

O.A. Raksha-Sliusareva, I.A. Tarasova¹, O.A. Sliusarev, O.Y. Chernyshova, V.I. Zadorozhna,
S.S. Boyeva, O.I. Hutarov
Donetsk National Medical University, Lyman; ¹SI "The L.V. Gromashevsky Institute of Epidemiology
and Infectious Diseases of NAMS of Ukraine", Kyiv

CYTOMORPHOLOGICAL EXAMINATION IN THE EFFICIENCY OF TREATMENT OF ACUTE RESPIRATORY INFECTIONS COMPLICATED BY OBSTRUCTIVE SYNDROME

e-mail: rakshasliusareva@gmail.com

The purpose of the study was to assess the effectiveness of treatment of acute respiratory infections complicated by obstructive syndrome according to different schemes by the criterion of cytomorphological changes of peripheral blood leukocytes. Studies of cytomorphological changes in the main pools of peripheral blood leukocytes have shown greater effectiveness of the new proposed treatment regimens than traditional ones. This was especially evident in the treatment of acute respiratory diseases complicated by obstructive syndrome with the inclusion of a course of antibiotics and antioxidant vitamins. In patients, a significant decrease in the number of cell dissolutions, neutrophils with nucleus swelling and fragmentation of the nucleus, the toxic granularity of the cytoplasm, immature and low-functioning lymphocytes, and the content of large granular and bean-shaped lymphocytes was observed.

Key words: cytomorphology, leukocytes, acute respiratory infections, obstructive syndrome, treatment regimens.

O.A. Ракша-Слюсарєва, І.А. Тарасова, О.А. Слюсарєв, О.Є. Чернишова, В.І. Задорожна,
С.С. Боева, О.І. Гутаров

ЦИТОМОРФОЛОГІЧНІ ДОСЛІДЖЕННЯ В КОНТРОЛІ ЕФЕКТИВНОСТІ ЛІКУВАННЯ ГОСТРИХ РЕСПІРАТОРНИХ ЗАХВОРЮВАНЬ, УСКЛАДНЕНИХ ОБСТРУКТИВНИМ СИНДРОМОМ

Метою роботи було оцінити ефективність лікування гострих респіраторних захворювань, ускладнених обструктивним синдромом за різними схемами за критерієм цитоморфологічних змін лейкоцитів периферичної крові. Проведені дослідження цитоморфологічних змін основних пулів лейкоцитів периферичної крові показали більшу ефективність нових запропонованих схем терапії, в порівнянні з традиційною, що особливо проявлялось в схемі терапії гострих респіраторних захворювань, ускладнених обструктивним синдромом з включенням курсу антибіотиків та вітамінів-антиоксидантів. У хворих більш значно, порівняно із базовою схемою терапії, реєструвалось зменшення кількості клітинних розпадів, нейтрофілів з набуханням та фрагментацією ядра, токсогенною зернистістю цитоплазми, молодих та малофункційних лімфоцитів, збільшувався вміст великих гранулярних та бобовидних лімфоцитів.

Ключові слова: цитоморфологія, лейкоцити, гострі респіраторні захворювання, обструктивний синдром, схеми лікування

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Acute respiratory infections (ARI) complicated by obstructive syndrome (OS) are becoming an increasingly common pathology in young children. Our previous studies have made it possible to clarify some features of the pathogenesis and develop a new treatment regimen for acute respiratory infections complicated by obstructive syndrome (ARI OS). In particular, it was found that in children with ARI OS, compared with ARI, there are changes in the immune system [1, 2, 3], intensified lipid peroxidation processes, and pathogenic microorganisms are detected [4, 5, 6]. The traditional ARI OS treatment regimen [7, 8], as well as the introduction of additional drugs [9], does not give a sufficient therapeutic effect and does not prevent recurrent episodes of OS. In this regard, we have developed new treatment regimens for ARI OS. Cytomorphological changes in the main pools of leukocytes (neutrophils, lymphocytes) make it possible to monitor the state of several body systems. They supplement and expand information on the 1st level of the immune system studies and are an additional and more reliable method of observing the pathogenesis of various diseases and a criterion for assessing the health status and effectiveness of treatment regimens [10, 11, 12].

