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MODERN METHODS OF TREATMENT OF COMPLICATED FORMS OF PILONIDAL CYST

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СОВРЕМЕННЫЕ ПРИНЦИПЫ ЛЕЧЕНИЯ СЛОЖНЫХ ФОРМ ЭПИТЕЛИАЛЬНОГО КОПЧИКОВОГО ХОДА

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There are several theories of the origin of diseases of the epithelial coccygeal tract: empirical, neurogenic, ectodermal and acquired. Most Russian scientists consider this pathology to be congenital, while foreign colleagues believe that it is a consequence of sacrococcygeal area injuries. This pathology is quite common, affecting more than 5 % of the adult population, it also occurs in children and adolescents. This disease decreases the quality of patients` life significantly, affecting all aspects of their life.

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Conservative methods of treatment do not provide a complete cure, since they do not eliminate the causes of the disease. These include sclerotherapy and obliteration of the cavity with silver nitrate or hydrochloric acid. These methods are not used nowadays.
Surgical treatment is the most effective one for this pathology. Surgical intervention, despite its apparent simplicity, turns out to be quite complex, which makes it inaccessible to any general surgeon. Treatment results are often disappointing due to the high incidence of complications after surgery, as well as the long period of activity limitation. Therefore, the resulting rough scar is a cosmetic defect, and the risk of recurrence remains quite high. Studying the literature data, one can see that the authors` opinions concerning surgical tactics for this disease differ. At the moment, there is no single approach and surgical tactic for the treatment of epithelial pilonidal cyst. The problem of creating and introducing new methods of treatment of pilonidal disease remains relevant nowadays.
Keywords. Epithelial coccygeal tract, pilonidal cyst, methods of surgical treatment.

Теорий происхождения заболеваний эпителиального копчикового хода выделяют несколько: эмпирическая, нейрогенная, эктодермальная и приобретенная. Большинство российских ученых считают эту патологию врожденной, в то время как зарубежные коллеги склоняются к мнению, что она является последствием травм крестцово-копчиковой зоны. Данная патология встречается довольно часто, затрагивая более 5 % взрослого населения, в том числе детей и подростков. Данное заболевание существенно ухудшает качество жизни больных, вызывая снижение качества жизни, отражаясь на всех аспектах их жизнедеятельности.
Консервативными методами не достигается положительный результат лечения эпителиального кончикового хода, потому что не устраняется причина заболевания. К консервативным методам относятся склеротерапия и облитерация полости азотнокислым серебром или соляной кислотой, что на сегодняшний день не применяется.
Оперативное лечение является наиболее эффективным методом лечения эпителиального копчикового хода. Хирургическое лечение, невзирая на простоту выполнения, является достаточно скрупулёзным. Высокая частота осложнений после операций и длительный срок нетрудоспособности зачастую разочаровывают хирургов. Поэтому образующийся грубый рубец имеет нежелательный косметический эффект, а вероятность рецидивов остается достаточно высокой. Оценивая литературные данные, можно увидеть, что мнения авторов относительно хирургической тактики при этом заболевании различаются. На данный момент не существует единого подхода к хирургической тактике лечения эпителиального копчикового хода. Проблема создания и внедрения новых методов лечения пилонидальной болезни остается актуальной и в наше время.
Ключевые слова. Эпителиального копчиковый ход, пилонидальная киста, способы оперативного лечения.

INTRODUCTION

Epithelial coccygeal tract (ECT), epithelial coccygeal cyst (ECC) are located in the subcutaneous fat tissue in the intergluteal space. The ECC cavity communicates with the environment through fistula tracts, primary and secondary [1; 2]. Infection in the primary fistula tracts causes inflammation of the ECT and abscess formation [3; 4]. This disease most often develops in young, able-bodied males, whose ages range from 16 to 45 years. The ratio between men and women is 4:1 [2; 4]. According to statistics, the incidence of pilonidal cyst reaches 2 % of all surgical pathology [5]. At the same time, inflammation of the artificial circulation reaches 15 % of the total number of surgical purulent-septic diseases [2; 4; 6]. The most effective method of treating this pathology is surgical removal.

In the mid-19th century, A. Anderson first described the technique of radical excision of artificial circulation within healthy tissues in a letter to the Boston Medical Journal [7]. However, when excising a cyst or pilonidal cyst, a rough and deep postoperative wound is formed, which is why surgeons continue to debate about wound closure. In turn, this leads to the search for various methods of surgical treatment of pilonidal cyst [8]. The incidence of true relapses after radical excision of the pilonidal cyst, according to A.V. Kibalchich, is quite rare (up to 6 %) [9], and 94 % are false relapses caused by infectious complications – hair getting into the wound cavity, the healing of which is complicated by the development of a purulent process. Pilonidal cyst mainly recurs in the area of the intergluteal fold along the midline. The cause of relapses, according to many authors, is the high position of the buttocks, deep intergluteal fold, obesity, and thick hair in this area. Due to the extensive and deep postoperative wound and uneven healing, cavities are formed that contribute to the development of infection and relapse.

