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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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COMPARATIVE EFFECTIVENESS OF CONSERVATIVE METHODS FOR ACCELERATING EPITHELIALIZATION IN ACUTE ANAL FISSURE

Lukina Veronika V, Katibgadzhiev Magomed A, Solovyov Andrey A, Kovalenko Polina S, Kuzmich Vitaliy V, Eremeeva Mariia V, Gaevskaya Rinata R, Kuznetsova Anna A, Aleksandrova Iuliia S, Bulia Mariam Z, Sadrutdinov Tatam D, Saitova Atikat S.

NWSMU named after I.I.Mechnikova, Saint-Petersburg, Russia. First Pavlov State Medical University, Saint Petersburg, Russia. Military Medical Academy named after S. M. Kirov, Saint-Petersburg, Russia.

Abstract.

This prospective open-label comparative study evaluated the efficacy of various conservative treatments for acute anal fissure (AAF) in accelerating epithelialization and reducing pain. A total of 120 patients with symptom duration ≤6 weeks were randomized into four groups: control (hygiene only), dietary therapy (fiber-rich diet + psyllium), monotherapy with a sphincter relaxant (0.2% nitroglycerin ointment), and combined therapy (diet + nitroglycerin). The primary outcome was time to complete epithelialization; secondary outcomes included pain dynamics on the Visual Analog Scale (VAS) and incidence of chronic fissure.

Results demonstrated that combined therapy achieved the shortest epithelialization time (10.5 ± 1.5 days), which was significantly shorter than both monotherapy groups and the control ($p < 0.01$). The combined regimen also produced the most pronounced pain reduction from day 3 onward and completely prevented the development of chronic fissure. Dietary modification and nitroglycerin alone improved outcomes but were inferior to the combined approach.

In conclusion, the combination of dietary intervention and topical nitroglycerin represents the most effective conservative strategy for AAF, promoting faster healing, superior pain control, and prevention of chronicity.

Key words. Acute anal fissure, accelerating epithelialization, reducing pain.

Introduction.

Acute anal fissure is one of the most common benign anorectal diseases, characterized by severe pain during defecation and impaired healing of the anoderm [1,2]. The pathophysiology of the disease is based on a combination of mechanical trauma and sustained spasm of the internal anal sphincter, leading to local ischemia and delayed epithelial regeneration [3-8].

Current conservative treatment strategies include dietary modification, stool regulation, topical vasodilators, and sphincter relaxants. However, there is ongoing debate regarding the optimal therapeutic approach and the benefit of combined treatment strategies [9-15].

This study aimed to evaluate the comparative effectiveness of different conservative treatment modalities in accelerating epithelialization and reducing pain in patients with acute anal fissure.

Materials and Methods.

Study design: A prospective, open-label, comparative study was conducted at the proctology clinic of the North-Western State Medical University named after I.I. Mechnikov between March 2023 and February 2024.

Randomization: Eligible patients were randomly assigned to one of four treatment groups in a 1:1:1:1 ratio. The randomization sequence was generated by an independent statistician using a computer-generated random number table. Allocation concealment was ensured by sequentially numbered, opaque, sealed envelopes. Envelopes were opened by the attending physician only after the patient had provided written informed consent and met all inclusion criteria.

Sample size justification: The sample size of 30 patients per group (total 120) was determined based on feasibility and in accordance with previous prospective studies on acute anal fissure. A post hoc power analysis confirmed that this sample size provided >80% power to detect a clinically meaningful difference in the primary outcome (time to epithelialization) between groups at a two-sided significance level of 0.05.

Participants: A total of 120 patients with acute anal fissure (symptom duration ≤ 6 weeks) were enrolled.

