



## **X-RAY RADIOLOGICAL FEATURES OF PATIENTS WITH SEVERE COVID - 19 DURING COMPLEX TREATMENT.**

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<b>Article history:</b>	<b>Abstract:</b>
<b>Received:</b> October 6 <sup>th</sup> 2022 <b>Accepted:</b> November 6 <sup>th</sup> 2022 <b>Published:</b> December 14 <sup>th</sup> 2022	X-ray radiological features of 224 patients with severe COVID-19 were studied. The aim of the study was to study the radiological features of patients with a severe degree of COVID-19 against the background of complex treatment. The study revealed that patients with COVID - 19 associated pneumonia have their own characteristics of the course both in clinical, laboratory and radiological picture. All of the above radiological features of the course of COVID - 19 associated pneumonia in clinical practice are important for the differentiation of patients with purulent surgical inflammatory diseases of the lungs, bacterial etiology. Which inevitably positively affects the quality of treatment of patients with both purulent-surgical lung diseases and COVID-19 associated pneumonia.

**Keywords:** COVID-19, coronavirus, clinic, diagnosis, prevention Conflict of interests.

### **RELEVANCE**

In the new millennium, humanity faced infectious diseases that no one knew about. Plague and typhus have been replaced by dangerous viruses. Environmental change, climate warming, population density increase and other factors provoke their appearance, and high migration activity of the population contributes to the spread around the world. Truly, infections know no boundaries. According to UN forecasts, by 2050 the world's population will reach 10 billion people. This means that the processes of migration and urbanization will accelerate even more [1]. The COVID-19 epidemic ("coronavirus disease 2019") has already gone down in history as an emergency of international importance. At the moment, the number of infected in the world has exceeded 470 thousand people [2]. We still have to study the features of this epidemic, learn lessons, analyze the shortcomings of ensuring the biological safety of the population. One thing is clear: new viruses will appear, it is an integral part of our world. Humanity must learn to resist these threats.

### **MATERIAL AND METHODS**

The material of the study was 224 patients with severe COVID-19 who received treatment at the peak of the pandemic in July-August 2020. in a specialized COVID-19 hospital at the hostel of the Technological Institute in the city of Bukhara.

During this period, 326 patients with COVID-19 received inpatient treatment at the hospital. The treatment method was carried out according to protocol No. 6 on the recommendation approved by the Ministry of Health of the Republic of Uzbekistan for the examination and treatment of COVID - 19 dated

06/30/2020. According to the protocol, patients with COVID - 19, depending on the severity of the disease, are conditionally divided into 3 groups. And a specific recommendation is given for the scope of research and treatment, taking into account the severity of the patients.

This article provides an analysis of the studied X-ray features of patients with severe lung lesions. Of the 224 examined patients with covid pneumonia, 131 (58.9%) were males and 93 (41.1%) were females aged 17 to 85 years. The average age was 53.11.7 years.

The main complaints upon admission of patients were from fever (up to 94%); Dry cough or with a small amount of sputum (78.2% of cases); Shortness of breath (86%); Fatigue (92.9%); Feeling of congestion in the chest (42.3%);

Sore throat (17.4%); runny nose (72.2%), lack of smell and taste (84.8%); signs of conjunctivitis (41.0%) cases.

All examined patients had complications of pneumonia, which was confirmed by X-ray radiological examination. Of the 224 patients, in most cases, 220 (98.2%) had bilateral COVID pneumonia with a predominant average of 35% and lower lobes of 55% in patients.

From the moment of admission, on an emergency basis, all patients started conservative treatment according to protocol 6. From the moment of admission, all patients underwent PCR testing for COVID - 19 from the nasopharynx, body temperature, respiratory rate were measured, an objective examination of the lung (auscultation, percussion), lung spirometry, pulse oximetry were performed, X-ray examination and, if necessary, MSCT of the chest.

Taking into account the results of clinical and radiological studies, all examined patients, if necessary, underwent oxygen therapy with SPAP devices or Bobrov's apparatus.

When evaluating X-ray images and MSCT of the chest of patients with COVID - 19, we adhered to the classification of Russian scientists. S.P. Morozov, D.N. Protsenko, S.V. Smetanina. 2020 (reference № Morozovg).

