

DIAGNOSTIC VALUE OF DERMATOSCOPY IN ATOPIC DERMATITIS IN CHILDREN

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Abstract. *The study of the morphological characteristics of skin changes according to the results of dermatoscopy was provided in children aged 3 months to 17 years with several clinical forms of AD. It is advisable to use dermatoscopy to optimize the early diagnosis of ad in children, objectively assess the pathological process on the skin, predict the course of the disease, control the therapeutic effectiveness of the treatment process and the measures used. Comparing the results of dermatoscopy and the clinical picture increases the reliability of the information obtained during the examination.*

Keywords: *dermatoscopy, atopic dermatitis, skin, children, diagnostics.*

Atopic dermatitis is one of the most frequent and first manifestations of allergies, often transforms into other forms of allergies, significantly reduces the quality of life of children regardless of age, requires long-term, phased treatment and rehabilitation. The incidence of atopic dermatitis in the world is up to 5-10% among adults and up to 20-30% among children and adolescents. The skin with atopic dermatitis is not only the "mirror of atopy", but also the "entry point" (entrance gate) for the following systemic [1,2].

Despite the successes achieved in the diagnosis and treatment of atopic dermatitis, many aspects of this problem remain controversial, since it is not possible to avoid subjectivity in assessing skin manifestations and reactions to therapy. Dermatoscopy of the skin is considered one of the promising methods of diagnosing atopic dermatitis [7].

Dermatoscopy is a relatively new promising non-invasive method of examining the skin with an increase of $\times 10$ or more. The term "dermatoscopy" was introduced in 1920 by dermatologist I. Safir, who used immersion oil when studying pigmented skin neoplasms under a binocular microscope [3]. Just like Una and Kromayer previously, Safir focused his research mainly on inflammatory skin diseases. Unlike those times when inconvenient and complex stereomicroscopes were used, simpler and lighter manual dermatoscopes are used today. The method of dermatoscopy has developed and proved its advantages for the diagnosis of pigmented skin formations in vivo.

Dermatoscopy is a non-invasive instrumental method of visual assessment of the skin surface using optical devices (dermatoscopes), allows you to visualize the structures of the epidermis and papillary layer of the skin, which are invisible to the naked eye. Optical methods of skin research have high information content and resolution.

By using dermatoscopy, it can be viewed with such an increase that the color and structure of the epidermis, the dermoepidermal junction and the papillary layer of the dermis become visible. This color and structure cannot be seen with the naked eye. With the skills and experience, dermatoscopy significantly increases the accuracy of the clinical diagnosis [2].

Dermatoscopy – epiluminescent microscopy – allows visualization of intradermal morphological structures located in the epidermis, mainly in the papillary dermis [3]. In addition to the well-known use of dermatoscopy in the diagnosis of skin neoplasms, the method is gaining increasing appreciation in dermatology among clinically practicing doctors [4–6]. In recent years, dermatoscopy has been increasingly used in the diagnosis of various skin diseases. In particular, the criteria for the diagnosis of various benign skin neoplasms (dermatofibromas, seborrheic keratosis, keratoacanthomas, etc.), basal cell skin cancer, vascular skin formations, scabies, lichen planus, psoriasis and many other skin, nail and hair diseases are described.

It should be noted that the results of dermatoscopy should always be interpreted in a general clinical context, conclusions should be based on the general clinical picture, medical history data and general examination. Some dermatoscopic criteria are strictly specific to a particular disease, while others may occur in several cases at once and are considered "non-specific". However, "non-specific" criteria, when combined with other clinical criteria, lead to an accurate diagnosis or narrow down the list of possible diagnoses. Currently, dermatological diseases can be diagnosed using dermatoscopy, which is especially useful for atypical or unusual course of dermatoses.

The search for criteria facilitating the clinical diagnosis, contributing to the objectified dynamic observation of pathological skin changes, led to the improvement of dermatoscopy techniques and its active use in dermatology. However, there is a scant amount of data in the literature on the dermatoscopic picture of some skin diseases, including atopic dermatitis.

The purpose of the study. To study the prospects and possibilities of using skin dermatoscopy as a method of objective assessment of the skin condition in atopic dermatitis (AD) in children based on the analysis of experience from clinical practice and the results of skin examinations.

