

UDC: 616.352-009.613.7-089.168-003.9-047.76"2011/2021"

[https://doi.org/10.32345/USMYJ.3\(141\).2023.124-130](https://doi.org/10.32345/USMYJ.3(141).2023.124-130)

Received: July 04, 2023

Accepted: September 05, 2023

## Retrospective analysis of medical records of patients with postoperative scarring deformities of the perianal area for the period 2011-2021

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***Abstract:** surgical interventions in the perineal area account for a significant proportion of all colorectal operations. Thus, the problem of postoperative scar deformities of the perianal area has been the cause of scientific discussions for many years and remains relevant today. The reason for this is the lack of described clear approaches to the choice of treatment tactics in different clinical situations. That is why the aim of our study is to establish the relationship between clinical and anamnestic data and the choice of treatment methods for patients with postoperative scar deformities. We analyzed the medical records of 214 patients who were diagnosed with postoperative scar deformities. These patients were treated during 2011-2021 in the proctology department of the "Kyiv City Clinical Hospital No. 18". In order to facilitate the presentation of the results of the analysis, we formed 2 groups depending on the method of treatment: the first group included 78 (36.44%) patients who were treated with non-surgical methods; the second group included 136 patients (63.56%) who underwent surgical treatment. First of all, we made a comparison by gender and found that women are probably more prone to the formation of postoperative scar deformity. Also, a possible link between the duration of the disease and the choice of treatment method was found, which was shorter in group 1 compared to group 2. The main complaints of the patients were as follows: stool retention, inability to defecate without enemas, pain during defecation. According to the status localis description, it was found that anal stricture was present in 71 patients in group 1 (91.03%) and 86 (63.24%) in group 2. Regarding the method of treatment, only conservative treatment was performed in 24 patients (11.21%), bougienage – in 54 patients (25.23%), alloplasty – in 59 patients (27.57%), sphincterolevatoroplasty – in 34 patients (15.89%), and combined interventions – in 43 patients (20.09%). It was also found that in 12 cases (5.61%) patients were re-hospitalized, most of them, namely 9 patients, were in-group 1. Therefore, it should be noted that there is a possible relationship between the duration of the disease, patient complaints and the choice of treatment, but a randomized trial is needed to prove this more accurately. It was also found that postoperative scarring deformities occur more often in women, and the most common causes are hemorrhoidectomy, surgical treatment of purulent-necrotic perineal diseases and combined surgical interventions.*

**Keywords:** [anus diseases](#), [postoperative complication](#), [treatment outcome](#), [surgical flaps](#), [anal canal](#), [plastic surgery](#).

## Introduction

Postoperative scarring deformities of the perianal area occupy an important place in proctologic practice. According to the literature, the latter occupy a small, but unchanged percentage of all diseases. This category includes patients who, after surgical interventions on the perineum and anatomical canal, have scarring changes that can lead to the formation of anal stricture or anal incontinence and worsen the quality of life. (Casadesus D. et al., 2007, Khubchandani I., 1994, Chiarelli M. et al., 2018, Liberman H., & Thorson A. G., 2000, Shehata M., 2020). The main cause of this pathology is hemorrhoidectomy in 90% of cases (Brisinda, G. et al., 2009, Lehmann JP et al., 2020), but its formation is also possible after other surgical interventions on the perineum and anal canal. Since the formation of postoperative scar deformity leads to morphological changes in the anal canal and perianal area and, as a result, to the impairment of their functions. (Brisinda G. et al., 2009)

Treatment of patients with postoperative scar deformities depends on patient complaints, the degree of functional impairment, and the area of the lesion. (Liberman, H., & Thorson, A. G., 2000) There are non-surgical and surgical methods of treatment. The former include a diet with a high fiber intake, maintaining water balance, using laxatives and cleansing enemas. (Khubchandani I., 1994, Leventoglu S et al., 2022) Another possible non-surgical treatment option is anal canalization. (Liberman, H. & Thorson A. G., 2000, Khubchandani I., 1994,

Leventoglu S et al., 2022). As for surgical treatment, there are quite a few options available today. Among them, rotational anoplasty, Y-V anoplasty, V-Y anoplasty, Diamond-shaped flap, House flap are quite common. (Garcea G. et al. 2003, Acar T. et al., 2020, Gallo G. et al., 2022, Tahamtan M. et al., 2017).