### RESULTS AND DISCUSSIONS

All 224 examined patients had complications of pneumonia, which was confirmed by radiological examination.

Of the 224 patients, 220 (98.2%) patients had bilateral covid-associated pneumonia with a predominant lesion of the middle lobe 35 (15.6%), the lower lobe 60 (26.7%). 4 (1.8%) patients had unilateral pneumonia, of which right-sided pneumonia (1.2%), (0.6%) patients had left-sided pneumonia COVID-19 localization.

From the moment of admission, all patients underwent conservative treatment and examination according to protocol No. 6 on the recommendation approved by the Ministry of Health of the Republic of Uzbekistan for the examination and treatment of COVID - 19 dated 06/30/2020.

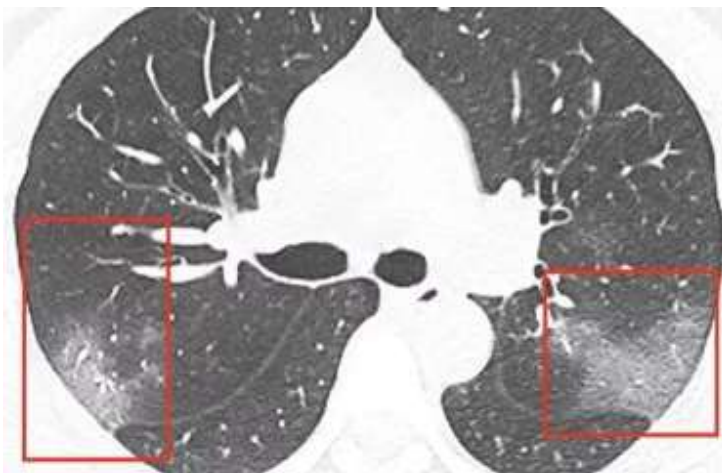
The effectiveness of treatment was assessed by the dynamics of the results of clinical and X-ray studies (ultrasound, X-ray, MSCT). The state of the lung tissue and the assessment of the degree of lung damage

were assessed by MSCT or X-ray examination of patients. The main criterion for the laboratory diagnosis of COVID-19 was the results of a PCR study from the nasopharynx for COVID-19. An important criterion for assessing the pulmonary complication of COVID-19 was the results of a study of MSCT of the lung.

Of the 224 examined patients, 37.9 of them had a CT-3 form of radiological picture, which, on CT scan, was characterized by compaction zones of the "ground glass opacity" type, consolidation zones, involvement of the lung parenchyma 50–75%, an increase in the volume of the lesion by 50% per 24-48 hours on the background of respiratory disorders. Example CT.

In 33.6% of patients, CT-4 form was noted, which is characterized by an X-ray and radiological picture: diffuse compaction of the lung tissue by type "ground glass opacity" and consolidation in combination with reticular changes, pleural effusion (bilateral, predominant on the left), involvement of the lung parenchyma > 75% Which corresponds to patients with severe severity of COVID - 19.

The main X-ray signs of lung damage in patients with severe COVID-19 associated pneumonia were with X-ray picture of CT-3 (according to the author's class. And year): ground-glass compaction zones, consolidation zones, involvement of the lung parenchyma 50–75% , an increase in the volume of the lesion by 50% in 24–48 hours against the background of respiratory disorders, if the studies are performed in dynamics



**Diffuse compaction of lung tissue by the type of "frosted glass"**

It should be noted that among the surveyed. The first patients included in our work were not patients with CT-4 (critical) in which the characteristic signs are diffuse compaction of the lung tissue in the form of "ground glass" and consolidation in

combination with reticular changes, pleural effusion, involvement of the lung parenchyma > 75%, so how, based on the goals and objectives of our work, critically ill patients are not included.



– Areas of consolidation, perilobular seals were observed in 43 (19.1%) patients.

- a symptom of an air bronchogram, traction bronchiectasis was observed in 19 (8.4%) patients.

- pleural effusion, hydrothorax was determined in 8 (3.5%) patients, of which 3 (1.3%) patients had bilateral, 5 (2.2%) unilateral (3 on the left, 2 on the right).

All these signs, as in subgroup II A, were mainly determined on the 6th–10th day of the disease. In the process of complex treatment, synchronously with the improvement of the general condition and clinical and X-ray laboratory data of the examined patients, the CT picture also had a positive trend by 9-10 days of treatment, in most cases they had a normal CT picture. It should be noted that in 30-35% of patients in this period.