The purpose of the study was to assess changes in the morphology of peripheral blood leukocytes to assess the success of treatment of patients with acute respiratory diseases complicated by the obstructive syndrome.

Materials and methods. The study was performed on 75 children aged 7–10 years with ARIs complicated by the moderate OS that did not require treatment in the hospital. Recurrences of OS in ARI are repeated in children from 6 to 10 times a year. Children were examined and treated at the Center for Primary Health Care No. 1 of Sviatoshynskiy district, Kyiv. All studies on the applied treatment regimens were performed with the consent and at the parents' request. The effectiveness of treatment of ARI OS was studied in 3 therapeutic regimens. Group 1 was a control group (CG) that included 23 children treated

according to the traditional scheme: Nebulized therapy and individually selected mucolytic, broncholytic, antispasmodic, and anti-allergic drugs. Group 2 was the main group 1 (MG-1) and included 27 children who have additionally prescribed an antibiotic individually selected according to the data of the antibiotic susceptibility pattern to the usual treatment regimen. The third group – the main group 2 (MG-2), consisted of 25 children who received a vitamin complex V-carotene (NK VERBA, Ukraine) in addition to the 2nd treatment regimen (conventional therapy, enhanced with antibiotics). When studying children of all 3 groups, attention was paid to the duration of clinical manifestations of obstruction, the presence and time of bronchial obstruction based on the results of auscultation and percussion, and the frequency of repeated episodes of the disease. Before and after the course of therapy in children of the main and control groups, blood was taken from the finger on an empty stomach. We determined the content of leukocytes by well-known methods and made blood smears, which were stained by Romanowsky-Giemsa. Indices of the state of the immune system were determined by methods of the first level of research on the content of individual pools of white blood cells. Blood smears determined the total number of cell dissolutions (CDs) and changes in the cytomorphology of such major pools of leukocytes as neutrophils and lymphocytes. Regarding the pool of neutrophils, the content of fragmented neutrophil nuclei (FNN), hypo- and hypersegmented neutrophil nucleus, the number of cells with ruptures of the cytoplasmic membrane and neutrophil nucleus swelling (NNS), villi chromatin of the nucleus (VCN), with a toxic granularity of neutrophils (TGN), the content of adherent neutrophils (AN) were determined. When studying changes in lymphocytes, the number of Botkin-Gumprecht dissolutions, the content of aberrant lymphocytes (AL), hand mirror lymphocytes (HML), immature lymphocytes (IL), elongated (EL) and spindle-shaped lymphocytes (SSL), Rieder's lymphocytes (RL), lymphocytes with a bean-shaped nucleus (LBSN) and a clover-leaf-shaped nucleus (LCLSN), as well as large granular lymphocytes (LGL), plasma cells (PC) were determined. When analyzing cytomorphological changes in white blood cells, their number per 100 cells of a particular pool was considered. The studied blood smears were performed using an immersion trinocular microscope MICROmed XS-4130 based on Donetsk National Medical University of the Ministry of Health of Ukraine (Kramatorsk). The results were processed using PCL variation statistics and rank correlation methods. Statistica Windows's programs and a package of appropriate measurement programs for the reliability of values according to the Student's t-test were used.

