

Corresponding author / Адреса для кореспонденції

Kovaltsova Maryna Viktorivna / Ковальцова Марина Вікторівна

Kharkiv National Medical University / Харківський національний медичний університет

Ukraine, 61022, Kharkiv, 4 Nauka Ave. / Адреса: Україна, 61022, м. Харків, проспект Науки 4

Tel.: +380688862098; +380960066651 / Тел.: +380688862098; +380960066651

E-mail: mv.kovaltsova@knmu.edu.ua

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Kosayeva G. A.

REHABILITATION OF PATIENTS AFTER OPERATIONS TO REMOVE THE PILONIDAL SINUS

Azerbaijan Medical University (Baku, Azerbaijan)

Surgeon-scientist@mail.ru

The object of the study was the results of examination and treatment of 105 patients aged 16 to 72 years who received inpatient treatment with a diagnosis of pilonidal sinus during 2019-2022. The average age of patients was 26.5 ± 1.1 years, while the ratio of men and women was as follows: 86 men, 19 women. The case histories and outpatient records of 54 patients (control group) who underwent surgery by traditional methods were retrospectively analyzed. Prospectively, the data of examination and treatment of 51 patients (the main group) with pilonidal sinus and who underwent surgery according to a new technique proposed by us were studied. In the main group, surgical intervention was performed in patients with pilonidal coccyx sinus using Limberg skin grafting and a collagen sponge impregnated with doxycycline.

Of the patients who had Limberg plastic surgery, only 5 had cicatricial deformity in the sacrococcygeal region. In the control group, in patients with a completely closed wound after incision and removal of the pilonidal sinus, performance was restored on average after 18.5 ± 1.3 days after surgery, in patients with an open wound - after 21.2 ± 3.1 days, and in patients with skin flap transplantation - after 12.8 ± 3.4 days. As can be seen, the process of restoring the ability to work of patients in the main group, compared with the control group, began much earlier. The quality of life of patients in the postoperative period was higher both physically and psychologically. The use of Limberg plastic surgery using a sponge impregnated with doxycycline is an effective method in the direction of early rehabilitation of patients, this method has broad prospects for use in surgical clinics.

Key words: pilonidal sinus, collagen sponge, surgery, rehabilitation, quality of life.

Connection of the publication with planned research works.

This work is a fragment of an ongoing dissertation for the degree of Doctor of Philosophy in medicine.

Introduction.

Pilonidal sinus, consisting of inflamed cysts and epithelial passages in the sacrococcygeal region, is one of the most common diseases among the population [1, 2, 3]. Treatment of this disease is mainly carried out surgically. After using traditional surgical methods, patients face certain limitations of movement depending on the tactics of the operation [4, 5, 6]. A wound defect that remains open after incision and removal of the sinus is associated with a negative sensation. In patients who have stitches with the removal of the edges of the wound, active actions become impossible due to the feeling of tightness of the scar and the fear of opening the wound [7, 8, 9].

In the course of research in recent years, you can find numerous articles about the positive effect of skin plastic surgery after sinus removal. The use of a collagen sponge impregnated with antibiotics to remove inflammation that occurs during Limberg plasty, used for coccyx cysts with a long history, is of interest as a promising area [10, 11, 12].

The aim of the study.

Study of rehabilitation and quality of life of patients after Limberg plastic surgery using doxycycline collagen sponge.

Object and research methods.

The object of the study was the results of examination and treatment of 105 patients aged 16 to 72 years who received inpatient treatment with a diagnosis of pilonidal sinus during 2019-2022 at the AMU Surgical training Clinic and at the Academician M.A.Mirgasimov Republican Clinical Hospital. The average age of patients was 26.5 ± 1.1 years, while the ratio of men and women was as follows: 86 men, 19 women.

