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PREVENTION OF DYSPAREUNIA WHEN PERFORMING TRANSVAGINAL RECTOCELE CORRECTION

Research article

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Abstract

In approximately 10-15% of patients, posterior colporrhaphy in combination with anterior levatoroplasty does not lead to positive functional results, despite complete anatomical correction. In particular, these women, against the background of normalization of defecation, retain pulling sensations in the perineum and dyspareunia.

Reduction in the frequency of dyspareunia after transvaginal correction of rectocele.

100 patients with rectocele of II-III degree were included in the study in the period 2015-2018. They were divided into two groups of 50 patients by randomization. The first, main, group of patients underwent surgery according to the developed technique by creating a connective tissue layer between the levator-muscles. The second, control group of patients underwent posterior colporrhaphy and anterior levatoroplasty according to the classical method. Evaluation of the results of treatment was carried out in the near and long term after surgery using clinical, radiological and functional examination methods.

In patients of both groups, the immediate postoperative period proceeded without complications. The pain syndrome in the study groups was comparable and expressed slightly: 3.8±0.7 points in the main group and 3.9±0.8 points in the control group (P=0.925). The results of defecography after a year testified to the correction of rectocele in both groups and remained at the level of stage 0-I after 3 years. Normalization of the evacuation function was also noted. The rate of emptying from barium approached normal values in both groups by the time of observation, amounting to 5.4±0.6 g/sec in the main group and 5.3±0.7 g/sec in the control group (P=0.914), after 3 years 5.5±0.7 g/sec and 5.6±0.5 g/sec (P= 0.907). There was also a decrease in the residual volume of barium after emptying in both groups: 19.1±4.9% and 20.8±6.4% (P= 0.0.833) and 19.9±5.1% and 22.1±4.5% (P=0.747). There was an increase in the sensitivity of the rectum to a small volume of contents and their decrease for the urge to defecate in both groups according to the terms of observation during physiological studies. Nevertheless, after 3 years, 15 patients of the control group had a feeling of discomfort in the perineum, and 7 of them had dyspareunia. The patients of the main group had no such complaints.

The developed method of plastic surgery of the rectovaginal septum in rectocele makes it possible to completely correct this pathology anatomically and normalize the act of defecation. Unlike the classical method, it does not cause discomfort in the perineum and dyspareunia.

Keywords: Rectocele, colporrhaphy, levatoroplasty, dyspareunia.

ПРОФИЛАКТИКА ДИСПАРЕУНИИ ПРИ ТРАНСВАГИНАЛЬНОЙ КОРРЕКЦИИ РЕКТОЦЕЛЕ

Научная статья

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Аннотация

Примерно у 10-15% пациенток задняя кольпорафия в сочетании с передней леваторопластикой не приводит к положительным функциональным результатам, несмотря на полную анатомическую коррекцию. В частности, у таких женщин на фоне нормализации дефекации сохраняются тянущие ощущения в промежности и диспареуния.

Снижение распространенности диспареунии после трансвагинальной коррекции ректоцеле.

В исследование были включены 100 пациенток с ректоцеле II-III степени в период 2015-2018 гг. Случайным образом они были разделены на две группы по 50 пациентов. Первой, основной, группе пациенток была выполнена операция по разработанной методике путем создания соединительнотканной прослойки между поднимающими мускулами. Второй, контрольной, группе пациенток проводилась задняя кольпорафия и передняя леваторопластика по

классической методике. Оценка результатов лечения проводилась в ближайшие и долгосрочные сроки после операции с использованием клинических, рентгенологических и функциональных методов исследования.

