СОД, выраженность которых составила по опроснику D.F.Altomare и соавт. (2008), $4,5 \pm 0,9$ баллов в 1-ой группе и $4,7 \pm 0,7$ баллов во 2-ой группе ($p = 0,65$). Эти данные подтверждены результатами дефекографии. Через 2 года рецидивы выпадения узлов отмечены у 5 (20%) пациенток 2-ой группы. У пациенток 1-ой группы рецидива выпадения не отмечено. Удовлетворенность операцией через 6 месяцев была выше у пациенток 2-ой группы, а через 2 года после операции – у пациенток 1-ой группы.

Несомненным преимуществом HAL–RAR является малоинвазивность процедуры. Отдаленные результаты лучше после коррекции ректоцеле в комбинации с геморроидэктомией.

Ключевые слова: ректоцеле, синдром обструктивной дефекации, геморрой, оперативное лечение.

Introduction

Hemorrhoids occupy a leading place among coloproctological diseases. The prevalence of hemorrhoids among the general population reaches 50%. Without leading to fatal outcomes, it has a significant impact on both the quality of life of patients and the cost of their medical care [1].

Constipation is considered to be one of the main causes of unfavorable outcomes of surgical treatment of hemorrhoids and relapses of the disease [2]. Difficult emptying of the rectum, or obstructed bowel defecation syndrome (ODS), is noted in women with pelvic organ prolapse in the posterior segment of the pelvic floor. It was first described by A.G.Parks back in 1966. He also came to the conclusion that hemorrhoids may be one of the manifestations of pelvic prolapse. Many other researchers are inclined to the same conclusion [3].

There are two etiopathogenetic mechanisms of hemorrhoid development. Based on the first, vascular malfunction leads to increased blood flow from the arteries to the cavernous bodies and a decrease in outflow through the cavernous veins. This leads to an increase in the size of the cavernous bodies and the development of hemorrhoids. Based on another mechanism, atrophic changes occur in the longitudinal muscle and the Parks ligament of the submucosal layer of the rectum, which weakens the support of hemorrhoids inside the anal canal. Due to the effects of adverse conditions, hemorrhoids increase, and they shift downward and eventually fall out of the anal canal [4].

Despite this, for decades, the object of intervention was a consequence of pelvic floor prolapse – hemorrhoids, and not its cause – weakness of the connective tissue and muscle structures of the pelvic floor, manifested by ODS. In our previous studies, it was shown that rectocele correction has a positive effect on the course of the postoperative period and long-term results after Milligan–Morgan open hemorrhoidectomy [5].

However, the doubts of the patients associated with the expansion of the scope of the operation forces us to look for other ways to solve the problem. One of these ways, in our opinion, is the use of minimally invasive methods for the treatment of hemorrhoidal disease.

Aim: improving the results of surgical treatment of hemorrhoidal disease in combination with obstructed defecation syndrome.

Research methods and principles

In this study, the results of hemorrhoidectomy and ligation of hemorrhoidal arteries with mucopexy (HAL–RAR) were compared in patients with grade 3–4 hemorrhoids on the background of rectocele manifested by obstructed defecation syndrome (ODS). The study included 50 patients with grade 3–4 hemorrhoids and grade 3 medium rectocele, manifested by ODS. Hemorrhoids were diagnosed clinically and based on anoscopy. The clinical diagnosis of rectocele was confirmed by ultrasound, magnetic resonance imaging (MRI) and defecography. The same research methods were performed in the postoperative period to monitor the effectiveness of the operation. The intensity of pain in the postoperative period was assessed on a 10-point analog scale. The severity of ODS was assessed using a questionnaire developed by D.F. Altomare et al. [6].

