Nat. Volatiles & Essent. Oils, 2021; 8(6): 331-337

NVEO
Natural Volatiles &
Essential Oils

Pathogenesis Of Vaginal Prolapse With Rectocele Formation

Radzinsky V.E.[1] , Orazov M.R.[2] , Mikhaleva L.M.[3] , Krestinin M.V.[4]

[1]Development Of Research Design, Editing And Revision Of The Manuscript

[2]Analysis And Generalization Of Literature Data, Editing And Revision Of The Manuscript

[3]Analysis And Generalization Of Literature Data, Editing And Revision Of The Manuscript

[4]Collection Of Literature Data, Analysis And Generalization Of Literature Data, Text Writing And Manuscript Design.

Summary

Objective. To carry out a systematic analysis of the data available in the modern literature on the pathogenesis of the vaginal prolapse with the formation of.

Framework. The failure of the pelvic floor, namely its posterior compartment with the formation of a rectocele against the background of the lowering of the posterior vaginal wall, continues to be one of the most common gynecological diseases. This article presents an analysis of current literature data on the pathogenesis of pelvic organ prolapse with the formation of rectocele.

Conclusion. Analyzing the above-mentioned data,it can be noted that the research data of recent years have significantly expanded the understanding of the etiology and pathogenesis of pelvic organ prolapse in its posterior compartment. However, the issues of etiology and pathogenesis of genital prolapse in patients of reproductive age, the role of individual risk factors and their combinations, pathogenetic mechanisms of development are still far from being resolved. Unfortunately, none of the above theories fully explains all the reasons for the formation of pelvic organ prolapse in its posterior compartment.

Keywords. Rectocele, vaginal wall prolapse, pathogenesis.

Introduction

Pelvic floor failure (PFF) is a common urogenital disease affecting 41-50% of women over 40 years of age [1].

PFF significantly reduces the quality of life of women, as it affects all her spheres of life: personal, professional, social, psychological. To assess the negative impact on women's quality of life, various questionnaires have been created to characterize both the role of pelvic organ dysfunction in their daily activity and the severity of sexual dysfunction, as well as the quality of life in general [2].

Damage of the structures (fascial and muscular compartment) of the pelvic floor leads to their subsequent dysfunction. How the prolapse is formed depends on where the defect is located. Nevertheless, with all types of omission of the pelvic organs, the primary violation concerns the pelvic floor, and not the prolapsing organ. This can be justified by the basics of herniology, according to which the hernial sac is formed only after the hernial gate is formed.

It should be noted that for PFFhernial gates are defects of the entire pelvic floor complex. In this regard, there is no doubt about the need for early non-invasive objective diagnosis of anatomical and functional disorders of the structures supporting the pelvic organs. Topographically, the pelvic floor is stratified into 3 main parts: the anterior, in which the bladder and urethra are located, the middle - the vagina and uterus, and the posterior - the rectum and anus.

It is necessary tonote that prolapse could form both within one partand in various combinations. Based on these considerations, it is very important to consider the system of pelvic organs and pelvic floor as a whole.

The purpose of this review is a systematic analysis of the data available in the modern literature regarding the pathogenesis of the formation of vaginal prolapse with the formation of rectocele.

Classification and pathogenesis:

The formation of such a serious disease as rectocele still has a number of contradictory theories that do not have a reliable evidence base, which, in turn, prevents the creation of a reliable therapeutic algorithm of actions when detecting this condition [14].

The unique nature of the pelvic flooroften remains not completely diagnosed, as patients complain, as a rule, of one of the problems of genital prolapse, prolapse of the genitals, constipation and sexual disorders or chronic pelvic pain [15]. At the same time, epidemiological studies indicate that a large number of women have genital prolapse in one of the parts of the pelvic floor, while more than 65% of women aged 60 to 70 havea degree2 prolapse[16]. Prolapse of the posterior vaginal wall is the most frequent type of prolapse, having the worst treatment results, most prone to relapses [17]. Thus, the condition of the pelvic floor worries women of all age groups, regardless of racial differences, obstetric or concomitant gynecological and extragenital diseases.

Rectocele is a disease in which part of the rectum protrudes towards the vagina and gradually prolapses its wall, forming a bag-like pocket in which fecal masses are retained.

