

«FEATURES OF CT SCAN OF PATIENTS WITH COVID-19 ASSOCIATED PNEUMONIA
AGAINST THE BACKGROUND OF COMPLEX TREATMENT»

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✓ *Resume*

Computed tomography of the chest organs is important in the diagnosis of COVID-19 associated pneumonia. Both for identifying the volume of lung damage, differential diagnosis and for dynamic monitoring during treatment. COVID-19 associated pneumonia has its own characteristics of clinical and X-ray radiological course, the main features of which are: zones of compaction of the "ground glass" type, zones of consolidation, reticular changes. In 30% of cases, lung lesions are not clinically manifested, but MSCT examination can reveal significant changes.

Key words: COVID-19 associated pneumonia, CT.

«ОСОБЕННОСТИ КТ КАРТИНЫ БОЛЬНЫХ С COVID -19 АССОЦИИРОВАННОЙ
ПНЕВМОНИЕЙ НА ФОНЕ КОМПЛЕКСНОГО ЛЕЧЕНИЯ»

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Компьютерная томография органов грудной клетки является важной в диагностике COVID -19 ассоциированной пневмонии. Как для выявления объема поражения легких, дифференциальной диагностики так и для динамического наблюдения в процессе лечения. COVID -19 ассоциированная пневмония имеет свои особенности клинического и рентгенорадиологического течения, главными признаками которого являются: зоны уплотнения по типу «матового стекла», зоны консолидации, ретикулярные изменения. В 30% случаев поражения легких клинически не проявляются, но при МСКТ исследовании можно выявить значимые изменения

Ключевые слова: COVID -19 ассоциированная пневмония, КТ.

«COVID - 19 PNEUMONIASIDA KOMPYUTER TOMOGRAFIYASI TEKSHIRUVI
KURINISHLARNING UZIGA XOS HUSIYATLARI»

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✓ *Rezyme*

COVID-19 bilan bog'liq pnevmoniyani tashxislashda ko'krak qafasi organlarining tomografiyasi muhim ahamiyatga ega. Ikkala o'pka zararlanish jarayonlari hajmini aniqlash, differentsial diagnostika va davolash paytida dinamik monitoring qilishda muhim rolga ega. COVID-19 bilan bog'liq bo'lgan pnevmoniya klinik va rentgenologik kechishida o'ziga xos xususiyatlariga ega, ularning asosiy xususiyatlari: "maydalangan shisha" tipidagi zichlash zonalari, konsolidatsiya zonalari, retikulyar o'zgarishlar. 30% hollarda o'pkaning shikastlanishi klinik ko'rinishda ko'rinmaydi, ammo MSKT tekshiruv sezilarli o'zgarishlarni aniqlab berishi mumkin.

Kalit suzlar: COVID-19 bilan bog'liq pnevmoniya, KT.

Relevance

Coronavirus disease (COVID-19), a viral disease with a predominant lesion of the upper respiratory tract, over the past year has remained a global problem, not only medical, but also socio-economic. The pandemic caused by SARS

- CoV2 paralyzed the entire infrastructure, which naturally led to great damage and destruction of the socio - economic plan. In one word, the pandemic has disrupted the normal course of life for people around the world.

Does not currently exist effective treatment that satisfies clinicians to the end. The developed vaccines have not yet shown the expected results, which confirms the need for further research. Researchers are actively continuing to study the pathogenesis of the disease and the clinical course from various angles. Although it is known that the main diagnostic test for determining covid 19 is polymerase chain reaction with reverse transcription (PCR), X-ray radiological studies of the lungs are important to assess the dynamics of the disease and the patient's condition, which is important for determining pulmonary complications of the disease and treatment tactics.

If we take into account the fact that the disease may be asymptomatic during CT examination of the lungs, it is possible to determine the complicated forms of covid 19 associated pneumonia. For this, clinicians need sufficient knowledge and experience in differentiating the CT picture of patients with covid-19 from other pulmonary pathologies.

The aim of our study was to study the CT picture of patients with covid 19 associated pneumonia.