Results of the study and their discussion. Cytomorphological studies showed differences in the cytomorphology of leukocyte pools studied in children with ARI OS after treatment, depending on the treatment regimen. The number of CDs in children of all examined groups before treatment practically did not differ and amounted to MG-1, MG-2 and CG, respectively, $34.8 \pm 6.8 \%$, $30.8 \pm 2.4 \%$ and $32 \pm 3.98 \%$, and was higher than the average values of $12.5 \pm 2.5 \%$ ($p < 0.05$). After treatment, the number of CDs in children of MG-1 and MG-2 decreased and amounted to $15.4 \pm 2.06 \%$ and $14.6 \pm 4.6 \%$, respectively. In CG, the number of CDs, on the contrary, significantly increased to $46.7 \pm 3.7 \%$. Data on the frequency of cytomorphological changes in the pool of neutrophils in children with ARI OS at the beginning of the disease and after treatment with different treatment regimens are shown in Fig. 1.

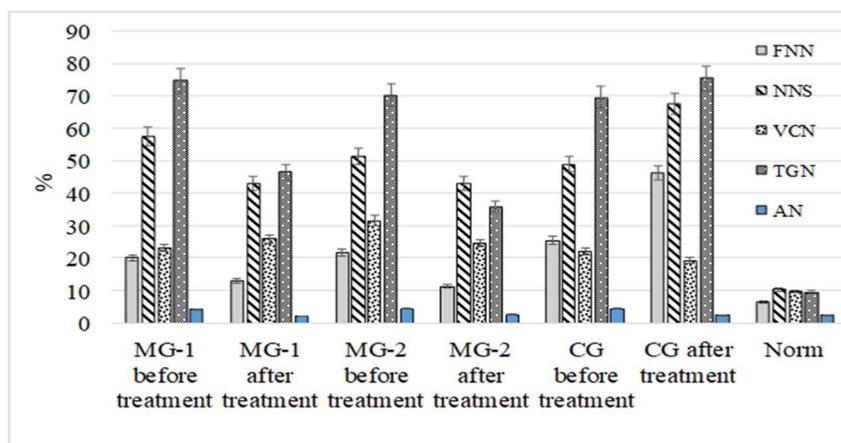


Fig. 1. Cytomorphological changes of neutrophils in children with ARI OS before treatment and after treatment with different treatment regimens: fragmented neutrophil nuclei (FNN), with ruptures of the cytoplasmic membrane and neutrophil nucleus swelling (NNS), villi chromatin of the nucleus (VCN), with a toxic granularity of neutrophils (TGN), the content of adherent neutrophils (AN).

$2.3 \pm 0.8 \%$. Before treatment, the content of FNN in MG-1, MG-2 and CG was, respectively: $20 \pm 2.7 \%$, $21.6 \pm 4.7 \%$ and $25.4 \pm 4.9 \%$, which was probably three times higher than the norm – $6.3 \pm 0.9 \%$ ($p < 0.05$). After treatment, the FNN content in MG-1 decreased to $12.9 \pm 2.9 \%$, and MG-2 to $11.5 \pm 3.12 \%$, by 36 % and 47 %, respectively, and almost normalized in MG-2. In contrast, in CG, the FNN content after treatment

The AN, FNN, NNS, VCN and TGN were registered in 100 % of children in all studied groups. The content of AN associated with inflammation before the examination was twice as high as normal in children of all groups and was in MG-1, MG-2 and CG, respectively: $4.2 \pm 0.6 \%$, $4.4 \pm 1.3 \%$ and $4.3 \pm 0.6 \%$, with mean values of $2.3 \pm 0.3 \%$. After the treatment, AN content returned to normal and was in the MG-1, MG-2 and CG groups, respectively: $2.1 \pm 0.59 \%$, $2.6 \pm 0.7 \%$.

