

# GEORGIAN MEDICAL NEWS

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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 ВИНТИ 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 ВИНТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

## WEBSITE

[www.geomednews.com](http://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](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. Корректур авторам не высылаются, 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 computer-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.nlm.nih.gov/bsd/uniform_requirements.html)  
[http://www.icmje.org/urm\\_full.pdf](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 საყურადღებო!

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, შემავსებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრაფიის ფოტოსურათები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შედეგების 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 ფხიხლებში 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.

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## ONYCHODYSTROPHIES IN PEDIATRIC DERMATOLOGY

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### Abstract.

**Introduction:** Nail diseases in children have a specificity and course that differ from those in adults. They include both infection-associated and inflammatory processes. Pediatric nail disorders may be the first sign of a specific syndrome or systemic disorder. Some types of onychodystrophies may represent a later complication of previous infections.

**The aim:** Identification of the causes, course and clinical specificity of acquired onychodystrophies in children.

**Material and methods:** Data on 47 patients aged 3-12 years referred to the National Center of Dermatology and Venereology were processed. Microscopic and cultural examinations were used to identify the etiological cause; Structural changes and specific abnormalities of the nails were fully evaluated using a digital dermoscope.

**Results:** The diagnoses of the examined patients were divided into the following groups: trachyonychia (9/19.1%), onychomadesis (11/23.4%), Beau's line (4/8.5%), onychoschizia (2/4.3%), onychomycosis (6/12.8%), and nail disorders associated with paronychia (15/31.9%).

Multiple nail disorders were detected in 33 (70.2%) cases; single nail disorders in 14 (29.8%) patients; Dystrophies of the fingernails were detected in 31 (66%) patients; dystrophies of the toenails in 5 (10.6%) cases; dystrophies of the fingernails and toenails in 11 (23.4%) cases.

**Conclusion:** The clinical features of pediatric onychodystrophies are predominantly determined by pathological changes in the matrix. The majority of pathologies manifest as multiple nail disorders, with predominant damage to the fingernails and are characterized by a benign course. The late hand, foot, and mouth disease complications (onychomadesis; Beau's line) and the majority of idiopathic onychodystrophies are self-limited and do not require specific treatment. In the case of disorders associated with infections, management is based on the treatment of the underlying pathology and the prognosis is also favorable.

**Key words.** Onychodystrophy, children, trachyonychia, onychomadesis.

### Introduction.

The diverse spectrum of nail dystrophies often presents diagnostic challenges. These changes are often seen in specific skin and nail pathologies, although they sometimes develop as a concomitant feature of internal organ diseases [1-4]. Pediatric nail disorders may also be the first sign of a specific syndrome or systemic disorder [5]. Nail diseases in children have a specificity and course that differ from those in adults [5,6]. They include both infection-associated and inflammatory processes [7]. Pediatric nail diseases are of particular interest to researchers: onychomycosis, onychomadesis, nail psoriasis, Beau's line, trachyonychia, and longitudinal melanonychia [8-

11]. The use of diagnostic tests is very important in diagnosing nail pathologies and determining the correct management [12]. Among the necessary and informative examination methods frequently used in dermatological practice are mycological analysis, dermoscopic evaluation (onychoscopy), and histopathological examination [1,2].

A thorough history is also very important for diagnosing and determining the correct management of onychodystrophies in children. Nail pathologies identified in pediatric dermatology may represent a later complication of previous infections. Multiple cases of onychomadesis, as a late complication of hand-foot-and-mouth disease (HFMD), have been reported in several countries around the world [13]. The predominant pathogens that most often cause outbreaks of hand, foot and mouth disease worldwide have been studied. These include Enterovirus 71 (EV71), coxsackievirus A16 (CA16) and coxsackievirus A6 (CV-A6) [14,15].

**The aim:** Identification of the causes, course and clinical specificity of acquired onychodystrophies in children.

### Materials and Methods.

Data on 47 patients aged 3-12 years referred to the National Center of Dermatology and Venereology were processed. Clinical examination revealed that all children had onychodystrophic nail lesions. A complete dermatological history was collected; Traumatic and chemical injuries of the nails were excluded from the anamnesis. Microscopic and cultural examinations were used to identify the etiological cause (fungal and bacterial); Structural changes and specific abnormalities of the nails were fully evaluated using a digital dermoscopy.

### Results.

The diagnoses of the examined patients were divided into the following groups: trachyonychia (9/19.1%), onychomadesis (11/23.4%), Beau's line (4/8.5%), onychoschizia (2/4.3%), onychomycosis (6/12.8%), and nail disorders associated with paronychia (15/31.9%).