У пациенток обеих групп послеоперационный период протекал без осложнений. Болевой синдром в исследуемых группах был сопоставим и выражен незначительно: 3,8±0,7 балла в основной группе и 3,9±0,8 балла в контрольной (P=0,925). Результаты дефекографии через год свидетельствовали о коррекции ректоцеле в обеих группах и оставались на уровне стадии 0-I через 3 года. Также была отмечена нормализация функции испражнения. Скорость испражнения от бария приблизилась к нормальным значениям в обеих группах к моменту наблюдения, составив 5,4±0,6 г/сек в основной группе и 5,3±0,7 г/сек в контрольной (P=0,914), через 3 года 5,5±0,7 г/сек и 5,6±0,5 г/сек (P=0,907). Также наблюдалось снижение остаточного объема бария после испражнения в обеих группах: 19,1±4,9% и 20,8±6,4% (P= 0,0833) и 19,9±5,1% и 22,1±4,5% (P=0,747). По срокам наблюдения при физиологических исследованиях в обеих группах отмечалось повышение чувствительности прямой кишки к небольшому объему содержимого и снижение на позыв к дефекации. Тем не менее через 3 года у 15 пациенток контрольной группы появилось ощущение дискомфорта в промежности, а у 7 из них – диспареуния. У пациенток основной группы таких жалоб не было.

Разработанный способ пластической операции ректовагинальной перегородки при ректоцеле позволяет полностью анатомически исправить данную патологию и нормализовать акт дефекации. В отличие от классического метода, он не вызывает дискомфорта в промежности и диспареунии.

Ключевые слова: Ректоцеле, кольпорафия, леваторопластика, диспареуния.

Introduction

Rectocele is a diverticular–like protrusion of the anterior wall of the rectum towards the vagina [1]. This is a common pathology in women with a history of two or more births. The percentage of morbidity increases with age, which is associated with atrophic processes in connective and muscular tissue and is 40-70% [2], [3]. Currently, there are different opinions about the choice of the rectocele correction method and often depend on the preference of the surgeon, most of whom consider the transvaginal method using the patient's own tissues to be the most suitable for correcting the lower and middle rectocele without concomitant prolapse of the rectal mucosa and perineum [3], [4]. It is described in many manuals on coloproctology and gynecology [1]. The essence of this method consists in excision of the mucous membrane of the posterior vaginal wall and separation of its edges to the sides, preparation of the anterior portions of the levator-muscles, subsequent imposition of several rows of plication sutures on the anterior wall of the rectum (rectovaginal fascia) in the transverse direction and suturing of the levator-muscles with a second row of sutures. However, despite the complete anatomical correction, according to proctography and normalization of the act of defecation [3], [4], [5], [6], some patients have a feeling of discomfort in the vagina and rectum and pain during sexual intercourse [6], [7], which, in our opinion, is associated with suturing of the levator-muscles, the medial edges of which are along the central line of the pelvis do not touch each other normally [8]. This fact indicates the need to modify the described method of surgical treatment of rectocele.

Aim

Reduction in the frequency of dyspareunia after transvaginal correction of rectocele.

Research methods and principles

The study was conducted by the staff of the Hospital Surgery Department of the Belgorod State National Research University on the basis of the Coloproctology Department of the Belgorod Regional Clinical Hospital of St. Joasaph. The study included 100 patients with isolated lower and middle rectocele of II-III degree in the period 2015-2018. The study was approved by the local ethics committee of the Belgorod Regional Clinical Hospital of St. Joasaph. All patients signed an informed consent to participate in the study. The patients were divided into two groups of 50 people by randomization by the envelope method. In the control group, the patients underwent posterior colporrhaphy and anterior levatoroplasty according to the classical method described above. The operation was performed on the patients of the main group according to the method developed by us, which consists in the following. The mucous membrane of the posterior vaginal wall was excised in the form of a rhombus from the skin of the perineum to the middle of the upper third of the vagina. Its edges were separated from the sides to the sides, reaching the rectal arches. Preparation of the anterior portions of the levator-muscles was performed. Hemostasis was carried out by electrocoagulation of blood vessels during the operation. The anterior wall of the rectum in the upper and middle thirds of the vagina was plicate in the transverse direction without capturing the mucous membrane of the rectum with 4-5 sutures. From the level of the lower third of the vagina in the caudal direction, the edge of the levator-muscle was captured into the seam on the one hand, several plicate stitches were done on the rectovaginal fascia with the same thread, then the edge of the levator-muscle was captured on the other side, the edges were tightened. Thus, 4-5 stitches were applied with a step of 0.6-0.8 cm. After that, as with the previous technique, the edges of the vaginal mucosa were sutured. During both techniques, a long-term absorbable suture material was used. The peculiarity of the technique was that the levator-muscles did not touch along the midline, forming an angle between them, as is normal in healthy nulliparous women.