The study consisted of retrospective and prospective parts. The case histories and outpatient records of 54 patients (control group) who underwent surgery using traditional methods in the period from 2019 to 2022 were retrospectively analyzed. Prospectively, the data of examination and treatment of 51 patients (the main group) with pilonidal sinus and who underwent surgery according to a new technique proposed by us were studied. In the main group, surgical intervention was performed in patients with pilonidal coccyx sinus using Limberg skin grafting and a collagen sponge impregnated with doxy-

cycline. In order to ensure radicality primarily during surgery, as well as the absence of stretching during plastic surgery, before the incision was made, special marks were made on the skin with a marker. When marking the place of the surgical incision with a marker, the condition was observed that the incision line did not depart from the middle line by more than 2 cm. In some cases, the incision was not completely oval, but somewhat wavy. This kind of gentle incisions prevented a large amount of tissue defect in the future.

It is important to make an incision at a distance of 1.5-2 cm from the edges of the external openings of the epithelial passages. You can move far enough away from the fistula pathways so that the inflamed and scar tissue around the fistula opening is also cut and removed. Due to the small volume of skin sections, their movement became more convenient, the restoration of the tissue defect technically did not require much effort.

Patients of the main and control groups received treatment, including painkillers, antibiotics, detoxification and other drugs, bandages were changed daily. After 1, 3 and 7 days after the operation, repeated examinations were carried out, complaints were heard, objective and subjective details were systematized. The study participants gave written informed consent to participate in the study.

To study the quality of life 6 months after surgery, the questionnaire form SF-36 was used. 8 main parameters of quality of life, including indicators of physical and psychological health: Physical activity (PA); Daily Physical Activity (DPA); Physical pain (PP); General State of Health (GSH); Activity in life (AL); Social Activity (SA) is a condition that allows or prevents physical and emotional state to participate in social activities; Emotional State (ES); Mental Health (MH) is a general characteristic of depression, arousal or positive emotions. Quality of life indicators can vary from 0 to 100 (100 is an indicator of complete health).

The results obtained during the study are summarized in the tables of the Microsoft Excel-2013 program. The comparison of normally distributed variables was carried out on the basis of the Student's parametric t-test. In order to identify independent risk factors of the pathology under study and create a model of a predictive assessment system based on it, a multidimensional (multivariate) logistic regression analysis was carried out in the SPSS program. The results were compared, independent risk factors, factor regression coefficients, ORsu and its confidence intervals were determined. The difference between the results at $p < 0.05$ was perceived as statistically significant.

Research results and their discussion.

The presence of a cosmetic effect in the sacrococcygeal region, epithelialization of the wound and the rate of scar tissue development in comparison with the control group were studied in patients who underwent skin plastic surgery by the Limberg method using a sponge impregnated with

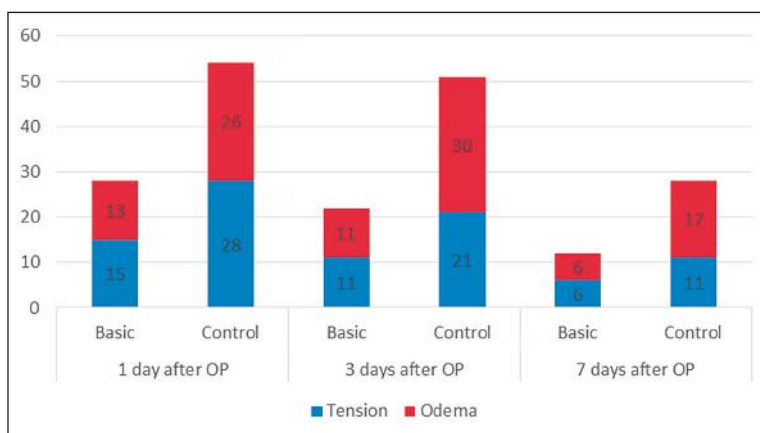


Figure 1 – Characteristics of soft tissue edema in the wound area and stretching sensations in the postoperative days by groups.

doxycycle. Figure 1 shows the frequency of soft tissue edema around the wound and the feeling of stretching in the coccyx area 1, 3 and 7 days after surgery in the main and control groups of patients, respectively.