Факторы риска пролапса органов малого таза включают: предрасполагающие факторы – генетические (наследственнаяпредрасположенность или врожденная), стимулирующие (осложненные и/или многочисленные роды, хирургические вмешательства на тазовом дне, миопатия, нейропатия); способствующие факторы (чрезмерная полнота, курение, легочные заболевания (хронический кашель), запор (хроническое напряжение), профессиональная или спортивная деятельность); декомпенсирующие факторы (старение, менопауза, нейропатия, миопатия, истощение, медикаментозное лечение) [2].

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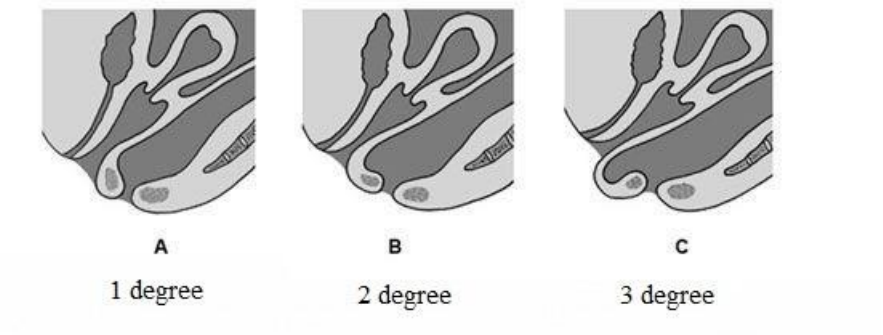
Scientists distinguish three degrees of the disease.

- Degree1 –patients have no complains, the act of defecation is not violated, and the rectocele is diagnosed accidentally when examined by a doctor for another reason. Rectal examination reveals a slight protrusion of the rectal wall.
- Degree 2 - there are violations of the act of defecation, patients complain of a feeling of a foreign body in the vagina, a feeling of incomplete bowel movement. During rectal examination, a bag-like pocket is found, reaching the size of the vestibule of the vagina.
- Degree 3 - patients experience pronounced difficulties with defecation, manual handling is necessary. The protrusion of the posterior wall of the vagina together with the rectum extends beyond the genital slit. The pocket contains feces, and sometimes fecalconcretions. The vaginal wall located outside the genital slit undergoes sclerotic changes and ulceration.



According to the level of the defect, three types of rectocele are distinguished:

1. Low rectocele. It is located in the lower part of the vagina and is combined with changes in the sphincter of the rectum.
2. Average. Located in the middle third of the vagina.
3. High. Located in the upper part of the vagina [10,11].

Researchers all over the world have been arguing about the causes of the appearance and formation of rectocele for many years. There is still no consensus on the etiology and pathogenesis of this disease.

None of the many proposed theories can fully explain all the causes of prolapse, clearly substantiate the stages of pathogenesis [12].

Existing ideas about possible risk factors are very diverse.For example: pregnancy and childbirth, including those complicated by obstetric trauma of the perineum, features of the woman's constitution and insufficiency of parametral fiber, pathology of the ligamentous apparatus of the uterus, chronic increase in intra-abdominal pressure, hypoestrogenia, systemic connective tissue dysplasia, disorders of innervation and blood circulation of the pelvic floor, biochemical changes in perineum tissues, genetic conditioning [13].

Connective tissue dysplasia (CTD) is consideredthe dominant theory of the development of genital prolapse. Some researchers name up to 37% of cases of pelvic prolapse[3]. PP is a genetically determined disease that manifests itself because of CTDand accompanies diseases such as varicose veins, hypermobility of joints, and prolapse of heart valves 8 times more often.

For a better understanding of the pathophysiology of PP, knowledge of the anatomy of the supporting apparatus of the pelvic organs is necessary. Both intra-abdominal pressure and the force of attraction act on the pelvic floor. In other words, powerful anatomical structures are needed to counteract these forces. If we talk about the ligamentous apparatus, it cannot provide such a force, especially the suspensory (round and wide ligaments of the uterus). More effective is the fixing one, which includes the cardinal, sacro-uterine and pubic-vesicular ligaments of the uterus.

The pathogenesis of rectocele is based on changes in the connective tissue structures of the pelvic floor. The production of collagen and elastin fibers, proteoglycans decreases, the spatial structure of protein-carbohydrate complexes of the connective tissue matrix is disrupted. As a result, the musculoskeletal system of the pelvic floor, and in particular, the rectovaginal fascia, do not provide normal architectonics of the pelvic organs. Scientific work concerning the connective tissue of the supporting apparatus is actively being carried out. Such markers that fully relate to the genetic determinants of weak muscle and connective tissues, leading to the formation of hernialorifice, have been studied. Among such factors, collagen-alpha-1 (COL1A1), matrix metalloproteinase-2 (MMP-2) [4], tissue inhibitor (TIMP-2) [5], transforming growth factor beta-1 (TGF-P1) and smooth muscle actin (SMA), troponin system are considered, but there is no clear idea of the pathogenesis yet.