was $46.2 \pm 11.1\%$ and had a significant tendency to increase. Before treatment in children of all groups, the content of NNS cells was almost five times higher than normal – $10.3 \pm 1.34\%$. This was in MG-1, MG-2 and CG, respectively: $57.6 \pm 5.3\%$, $51.2 \pm 4.5\%$ and $48.9 \pm 2\%$. After treatment in MG-1 and MG-2, there was a tendency to reduce the NNS content to $43.1 \pm 3.9\%$ and $43.0 \pm 1.7\%$, respectively. On the contrary, an increase in the number of NNS in CG was recorded to $67.6 \pm 8.0\%$, that is, by almost 30%. The content of VCN cells before treatment in MG-1, MG-2 and CG was $23.1 \pm 4.4\%$, $31.5 \pm 3.9\%$ and $21.80 \pm 3.30\%$, significantly exceeding the norm – $9.61 \pm 0.65\%$ ($p < 0.05$). After treatment, the content of VCN cells in CG decreased by 12% to $19.25 \pm 6.17\%$, and in MG-2 by 22% to $24.5 \pm 4.3\%$. In children treated according to scheme 1 (MG-1), the content of VCN did not change and was $25.9 \pm 3.1\%$ after a course of therapy. The content of neutrophils with the presence of TGN in MG-1, MG-2 and CG was $74.7 \pm 4.9\%$, $70.2 \pm 6.3\%$ and $69.5 \pm 4.4\%$, respectively, with a norm of $9.40 \pm 0.90\%$. Before treatment, the TGN content was higher in children with ARI OS and 7–8 times exceeded the norm indices ($p < 0.05$). After treatment, the content of TGN cells in MG-1 and MG-2 decreased, respectively: $46.4 \pm 2.3\%$ and $35.9 \pm 5.4\%$, that is, by almost 40% and 50%, and was significantly lower than before treatment ($p < 0.05$). In CG, in contrast, the content of TGN increased by almost 8% and amounted to $75.5 \pm 9.1\%$.

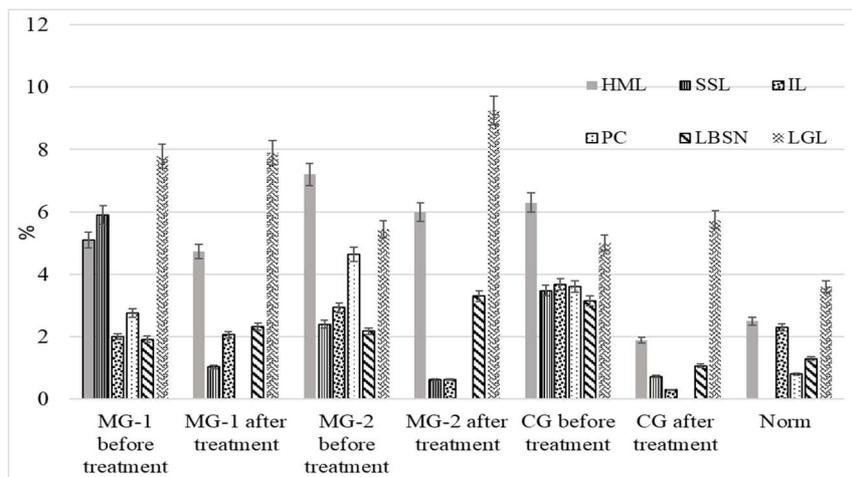


Fig. 2. Cytomorphological changes in lymphocytes in children with ARI OS before and after treatment using various therapy regimens: spindle-shaped lymphocytes (SSL), hand mirror lymphocytes (HML), immature lymphocytes (IL), plasma cells (PC), and lymphocytes with a bean-shaped nucleus (LBSN) and large granular lymphocytes (LGL).

respectively: $1.5 \pm 0.41\%$, $0.8 \pm 0.1\%$, $1.6 \pm 0.6\%$. After treatment, the number of Botkin-Gumprecht dissolutions in MG-1 and MG-2 decreased threefold, respectively $0.5 \pm 0.12\%$, $0.25 \pm 0.22\%$ ($p < 0.05$). In CG, however, the number of Botkin-Gumprecht dissolutions increase and was $3.7 \pm 1.3\%$.