All surgical interventions in the treatment of artificial circulation are divided into three main groups: the first group is open: with the help of various dressings and vacuum therapy, the postoperative wound regenerates by secondary tension. The second group is closed: the postoperative wound is sutured tightly (using interrupted sutures or Donati sutures). The third group is semi-open: a drainage tube is installed in the cavity of the postoperative wound or a drainage channel is formed, after which the postoperative wound is sutured (excision of the epithelial-coccygeal passage with Moshkovich sutures) [7].

One of the methods of treating the epithelial-coccygeal tract using vacuum therapy is described by F.P. Benderwald [17]. After excision of the fistula tract, a removable drainage dressing is applied and round-the-clock vacuum therapy is performed with a negative pressure of 125 mm Hg in a constant mode. The dressing is changed every two days. The course of vacuum therapy lasts from 4 to 9 weeks. Vacuum therapy is stopped after complete granulation of the wound, and complete healing of the wound occurs within 9–22 weeks.

The healing of an infected postoperative wound takes quite a long time, and, as a result, after healing, a rough postoperative scar is formed. As a result, most surgeons use a two-stage surgical treatment method for inflammation of the ECT in the acute phase. At the first stage, the abscess is opened, then the abscess cavity is sanitized (which consists of daily rinsing, and water-soluble ointments are introduced into the abscess cavity). After these manipulations, the inflammatory process is stopped, and the patient undergoes radical surgical treatment [19; 20]. Delayed surgical treatment is carried out after five days from the moment of the first stage, and during this period the patient continues to be treated in hospital. The second stage of surgical treatment is performed three months after

the first stage, on a planned basis. Delayed surgical treatment has a number of advantages: first of all, when excising the intergluteal fold, more skin tissue is preserved, and the sutures are applied in such a way as to achieve maximum alignment of the edges of the postoperative wound. Based on data from other researchers [22; 23], the number of relapses caused by suppuration reaches 20 %, which explains the ineffectiveness of this surgical treatment method for suppurating ECC [24].

In the post-Soviet space, a method of surgical treatment is used in which the edges of the postoperative wound are sutured to the bottom. This surgical treatment method involves excision of the ECT and adjacent tissues in a single block. After which the skin edges of the postoperative wound are sutured with interrupted sutures to the sacrococcygeal fascia in such a way that a narrow wound surface remains between the edges of the postoperative wound. There are several methods for performing this operation. The difference between the methods lies in the different ways of suturing the edges of the postoperative wound to the bottom. For example, there is a method where the edges of the postoperative wound are sutured only on both sides [19]. There is also a technique where the postoperative wound is sutured on all sides [26].

Most surgeons are inclined to believe that the postoperative wound should be sutured tightly, using both O-shaped and U-shaped sutures. However, the resulting extensive wound is technically difficult to suture, and even after suturing such a wound, a cavity is formed, which leads to contamination of the wound, which entails a relapse.

The literature also describes methods in which secondary sutures are applied to a granulating postoperative wound. V.Kh. Kosumyan used the Subbotin-Redon wound drainage method, which consists of active aspiration of the exudate accumulating in the wound cavity, and tight suturing of the wound according to Donati. In patients with tension of the wound edges, relaxing skin incisions were made. This method has proven itself to be good, showing high healing results. P. Alberti emphasizes the advantages of using a closed method of surgical treatment using certain improved methods. S.C. Nahas describes the results of treatment of 154 patients, 83 % of whom were aged 11 to 30 years. In 74.7 % of patients, the method of opening and drainage of the epithelial-coccygeal tract was used. The method of excision of the epithelial-coccygeal tract was performed in 25.3 % of cases. In patients who underwent excision of the epithelial-coccygeal tract, a relapse was noted in two cases (5.1 %). When opening and draining the abscess, a relapse was observed in one patient (0.9 %).

In the classification of chronic fistulous forms of ECT, V.I. Pomazkin describes both the anatomical features of the sacrococcygeal region and the gradation by the degree of spread of the inflammatory process to adjacent tissues. He developed a classifica-

tion of chronic fistulous forms of the epithelial coccygeal tract with gradation by three levels of complexity:

I – a single fistula tract with minimal inflammatory infiltrate or its absence with external fistula openings located in the projection of the middle of the intergluteal fold or no more than 3 cm from it with unfavorable anatomical features of the sacrococcygeal region;

IIA – fistula tracts with secondary external fistula openings located at a distance of more than 3 cm from the middle of the intergluteal fold, but not extending beyond the inner slope of the buttocks;

IIB – fistula tracts with secondary external fistula openings located at a distance of more than 3 cm from the middle of the intergluteal fold, but not extending beyond the inner slope of the buttocks in the presence of unfavorable anatomical features;

III – multiple fistula tracts with external openings extending beyond the inner surface of the buttocks, in the presence of pronounced scars and infiltrates around the fistulas [20].

When choosing a method of surgical treatment of complex forms of ECT, preference should be given to those methods in which granulation of the postoperative wound proceeds most favorably, which, in turn, reduces the risk of relapse. It is necessary to perform reconstruction of the anatomy of the sacrococcygeal region: plastic surgery is performed, in which the postoperative wound is sutured [20]. When the inflammatory process is limited or this pathology occurs together with other proctological diseases, it is necessary to perform one-stage or two-stage operations during the period of stagnation of the inflammatory process.