Inclusion criteria:

- Diagnosis of acute anal fissure
- Age between 25 and 55 years
- Symptom duration ≤ 6 weeks

Exclusion criteria:

- Chronic anal fissure (symptoms >6 weeks or presence of sentinel tag, hypertrophied papilla, or fibrosis)
- Inflammatory bowel disease
- Previous anorectal surgery
- Pregnancy or lactation
- Severe comorbidities (e.g., uncontrolled diabetes, cardiovascular disease)

Treatment groups:

Group 1 (Control): Standard hygiene measures only: patients were instructed to take warm water sitz baths for 10–15 minutes after each bowel movement and to keep the perianal area clean and dry. No other interventions were applied.

Group 2 (Diet therapy): Fiber rich diet supplemented with psyllium husk (3.5 g twice daily) to soften stool and regulate bowel movements.

Group 3 (Sphincter relaxant monotherapy): 0.2% nitroglycerin ointment applied topically to the anal canal twice daily.

Group 4 (Combination therapy): Both dietary intervention (as in Group 2) and topical 0.2% nitroglycerin ointment (as in Group 3).

All treatments were continued for 4 weeks or until complete epithelialization, whichever occurred first.

Outcome measures:

Primary outcome: Time to complete epithelialization (days), defined as the number of days from treatment initiation until the fissure was fully healed (re epithelialized) on anoscopic examination.

Secondary outcomes:

Pain intensity assessed using a 10 cm Visual Analog Scale (VAS) at baseline, day 3, day 7, and day 14.

Incidence of chronic fissure at the end of follow up (4 weeks).

Adverse events: any treatment related symptoms were recorded, with particular attention to headache (frequency, severity, and duration).

Follow up: Patients were evaluated at baseline, day 3, day 7, day 14, and week 4 by a proctologist blinded to group assignment for objective outcomes (epithelialization). Pain assessments were self reported by patients.

Statistical analysis: Data were analyzed using SPSS version 26. Continuous variables are presented as mean ± standard deviation (SD). Comparisons between groups were performed using one way ANOVA followed by Tukey's post hoc test for multiple comparisons, or Student's t test where appropriate. Categorical data were analyzed using the χ^2 test. A p value <0.05 was considered statistically significant.

Results.

Baseline characteristics:

Baseline clinical and demographic characteristics of patients are presented in Table 1. No statistically significant differences were observed between the groups with respect to age, sex distribution, duration of symptoms, or baseline pain intensity ($p > 0.05$ for all comparisons), indicating good comparability of the study groups prior to treatment initiation.

Pain dynamics:

The dynamics of pain intensity assessed using the Visual Analog Scale (VAS) are presented in Table 2 and Figure 1.

At baseline, the mean VAS scores were comparable among all groups and ranged from 7.6 ± 0.9 to 7.9 ± 0.7 points ($p > 0.05$).

By day 3, all treatment groups demonstrated a decrease in pain intensity; however, the reduction was significantly more pronounced in patients receiving combination therapy (4.1 ± 0.6) compared with the control group (6.9 ± 0.8; $p < 0.001$) and dietary therapy alone (5.9 ± 0.9; $p < 0.05$).

By day 7, a clear gradient of therapeutic efficacy was observed:

- control group: 6.1 ± 0.9
- dietary therapy: 4.2 ± 0.8
- sphincter relaxants: 2.6 ± 0.6
- combination therapy: 1.8 ± 0.5

The differences between all active treatment groups and control were statistically significant ($p < 0.01$), while the combination therapy also showed superiority over monotherapy regimens ($p < 0.05$).

By day 14, pain was minimal in the combination group (0.6 ± 0.4), significantly lower than in all other groups ($p < 0.001$).

Time to epithelialization and chronicity rate:

The mean time to complete epithelialization differed significantly between the groups (Table 3 and Figure 2).

The shortest healing time was observed in the combination therapy group (10.5 ± 1.5 days), which was significantly shorter compared to:

- dietary therapy (18.7 ± 2.1 days, $p < 0.01$),
- sphincter relaxant monotherapy (16.3 ± 1.8 days, $p < 0.01$),
- control group (28.5 ± 3.2 days, $p < 0.001$).

Chronic fissure formation occurred in:

- 26.7% of patients in the control group,
- 10% in the dietary group,
- 6.7% in the relaxant group,
- 0% in the combination therapy group.