The patients of both study groups did not differ in age, which was 45.8±2.4 years in the main group and 43.9±2.8 years in the control group (P=0.607). The compared groups were homogeneous in the number of births in the anamnesis: 2.3±0.7 in the main group and 2.5±0.6 in the control group (P=0.828). The patients of the compared groups also did not differ significantly in the frequency of occurrence of concomitant pathology affecting the course and relapses of rectocele, namely chronic obstructive pulmonary disease, which entails a frequent increase in intra-abdominal pressure when coughing, which was present in 5 patients of the main group and 6 patients of the control group; diabetes mellitus, affecting the course the wound process in the postoperative period, which took place in 6 patients of the main group and in 7 patients of the control group. The groups were also compared by the number of smokers in them, due to chronic cough: 11 and 14 patients in each group, respectively. Most of the patients in both groups had an increased body weight. The body mass index was comparable in both groups and amounted to 31.2±4.1 kg/m2 in the main group and 30.6 ±4.9 kg/m2 in the control group (P=0.863). The groups were also compared according to the severity of rectocele II and III degrees: in the main group, this ratio was 29 (58%) and 21

(42%), in the control group – 27 (54%) and 23 (46%), P = 0.828. Thus, the formed groups of patients turned out to be homogeneous in all the indicators taken into account. The analysis of the treatment results included an assessment of the course of the wound process and the severity of the pain syndrome in the immediate postoperative period on a 10-point scale. Then the results of treatment were monitored a year later and 3 years after surgery. During these periods, defecography and ultrasound with perineal access were performed. Physiological studies were conducted to assess the sensitivity of the rectum to small volumes of filling and maximum tolerable. The process of defecation was evaluated by conducting a balloon test: the patient's ability to hold, and then freely push out the balloon, with a volume of 50 ml. The quality of life was also assessed according to the following indicators: evacuation function of the rectum during defecation, discomfort in the perineum, dyspareunia. The patient assessed each of them as "good", "satisfactory", "unsatisfactory".

The results were processed statistically on a personal computer using the Biostatistics program for Windows 10 developed by Glantz S.A. The parameters of the distribution of the analyzed features were indicated in the form: average result ± standard deviation (X ± σ), n - sample size (group size). The statistical significance of the study data was evaluated by a number of methods, taking into account the nature of the trait and the type of distribution. When comparing quantitative variables in the groups of the studied patients, a pair comparison was carried out according to the Mann—Whitney criterion. For multiple comparison of average values, one-factor analysis of variance using the Newman-Keils criterion was used. The significance level was considered P< 0.05.

Main results

The results of the studies showed that the course of the postoperative period in both groups was favorable. The pain syndrome was expressed slightly and was 3.8±0.7 points on a ten-point scale in the main group and 3.6± 0.9 points in the control group (P=0.861) with its gradual decrease by the 3rd day. The course of the wound process in most patients of both groups was without pronounced inflammation. Purulent complications were not observed in any patient. Edema and inflammatory infiltration of the wound edges were observed in 11 (22%) patients of the main group and in 13 (26%) patients of the control group (P=0.953) They were stopped at all for 6-7 days against the background of the use of tampons impregnated with a multicomponent ointment on a water-soluble basis "Levomekol" for the treatment. Evaluation of the anatomical results of treatment using defecography showed that in patients of both groups rectocele correction was achieved after a year and corresponded to stage 0-I, after 3 years, the results achieved were preserved in most patients. Before surgical treatment, according to the results of defecography, there was a decrease in the rate of release from barium in all patients of both groups. After the operation, they had an increase in it without significant differences between the groups, including in the long term. There was also a decrease in the contrast agent remaining after evacuation (Table 1).