Of the patients who had Limberg plastic surgery, only 5 had cicatricial deformity in the sacrococcygeal region. Careful collection of anamnesis in these patients revealed in them an early tendency to the formation of rough scars at the site of cuts and abrasions.

At the same time, the rates of the process of recovery of working capacity and integration into the social environment in the postoperative period of the main group of patients were analyzed. The absence of restrictions on the fact that patients can do their daily chores at the workplace, as well as at home, meant the restoration of their ability to work. Recovery of working capacity in the main group of patients took an average of 11.2 ± 2.4 days. For comparison, patients in the control group took longer to recover, depending on the type of surgery they underwent. Thus, in the control group, in patients with a completely closed wound after incision and removal of the pilonidal sinus, performance was restored on average after 18.5 ± 1.3 days after surgery, in patients with an open wound -after 21.2 ± 3.1 days, and in patients with skin flap transplantation -after 12.8 ± 3.4 days. As can be seen, the process of restoring the ability to work of patients in the main group, compared with the control group, began much earlier.

The quality of life of patients was studied after 6 months. The SF-36 questionnaire form was used for this

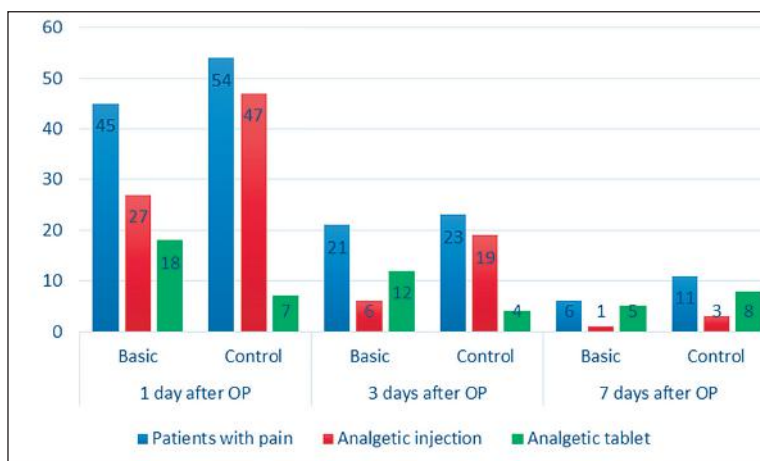


Figure 2 – Number of people with pain by group and prescription of painkillers.

purpose. Estimates of the main parameters of the quality of life in the main group of patients in relation to physical condition were as follows: the indicator of physical performance averaged 85.8 ± 3.2 ; daily physical activity was 83.1 ± 2.7 , while in the control group better results were achieved compared to patients who underwent a similar operation.

To check the parameter of pain in the body, the patient was asked the following question: "Have you felt a lot of pain in recent months?" The answers were evaluated by points as follows: I did not feel at all - 1 point; very weak pain - 2 points; weak - 3 points; moderate - 4 points; strong - 5 points; very strong pain - 6 points. The evaluation of the pain indicator in patients in the main group was 65.8 ± 5.1 , which significantly ($p < 0.05$) differed from the result in the control group. **Figure 2** shows the number of people experiencing pain and taking painkillers in groups after surgery.

On the other hand, the overall health score calculated as 96.5 ± 1.1 was significantly higher than the score obtained in the control group (77.3 ± 4.1). Of the indicators reflecting the psychological state, activity in life was 85.1 ± 1.4 ; social activity 95.2 ± 2.1 ; emotional state 89.7 ± 3.4 , and the last indicator of mental health was 88.6 ± 1.7 .

The best results were obtained in patients of the main group during the study of their quality of life parameters, reflecting both physical and psychological aspects. The difference between the indicators for all parameters compared with the control group was selected based on statistical reliability.