Adverse events: Treatment was well tolerated overall. Mild transient headache was reported by 4 patients (13.3%) in the nitroglycerin monotherapy group and by 5 patients (16.7%) in

Table 1. *Baseline characteristics of patients.*

Parameter	Group 1	Group 2	Group 3	Group 4	p
Age (years)	41.8 ± 7.6	42.1 ± 8.0	40.9 ± 7.3	41.3 ± 7.5	>0.05
Male/Female	16/14	15/15	17/13	16/14	>0.05
Symptom duration (days)	18.4 ± 6.2	17.9 ± 5.8	18.1 ± 6.0	17.6 ± 5.5	>0.05
Baseline VAS	7.6 ± 0.9	7.7 ± 1.0	7.8 ± 0.8	7.9 ± 0.7	>0.05

Table 2. *Pain intensity (VAS, M ± SD).*

Group	Day 0	Day 3	Day 7	Day 14
Control	7.6 ± 0.9	6.9 ± 0.8	6.1 ± 0.9	4.8 ± 1.0
Diet	7.7 ± 1.0	5.9 ± 0.9	4.2 ± 0.8	2.3 ± 0.7
Relaxants	7.8 ± 0.8	4.8 ± 0.7	2.6 ± 0.6	1.4 ± 0.5
Combination	7.9 ± 0.7	4.1 ± 0.6	1.8 ± 0.5	0.6 ± 0.4

Significant pain reduction was observed from day 3 in all treatment groups, with the most pronounced effect in the combination group ($p < 0.001$).

Table 3. *Time to complete epithelialization and incidence of chronic fissure.*

Parameter	Group 1	Group 2	Group 3	Group 4
Epithelialization time (days)	28.5 ± 3.2	18.7 ± 2.1	16.3 ± 1.8	10.5 ± 1.5
Chronic fissure, n (%)	8 (26.7%)	3 (10%)	2 (6.7%)	0 (0%)

Combination therapy significantly reduced healing time compared to all other groups ($p < 0.01$).