Immature HML T-lymphocytes were registered in children of all examined groups at the beginning of the disease. Their content had no significant differences ($p > 0.05$) and was in MG-1, MG-2 and CG, respectively: $5.1 \pm 1.78\%$, $7.2 \pm 4.15\%$, and $5.3 \pm 1.14\%$ with a norm of $2.5 \pm 0.17\%$. After treatment, regardless of the applied treatment regimen, the content of HML in MG-1, MG-2 and CG decreased, respectively: $4.73 \pm 0.64\%$, $6.0 \pm 1.82\%$, $2.88 \pm 0.94\%$.

Immature SSLs were not registered in healthy children but were found in all groups of patients with ARI OS. After treatment, the SSL content in MG-1, MG-2 and CG significantly decreased, respectively: from $5.9 \pm 0.88\%$ to $1.03 \pm 0.27\%$ and from $4.4 \pm 0.30\%$ to $0.62 \pm 0.60\%$ and from $4.48 \pm 0.68\%$ to $0.73 \pm 0.72\%$ ($p < 0.05$). That is, the content of SSL decreased in MG-1 by almost 6 times, in the MG-2 group – by almost 7 times, and in the CG by almost 5 times. These changes were significant ($p < 0.05$) with all treatment regimens. IL cells were detected at the beginning of the disease in all groups of the examined children and practically did not differ in content in MG-1, MG-2 and CG, respectively: $2.0 \pm 0.57\%$, $2.94 \pm 1.53\%$ and $3.68 \pm 1.83\%$. After treatment, the IL content significantly decreased in MG-2 to $0.63 \pm 0.50\%$, and in CG to $0.3 \pm 0.15\%$ ($p < 0.05$), and in MG-1, it remained at the initial level of $2.07 \pm 1.65\%$, not differing from the norm – $2.3 \pm 0.12\%$. PCs were detected at the beginning of the disease in children of all study groups. Their content varied from group to group but had no significant differences (p). In MG-1, MG-2 and CG, the PC content was, respectively: $2.75 \pm 0.73\%$, $4.64 \pm 1.7\%$, $3.61 \pm 0.76\%$ and exceeded the average indices of $0.81 \pm 0.23\%$. After treatment, PCs were not registered in any of the examined groups of children. The LBSN content in all studied groups of children increased compared to the norm of $3.61 \pm 0.32\%$. In MG-1 and MG-2, the LBSN content increased significantly ($p < 0.05$) and amounted to $7.78 \pm 0.97\%$ and $5.44 \pm 0.71\%$, respectively. In CG, an increase in the LBSN content of $5.0 \pm 0.96\%$ was not likely ($p > 0.05$). After treatment, the LBSN content did not change in MG-1 and CG, respectively: $7.9 \pm 1.42\%$ and $5.75 \pm 1.7\%$. In MG-2 after treatment, in contrast to other groups of children,

Data on cytomorphological changes of lymphocyte pools in peripheral blood in children with ARI OS before and after treatment according to the traditional scheme and the proposed new methods are shown in Figure 2.

The performed lymphocyte cytomorphology studies had shown that the number of their specific dissolutions – Botkin-Gumprecht dissolutions before treatment did not exceed the norm in children of all groups and was in MG-1, MG-2 and CG on average,

the LBSN content tended to increase almost twice and amounted to $9.25 \pm 3.65\%$. The content of LGL before treatment was increased compared with the average values of $1.32 \pm 0.21\%$ and amounted to $1.92 \pm 0.57\%$, $2.18 \pm 0.38\%$ and $3.15 \pm 0.55\%$ in MG-1, MG-2 and CG, respectively. Moreover, in MG-2 and CG, an increase in the LGL content was likely ($p < 0.05$). After treatment, the LGL content increased in MG-1 – $2.32 \pm 1.04\%$ and MG-2 – $3.30 \pm 1.75\%$. In contrast, the LGL content in CG significantly decreased – $1.07 \pm 0.61\%$ ($p < 0.05$).