Research materials and methods. 126 children aged 3 months to 17 years with various clinical forms of atopic dermatitis were under observation in the department of Pediatric Dermatology of the Tashkent Pediatric Medical Institute clinic. Distribution of patients by gender showed that 64 (50.8%) of the subjects were boys and 62 (49.2%) were girls. All patients, in addition to standard clinical and laboratory tests, underwent dermatoscopy. The study was performed on the affected areas of the skin, a comparison was made with the intact areas, the condition of the skin vessels was determined. To study the skin pattern of patients, a dermatoscope Hair Analyser LED ("Scharf® Instruments", Turkey) was used. The dermatoscope increased the area of the affected skin tenfold and made structural changes visible. Dermatoscopy data (the nature of the boundaries, the structure of the skin) were recorded in an electronic database in Microsoft Excel 2019 format.

According to the world literature, a sequential algorithm is used to interpret the dermatoscopic picture of inflammatory skin diseases, including:

- morphological assessment of vascular structures;
- assessment of the distribution of vascular structures within the rash;
- assessment of the color of the defined structures;
- assessment of morphological elements of the rash.

At the same time, the main emphasis in dermatoscopic diagnostics is on the vascular component of rashes.

Research results. According to the data of the performed dermatoscopy, the skin symptoms on the affected areas of the skin of sick children corresponded to the typical morphological elements of the rash for the disease (Figure 1).

The most common skin symptoms and morphological elements of the rash were: erythema/hyperemia, exoriation/combing, inflamed sebaceous hair follicles with perifollicular hyperemia, enhanced reticular skin pattern with lichenization/ lichenification, scales and dry skin, crusts, exudation/wetness, and also in most children there were real and fake polymorphism of rashes, edema, papules, follicular hyperkeratosis. Xerosis, cracks, atrophy of sebaceous hair follicles, purulent crusts, yellow granules, hyperkeratosis, etc. were observed much less frequently.