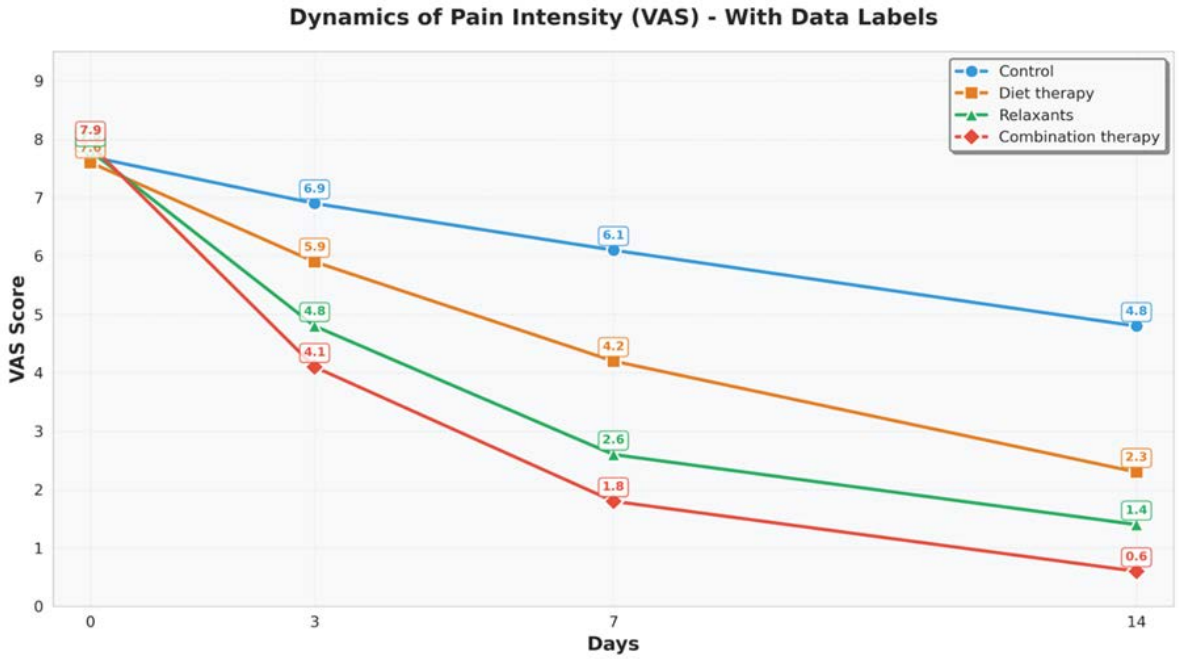

Figure 1. *Dynamics of pain intensity according to the Visual Analog Scale (VAS).*
Combination therapy demonstrated the most pronounced and rapid reduction in pain intensity compared with monotherapy and control groups.

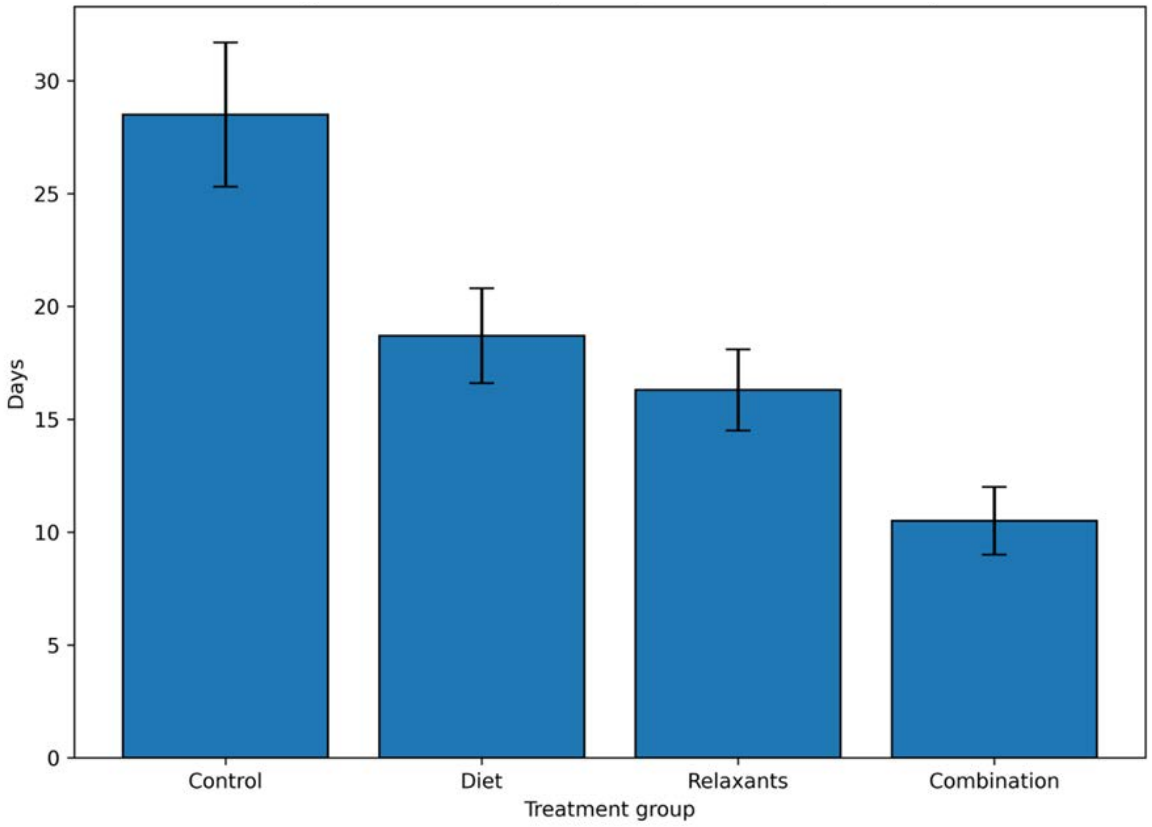

Figure 2. *Mean time to complete epithelialization in study groups.*
Combination therapy resulted in significantly faster epithelialization compared to all other treatment strategies ($p < 0.01$).

