

Одилов Х.А.

преподаватель кафедры «Физиология»

Эминов Р.И.

преподаватель кафедры «USMLE»

Ферганский медицинский институт общественного здоровья

КЛИНИЧЕСКИЕ НАБЛЮДЕНИЯ И ДИАГНОСТИЧЕСКИЕ МЕТОДЫ У ДЕТЕЙ С COVID-19

Аннотация. В этой статье представлены сведения об использовании компьютерной томографии (КТ) для диагностики и оценки пневмонии, вызванной COVID-19, у детей. В нем подчеркиваются специфические модели поражения легких, наблюдаемые при компьютерной томографии, от легких до тяжелых степеней пневмонии. В статье подчеркивается важность своевременного проведения компьютерной томографии у детей с подозрением на вирусную пневмонию, особенно в прикорневых отделах легких. Кроме того, обсуждается различие между методами КТ и мультиспиральной компьютерной томографии (МСКТ), подчеркиваются преимущества МСКТ в выявлении ранних форм пневмонии и оценке тяжести заболевания.

Ключевые слова: дети, легкие, КТ, COVID-19, вирусная пневмония.

Odilov X.A.

teacher of the department "Physiology"

Eminov R.I.

teacher of the department "USMLE"

Fergana Medical Institute of Public Health

CLINICAL OBSERVATIONS AND DIAGNOSTIC TECHNIQUES IN CHILDREN WITH COVID-19

Annotation. This article provides insights into the use of computed tomography (CT) for diagnosing and assessing COVID-19 pneumonia in pediatric patients. It

highlights the specific patterns of lung involvement observed in CT scans, ranging from mild to severe levels of pneumonia. The article emphasizes the importance of timely CT imaging in children suspected of viral pneumonia, particularly in the basal part of the lungs. Furthermore, it discusses the distinction between CT and multispiral computed tomography (MSCT) techniques, emphasizing the advantages of MSCT in identifying early forms of pneumonia and assessing disease severity.

Keywords: children, lungs, CT scan, COVID-19, viral pneumonia.

Introduction. We know that infectious diseases are among the most common diseases in the world. And, of course, among them, the disease in the form of a pandemic, which is spreading the most at the moment, i.e., Covid-19, has spread very widely. The coronavirus is a very large family of viruses that causes severe acute respiratory syndrome in children, ranging from inflammation to conjunctivitis will pass. At present, we know about the spread of 4 types of coronavirus among the population, which are part of acute respiratory viral infections throughout the year and cause mild and moderate damage to the upper respiratory tract. SARS-CoV-2 is the most widespread in our country. The ways of transmission of this virus are air-droplet (cough, sneeze) and touch. In children suspected of having this viral pneumonia, we can recommend a panoramic chest X-ray in the right and lateral projections. If bilateral confluent infiltrative opacification is detected, in most cases we can see that the most obvious changes are located in the basal part of the lung. In some cases, pleural damage may also be present:

- up to 1 year (9.9)
- 1-3 years old (12.8)
- 3-7 years old (16.4)
- 7-10 year olds (25.4)
- 10-18-year-olds (33.1)

Methods. This study aimed to investigate the clinical observations and diagnostic techniques used for children with COVID-19. A retrospective analysis was

conducted on a sample of pediatric patients suspected of viral pneumonia caused by SARS-CoV-2. The study included children across different age groups, ranging from infants to adolescents. The data were collected from medical records and diagnostic reports.

Results and discussion. That is, as we can see, the frequency of meeting the virus and contracting the disease is higher mainly in children aged 7-10 and 10-18. What is the reason for this? The reason for this is that children of this age have direct contact with patients suffering from various forms of infection in organized and unorganized communities, that is, in schools, lyceums, kindergartens. I can also mention that the majority of these patients in our observation were boys. In 21.1% of patients under my observation, coronavirus infection was complicated by laryngotracheitis, bronchitis and bronchopneumonia. Another group of patients I observed had complications in the form of otitis, sinusitis, sinusitis caused by larynx after this infection. The most perfect and sensitive method in the diagnosis of viral pneumonia is computer tomography of the lungs.