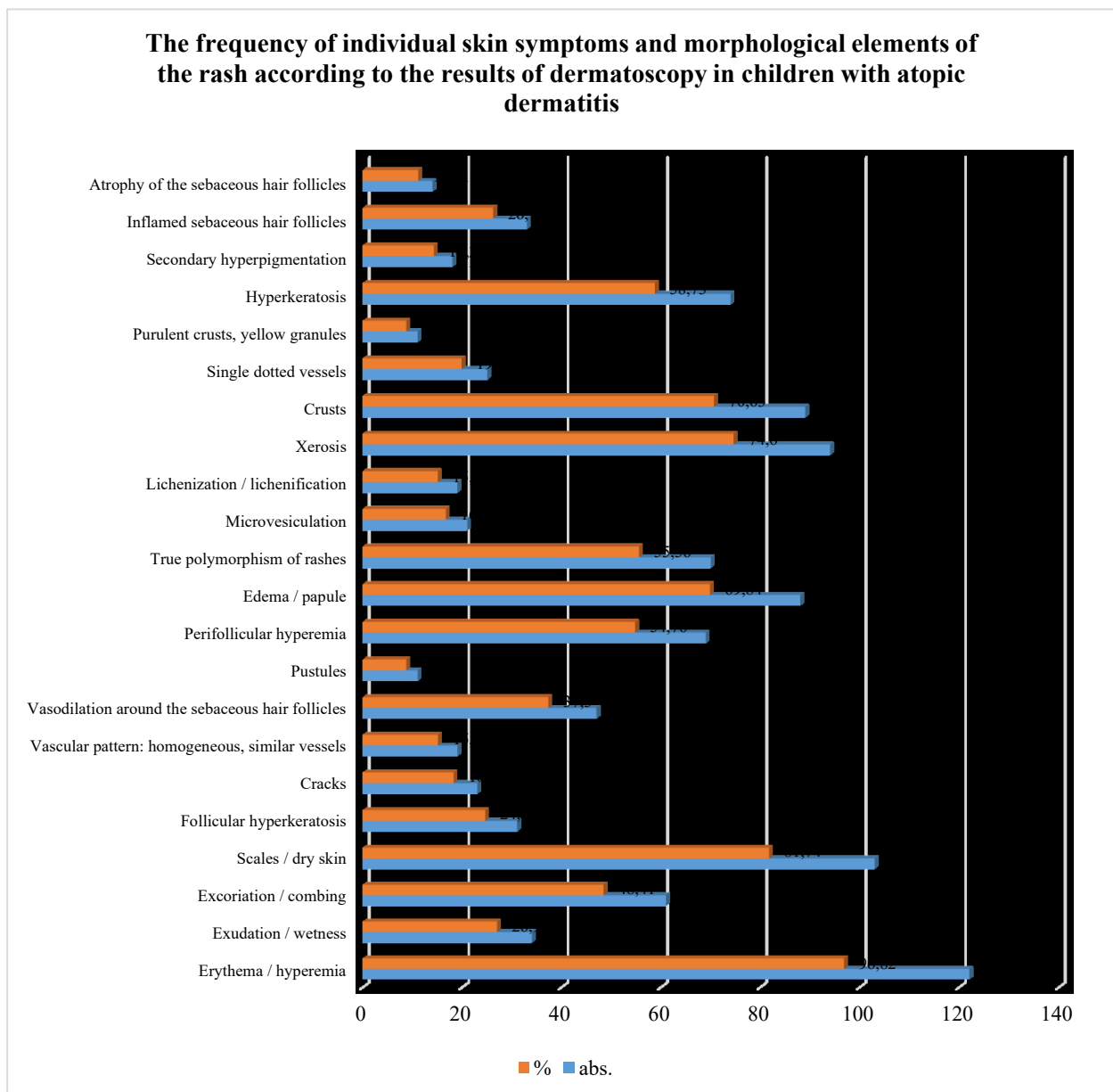


Figure 1.

Assesment of the dermatoscopic picture in the examined patients determined the boundaries, the nature of the color of the focus and the characteristics of the vascular network in the form of a combination of red granules, dots and lines at the same time as differential signs. In

AD the focus of the boundaries were blurred, rashes had a pink or bright pink uniform color, the vascular network was represented in the form of glomerular vessels (red granules, dots).

Thus, it was found that the dermatoscopic picture of blood pressure was characterized by a combination of focally distributed within the rashes of vessels in the form of dots and scales-crusts of yellow color. A distinctive feature of rashes in AD is a clearly defined morphology of rashes depending on the forms of the disease during dermatoscopy.

Exudative form of AD is characterized by the presence of an infiltrated focus with a wet surface and a blurred border, bright pink uniform color, yellowish crusts located on a pronounced erythematous background, the vascular network in which takes the form of glomerular vessels (red granules), it is also possible to detect erosive foci with wetness at the onset of the disease (Figure 2).

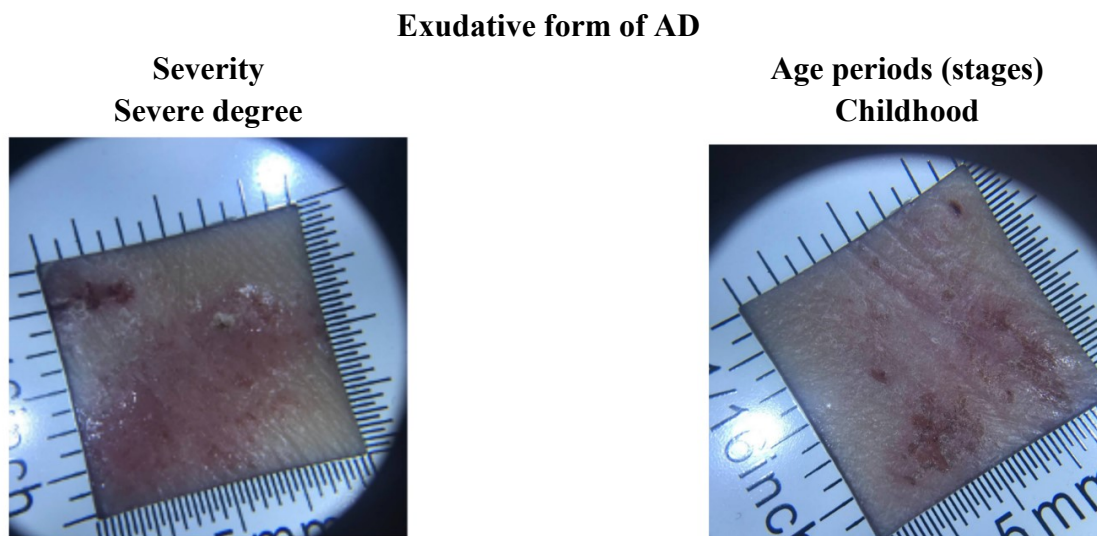


Figure 2.

Erythematous-squamous form of AD is manifested by dry pink foci with indistinct borders, an erythematous background on which whitish scales are located, a vascular network of a mesh character evenly distributed within the rash, where cracks can also be detected (Figure 3).