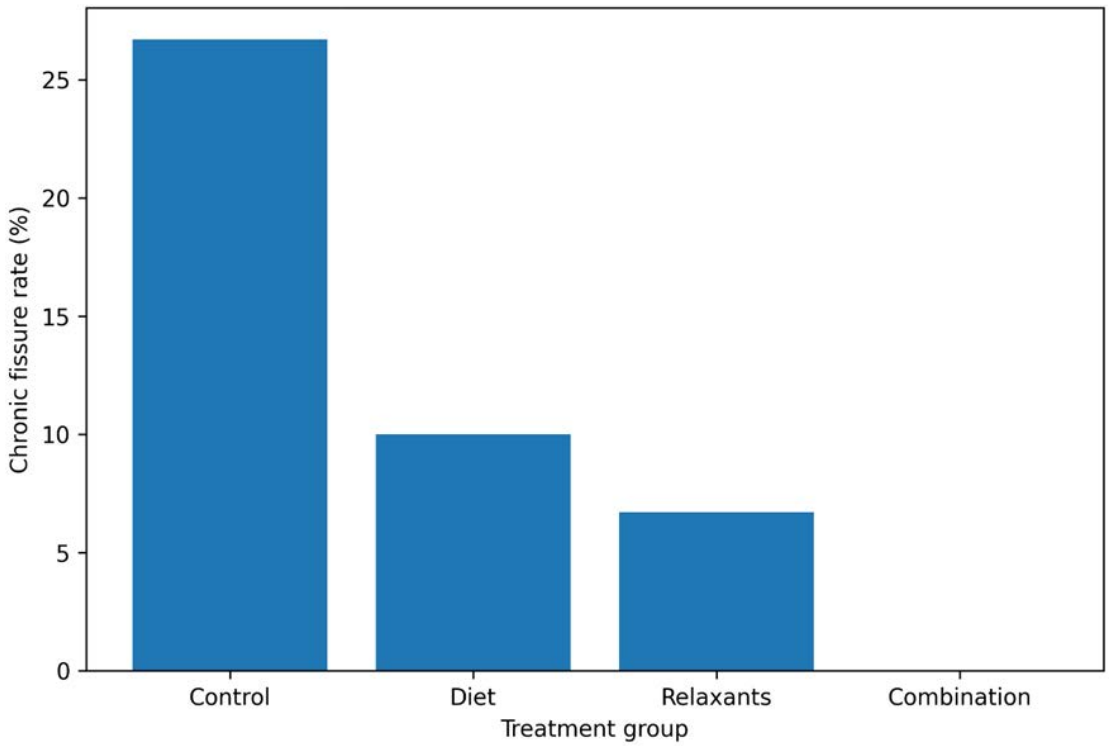

Figure 3. *Incidence of chronic anal fissure during follow-up.*
No cases of chronic fissure were observed in the combination therapy group.

the combination therapy group. No headaches occurred in the control or diet groups. All headaches resolved spontaneously within 30–60 minutes without requiring analgesia or treatment discontinuation. No other adverse events were observed.

These findings indicate a strong preventive effect of combined therapy against chronic disease progression.

Discussion.

The present study demonstrates that combined conservative therapy provides superior clinical outcomes compared to monotherapy or symptomatic treatment in patients with acute anal fissure.

The pathophysiology of acute anal fissure is based on two major mechanisms: mechanical trauma caused by hard stool and persistent hypertonia of the internal anal sphincter leading to local ischemia. Therefore, effective treatment should target both components simultaneously [1-6].

In the present study, dietary therapy alone improved outcomes by reducing mechanical trauma during defecation, while sphincter relaxants provided a significant analgesic effect through reduction of sphincter spasm and improvement of microcirculation. However, neither strategy alone was sufficient to achieve optimal healing.