The first group consisted of 25 patients who underwent posterior colporaphy and anterior levatoroplasty with vaginal access in combination with Milligan–Morgan open hemorrhoidectomy. The second group consisted of 25 patients who underwent the HAL–RAR procedure after rectocele correction using a similar method. The groups were formed by randomization using the "envelopes" method. All patients signed an informed consent to participate in the study. Both groups

did not differ significantly in demographic indicators, severity of hemorrhoidal disease, ODS on the Altomare scale, and concomitant pathology (See table 1). In the main group, as in the control group, concomitant diseases in patients had compensation stages.

Table 1 - Characteristics of patient groups by demographic indicators, stage of hemorrhoidal disease, severity of obstructed defecation syndrome and presence of concomitant diseases

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The main indicators	Patient groups		Validity of differences, p
	Group 1 n = 25	Group 2 n = 25	
Demographics			
Age (years)	53,9 ± 4,7	52,4 ± 5,2	0,6
Body mass index (kg/m ²)	30,1 ± 4,1	29,5 ± 2,7	0,4
Number of births	2,2 ± 0,5	2,4 ± 0,7	0,6
Menopause	7 (28%)	5 (20%)	0,3
Smoking	4 (16%)	3 (10%)	0,2
The stage of hemorrhoidal disease:			
III	17 (68%)	16 (64 %)	0,5
IV	8 (32%)	9 (26 %)	0,35
Severity of ODS (in points)	22,6 ± 3,1	23.4 ± 2.3	0.6
Concomitant pathology			
Chronic obstructive pulmonary disease	7 (28%)	6 (24%)	0,45
Diabetes mellitus	5 (20%)	4 (16%)	0,35
Coronary heart disease	17 (68%)	14 (56%)	0,3
Combination of diseases	18 (72%)	17 (68%)	0,4

The criteria for non-inclusion in the study group were as follows: previous surgery in the anorectal area, concomitant anorectal diseases such as anal fissure, pararectal fistula, abscess, prolapse of the rectum and incontinence of intestinal contents.

In both groups, the intervention was performed under epidural anesthesia. Rectocele correction was performed at the first stage, and hemorrhoidectomy or HAL–RAR procedure was performed at the second stage. Approximately 2 hours before the procedure, all patients underwent microclystation to cleanse the rectum twice, with an interval of 1 hour, which included sorbitol, sodium citrate, sodium lauryl sulfoacetate. All surgical procedures were performed under epidural anesthesia. Antibiotic prophylaxis consisted of a single intraoperative injection of second-generation cephalosporin. At the end of the operation, a cylindrical hemostatic sponge with a hole in the center, containing furacilin and boric acid as antiseptics, was injected into the anal canal of both patients, and a gauze swab soaked in Levomekol ointment on a water–soluble basis containing the antibiotic levomecithin was inserted into the vagina.

In the postoperative period, a standard protocol of anesthesia was used with oral paracetamol 500 mg every 6 hours and intravenous administration of parecoxib sodium 40 mg twice a day. This ensured satisfactory pain control in most patients. However, 3 patients (1 patient from the HAL–RAR group and 2 patients from the hemorrhoidectomy group) were prescribed additional opioid analgesics (50 mg of tramadol orally every six hours for a total of 48 hours) to achieve optimal pain control.

The removal of the hemostatic sponge was carried out as usual 24 hours after the procedure, if it had not dissolved earlier. The urethral catheter was also removed after 24 hours. Patients were discharged from the hospital usually on the 5th day after surgery, followed by outpatient follow-up. Upon discharge, patients were given specific instructions regarding pain relief, return to normal life, and wound treatment after hemorrhoidectomy and rectocele repair. More specifically, the patients were advised to take oral paracetamol in combination with ibuprofen or without it, depending on the severity of the pain, suppositories with methyluracil in the anus and injection of Olazol foam into the vagina, as well as gauze pads on the perineum to avoid contact of wounds with linen during the first 10 days. In the early postoperative period, the success of rectocele correction was confirmed by ultrasound and MRI, and defecography was performed in the long-term postoperative period.

Main results

After removal of the urethral catheter inserted before surgery, urinary retention was not observed in any of the patients from both groups.