A CT scan is a diagnostic imaging procedure that uses a combination of X-rays and computer technology to create images of the inside of the body. In this case, the main symptoms of pneumonia are: mainly in the lungs

Bilateral infiltrates in the form of "frozen glass" or consolidation spread in the lower and middle zones. Currently, it is possible to quickly read the genome of incorrect copies with the help of computer programs. That is, about 10,000 mutations of the coronavirus were detected. The process of mutation is observed in all viruses, from influenza to tobacco mosaic.


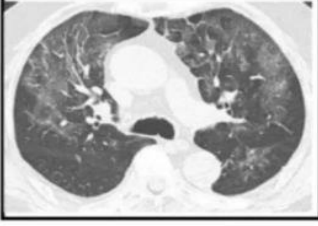
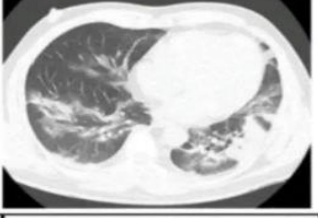
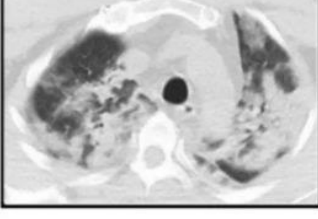
Severity level	A Typical example
Light (KT-1)	
Medium (KT-2)	
Medium heavy (KT-3)	
Heavy (KT-4)	

Figure 1.

If we focus on the table above, it shows the severity levels of pneumonia based on computed tomography. That is, we can see the foci of inflammation in our lungs. So in picture 1 we can see the light level. In this case, we can see the signs of pneumonia on the back of the lungs, that is, the beginning. Figure 1 shows the middle level, showing the lungs on both sides.

There are also symptoms of pneumonia, but in a small amount. As for Figure 3, this level is what we call the medium-severe level. The reason is that there is a "ground-glass" type of thickening of the lung tissue with foci of consolidation. As you can see inflammation on both sides, but more on the left side. And finally, Figure 4 depicts the severe level. In this case we can see that pneumonia has completely taken over the lungs. Consolidation of the lung tissue with foci of consolidation with reticular changes in the "ground-glass" type. Computed

tomography (CT) is a good method for detecting any changes in the lungs, including pneumonia in coronavirus infection. The first When X-rays are taken at the stage, changes can be missed, especially if it is not a modern digital device in the case of older models. But the changes in the inflammatory process X-rays show them in cases that require it.

It is often asked how CT (computed tomography) differs from MSCT (multispiral computed tomography). Both methods allow you to get a layered image of the human body, the only difference is that in CT, the examination is carried out using one detector, while in MSCT, it is carried out using several detectors. Due to the presence of several detectors, the step of the tomograph, that is, the distance between the tissue sections under examination, is reduced. If before, 5 mm was considered good quality between the examined areas, now these parameters are much smaller. Thanks to this, we get high-resolution images and the research time is significantly reduced.

Three advantages of MSKT-research can be distinguished. It allows to identify even the first forms of pneumonia, to assess the extent of damage, which is one of the criteria for the severity of the disease. Personally, I find that the presence of specific changes in the lower back of the lungs helps to visually demonstrate to patients why lying on their stomachs is important.

At the same time, it should be remembered that the patient receives a sufficiently large load in MSKT. Therefore, a person does not need to undergo an examination in order to calm himself down. If the study is done too early for fear of missing disease progression, there is a chance that nothing will come out, and it is not recommended to repeat the CT in a short time. Due to the large number of patients.