Studies have shown that among the examined groups of children with ARI OS, the most significant positive cytomorphological changes in leukocytes after treatment were registered in MG-2. In the treatment of scheme 2, compared with other treatment regimens, a more significant decrease in the content of cytomorphologically altered neutrophils, the presence of which is an indicator of the toxic-inflammatory process. Thus, against the background of a general reduction in the number of CDs to the average level, the content of FNN decreased almost to the normal in MG-2 [6, 11, 15]. The NNS content, which reflects the presence and degree of increase in lipid peroxidation processes and the destruction of neutrophil membranes [10, 6, 15], significantly decreased after treatment. The content of atypical VCN, the appearance of which is evidence of an unrealized tendency to cell division, was most significantly reduced in MG-2, which indicated increased control of the genetic homeostasis of the patient's body [10, 11, 15] precisely when using the treatment regimen 2. In MG-2 after treatment, the content of TGN decreased by 50 %, i.e. the most, compared with other applied regimens for the treatment of ARI OS. Regarding the study of cytomorphological changes in lymphocytes, not all of their pools are necessarily present in the peripheral blood. Establishing their presence and determining the relative content in the blood provides information on the activation, suppression or restoration of the immune system [6, 10]. AL and RL were not detected in children with ARI of all groups. Immature lymphocytes, large granular lymphocytes and lymphocytes with a bean-shaped nucleus are periodically found in the peripheral blood of healthy people in small quantities. At the same time, immature lymphocytes, SSL, PCs and HML were mainly registered in transient pathological conditions. When treating children according to scheme 2, the number of Botkin-Gumprecht dissolutions increased before treatment was decreased to the average level. The increased content of immature and dysfunctional pools of HML and SSL was most significantly reduced after treatment in MG-2. The content of IL decreased most after treatment in MG-2. After treatment, the content of SSL populations, which are considered precursors of natural killers, and LGL, which are associated with natural killers [6, 10, 15], increased most in MG-2. This indicated an improvement in the functioning of the immune system in patients with ARI OS treated according to scheme 2. The obtained results of improvement of cytomorphological parameters coincided with positive clinical dynamics in patients and the most significant reduction in the frequency of recurrent episodes of ARI OS when using scheme 2 in treating this disease in children.

Conclusions

1. The study of cytomorphological changes in the pool of neutrophils and lymphocytes significantly expands and clarifies the informative data on the components and functioning of the system of nonspecific resistance and the immune system.
2. According to the results of cytomorphological studies, the most effective treatment regimen for acute respiratory infections complicated by obstructive syndrome is Scheme 2. It includes, in addition to traditional therapy, a course of individually selected antibiotics and antioxidants, namely, a complex vitamin preparation with immunocorrective and antioxidant properties, or other drugs of this type.