The combination of dietary modification and topical nitroglycerin demonstrated a synergistic effect, resulting in the fastest epithelialization, the most pronounced pain reduction, and complete prevention of chronic fissure formation during the observation period.

These findings are consistent with current clinical guidelines and previously published studies emphasizing the importance of multimodal conservative therapy in acute anal fissure management. Importantly, the present study quantitatively demonstrates the advantage of combination therapy over monotherapy using objective clinical endpoints [10-15].

The safety profile of treatment was favorable. Headache associated with nitroglycerin use was mild and transient, and no treatment discontinuations were required.

Limitations.

This study has several limitations. First, the open label design may have introduced bias, particularly in subjective outcomes such as pain assessed by VAS, because both patients and investigators were aware of the treatment allocation. Although objective endpoints (epithelialization time) are less susceptible to such bias, the possibility of placebo effects cannot be entirely excluded. Second, the follow up period was limited to four weeks; longer observation is needed to assess recurrence rates. Third, the sample size was relatively modest, and the study was conducted at a single center, which may limit generalizability. Future double blind, placebo controlled, multicentre trials are warranted to confirm our findings.

Conclusion.

Combined dietary and sphincter-relaxing therapy provides the most effective conservative treatment for acute anal fissure, resulting in faster epithelialization, better pain control, and reduced risk of chronicity. This approach should be considered the preferred first-line therapy in clinical practice.

REFERENCES

1. Nelson RL. A systematic review and meta-analysis of the treatment of anal fissure. Tech Coloproctol. 2017;21:605-625.
2. Wald A, Bharucha AE, Cosman BC, et al. ACG clinical guideline: management of benign anorectal disorders. Am J Gastroenterol. 2021;116:1987-2008.
3. Scholefield JH, Bock JU, Marla B. A randomized trial of topical glyceryl trinitrate and lateral internal sphincterotomy for anal fissure. Br J Surg. 2003;90:413-417.
4. Altomare DF, Giuratrabocchetta S. Conservative and surgical treatment of chronic anal fissure. World J Gastroenterol. 2013;19:7931-7937.
5. Nelson RL, Thomas K, Morgan J, et al. Non-surgical therapy for anal fissure. Cochrane Database Syst Rev. 2012;2:CD003431.
6. Arroyo A, Pérez F, Serrano P, et al. Treatment of chronic anal fissure: lateral internal sphincterotomy versus topical nitroglycerin. Dis Colon Rectum. 2004;47:433-437.
7. Garg P. Conservative treatment of anal fissure: is there a role for fiber? World J Gastrointest Pharmacol Ther. 2016;7:1-4.
8. Poh A, Tan KY, Seow-Choen F. Innovations in chronic anal fissure treatment: a systematic review. World J Gastrointest Surg. 2010;2:231-241.
9. Gagliardi G, Pescatori M. Conservative treatment of anal fissure. Tech Coloproctol. 2006;10:245-248.
10. Carapeti EA, Kamm MA, Phillips RK. Topical diltiazem and bethanechol decrease anal sphincter pressure. Gut. 2000;46:554-558.
11. Loder PB, Kamm MA, Nicholls RJ, et al. Reversible chemical sphincterotomy by nitric oxide donor in chronic anal fissure. Lancet. 1994;344:1409-1412.
12. Maria G, Brisinda G, Bentivoglio AR, et al. Botulinum toxin injections in the internal anal sphincter for treatment of chronic anal fissure. Lancet. 1998;351:967-969.
13. Steele SR, Madoff RD, Johnson EK, et al. Clinical practice guideline for the management of anal fissures. Dis Colon Rectum. 2017;60:7-14.
14. Zaghiyan KN, Fleshner P. Anal fissure. Clin Colon Rectal Surg. 2011;24:22-30.
15. Russian Society of Coloproctologists. Clinical guidelines for the diagnosis and treatment of anal fissure in adults. Moscow; 2020.