Although there is sufficient information about postoperative scar deformities of the perianal area, the question of choosing a treatment method remains open.

## Aim

The aim of the study was a retrospective comparative analysis of the causes of postoperative scar deformities, identification of possible correlation between their formation and patient's age and gender, and analysis of treatment methods.

## Materials and methods

A retrospective analysis of 214 case reports (form No. 003/o) diagnosed with postoperative scar deformity of the perianal area, which were treated in the proctology department of Kyiv Clinical Hospital #18 from 2011 to 2021, was conducted. Their distribution by years of treatment can be seen in Figure 1. The age of patients ranged from 19 to 87 years. Among the examined patients there were 85 men (39.75%) and 129 women (60.28%).

For the analysis, we used the data from the medical history form No. 003/o, namely: age, gender, primary surgical intervention, duration of the disease at the time of hospitalization, patient complaints, status localis, treatment, and re-hospitalization. The severity of the disease was

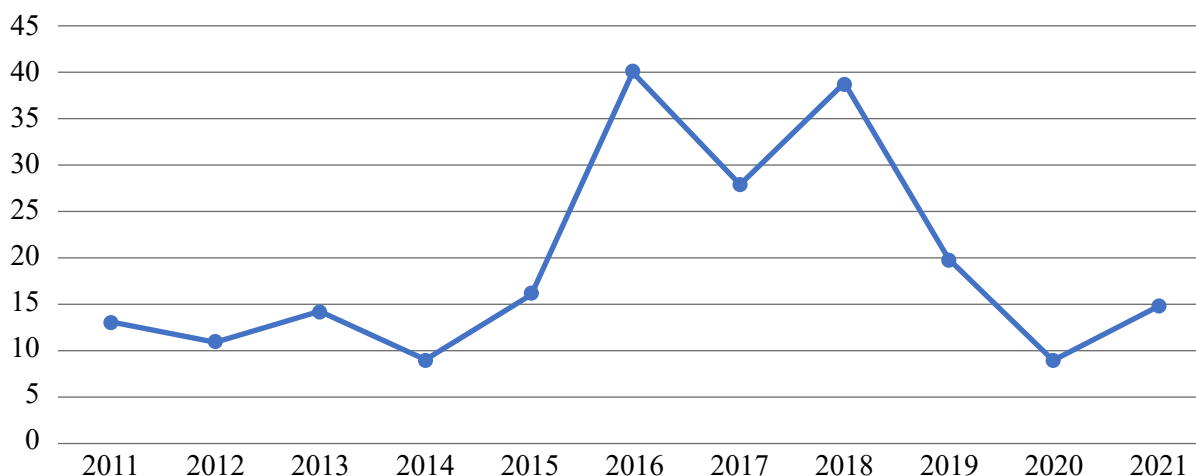


Fig. 1. Distribution of patients by years of treatment

determined based on the presence of the following indicators in the medical history: complaints, status localis (presence of anal stricture or anal incontinence), and the size of the postoperative defect.

As for the treatment methods, 78 patients (36.45%) used non-surgical methods and 136 patients (63.55%) used surgical methods of treatment in the analyzed cases.

### Results

Depending on the method of treatment, we divided the patients into two groups: group 1 – those who underwent non-surgical treatment and group 2 – those who underwent surgical treatment. Group 1 included 78 patients (36.45%) with an average age of  $57.06 \pm 14.9$ . Group 2 included 136 patients (63.55%) with an average age of  $46.97 + 14.34$  [Table 1]. The gender distribution in the groups was as follows: in the group with non-surgical methods of treatment, men accounted for 34.62% (27 patients), women 65.38% (51 patients); while in the group with surgical methods of treatment, there were 58 men (42.65%) and 78 women (57.35%). It can be noted that women predominated in the gender structure. The ratio between men and women was 1:1.52. The average duration of hospitalization was  $4.71 \pm 1.44$  and  $5.59 \pm 1.99$  days in the first and second groups, respectively.