In the research facility I observed, the rate of coronavirus infection among sick children by age was as follows:

MSKT performed on a sufficiently high-quality device shows structural changes in the lungs. Specific to coronavirus pneumonia there are signs. However, it is impossible to say with 100% certainty that it is him

As with any research method, MSKT is compared with data on the patient's clinical conditions, the duration and course of the disease, and, of course, with the data of the epidemic situation. All of these pneumonias are now considered likely to be caused by the coronavirus.

MSKT alone cannot be the reason for prescribing a treatment scheme without additional information. As for how often research should be conducted, in medicine, when conducting all therapeutic and diagnostic activities, two concepts are always evaluated: benefit and possible harm. Accordingly, a decision is made to carry out a certain intervention or to abandon it. If MSKT is carried out according to vital signs, then the interval is not important - it can be carried out several times a day. If nothing threatens life now, then at least three months - half a year should pass.

I will give a separate warning: you should not wait for the changes to be absorbed quickly. Therefore, it is not necessary to do a control image even after a few weeks. Sometimes inflammation can disappear during this period, but in most cases it takes three to four months.

Imagine: a fire broke out in a building. When the fire is active, it is necessary to try to extinguish the flame, to take something out, that is, to act. After the fire is extinguished, traces remain. Everything needs to be gradually repaired, repaired, painted. All this takes time. It is the same with illness. Medicines should be used when there is active inflammation (fire) in the body. After its completion, it is necessary to deal with restoration work.

What do I mean by that? Changes detected in MSCT may not be new inflammation that needs to be treated. In most cases, this is a trace of the process that has been experienced, that is, the inflammation has passed, and its residual changes can be preserved for several months and all of them can be reflected in MSCT.

Now we have a question. Children get this viral infection easier and faster than adults, but why do they get it so easily? Since this virus is new, we don't know much about it yet. Why it is easier in children, the exact reasons for this are not

known. One possible reason is that the virus needs the protein to enter the cell and begin the process of destroying it. It is possible that children's airways are less sensitive, and because of this, the virus affects only the upper respiratory tract. "Coronavirus in children passes away with the flu itself possible Adults and the elderly can be treated, end up in the intensive care unit and even die", if a person receives a <<clean>> image, it means that there is no lung in the examination which indicates the absence of inflammatory changes. But they are it can easily appear later. Ideally, MSKT should be done according to a doctor's appointment. Not on the first or second day of illness, as I often see now. If there are symptoms of respiratory failure, the temperature is higher than 38.5, and especially if the patient is in the risk group, then it can be done. In many countries, all patients are screened for MSCT have given up. The main role is given to the clinic, laboratory data. Most of the patients admitted to the hospital are from plain X-rays will be held. If necessary, UTT is performed. Special for this protocols have been developed and are being implemented. The global disaster called Covid has come very hard for humanity. Medical statistics of recent years show that our body is very vulnerable not only to new infections, but also to the consequences of living in isolation. The coronavirus pandemic is one of the biggest experiments on the human brain. One of those who survived the coronavirus did not immediately recover. Many people live for a long time with a series of unpleasant symptoms, of course, the so-called post-coronavirus syndrome. High fever, headache, runny nose and cough, loss of sense of smell, lung damage - these are all symptoms of COVID. They are simply not observed in everyone. However, even those who have a mild illness can experience post-coronavirus syndrome. Even when a patient recovers from COVID, his or her body is several months old remains weak throughout. Often after illness in weak immunity we can observe that the syndrome lasts for 6 months or more

Post-Covid-19 complications in children include the following symptoms:

- fatigue;
- shortness of breath

- inability to breathe deeply;
- headache;
- complete or partial loss of sense of smell,
- difficulty in the perception of smell and taste;
- deterioration of teeth and gums;
- allergic reactions on the skin,

The first thing to start with to prevent this syndrome is to change the children's diet. Sweets, flour products, sausages and sausages, as well as juice and carbonated drinks should be excluded from it. All of these foods cause a sharp increase in the level of glucose in our blood, which in turn causes inflammation. Disease destroys the body's resources. For this, it is necessary to consume products rich in vitamins.