Limberg plastic surgery using a doxycycline sponge is an effective method compared to traditional methods of treatment. After applying this method, the results obtained by us in the immediate and long-term postoperative periods confirmed the effectiveness of the method in the course of our study. The advantages of our proposed method are that extensive defects are not formed on the

skin due to special small incisions made in the wound area. A sponge soaked in doxycycline placed in the wound prevents the development of infectious pathogens in the wound and surrounding tissues, inhibits the activation of the inflammatory process and accelerates wound healing. The skin sections formed to close the wound do not cause deformation of the wound due to their small size. Due to the absence of tightening when stitching the edges of the skin, the blood supply to the edges of the wound becomes sufficiently protected, which ensures the prevention of tissue necrosis in the future. As a result of skin grafting without braces, starting from the first days after surgery, patients can return to an active life. Due to the appropriate adaptation of the wound edges and the early regression of inflammatory elements, the wound healing process occurs at an earlier time. Also, pain in patients is more moderate than in patients operated with traditional methods. During this postoperative period, a milder course of inflammatory reactions was observed not only on the part of the wound, but also at the level of the whole organism. After applying this method, the rehabilitation processes of patients tend to go at a more intensive pace. Thus, the patients' ability to work and their ability to perform daily household chores were initiated earlier and more adequately than in patients of the control group. The quality of life of patients in the postoperative period was higher both physically and psychologically.

Conclusions.

The use of Limberg plastic surgery using a sponge impregnated with doxycycline is an effective method in the direction of early rehabilitation of patients, this method has broad prospects for use in surgical clinics.

Prospects for further research.

It is planned to further develop methods of treatment of patients with a diagnosis of pilonidal sinus through the use of new surgical correction techniques.

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РЕАБІЛІТАЦІЯ ХВОРИХ ПІСЛЯ ВИДАЛЕННЯ ПІЛОНІДАЛЬНОГО СИНУСУ

Косаєва Г. А.

Резюме. Мета – дослідження реабілітації та якості життя пацієнтів після пластики по Лімбергу з використанням доксициклінової колагенової губки. **Об'єкт і методи дослідження.** Об'єктом дослідження були результати обстеження та лікування 105 пацієнтів у віці від 16 до 72 років, які проходили стаціонарне лікування з діагнозом пілонідальний синус протягом 2019-2022 років у навчальній хірургічній клініці АМУ та у республіканській клінічній лікарні імені академіка М.А. Міргасімова. Середній вік пацієнтів становив $26,5 \pm 1,1$ роки, при цьому співвідношення чоловіків та жінок було наступним: 86 чоловіків та 19 жінок. Дослідження складалося з ретроспективної та проспективної частин. Ретроспективно було проаналізовано історії хвороб та амбулаторні карти 54 пацієнтів (контрольна група), яких було прооперовано традиційним методом в період з 2019 по 2022 рік. Проспективно ж було вивчено дані обстеження та лікування 51 пацієнта (основна група)

з пілоніда́льним синусом та прооперованих за новою методикою, яка була запропонована нами. У основній групі хірургічне втручання проводилося у пацієнтів з пілонудальним синусом куприка з використанням шкірної пластики за Лімбергом та колагенової губки, що була просякнута доксіцикліном.

Результати. У пацієнтів, яким було проведено шкірну пластику методом Лімберга з використанням губки, просякнutoї доксіцикліном, вивчалися наявність косметичного ефекту в крижово-куприковій ділянці, епітелізація рани та темпи розвитку рубцевої тканини у порівнянні з контрольною групою. Серед пацієнтів, яким була проведена пластика за Лімбергом, лише у 5 спостерігалася рубцева деформація у крижово-куприковій ділянці. Проведений ретельний збір анамнезу у цих хворих показав ранню схильність до утворення грубих рубців на місці порізів та ран. При цьому аналізували темпи процесу відновлення працездатності та інтеграції у соціальне оточення в післяопераційному періоді у пацієнтів основної групи. Так, у контрольній групі у пацієнтів з повністю закритою раною після розрізу та видалення пілоніда́льного синусу працездатність відновлювалася в середньому через $18,5 \pm 1,3$ дні після операції, у пацієнтів з відкритою раною – через $21,2 \pm 3,1$ дні, а у пацієнтів з трансплантацією шкірного клапотя – через $12,8 \pm 3,4$ днів. Як видно, процес відновлення працездатності пацієнтів основної групи у порівнянні з контрольною починався значно раніше. Після застосування цього методу реабілітаційні процеси у хворих мають тенденцію проходити більш інтенсивними темпами. Таким чином, працездатність пацієнтів та їх здатність виконувати повсякденні домашні справи були ініційовані раніше та адекватніше, ніж у пацієнтів контрольної групи. Показники якості життя пацієнтів у післяопераційному періоді були вище як у фізичному так і в психологічному плані.