It should be noted that according to the anamnesis of the examined patients, it was revealed that up to 35% of patients found out about their disease after the detection of a CT picture of COVID - 19 associated pneumonia, although they had moderate and severe lung damage. This indicates a discrepancy between objective clinical data on the degree of lung damage in patients with COVID-19, which is also one of the main distinguishing features of COVID-19 from purulent-surgical lung diseases.

Thus, our study revealed that patients with COVID - 19 associated pneumonia have their own characteristics of the course both in clinical, laboratory and radiological picture.

All of the above radiological features of the course of COVID - 19 associated pneumonia in clinical practice are important for the differentiation of patients with purulent surgical inflammatory diseases of the lungs, bacterial etiology. Which inevitably positively affects the quality of treatment of patients with both purulent-surgical lung diseases and COVID-19 associated pneumonia.

#### **CONCLUSION:**

1. In the X-ray radiological diagnosis of COVID - 19, the main signs are: "frosted glass" type sealing zones, consolidation zones, reticular changes, pleural effusion.

2 The clinical manifestations of COVID - 19 do not correspond with the degree of lung damage in severe To the picture with an unexpressed clinic of septic conditions, the relatively mild severity of the general condition.

#### **BIBLIOGRAPHY**

1. Vinokurov A.S., Smirnova A.D., Belen'kaya O.I., Yudin A.L., Yumatova Ye.A. Kliniko-rentgenologicheskiye varianty porazheniya legkikh pri infektsii, vyzvanoy staphylococcus aureus // Klinicheskaya praktika. - 2021. - T. 12. - №3. - C. 71-89. doi: 10.17816/clinpract71642.
2. Okesola A. Community-acquired methicillin-resistant Staphylococcus aureus-a review of literature. Afr J Med Med Sci. 2011;40(2):97–107.
3. Bel'kova YU.A. Piodermii v ambulatornoy praktike // Klinicheskaya mikrobiologiya i antimikrobnaya khimioterapiya. 2005. № 2. S. 255–270. [Belkova YuA. Pyoderma in outpatients. Clinical Microbiology and Antimicrobial Chemotherapy. 2005;(2):255–270. (In Russ).]
4. Morgan MS. Diagnosis and treatment of Pantón–Valentine leukocidin (PVL) associated staphylococcal pneumonia. J Antimicrob Agents. 2007;3(4):289–296. doi: 10.1016/j.ijantimicag.2007.04.019
5. Influence of different concentrations of dimethylsulfoxide solution on antibiotic sensitivity of pathogenic microorganisms in experiment (In Vitro) Safoev Bakhodir Barnoyevich1, Yarikulov Shukhrat Shokirovich2, Boltayev Timur Shavkatovich3 European Journal of Molecular & Clinical Medicine ISSN 2515-8260 Volume 07, Issue 03, 2020.
6. Safoev B.B., Turdiev Kh.K., Boltaev T.SH., Clinical and Laboratory Features of Covid - 19 Course in Combination with Pneumonia // Yeuropen multidisciplinary journal of modern science. – 2022, Vol. 4, 2021, Pages. 622 – 626.
7. Turdiev Khurshid Kobilovich. Diagnostic criteria for covid - 19 combined with pneumonia. European Journal of Interdisciplinary Research and Development, Volume-05 July-2022, ISSN (E): 2720-5746.
8. Turdiev Khurshid Kobilovich, Rakhmatov Shukhrat Sharopovich. Complications After Covid - 19 Combined with Pneumonia. Texas Journal of Medical Science, ISSN NO: 2770-2936.
9. Safoev B.B., Yarikulov SH.SH., Ikromov T.E. Vliyaniye razlichnykh doz ul'trafioletovyy luchey na rezistentnosti patogennyey mikroorganizmy v eksperimente (in vitro).