The analysis identified the causes of postoperative scar deformities, which you can see in Figure 2. Among them, the main one is hemorrhoidectomy in 49.07%, but attention should be paid to such common surgical interventions as hemorrhoidectomy with excision of a chronic

anal fissure (17.76%), and operations for purulent necrotic perineal diseases (12.15%). The average duration of the disease was estimated from the moment of the primary surgical intervention and amounted to  $3.73 \pm 6.13$  and  $13.2 \pm 23.58$  months in the first and second groups, respectively. It can be noted that this indicator in the second group is much higher than in the first, so it could have influenced the choice of treatment method. The next point of analysis was patient complaints, the most frequent of which were the following: stool retention in 158 of 214 patients (73.83%), inability to defecate without an enema in 141 of 214 patients (65.89%), and pain during bowel movements in 135 of 214 patients (63.08%). Table 2 shows a detailed breakdown of complaints by group, depending on the treatment method. When analyzing the described st.localis, we noted that in the first group there were 47 patients (60.26%) with mild strictures, 24 (30.77%) with moderate strictures, and 1 (1.28%) with severe strictures, while in the second group these figures were 20 (14.71%), 58 (42.65%), and 8 (5.88%) patients, respectively. Also, in the analysis of this indicator, the area of scar deformity was estimated, the average values of which were  $2.60 \pm 0.84 \text{ cm}^2$  in the first group and  $6.90 \pm 3.40 \text{ cm}^2$  in the second group.

When analyzing the treatment methods, conservative treatment and debridement were performed in 24 (11.21%) and 54 (25.23%) patients, respectively. The remaining 136 patients (63.55%) underwent surgical treatment. Table 3 shows the list of all surgical options performed in the clinic, the most common

**Table 1.** Distribution of patients with postoperative scar deformities of the perianal area by treatment method and age

Age group of patients	Group 1 (n =78)		Group 2 (n = 136)	
	Number of patients, n	Frequency, %.	Number of patients, n	Frequency, %.
18-29	3	3,85	13	9,56
30-39	6	7,69	32	23,53
40-49	16	20,51	30	22,06
50-59	17	21,79	37	27,21
Over 60 years	36	46,15	24	17,65
Average age	57,06 ±14,9		46,97+14,34	

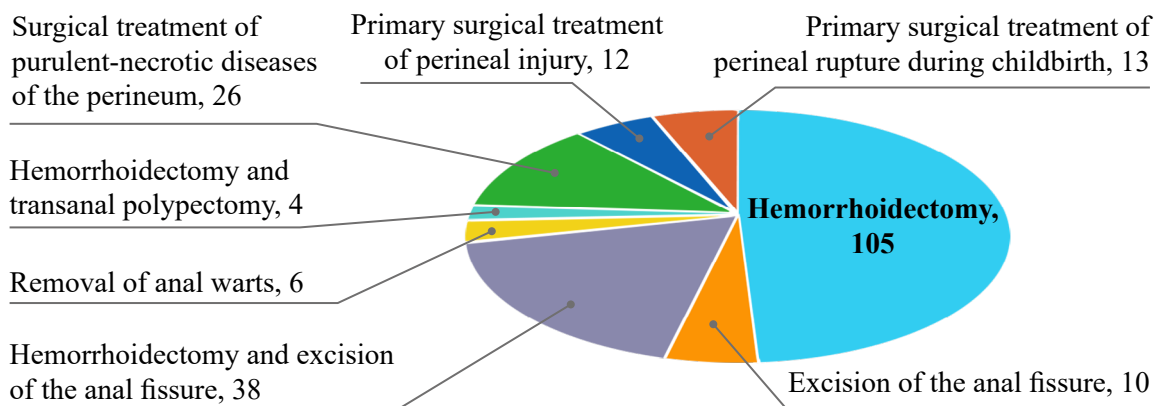


Fig. 2. Structure of causes of postoperative scar deformities (number of patients)

Table 2. Distribution of patients with postoperative scar deformities of the perianal region by method of treatment and patient complaints