Висновки. Застосування пластики за Лімбергом з використанням губки, просякнutoї доксіцикліном, є ефективним методом у напрямку ранньої реабілітації пацієнтів. Цей метод має широкі перспективи для використання у хірургічних клініках.

Ключові слова: пілоніда́льний синус, колагенова губка, операція, реабілітація, якість життя.

REHABILITATION OF PATIENTS AFTER OPERATIONS TO REMOVE THE PILONIDAL SINUS

Kosaeva G. A.

Abstract. *Goal.* Study of rehabilitation and quality of life of patients after Limberg plastic surgery using doxycycline collagen sponge. *Object and methods.* The object of the study was the results of examination and treatment of 105 patients aged 16 to 72 years who received inpatient treatment with a diagnosis of pilonidal sinus during 2019-2022 at the AMU Surgical training Clinic and at the Academician M.A. Mirgasimov Republican Clinical Hospital. The average age of patients was 26.5 ± 1.1 years, while the ratio of men and women was as follows: 86 men, 19 women. The study consisted of retrospective and prospective parts. The case histories and outpatient records of 54 patients (control group) who underwent surgery using traditional methods in the period from 2019 to 2022 were retrospectively analyzed. Prospectively, the data of examination and treatment of 51 patients (the main group) with pilonidal sinus and who underwent surgery according to a new technique proposed by us were studied. In the main group, surgical intervention was performed in patients with pilonidal coccyx sinus using Limberg skin grafting and a collagen sponge impregnated with doxycycline.

Results. The presence of a cosmetic effect in the sacrococcygeal region, epithelialization of the wound and the rate of scar tissue development in comparison with the control group were studied in patients who underwent skin plastic surgery by the Limberg method using a sponge impregnated with doxycycline. Of the patients who had Limberg plastic surgery, only 5 had cicatricial deformity in the sacrococcygeal region. Careful collection of anamnesis in these patients revealed in them an early tendency to the formation of rough scars at the site of cuts and abrasions. At the same time, the rates of the process of recovery of working capacity and integration into the social environment in the postoperative period of the main group of patients were analyzed. Thus, in the control group, in patients with a completely closed wound after incision and removal of the pilonidal sinus, performance was restored on average after 18.5 ± 1.3 days after surgery, in patients with an open wound - after 21.2 ± 3.1 days, and in patients with skin flap transplantation - after 12.8 ± 3.4 days. As can be seen, the process of restoring the ability to work of patients in the main group, compared with the control group, began much earlier. After applying this method, the rehabilitation processes of patients tend to go at a more intensive pace. Thus, the patients' ability to work and their ability to perform daily household chores were initiated earlier and more adequately than in patients of the control group. The quality of life of patients in the postoperative period was higher both physically and psychologically.

Conclusions. The use of Limberg plastic surgery using a sponge impregnated with doxycycline is an effective method in the direction of early rehabilitation of patients, this method has broad prospects for use in surgical clinics.

Key words: pilonidal sinus, collagen sponge, surgery, rehabilitation, quality of life.

ORCID and contributionship:

Kosaeva G. A.: - ABCDEF

Corresponding author

Kosayeva Günay Arif

Azerbaijan Medical University

Azerbaijan, AZ1022, Baku, 14 Anvar Gasimzade str.

Tel.: +994557621780

E-mail: Surgeon-scientist@mail.ru

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