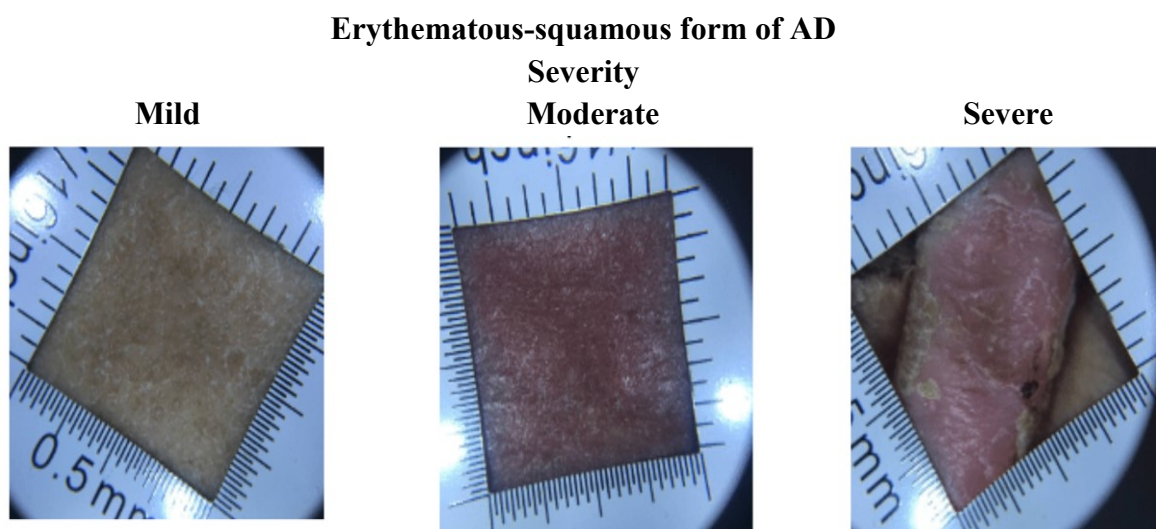




Figure 3.

In **erythematous-squamous form of AD with lichenification**, the focus has a uniform pale pink color against the background of moderate erythema, the boundaries of which are blurred, the picture consists of a combination of evenly distributed mesh vascular structures, scale-crusts on the surface of rashes and it is possible to detect inclusions of grayish-dirty color (lichenification) with a less pronounced vascular component, in longer-existing foci. It is also possible to detect spot hemorrhages as a result of scratching and itching (Figure 4).