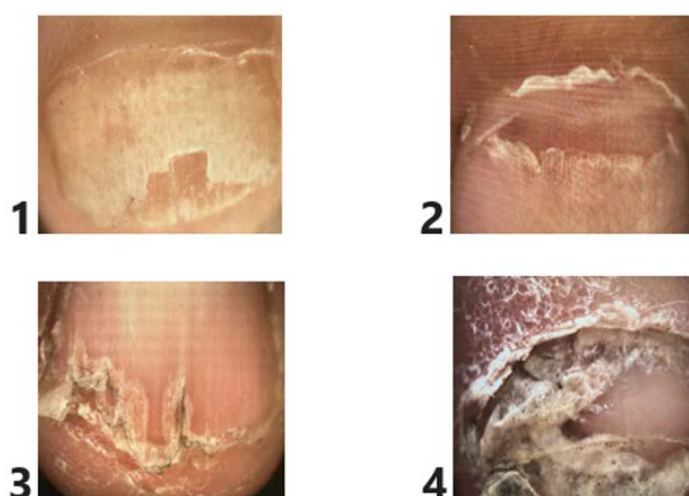
Multiple nail disorders were detected in 33 (70.2%) cases; single nail disorders in 14 (29.8%) patients; Dystrophies of the fingernails were detected in 31 (66%) patients; dystrophies of the toenails in 5 (10.6%) cases; dystrophies of the fingernails and toenails in 11 (23.4%) cases. (The details of the data are presented in the Table 1).

Of the 9 cases of trachyonychia, 3(33,3%) were associated with atopic dermatitis, 1(11,1%) with psoriasis, and 5(55,6%) were idiopathic dystrophies. No fungal infection was detected by microscopic examination in any of the patients. All patients had multiple fingernail disorders. The changes were clinically manifested as thinned, "rough nails" with longitudinal ridges on their surface.

The cases of onychoschizia were not associated with specific internal pathologies or traumatic injuries, although both

**Table 1.** Dystrophies of the fingernails were detected in 31 (66%) patients; dystrophies of the toenails in 5 (10.6%) cases; dystrophies of the fingernails and toenails in 11 (23.4%) cases.

| Characteristics of onychodystrophies          | Data by onychodystrophic group                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multiple/single nail dystrophies              | Trachionichia-9(100%) multiple nail dystrophies<br>Onychoschizia-2(100%) multiple nail dystrophies<br>Onychomadesis-11(100%) multiple nail dystrophies<br>Beau's line- 4(100%) multiple nail dystrophies<br>Onychomycosis -3(50%) multiple; 3(50%) single nail dystrophies<br>Nail disorders associated with paronychia 4(26.7%) multiple, 11(73.3%) single nail dystrophies               |
| Onychodystrophies of the fingernails/toenails | Trachionichia-9 (100%) fingernails dystrophies<br>Onychoschizia-2 (100%) fingernails dystrophies<br>Onychomadesis-11 (100%) fingernails and toenails dystrophies<br>Beau's line-4 (100%) fingernails dystrophies<br>Onychomycosis-one (16.7%) fingernails onychodystrophy and 5 (83.3%) toenail dystrophies<br>Nail disorders associated with paronychia-15 (100%) fingernails dystrophies |



**Figure 1.** Dermoscopic evaluation of the nails of all patients revealed specific structural changes characteristic of onychodystrophies. 1-Onychomycosis; 2- Onychomadesis; 3-Onychoschizia and 4-Onychodystrophy associated with paronychia.

patients had features of dry skin. Microscopic examination did not confirm the presence of fungal infection. Both cases of onychoschizia presented as multiple nail disorders on the fingernails. Clinically, they were characterized by thin, brittle, splitting nails, with predominant changes in the distal parts of the nail plates.

All eleven cases of onychomadesis were associated with a history of hand, foot, and mouth disease and were diagnosed as secondary complications of the infection. In 6(54,5%) of these cases, an association with a Coxsackie virus infection was established, and in 5(45,5%) cases the causative agent of the enterovirus infection was not identified. No fungal infection was detected by microscopic examination in any of the patients in this group. The time from the end of hand, foot, and mouth disease to the appearance of onychomadesis ranged from 27 to 46 days. In all cases of onychomadesis, multiple lesions of both the fingernails and toenails were noted. Nail dystrophy was manifested by detachment of the proximal areas of the nail plates from the nail matrix and nail bed, and attachment of the medial and distal parts to the nail bed. Complete nail healing occurred within 44-89 days without removal of the nail plate from the nail bed and without specific treatment.

Two cases (50%) of Beau's line (transverse ridging) were associated with a history of hand, foot, and mouth disease, and

two(50%) with a febrile viral infection of unknown etiology. The time from the end of infections to the appearance of Beau's line ranged from 22 to 28 days. No fungal infection was detected by microscopic examination in any of the patients in this group. All four patients had Beau's line lesions in the form of multiple changes in the fingernails. Clinically, horizontal grooves across fingernails were present. Complete recovery of the nail structure occurred within 35-45 days without specific treatment.

Three cases of onychomycosis were diagnosed with multiple nail disorders (one of which involved fingernails and two with toenails). The remaining three patients presented with single nail dystrophy (all three cases involved the first toenail). Microscopic examination confirmed the presence of fungal infection in all six patients suspected of onychomycosis. The main clinical features included hyperkeratotic, yellowish nail dystrophies. The period of complete nail recovery after antimycotic treatment ranged from 38 to 88 days.