Another theory of the occurrence of this disease is obstetric trauma. From 10 to 30% of natural childbirth ends with trauma of M. levatorani [18]. During the second period of labor, the pelvic floor, its muscles, nerves and fascia are damaged (stretching, compression and ischemia), subsequently there is a gaping of the genital slit and a decrease in muscle strength [19, 20]. However, the occurrence of rectocele among patients who did not have obstetric injuries and women who did not give birth is inexplicable [21].

Another theory of the occurrence of pelvic organ prolapse and the formation of rectocele is an increase in intra-abdominal pressure, which has a negative effect on the pelvic floor muscles and causes urinary incontinence, contributes to the development of rectocele when exposed to the pelvic floor muscles [18]. Constipation, chronic obstructive pulmonary diseases, which, like the body mass index, increase intra-abdominal pressure, also contribute to the development of PP [22, 23].During the study of the structure of the vaginal walls, regular changes in the mucous membrane and the biocenosis of the vagina can also be revealed[6].

The onset of omission and prolapse of pelvic organs, and in particular the formation of rectocele does not occur immediately, but develops slowly, for 10-20 years, long manifesting in PFF.

The manifestation of PFFis often missed by outpatient doctors due to nonspecific complaints and insufficient knowledge of the anatomy of the perineum and the underlying structures. In this regard, it should be additionally noted that normally, the genital gap even of a pluriparawoman should not gape. The gaping of the genital slit, which occurs due to a defect in the musculofascial structures of the pelvic floor, increases the risk of developing changes in the normal microbiota of the vagina [7].

Another structure, the pelvic floor thatprovides the physiological location of the genitals has not yet been studied. There is a direct correlation between the size of the m. levatorani defect, symptoms and/or signs of prolapse, namely the posterior compartment [8].

The pelvic floor is a bitissue structure, the thickness of which is a striated muscle enclosed in a fascial case. In fact, it is a domed formation facing upwards and shrinking to increase intra-abdominal pressure. The failure of this system may occur due to an improperly formed muscle, which is based on a violation of the protein components of the muscle or collagen synthesis.

Despite the fact that the problem of PFF is the subject of many discussions, modern positions on prevention, timely diagnosis and correction of PP have not been determined.

Conclusion

After analyzing the presented data, it can be noted that the results of recent studies have significantly expanded the understanding of the etiology and pathogenesis of pelvic organ prolapse in its posterior compartment. However, the issues of genital prolapse among patients of reproductive age, its prediction, the role of individual risk factors and their combination, the mechanisms of development of PFF in general and rectocele, in particular, are still far from final solution. Unfortunately, none of the above theories fully explains all the reasons for the formation of pelvic organ prolapse in its posterior compartment.

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Information about the authors.

Viktor E. Radzinsky, Honored Scientist of the Russian Federation, Corresponding Member of the Russian Academy of Sciences, Doctor of Medical Sciences, Professor, Head of the Department of Obstetrics and Gynecology with a course in Perinatology at the Medical Institute of the Peoples' Friendship University of Russia Address: 6 Miklukho-Maklaya str., Moscow, 117198. Phone: +7(495)321-4185 E-mail: radzinsky@mail.ru

OrazovMekanRakhimberdievich, MD, Professor, Professor of the Department of Obstetrics and Gynecology with a course of Perinatology at the Medical Institute of the Peoples' Friendship University of Russia, obstetrician-gynecologist "Prior-Clinic" Address: 6 Miklukho-Maklaya str., Moscow, 117198 Phone: +7(495) 321-4185, +7(915)2375292E-mail: omekan@mail.ru.

Mikhaleva Lyudmila Mikhailovna, MD, Professor, Director of the FSBI Research Institute of Human Morphology. Address: 3 Tsyurupystr., Moscow, 117418, Russia

Krestinin Mikhail Vladimirovich, postgraduate student of the Department of Obstetrics and Gynecology with a course in Perinatology at the Medical Institute of the Peoples' Friendship University of Russia. Address: 6Miklukho-Maklaya str., Moscow, 117198 Phone: +79102162224 E-mail: krestinin-m@rambler.ru.