Table 1 - Results of rectocele correction according to defecography data by observation period

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The main indicators of defecography	Main group			Control group			Validity of differences
	Before surgery	1 year after surgery	3 year after surgery	Before surgery	1 year after surgery	3 year after surgery	
Rectocele size (cm)	4.8±0.8	1.7±0.5	1.8±0.3	4.7±0.7	1.8±0,4	2.0±0.5	P =0.000 P*=0.370 P**=0.000 P***=0.274
Barium evacuation rate (g/sec) (norm 5.6±0.9 g/sec)	3.3±0.4	5.2±0.6	5.3±0.5	3.4±0.5	5.4±0.5	5.2±0.4	P = 0.009 P*= 0.898 P**=0.538 P***=0.794
Residual volume of barium after emptying (norm up to 16.5±5.3 %)	39.1±6.5	18.7±6.1	19.2±4.9	39.9±6.7	19.8±4.7	21.6±4.5	P =0.316 P*=0.979 P*=0.015 P***= 0.782

Note: n=50; P- the reliability of differences in indicators before surgery and 1 year after surgery in the main group; P ˚ - the reliability of differences in indicators 1 year and 3 years after surgery in the main group; P ˚˚– the reliability of differences in indicators before surgery and 1 year after surgery in the control group; P ˚˚˚ - the reliability of differences in indicators after 1 year and 3 years after surgery in the control group; P is calculated based on the Newman-Keil's criterion

The assessment of the reflex function of the rectum showed an improvement in its sensitivity to small volumes of filling and a decrease in the volumes that cause the urge to defecate in the main and control groups, which persisted over the long-term follow-up. There was also a tendency to normalize the volumes causing the rectoanal inhibitory reflex and normalize its duration (Table 2).

Table 2 - Assessment of the reflex function of the rectum according to Poligraf ID data by observation period

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The main indicators of reflex function	Main group			Control group			Validity of differences
	Before surgery	1 year after surgery	3 year after surgery	Before surgery	1 year after surgery	3 year after surgery	
Sensitivity threshold (in healthy volunteers 18.7 ±5.1 ml)	33.9±0.9	20.9±0.6	21.8±0.8	33.2±0.9	22.1±0,6	23.2±0.8	P =0.000 P*=0.370 P**=0.000 P***=0.274
The volume causing the urge to defecate (in healthy volunteers 72.6 ± 0.9 g/sec)	84.1±5.2	76.2±1.8	77.9±2.1	85.2±4.1	75.9±2.6	76.9±2.8	P =0.154 P*=0.540 P**=0.538 P***=0.794
The amplitude of the rectoanal inhibitory reflex (in healthy volunteers 32.5±2.8 mm Hg)	47.8±5.9	36.9±4.9	37.3±5.2	48.5±5,7	36.9±4.9	36.8±5.1	P =0.158 P*=0.955 P**=0.162 P***=0.988
Duration of rectoanal inhibitory reflex (in healthy volunteers 15.6 ±1.7 sec	26.9±4.3	17.9±3.9	18.3±4.1	27.4±3.5	16.3±3.2	17.1±3.8	P =0.124 P*=0.943 P**=0.021 P***=0.872

Note: n=50; P- the reliability of differences in indicators before surgery and 1 year after surgery in the main group; P ˙ - the reliability of differences in indicators after 1 year and 3 years after surgery in the main group; P ¨– reliability of differences in indicators before surgery and 1 year after surgery in the control group; P ˙˙˙- the reliability of differences in indicators after 1 year and 3 years after surgery in the control group; P is calculated based on the Newman-Keil's criterion

The improvement of the evacuation capacity of the rectum after surgical treatment was also confirmed by the ability to push out a 50 ml balloon without significant difficulties. Before the operation, only 11 (22%) patients of the main and 12 (24%) of the control group were able to perform it. A year and 3 years after the operation, the test was successfully performed

by all patients of both groups. Thus, the subjective assessment of treatment results in bowel function improvement in the main group was higher (Table 3).