As for complications in the immediate postoperative period, we recorded 2 cases of clinically significant postoperative bleeding in patients after hemorrhoidectomy on the day of surgery and the next day. In one patient, the bleeding could not be stopped with the help of local conservative measures, such as a hemostatic sponge inserted into the anal canal, and a second

operation was required, during which the bleeding vessel was ligated. No significant bleeding was observed in patients after HAL–RAR in the postoperative period. There was only a small amount of blood excretion during defecation in 10 (45%) patients, which stopped by the 9th– 10th day. In the long-term follow-up, bleeding was not observed in either group. None of the patients included in the study had septic complications.

On the first day after surgery, patients reported moderate pain, mainly patients of the HAL–RAR group, and severe pain in the anus, mainly patients after hemorrhoidectomy, the intensity of which averaged $3,7 \pm 1,1$ points and $4,9 \pm 1,3$, ($p = 0,25$). On day 2, the pain was less pronounced and did not differ in intensity in the groups, ranging from 3 to 4 points, on average $3,1 \pm 0,5$ points, and was almost stopped by the end, amounting to $2,3 \pm 0,5$ points.

In patients after hemorrhoidectomy, the first self-defecation was usually restored 3 days after surgery: in 20 (80%) patients. In patients after HAL–RAR, self-defecation occurred a day later in 6 (24%) patients, and in the rest - after 2 days. Patients who underwent HAL–RAR had less pronounced pain syndrome after the act of defecation, on average, $3,5 \pm 0,9$ points, compared with patients after hemorrhoidectomy – $4,5 \pm 0,6$ points ($p = 0,2$). Upon further observation, it was noted that in patients of the 2nd group, the pain syndrome was characterized by a shorter duration and generally stopped by 3–4 days, in patients of the 1st group – by 6–7 days after surgery. Observations showed that edema of the perianal area after the first act of defecation occurred in 4 out of 25 (16%) patients of the 1st group, in contrast to the 2nd group, where this complication was not noted ($p < 0,01$).

In the long-term period, after 6 months, no complications were recorded in either group. Clinical signs of a decrease of ODS were noted in both groups. According to the D.F. Altomare et al. questionnaire, their severity was $4,5 \pm 0,9$ points in group 1 and $4,7 \pm 0,7$ points in group 2 ($p = 0,65$). This conclusion was also confirmed by defecography after 6 months and after 2 years. As in the 1st and 2nd groups, defecography revealed the absence or insignificant degree of rectocele, corresponding to stage 0–I. Analysis of the results of defecography before surgical treatment of rectocele revealed a decrease in the rate of barium evacuation in all patients compared with the standard values. After surgery, there was an increase in the rate of its evacuation after both 6 months and 2 years in both groups (See table 2).

Table 2 - Study of the effectiveness of surgical treatment of rectocele using defecography

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Indicators measured during defecography	Before surgery	6 months after surgery	2 years after surgery	Validity of differences, p
Rectocele size (cm)	$4,9 \pm 0,8$	$1,6 \pm 0,8$	$1,7 \pm 0,7$	$P_1 < 0,01$ $P_2 < 0,01$
Barium evacuation rate (g/sec) (norm $5,6 \pm 0,9$ g/sec)	$3,4 \pm 0,9$	$5,4 \pm 0,8$	$5,3 \pm 0,6$	$P_1 < 0,01$ $P_2 < 0,01$
Residual volume of barium after emptying, % (norm up to $16,5 \pm 5,3\%$)	$40,2 \pm 6,5$	$17,9 \pm 5,4$	$18,4 \pm 4,7$	$P_1 < 0,005$ $P_2 < 0,005$

Note: $n = 50$;

P_1 – the reliability of differences in indicators before surgery and 6 months after surgery;

P_2 – the reliability of differences in indicators after 6 months and 2 years after surgery;