Of the nail disorders associated with paronychia, four patients presented with multiple nail changes, and 11 cases were characterized by single onychodystrophy. In all of them, abnormalities developed acutely over several days to two weeks. Changes were detected on the nails of the hands. As a result of microscopic and cultural studies, candidal infection was diagnosed in 8(53,3%) patients, streptococcal infection in

7(46,7%) patients (one of them was associated with disseminated impetigo). In the case of candidal paronychia, the process developed with mild subjective complaints, while streptococcal paronychia was accompanied by severe pain. In all cases, the onychodystrophic development was similar: gradual complete removal of the damaged nail plates in parallel with the full development of new nail plates. After appropriate antifungal and antibacterial treatment, all fifteen patients experienced complete nail recovery within 30-33 days.

Dermoscopic evaluation of the nails of all patients revealed specific structural changes characteristic of onychodystrophies (Figure 1).

Presented dermoscopic (onychoscopy) features according to the types of onychodystrophies:

1. **Onychomycosis:** Yellowish, hyperkeratotic structural components are present.
2. **Onychomadesis:** Detachment of the proximal areas of the nail plates from the nail matrix and nail bed, and attachment of the medial and distal parts to the nail bed is present.
3. **Onychoschizia:** Thinning, splitting, and brittleness of the distal part of the nail plate are present.
4. **Onychodystrophy associated with paronychia:** Damage to the periungual structures and the nail plate are present.

## Discussion.

Onychodystrophies in children are not infrequently a cause of anxiety for parents. At the same time, these pathologies remain an urgent problem in pediatric dermatology. A number of scientific research have been conducted to nail pathologies in children. Main and exclusive onychodystrophies have been identified in childhood, although a unique classification does not exist [5].

Common species of "rough nails" disorder is opaque trachyonychia [16]. Trachyonychia mainly presents in children [17]. Long-term follow-up data on pediatric trachyonychia are insufficient to fully understand the disease. In children, it manifests as an acquired disease and sometimes causes discomfort to family members [18]. Researches have shown an association between trachyonychia and alopecia areata, although the majority of pediatric patients had an idiopathic form [17,18].

In pediatric dermatological practice, onychodystrophies are often associated with nail trauma, including mild, permanent mechanical damage. Based on anamnestic data and observation in dynamics, cases of trachyonychia and onychoschizia were not associated with traumatic injuries. According to the data presented in the research, the majority of trachyonychia cases were identified as idiopathic lesions, and some cases were associated with psoriasis and atopic dermatitis.

The results of a study conducted to determine the prevalence and types of nail abnormalities in children with atopic dermatitis were interesting. The results revealed a variety of nail abnormalities (Beau's line, nail pitting, koilonychia, trachyonychia, leukonychia, brachyonychia, melanonychia, onychomadesis, onychoschizia, and onycholysis). The main cause of nail lesions was likely to be pathological changes in the nail matrix [19]. Diagnosis of nail matrix lesions is important

for determining pathologies detected in the nail plates. Signs of nail changes depend on both the localization (proximal or distal) and extent of the matrix lesion, as well as the intensity and duration of the lesion. Proximal matrix lesions are often manifested as nail surface irregularities: roughness of the nail surface, transverse lines, superficial brittleness, longitudinal lines, pitting [20]. According to the presented research, onychodystrophies in the form of trachyonychia, onychoschizia, and Beau's line were detected with similar characteristics of the nail plates. The specificity was expressed in the prevalence of the processes mainly on the fingernails and the involvement of multiple nails.

Nail matrix arrest following hand-foot-mouth disease is manifested by the development of Beau's line or onychomadesis [21-23]. The mechanism of nail damage is unknown. Direct damage caused by the skin rash that develops around the nail matrix is a minor cause [21]. Anamnestic data is particularly important. It should be noted that nail matrix arrest has been associated not only with infections, but also with a variety of drug exposures, autoimmune disease, critical and systemic illnesses [22-24].

Onychomadesis, as a specific form of nail dystrophy that develops predominantly in children, is of interest to pediatric dermatologists for various reasons. Correct diagnosis of the disease is necessary both to exclude similar clinical pathologies and to determine the correct management. According to the presented research, all cases of onychomadesis were detected as late complications hand, foot, and mouth disease caused by Coxsackie virus infection and an enterovirus of unknown etiology. Data on transmission of Coxsackie virus infections were obtained from parents during the collection of anamnesis data. Clinical specificity included multiple nail lesions with separation of the nail plate from the matrix, its permanent attachment to the nail bed, and replacement of the damaged nail with a new one;

No specific clinical features have been identified in cases of onychomycosis and nail disorders associated with paronychia. In diagnosing all cases of paronychia, both anamnestic data and laboratory results were considered. The possibility of mixed infections was considered, but no such case was identified.

## Conclusion.

The clinical features of pediatric onychodystrophies are predominantly determined by pathological changes in the matrix. The majority of pathologies manifest as multiple nail disorders, with predominant damage to the fingernails and are characterized by a benign course. The late hand, foot, and mouth disease complications (onychomadesis; Beau's line) and the majority of idiopathic onychodystrophies are self-limited and do not require specific treatment. In the case of disorders associated with infections, management is based on the treatment of the underlying pathology and the prognosis is also favorable.

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