When treating ECC, to reduce the risk of relapse during the preoperative preparation period, it is necessary to take a bacteriological culture from the fistula tract. Subsequently, the microflora is determined, which allows choosing adequate antibiotic therapy with high sensitivity to this microflora. When draining abscesses, it is necessary to wash the fistula tracts and wound cavity daily using bactericidal agent. These manipulations are performed until the inflammatory process is completely relieved, which, in turn, makes it possible to prepare the skin well, which can then be used during the operation for plastic surgery of the extensive wound defect formed after excision of the ECT [23].

The literature describes techniques that involve excision of affected tissues using an elliptical incision. This technique is easy to perform, but has its drawbacks. The main drawback of this technique is the excision of more healthy tissue than necessary with a very large axis of the elliptical incision. Such patients usually develop a rough and long postoperative scar, which makes it impossible to match the edges of the wound and apply sutures.

In 2001, A. Vorobey used the technique of diamond-shaped excision for plastic closure of a defect forming in the sacrococcygeal region, in which the defects that arise as a result of tissue excision are closed with a

skin flap taken from adjacent tissues. The use of this technique has shown positive results. Based on the principles of local plastic surgery, when performing diamond-shaped excisions of inflamed tissue areas, additional incisions are made, thanks to which it is possible to perform plastic closure of the wound defect. For the successful application of this technique, there are certain conditions that must be met: first of all, the rhombus must be symmetrical, that is, it must consist of two isosceles triangles. It is necessary to achieve stable hemostasis using electrocoagulation, after which rhomboid plastic surgery is performed: first of all, it is necessary to match the edges of the postoperative wound and suture it, then plastic surgery is performed with the movement of two opposing triangular flaps. The postoperative wound is treated with double-row U-shaped sutures using catgut suture material: the first suture is placed closer to the bottom of the wound, and the second suture is placed subdermally. Drainage of the wound cavity is not performed during such operations [10].

In Russia, the method of marsupialization and wound defect plastic surgery using skin flap transplantation is widely used [10]. The marsupialization method was first proposed by L. Buie in 1937, and this method was subsequently modified several times [11]. One of the frequently used marsupialization methods is excision of the ECC and subsequent suturing of the postoperative wound with Moshkovich sutures [7]. When analyzing all of the above methods of surgical treatment of ECC, a number of disadvantages were identified, such as long healing times for the postoperative wound and, as a consequence, long-term inpatient treatment. Relapses after surgical treatment are not excluded – according to statistics, from 5 to 50 % [10; 12; 14].

Complications in the postoperative period are not uncommon, such as necrosis of the skin edges of the postoperative wound, which subsequently leads to cutting through and failure of the sutures on the skin, bleeding due to unstable hemostasis, secondary infection of the postoperative wound and the development of a purulent process. This increases the duration of inpatient treatment for patients and, accordingly, their period of incapacity for work [10; 12; 14]. Such patients, as a rule, after discharge from the hospital, undergo outpatient treatment for a long time and cannot lead a full social life [10; 13–15]. All of the above complications are assessed by most surgeons as a natural course of the postoperative period.

The introduction of modern high-energy lasers into medical practice, which deliver radiation directly to the pathological focus via flexible light guides, has made it possible to actively use them for intratissue and intracavitary therapeutic manipulations, and the use of modern ultrasound equipment has made it possible to visualize and monitor the treatment process of many cystic formations: hygromas, bursitis, cysts of various localizations [18].

Muhammad A. Albahadili (2016) used laser coagulation with a diode laser with a

wavelength of 980 μm for the treatment of ECC. In the preoperative period, the patient underwent ultrasound examination of the coccygeal area to determine the diameter of the coccygeal passage, as well as to identify the presence of additional passages. On average, the length of the passage is about 5 cm. Only one patient had a relapse after the surgery. The duration of the surgery according to this method is 10 min (range 6–15 min). Patients are examined on the second day after the surgery, and subsequent examinations are carried out once a week [18].

Based on all of the above, certain aspects are formed, the presence of which will lead to the determination of the most effective method of surgical treatment of ECT. One of these aspects is knowledge of the anatomy of the fistula tract, its relation to the skin, the presence of additional fistula tracts and purulent cavities. It is also necessary to know at what distance the external channel of the fistula tract is located in relation to the primary source of infection. All these nuances must be diagnosed in the preoperative period to determine the most rational and effective method of surgical treatment, which will avoid complications and relapses in the postoperative period.

Conclusions

An analysis of the literature showed that surgeons currently use various surgical techniques for complex forms of ECT. Despite the variety of methods, there is no single tactic for surgical treatment of complex forms of ECT, there is no method of treatment that guarantees patients the absence of relapses. All known methods of treating ECC condemn patients to long rehabilitation periods in the postoperative period and the formation of coarse postoperative scars. In this regard, the search for new methods of surgical treatment of ECC remains relevant.

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