P are calculated using the Mann–Whitney criterion

Recurrent hemorrhoidal disease was considered to be ongoing hemorrhoidal prolapse, blood discharge during defecation, anal itching and discomfort in the anal canal. During follow-up after 2 years, we registered 5 relapses (20%) in the HAL–RAR group, consisting of hemorrhoidal prolapse, in the group where hemorrhoidectomy was performed, no such relapses were noted. In the subgroup of patients with itching, pain, or discomfort as characteristic symptoms, the recurrence rate was significantly lower in patients after hemorrhoidectomy than in the HAL–RAR group: 1 (4%) and 4 (16%), respectively ($p < 0,03$). In the subgroup of patients with bleeding, 3 cases were noted as the main symptom of recurrence in the group after HAL–RAR, in the group after hemorrhoidectomy, blood discharge during defecation was not observed in any patient after 2 years.

As for the patients' satisfaction with the treatment results on a 10-point scale (from "unsatisfactory" to "excellent"), after 6 months it was higher in the group where HAL–RAR was performed than in the group where hemorrhoidectomy was performed: $8,8 \pm 1,5$ and $5,7 \pm 1,8$ points, respectively ($p = 0,04$) This is due to the lower invasiveness of manipulation and a shorter recovery period. After 2 years, patient satisfaction was higher in the group where hemorrhoidectomy was performed: $8,9 \pm 1,2$ points and $6,7 \pm 1,5$ points, respectively ($p = 0,05$), which we associate with a high percentage of relapses in the group of patients who underwent HAL–RAR.

Discussion

Surgical treatment of ODS is one of the most discussed topics in coloproctology. Various methods of rectocele correction using vaginal, perineal, transanal, and combined approaches have been proposed [7]. In our practice, with isolated middle rectocele, we use vaginal access according to our developed technique, which eliminates the convergence of levator muscles along the midline and eliminates dyspareunia. At the same time, ODS correction occurs, which in our study is confirmed by clinical and proctography data [8].

According to various authors, one of the etiological factors in the development of hemorrhoidal disease is ODS. The pathogenesis of hemorrhoids is closely interrelated with the pathogenesis of pelvic prolapse [9]. Rectocele correction eliminates this factor and promotes a more favorable course of the period after surgical treatment of hemorrhoids. This fact, in our opinion, provides an answer to the question of why the postoperative period is favorable in some patients, while in others it is associated with many complications [5].

Milligan–Morgan open hemorrhoidectomy has been the main surgical treatment for hemorrhoids for many years [10]. However, severe pain in the postoperative period and a long period of rehabilitation, even in the absence of constipation, makes it necessary to approach this method with caution if it is performed in combination with rectocele correction [5]. In the last two decades, a number of minimally invasive hemorrhoid treatment methods have been proposed, including HAL–RAR [11]. According to the authors who use it, this technique can not only relieve patients from hemorrhoidal disease, but also from ODS due to mucopexy [12]. According to the results of our study, mucopexy did not significantly affect the severity of the course of ODS. In the group where hemorrhoidectomy was performed and in the group where HAL–RAR was performed, the results of ODS treatment did not differ, possibly due to rectocele correction, which was not accompanied by prolapse of the rectal mucosa.

Conclusion

Thus, despite the greater volume of intervention in patients with rectocele and hemorrhoidal disease, consisting of posterior colporaphy and anterior levatoroplasty for relief of SOD and hemorrhoidectomy, their long-term results were better than in patients who underwent the HAL-RAR technique to treat a similar pathology, in addition to rectocele plastic surgery. Although the undoubted advantage of the latter is minimally invasive, which is an important factor in the treatment of combined pathology.

Конфликт интересов

Не указан.

Рецензия

Все статьи проходят рецензирование. Но рецензент или автор статьи предпочли не публиковать рецензию к этой статье в открытом доступе. Рецензия может быть предоставлена компетентным органам по запросу.

Conflict of Interest

None declared.

Review

All articles are peer-reviewed. But the reviewer or the author of the article chose not to publish a review of this article in the public domain. The review can be provided to the competent authorities upon request.

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