References

1. Abaturov AYe, Volosovets AP, Borisova TP. Medikamentoznoye upravleniye okislitelno-vosstanovitelnyim sostoyaniyem organizma pri zabolevaniyakh organov dykhaniya (chast 1). Zdorovye rebenka. 2018;-13 (2): 232 – 240 <https://doi.org/10.22141/2224-0551.13.2.2018>. [in Russian]
2. Abaturov AYe, Gerasimenko ON. Mesto polusinteticheskikh penitsillinov i makrolidov v antibakterialnoy terapii respiratornykh infektsiy u detey. Zdorovye rebenka. 2014; 6(57):77–80 <https://doi.org/10.22141/2224-0551.6.57.2014.75726> [in Russian]
3. Hevkalyuk NO. Leykohrama yak pokaznyk reaktivnosti orhanizmu ditey, khvorykh na hostri respiratorni virusni infektsiyi. Aktualni pytannya pediatriyi, akusherstva ta hinekolohiyi. 2013; 1: 22–25. [in Ukrainian]
4. Hevkalyuk NO. Stan deyaknykh pokaznykiv kolonizatsiyanoi rezystentnosti slyzovoyi obonky porozhnyny rota u ditey pry hostrykh respiratornykh virusnykh infektsiyakh. Halytskyi likarskyi visnyk. 2013; 20, 1(ч.1): 17–20. [in Ukrainian]
5. Zhdan VM, Lebid VH, Ivanytskyi IV, Ishcheykina YuO, Boryak KhR. Otsinka hepatotoksychnoho efektu tryvaloho pryvomu statyniv za rezultatamy zsvnokhvylyovoyi elastometriyi. Aktualni problemy suchasnoyi medytsyny: Visnyk Ukrayinskoyi medychnoyi stomatolohiyi. <https://doi.org/10.31718/2077-1096.22.1.35> [in Ukrainian]
6. Zak KP, Popova VV, Gruzov MA, Khomenko BM, Afanasyeva VV, Malinovskaya TN, et al. Itogi dvadtsatiletnikh issledovaniy immuniteta v doklinicheskuyu fazu razvitiya sakharnogo diabeta 1-go tipa u detey po Programme IDSD: 1. Leykotsitarnyy sostav i immunofenotip limfotsitov krovi. Endokrinologiya. 2017; 22, 3: 201–210. [in Russian]
7. Ivashchuk SI. Reaktivna vidpovid polimorfnoyadernykh neytrofilnykh hranulotsytiv peryferychnoyi krovi khvorykh na hostryy pankreatyt zalezho vid henezu. Ukrayinskyi zhurnal khirurhiyi. 2014; 3–4 (26–27): 86–93. [in Ukrainian]
8. Kramaryov SO, Yevtushenko VV, Markov AI. Pidkhody do antybakterialnoyi terapiyi hostrykh respiratornykh infektsiy u ditey. Aktualnaya infektolohyya. 2015; 1: 7–12. DOI:10.22141/2224-0551.4.64.2015.75335 [in Ukrainian]

9. Ovcharenko LS, Tymoshyna OV, Verthehel AO, Andriyenko TH, Samokhin IV, Kryazhev OV. Osoblyvosti fahotsyarnoyi funktsiyi leykotsytiv u ditey doshkilnoho viku zalezno vid chastoty zakhvoryuvanosti na hostri respiratorni zakhvoryuvannya. Zdorovye rebenka. 2021; 16(5): 325–330. doi: 10.22141/2224-0551.16.5.2021.239710 [in Ukrainian]
10. Raksha-Slyusareva O, Slyusarev O, Boyeva S, Syerykh N, Stryzhak N. Predyktory systemy krovi ta imunitetu v umovno zdorovoho naselennya Donetskoho rehionu pid chas provedennya OOS. Scientific research of the XXI century. Volume 1 : collective monograph. Shpak V. Redactor. GS publishing service. 2021; 162 – 166. DOI : 10.51587/9781-7364-13302-2021-001 [in Ukrainian]
11. Raksha-Slyusareva OA, Trykhlub VI, Slyusarev OA, Tarasova IA, Boyeva SS. Osoblyvosti tsytomorfologichnykh zmin populyatsiyi neytrofiliv u rozrobtsi dyferentsiyno-diahnostychnykh kryteriyiv atypovoyi pnevmoniyi. Aktualna infektolohiya. 2020; 8, 6: 21–26 DOI: <https://doi.org/10.22141/2312-413x.8.5-6.2020.217957> [in Ukrainian]
12. Sokolov SA, Shamsheva OV. Pokazateli immunnogo statusa, tsitokinovogo profilya u chasto boleyushchikh detey i optimizatsiya podkhodov k profilaktike ORZ. Detskiye infektsii. 2013; 12, 3: 9–14. [in Russian]
13. Fesenko MYe, Zyuzina LS, Fastovets MM, Kalyuzhka OO, Melashchenko OI. Hostri respiratorni rekurentni infektsiyi u ditey. Visnyk Ukrayinskoyi medychnoyi stomatolohichnoyi akademiyi. 2019;19, 4 (68): 37 – 38 .DOI 10.31718/2077-1096.19.4.34 [in Ukrainian]
14. Shikh YeV. Vitaminy s antioksidantnymi svoystvami v profilaktike i lechenii ostrykh respiratorynykh infektsiy u detey. Voprosy sovremennoy pediatrii. 2013; 12, 4: 142–147. [in Russian]
15. Chabot-Richards DS, Foucar K. Does morphology matter in 2017? An approach to morphologic clues in non-neoplastic blood and bone marrow disorders. Int J Lab Hem. 2017; 39 (Suppl. 1): 23 – 30. DOI: 10.1111/ijlh.12667