Complaints	Group 1 n = 78		Group 2 n = 136	
	Number of patients, n	Complaint frequency, %	Number of patients, n	Complaint frequency, %
Delayed stool	72	92,3	86	63,2
Impossibility to pass stool without an enema	60	76,9	81	59,6
Incontinence of liquid feces	–	–	19	14,0
Incontinence of solid feces	–	–	9	6,6
Gas incontinence	6	7,7	64	47,1
Pain during defecation	41	52,6	94	69,1
Pain at rest	20	25,6	51	37,5
Narrowing of the anal canal	36	46,2	69	50,7
Excretion of mucus and blood	14	17,9	47	34,6

Table 3. Distribution of patients by treatment method and the percentage of sphincter damage

Percentage of sphincter damage	Group 1 n = 78		Group 2 n = 136	
	Number of patients, n	Frequency, %	Number of patients, n	Frequency, %
0-25 %	30	38,46	14	10,29
26-50 %	43	55,13	36	26,47
51-75%	4	5,13	61	44,85
76-100%	1	1,28	25	18,38

were anoplasty in 59 patients (27.57%) and sphincterolevatoroplasty in 34 patients (15.89%). The number of patients who were re-hospitalized with similar complaints was 9 patients (11.54%) in the first group and 3 patients (2.21%) in the second group.

### Discussion

According to clinical and anamnestic data, during the retrospective analysis of medical records, the criteria that determine the choice of treatment method were determined: age, gender, duration of the disease, patient complaints,

degree of damage to the sphincteric apparatus. Thus, it was found that patients in group 2 were younger than those in group 1 by  $10.09 \pm 0.56$  years. At the same time, no differences in the groups depending on gender were found. However, it should be noted that in the total sample, postoperative scar deformities were 20.53% more common in women. This may be due to pregnancy, pelvic floor dysfunction, and a low-fiber diet (Shin GH et al. 2015, Mott T, et al. 2018). According to the literature, hemorrhoidectomy is the most common cause of postoperative scarring (Khubchandani I., 1994, Chiarelli M. et al., 2018, Liberman, H., & Thorson, A. G., 2000, Asfar S. 2018., Acar T. et al., 2020). Our analysis confirms this statement, however, it should be noted that a significant percentage is also taken up by hemorrhoidectomy together with fissure excision in 38 patients (17.76%), operations for purulent-necrotic perineal diseases in 26 patients (12.15%), birth trauma in 13 patients (6.07%) and perineal trauma in 12 patients (5.61%). Although no differences between the groups were found according to this criterion. Taking into account the duration of the disease, it should be noted that in group 1 this indicator is lower compared to group 2 by  $9.47 \pm 17.45$  months and may affect the choice of treatment. Therefore, conservative therapy and bougienage should be used to prevent the progression of scar deformity and deterioration of sphincter function, since the indicators in group 1 corresponded to the late postoperative period.

When choosing a treatment, it is also important to consider patient complaints, because if there are no or minimal complaints, it is better to refrain from surgical treatment. (Khubchandani I., 1994, Lehmann JP et al., 2020) The most common complaint in both groups was pain during defecation, which occurs due to the replacement of elastic anoderma with scar tissue. (Brisinda, G. et al., 2009, Gallo G. et al., 2022). It is worth noting that the number of complaints in group 2 is slightly higher than in group 1, which may indicate a more severe degree of damage and the spread of postoperative scar deformity. The next factor that influences the choice of

treatment method is the area of scar deformity, which in the group with surgical treatment is  $4.3 \pm 2.56$  cm<sup>2</sup> larger than in the group with non-surgical treatment. It is important to note the fact of repeated hospitalizations of patients, which shows the effectiveness of the method of treatment of patients with postoperative scar deformities. Therefore, this issue is difficult and controversial and requires further detailed study. (Casadesus D. et al., 2007, Khubchandani I., 1994, Liberman H., & Thorson, A. G., 2000, Asfar S., 2018, Gallo G. et al. 2022).

### Conclusions

The analysis of the medical records of patients with postoperative scarring deformities of the perianal area who were treated in the proctology department of the Kyiv City Clinical Hospital No. 18 allowed us to draw the following conclusions:

1. The sex structure of both groups was dominated by women, which may indicate their greater susceptibility to the formation of postoperative deformities of the perianal group.