Erythematous-squamous form of AD with lichenification
Severity

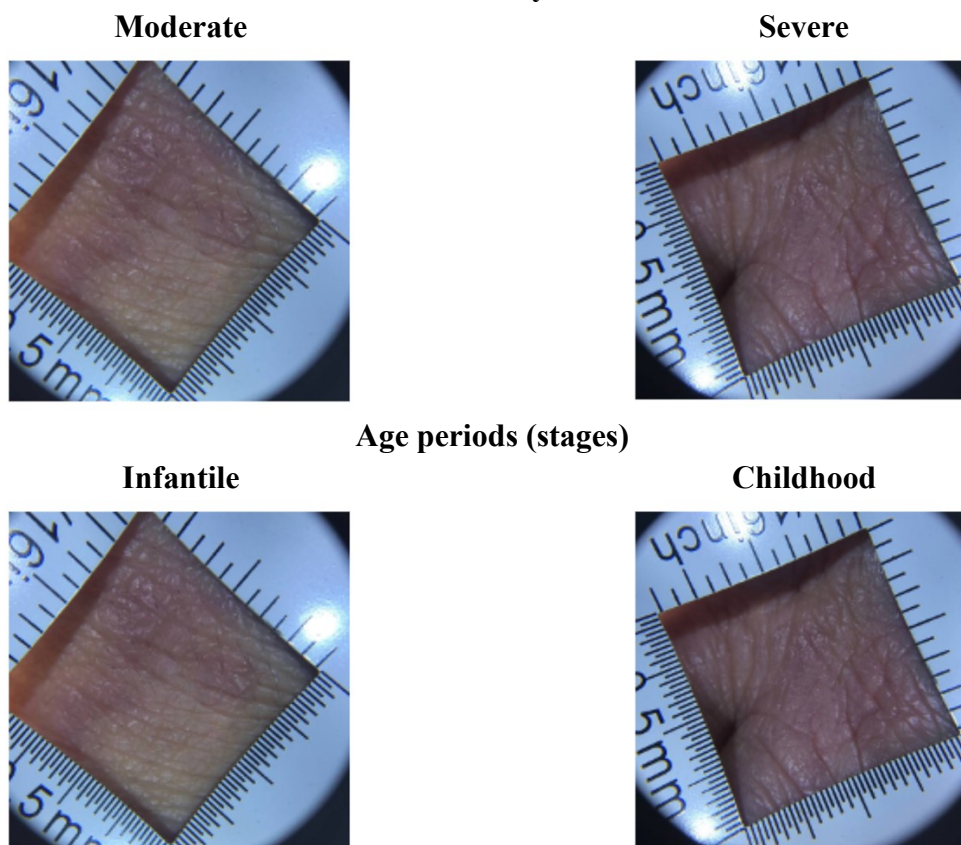


Figure 4.

Lichenoid form of AD is characterized by dry foci of pale pink color with indistinct borders, with less pronounced erythema and vascular pattern in the form of dots or linearly convoluted vessels, grayish-dirty inclusions (lichenification) distributed throughout the focus,

having various external manifestations in the form of linear, rounded, mesh or ring-shaped structures (Figure 5).

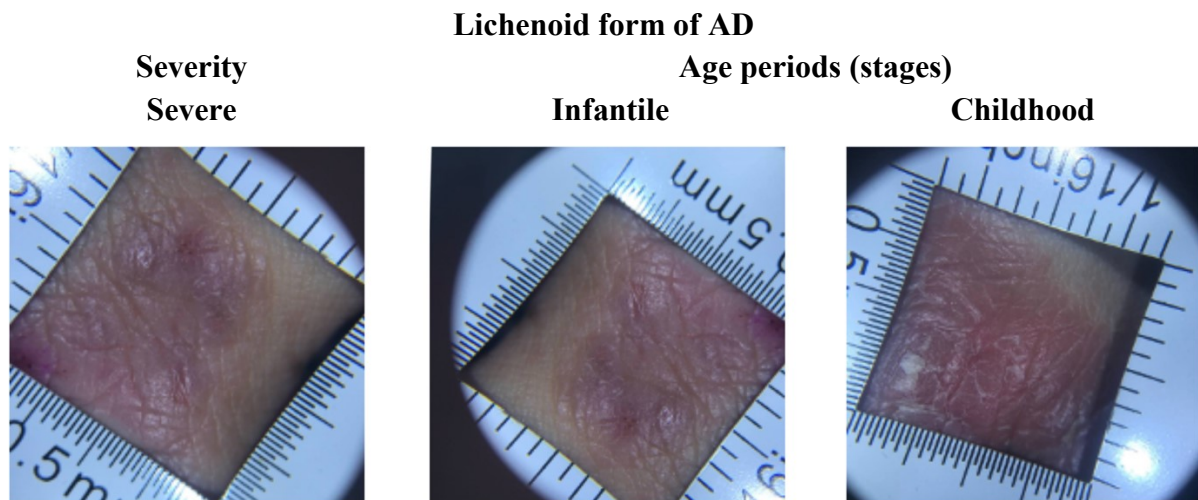


Figure 5.

Pruriginous form of AD is characterized by the presence of dry dark red foci consisting of dense conical or hemispherical papules with clear boundaries against a background of moderate erythema, with a less pronounced vascular pattern with focal distribution of vascular structures, the vascular network in which takes a glomerular appearance and grayish-brown inclusions and crusts distributed along the periphery of the focus. The appearance of spot hemorrhages in this form is the result of scratching and itching (Figure 6).