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**K.Yu. Rezvina, P.I. Tkachenko, S.O. Bilokon, N.M. Lokhmatoва, O.B. Dolenko,
Yu.V. Popelo, N.M. Korotych**
Poltava State Medical University, Poltava

CLINICAL, MORPHOLOGICAL AND IMMUNOHISTOCHEMICAL PARAMETERS OF EPIDERMOID CYSTS IN THE NECK

e-mail: ekadiomina@gmail.com

The article presents the features of the clinical course of epidermoid cysts in the neck in 27 patients and the morphological and immunohistochemical characteristics of their 20 biopsy samples. The diagnostic informative value of the method of immunohistochemical research in the study of immunocompetence of various layers of the cyst envelope is determined. It was established that the number of immunocompetent cells in the epithelial, subepithelial and connective tissue layers differs, and certain patterns of their location and redistribution are traced. Based on the comparative analysis of the obtained data, it was stated that the location of cystic formations of different nosological forms in this part of the neck is possible. The similarity of the clinical picture and the unambiguity of some results of routine, additional examination methods often lead to diagnostic errors, making the issue of their differentiation highly relevant to scientists and practising dental surgeons.

Key words: cyst, formation, neck, immunocompetence, cyst envelope.

**К.Ю. Резвіна, П.І. Ткаченко, С.О. Білоконь, Н.М. Лохматова, О.Б. Доленко,
Ю.В. Попело, Н.М. Коротич**

КЛІНІКО-МОРФОЛОГІЧНІ ТА ІМУНОГІСТОХІМІЧНІ ОСОБЛИВОСТІ ЕПІДЕРМОЇДНИХ КІСТ ШИЇ

У статті наведені особливості клінічного перебігу у 27 пацієнтів, морфологічних та імуногістохімічних характеристик їх 20 біопатів епідермоїдних кіст ший. Визначена діагностична інформативність методу імуногістохімічного дослідження при вивченні імунокомпетентності різних прошарків оболонки кісти. Встановлено, що кількість імунокомпетентних клітин в епітеліальному, субепітеліальному і сполучнотканинному шарах різняться і прослідковуються певні закономірності їх розташування та перерозподілу. На підставі порівняльного аналізу отриманих даних констатовано, що в цій ділянці ший можливе розташування кістозних утворень різних за походженням нозологічних форм. Схожість клінічної картини та однозначність деяких результатів рутинних, додаткових методів обстеження доволі часто призводить до діагностичних помилок, роблячи питання їх диференціації вкрай актуальним як для науковців, так і для практикуючих хірургів-стоматологів.

Ключові слова: кіста, утворення, шия, імунокомпетентність, оболонка кісти.

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An epidermoid cyst is a cyst of the skin, the inner surface is usually lined with multi-layered squamous epithelium, and horny scales represent its contents. It also occurs at any age of patients. It is mainly localized on the head, torso and upper extremities. Macroscopically, it is a tumour-like formation of round shape, soft consistency with a size of 5 to 40 mm in diameter or more. Usually, the skin over the cyst does not gather in a strip. In cases of secondary infection, it can be hyperemic. The epidermoid cyst is