2. Analyzing the causes of occurrence, it was found that the most common was hemorrhoidectomy in 105 patients (49.07%), but a significant percentage was occupied by surgical treatment of purulent necrotic diseases of the perineum in 26 patients (12.15%), surgical treatment of perineal trauma in 12 patients (5.61%) and birth trauma in 13 patients (6.07%), as well as hemorrhoidectomy simultaneously with excision of the anal fissure in 38 patients (17.76%).

3. When performing operations on the perineum (most often after hemorrhoidectomy and combined surgical interventions) in the late postoperative period, it is necessary to carry out dietary restriction and conservative therapy (in the form of diet, enemas) in order to prevent the progression of postoperative scar deformity. This is evidenced by the shorter duration of the disease in patients of group 1, which coincides with the late postoperative period.

4. The choice of treatment method should be based on the following indicators: patient complaints, proctologic examination to detect the presence of anal canal stricture and checking the functional capacity of the sphincter apparatus.

**Financing**

This study did not obtain any external funding or financial support.

**Conflict of interests**

Author have no conflict of interest to declare.

**Consent for publication**

All patients consented to the publication of this work.

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A – Research concept and design, B – Collection and/or assembly of data, C – Data analysis and interpretation, D – Writing the article, E – Critical revision of the article, F – Final approval of article

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## **Ретроспективний аналіз історій хвороби пацієнтів з післяопераційними рубцевими деформаціями перианальної області за період 2011-2021рр**

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**Анотація:** хірургічні втручання на ділянці промежини займають значну частку серед усіх проктологічних операцій. Таким чином проблема післяопераційних рубцевих деформацій перианальної ділянки є причиною наукових дискусій протягом багатьох років та не втрачає свою актуальність сьогодні. Причиною цього є відсутність описаних чітких підходів до вибору тактики лікування у різних клінічних ситуаціях. Саме тому метою нашого дослідження є встановлення залежності між клініко-анамнестичними даними та вибором методів лікування пацієнтів з післяопераційними рубцевими деформаціями. Нами було проведено аналіз історій хвороби форма №003/о 214 пацієнтів, у яких встановлено діагноз післяопераційна рубцева деформація. Дані пацієнти проходили лікування протягом 2011-2021 років у проктологічному відділенні КНП «КМКЛ №18». З метою полегшення представлення результатів аналізу нами було сформовано 2 групи в залежності від методу лікування: до першої групи увійшло 78 (36,44%) пацієнтів, яким проводилось лікування нехірургічним методом; до другої – 136 пацієнтів (63,56%), яким виконувалось хірургічне лікування. Першочергово було порівняно за гендерними ознаками та встановлено, що жіноча стать ймовірно більш схильна до формування післяопераційної рубцевої деформації. Також виявлено можливий зв'язок між терміном захворювання та вибором методу лікування, який у групі 1 коротший, у порівнянні з групою 2. Основними скаргами пацієнтів були наступні: затримка стільця, неможливість оправитись без клізм, болі при дефекації. За даними опису *status localis* встановлено, що анальна стриктура була у 71 пацієнта групи 1 (91,03%) та 86 (63,24%) у групі 2. Щодо методу лікування, то тільки консервативне лікування виконано 24 пацієнтам (11,21%), бужування – 54 пацієнтам (25,23%), алопластика – 59 пацієнтам (27,57%), сфінктеролевавторопластика – 34 пацієнтам (15,89%), комбіновані втручання – 43 пацієнтам (20,09%). Встановлено також, що у 12 випадках (5,61%) пацієнтів повторно госпіталізували, більшість із них, а саме 9 пацієнтів, було у групі 1. Отже слід відзначити можливу залежність між тривалістю захворювання, скаргами пацієнта та вибором методу лікування, проте для більш точного доведення потрібно провести рандомізоване дослідження. Також виявлено, що частіше післяопераційні рубцеві деформації виникають у жінок, а найчастішими причинами є гемороїдектомія, хірургічна обробка гнійно-некротичних захворювань промежини та комбіновані оперативні втручання.

**Ключові слова:** захворювання ануса, післяопераційні ускладнення, результат лікування, хірургічні клапти, анальний канал, пластична хірургія.



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