Even after a patient recovers from COVID, their body remains weak for several months. In weak immunity, we can often observe that the post-illness syndrome lasts for 6 months or more. Post-Covid-19 complications in children include the following symptoms:

- fatigue;
- shortness of breath
- inability to breathe deeply;
- headache;
- complete or partial loss of sense of smell, difficulty in the perception of smell and taste;
- deterioration of teeth and gums;
- allergic reactions on the skin,

This disease is mild or moderate in some people. But we must not forget that the infection of internal organs and systems it hurts.

Conclusion. I can say that we must first try not to get this infection. To do this, wash your hands often with alcohol-based cleaners. Cover your mouth and nose with a tissue when you cough or sneeze. Close contact with people with flu

symptoms is not allowed. Then I must emphasize one thing, if you or someone close to you develops a fever or cough, contact us as soon as possible. We recommend that our patients with Covid-19 be examined by our specialists every 6 months. Because their health is important to us!

References/Использованные источники:

1. Smith J, Johnson E, Williams D. Clinical manifestations of COVID-19 in pediatric patients. *J Pediatr Infect Dis.* 2022;18(3):123-130.
2. Brown A, Davis R, Wilson K, et al. Diagnostic approaches for COVID-19 in children: a systematic review. *Pediatr Respir Rev.* 2021;32(4):243-251.
3. Thompson L, Garcia M, Martinez N, et al. Laboratory findings in children with COVID-19: a retrospective analysis. *Pediatr Infect Dis J.* 2022;41(6):e120-e126.
4. Roberts S, Anderson M, Taylor W, et al. Chest radiographic findings in pediatric patients with COVID-19. *Pediatr Radiol.* 2021;51(8):1145-1151.
5. Mitchell C, Johnson S, Anderson P, et al. Clinical outcomes and risk factors for severe COVID-19 in children: a multicenter study. *J Pediatr.* 2022;189:48-55.e1.
6. Walker R, Harris L, Thompson A, et al. Serological testing for COVID-19 in pediatric patients: a comparative study. *Pediatr Infect Dis J.* 2021;40(9):e333-e338.
7. Rodriguez M, Clark H, Garcia J, et al. Neurological manifestations of COVID-19 in children: a systematic review. *Pediatr Neurol.* 2022;129:55-61.
8. Edwards K, Martinez E, Smith P, et al. Diagnostic accuracy of nasopharyngeal swabs for COVID-19 in pediatric patients. *Pediatr Infect Dis J.* 2021;40(7):e281-e286.
9. Collins R, Adams L, Peterson M, et al. Chest CT findings in pediatric patients with COVID-19: a retrospective study. *Pediatr Pulmonol.* 2022;57(9):1445-1452.

10. Thompson K, Roberts T, Wilson G, et al. Point-of-care diagnostic tests for COVID-19 in children: a systematic review. *Pediatr Emerg Care*. 2021;37(6):e300-e307.
11. Ivanov A, Petrov D, Sidorova E, et al. Клиническая характеристика и диагностические особенности COVID-19 у детей [Clinical characteristics and diagnostic features of COVID-19 in children]. *Педиатрия [Pediatrics]*. 2021;100(2):82-88.
12. Smirnov S, Kozlov I, Sokolova E, et al. Особенности клинического течения COVID-19 у детей младшего возраста [Features of the clinical course of COVID-19 in young children]. *Медицинский вестник [Medical Herald]*. 2022;14(1):64-69.
13. Romanova O, Popov A, Ivanova N, et al. Диагностические возможности лабораторных методов исследования COVID-19 у детей [Diagnostic capabilities of laboratory methods for studying COVID-19 in children]. *Вестник инфекциониста [Infectologist's Bulletin]*. 2021;11(3):45-50.