- Tibbiyotda yangi kun - Bukhoro, 2020. №4(33) — S. - 129-131. (14.00.00; № 22)
10. Safoev B.B., Yarikulov SH.SH. Podavleniye rezistentnosti mikroflory pod vozdeystviyem rastvora dimetilsul'foksida pri lechenii gnoynokhirurgicheskikh zabolevaniy myagkikh tkaney // *Biologiya va tibbiyot muammolari - Samarkand*, 2021. - №2 (127). - S. - 125-130. (14.00.00; №19)
  11. Yarikulov SH.SH., Khasanov A.K., Mukhammadiev I.SH., Puti snizheniya rezistentnosti mikroflory k antibiotikam pri lecheniya gnoynykh ran. // *Tibbiyotda yangi kun - Bukhoro*, 2020. -№3(31). – S. 156-160 (14.00.00; № 22)
  12. Safoev Bakhodir Barnoyevich, Yarikulov Shukhrat Shokirovich, Boltayev Timur Shavkatovich. Influence of different concentrations of dimethylsulfoxide solution on antibiotic sensitivity of pathogenic microorganisms in experiment (In Vitro) *European Journal of Molecular & Clinical Medicine*. Great Britain. 2020, Volume 7, Issue 3, P. 5194-5198 (14.00.00; Scopus)
  13. Safoev Baqodir Barnoyevich., Yarikulov Shuxrat Shokirovich. The influence of different doses of ultraviolet rays on the resistance of pathogenic microorganisms in experiment (in vitro) // *Journal NX - A Multidisciplinary Peer Reviewed Journal*. Maharashtra India. - 2021. - Vol 7. - №. 06. - P. 285–290. Impact Factor 7.223.
  14. Yarikulov SH.SH. Vliyaniye razlichnykh kontsentratsiy rastvora dimetilsul'foksida na chuvstvitel'nosti k antibiotikam patogennykh mikroorganizmov v eksperimente. *Tibbiyotda yangi kun*. Bukhoro. - №4 – 33 - 2020. – S. 153 – 155.
  15. Safoev B.B., Yarikulov SH.SH., Arashev R.R. Metody uluchsheniya mestnogo lecheniya gnoynykh ran s primeneniym ul'trafioletovogo oblucheniya v kombinatsii s mnogokomponentnymi mazyami na vodorastvorimoy osnove // *Innovation in the modern education system: a collection scientific works of the International scientific conference* // 25th April, 2021. – Washington, USA: "CESS", 2021. Part 5, Issue 1 – p, P. 558-565.
  16. Safoev B.B., Yarikulov SH.SH., Karshiyev N.R. Application of physical and chemical methods in treatment of purulent diseases of soft tissue *Proceedings of Ingenious Global Thoughts An International Multidisciplinary Scientific Conference Hosted from San Jose, California November 29th, 2020* P. 55-56.
  17. R.R.Arashov, & Sh.Sh.Yarikulov. (2022). Comparative evaluation of the outcome of treatment of patients with cavity liver formation with a simple and complex subdiaphragmal position. *World Bulletin of Public Health*, 13, 55-62. Retrieved from.
  18. Radjabov Vohit Bafoevich, & Yarikulov Shukhrat Shokirovich. (2022). Modern approaches to abdominal drainage in diffuse peritonitis. *World Bulletin of Public Health*, 13, 50-54. Retrieved from.
  19. R. R.Arashov, & SH. SH. Yarikulov. (2022). Osobennosti khirurgicheskogo lecheniya bol'nykh polostnymi obrazovaniyami pecheny pri slozhnykh vnutriphechenochnykh raspolozheniyakh. *European Journal of Interdisciplinary Research and Development*, 6, 30–38. Retrieved from.
  20. R. R. Arashov, Sh. Sh. Yarikulov, & B. B. Safoev. (2022). Treatment of patients with cavity liver formation with a simple and complex subdiaphragmal position. *Galaxy International Interdisciplinary Research Journal*, 10(8), 65–74. Retrieved from.
  21. Sharopova M. S., Safoev B. B., & Yarikulov SH. SH. (2022). Osobennosti kliniko-laboratornogo techeniya gnoynykh ran v sochetannom fone sakharnogo diabeta i diffuznogo toksicheskogo zoba. *Galaxy International Interdisciplinary Research Journal*, 10(8), 75–87. Retrieved from
  22. Safoev Baqodir Barnoyevich, & Yarikulov Shuxrat Shokirovich. (2021). The influence of different doses of ultraviolet rays on the resistance of pathogenic microorganisms in experiment (in vitro). *JournalNX - A Multidisciplinary Peer Reviewed Journal*, 7(06), 285–290.