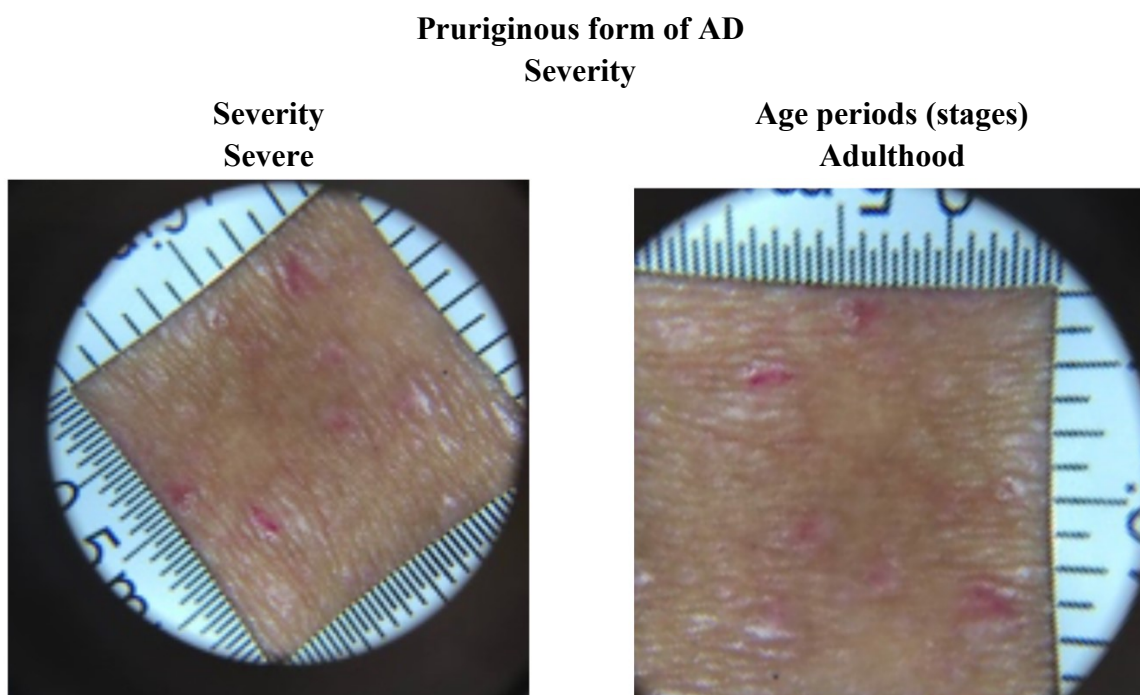


Figure 6.

Thus, according to dermatoscopy data, it can be concluded that there are several variants of skin damage against the background of atopic dermatitis, namely exudative, erythematous-squamous erythematous-squamous with lichenification, lichenoid, pruriginous. These data complement the classical clinical forms of the disease. At the same time, the severity of skin

changes depended on the severity of the clinical course of atopic dermatitis according to the SCORAD scale.

Considering the above, we can conclude that the dermatoscopy method allowed us to clarify the diagnosis of the existing disease, especially in cases where the anamnestic and clinical signs of the disease were similar.

Conclusion. Thus, in this paper, the diagnostic value of dermatoscopy in AD in children is demonstrated by the example of cases from clinical practice. This objective skin research technique allows you to study the structure of the skin in vivo in real time and complements the classic clinical manifestations of the disease. The main purpose of using skin dermatoscopy is to study the microstructure of the skin in normal and pathological conditions, to diagnose the configurations of skin morphology with the specification of boundaries. Comparison of the results of dermatoscopy of the clinical picture increases the reliability of the data acquired during the examination. Dermatoscopy should be used in the therapeutic and diagnostic process to verify and clarify the clinical diagnosis, control and evaluate the effectiveness of treatment. The use of dermatoscopy does not require special training of the patient, has no contraindications.

REFERENCES

1. Беш Л.В. Атопический дерматит у детей // Здоровье ребенка. 2012;2:37. [Besh L.V. Atopic dermatitis in children // Zdorov'ye rebenka 2012;2:37 (in Russ)]
2. Беш Л.В. Атопічний дерматит у дітей: аналіз діагностичних і тактичних помилок // Здоров'я України, 2013; Тематичний номер, алергологія: 52–53. [Besh L.V. Atopic dermatitis in children: analysis of diagnostic and tactical mistakes // Zdorov'ya Ukrainy 2013; allergology:52–53. (in Ukr)]
3. Дерматоскопия / Китлер Г. [и др.]. – Гданьск, 2014 – 322 с.
4. Malvey J., Puig S., Braun R. P. Handbook of Dermoscopy. New York, Taylor & Francis, 2006; 95.
5. Lee J.B., Hirokawa D. Dermatoscopy: An overview. Part I: Non-Melanocytic Lesion. Skinmed 2010; 8: 265–272.
6. Lallas A., Giacomel J., Argenziano G., Garcia-Garcia B., Gonzalez-Fernandez D., Zalaudek I., Vazquez-Lopez F. Dermoscopy in general dermatology: practical tips for the clinician. Br. J. Dermatol. 2014;170:514–26.
7. Сергеев Ю.В., Иванов О.Л., Сергеев В.Ю., Черкасова М.В. Цифровая видеодерматоскопия: новые подходы к диагностике, лечению и профилактике заболеваний кожи. Росс. журн. кожных и венерических болезней. 2004;1:23–7.