Table 3 - Subjective assessment of treatment results by patients

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Main indicators of quality of life (number of patients)	Основная группа						Контрольная группа						Validity of differences
	Before surgery		1 year after surgery		3 years after surgery		Before surgery		1 year after surgery		3 years after surgery		
	n	%	n	%	n	%	n	%	n	%	n	%	
Good	0	0	40	80	36	72	0	0	38	76	35	70	P =0.000 P*= 0.899 P**=0.000 P***= 0.886
Satisfactory	0	0	8	16	10	20	0	0	9	18	10	20	P =0.000 P*= 0.772 P**=0.000 P***=0.655
Unsatisfactory	50	100	2	4	4	8	50	100	3	6	5	10	P =0.000 P*= 0.596 P**= 0.000 P***= 0.655

Note: n=50; P- the reliability of differences in indicators before surgery and 1 year after surgery in the main group; P ˟ - the reliability of differences in indicators after 1 year and 3 years after surgery in the main group; P ˟˟– reliability of differences

*in indicators before surgery and 1 year after surgery in the control group; P *** - the reliability of differences in indicators after 1 year and 3 years after surgery in the control group; P is calculated according to the Mann—Whitney criterion*

However, the results of objective research methods that confirmed the normalization of the function of emptying the rectum during defecation did not always coincide with the subjective assessment of the quality of life. 19 patients of the control group noted a feeling of discomfort in the perineum during the first year after surgery and dyspareunia. After 3 years, 11 out of 19 patients noted a feeling of discomfort, dyspareunia persisted in 9 of them. The patients of the main group did not make these complaints.

Discussion

The problem of rectocele in women has not lost its relevance for decades, since Alan Parks first presented his report "Perineal prolapse syndrome" to the attention of the Royal Medical Society in 1966. The problem is at the junction of the specialties of coloproctology and gynecology. Specialists in these fields of medicine estimate it from different angles. Coloproctologists in patients with rectocele are mainly interested in the normalization of the act of defecation; gynecologists are interested in the intimate side of the issue. In our work, we decided to approach the solution of these problems simultaneously. The reason for this study was that some patients after posterior colporrhaphy and anterior levatoroplasty in the long term after surgery complained of a feeling of discomfort in the perineum and pain during sexual intercourse. Back in 2005, the research of an employee of our center A.V. Babanin "Magnetic resonance imaging in the diagnosis and evaluation of the results of surgical treatment of pelvic prolapse in women" showed that in healthy unborn women, the muscles levator-ani do not touch along the midline of the rectovaginal septum, but are located at an angle that increases after childbirth, especially in women with rectocele [9]. Thus, the most common operation, posterior colporrhaphy, supplemented by anterior levatoroplasty, on the one hand, leads to strengthening of the rectovaginal septum and correction of the rectocele, and on the other hand leads to a violation of the normal anatomy of the pelvic floor. Performing only posterior colporrhaphy is insufficient due to the weakness of connective tissue, which can lead to a relapse of the disease [10]. A number of other authors believe that suturing the muscles-levator anus helps strengthen the pelvic floor, however, it can lead to narrowing of the vagina, its deformation in the form of an hourglass and dyspareunia [11], [12], [13]. The proposed method of rectocele correction allows us to improve the functional results of treatment in terms of normalization of the act of defecation, to prevent dyspareunia while maintaining the normal anatomical shape of the vagina, preventing the development of the "upper" rectocele. The absence of a separate plication of the rectovaginal fascia, and its capture in the seam between the levator-muscles to create a layer of tissue between these muscles prevents their excessive convergence («Method of rectocele correction» Patent 2782302 Russian Federation 25.10.2022). The modification of the posterior colporrhaphy and anterior levatoroplasty developed by us did not negatively affect the evacuation and reflex function of the rectum, which is confirmed by objective research methods.

Conclusion

Currently, rectocele correction by vaginal access using the patient's own tissues is the most common type of surgical care for this pathology. Strengthening of the rectovaginal septum is carried out by its plication, and then suturing the levator-muscles. With this method, the normal anatomy is violated, since normally the muscles along the midline do not touch, which in the future can lead to a feeling of discomfort in the pelvic area and dyspareunia. The proposed method of rectocele correction with the creation of a connective tissue layer between the levator-muscles allowed us to avoid these negative consequences with simultaneous restoration of defecatory function, as with the classical technique, which is confirmed by the data of defecography and anorectal functional tests.

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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