Materials and methods

Analyzed CT data of examination and treatment of 224 patients with severe severity of COVID-19 who received treatment from July to

August 2020 in a specialized hospital COVID-19 at the Bukhara State Institute in the hostel of the Technological Institute.

When assessing the condition and method of treatment, we were guided by the temporary recommendations for the management of patients infected with COVID-19 - No. 7 approved by the Ministry of Health of the Republic of Uzbekistan dated 15.08. According to the protocol, patients with COVID - 19, depending on the severity of the disease, are divided into 4 groups. The protocol contains specific recommendations on the scope of examination and treatment, taking into account the severity of the patient's condition.

All patients were divided by sex and age according to the classification of age groups adopted at a regional seminar by the World Health Organization in Kiev in 1963.

Of the 224 examined patients with covid - 19 associated pneumonia, 134 (60.1%) were males and 90 (39.9%) women aged 17 to 85 years. The average age was 52.6 ± 1.8 years

All studied patients had pneumonia, which was confirmed by X-ray and radiological examination.

Result and discussion

In 224 patients examined by us, 92 (39.7%) had CT with 1 form of X-ray radiological picture. Where we observed areas of compaction of the "ground glass" type, the involvement of the lung parenchyma was less than 25% (Fig. 1).

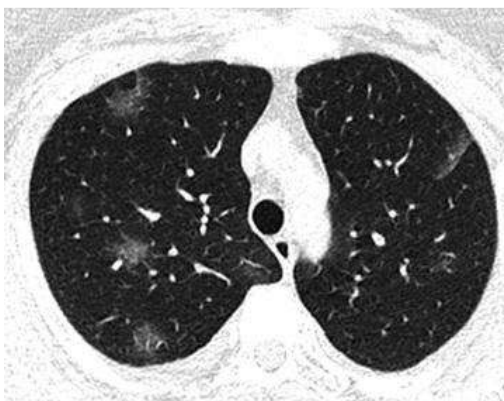


Fig. 1. MSCT of the chest. Areas of compaction of the "frosted glass" type, involvement of the lung parenchyma <25%

104 (47.4%) had a CT-2 form of an X-ray radiological picture. In which on MSCT were characteristic: zones of compaction of the type of

"ground glass", zones of consolidation, involvement of the lung parenchyma 25-50%. (Figure 2).



Fig. 2. MSCT of the chest organs. Areas of compaction of the "frosted glass" type, the involvement of the lung parenchyma is 25-50%.

In 28 (12.9%), CT scan - 3 form was noted, where an X-ray and radiological picture is characteristic: diffuse compaction of the lung tissue of the "ground glass" type and consolidation in combination with reticular

changes, pleural effusion (bilateral, prevails on the left), involvement of the lung parenchyma > 75%. Which corresponds to the severe severity of Covid - 19 associated pneumonia (Fig. 3).

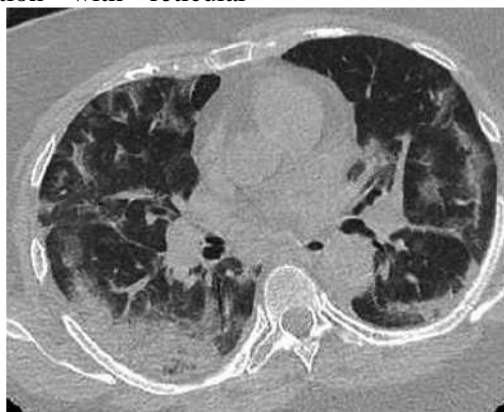


Fig. 3. MSCT of the chest organs. Areas of compaction of the "ground glass" type, areas of consolidation, involvement of the lung parenchyma 50–75%.

The main radiological signs of lung damage in patients with severe COVID - 19 associated pneumonia were with an X-ray radiological picture of CT - 3: zones of compaction of the "ground glass" type, consolidation zones, involvement of the lung parenchyma 50–75%, an increase in the lesion volume of 50% in 24–48 hours against the background of respiratory disorders, when performing the study in dynamics.

It should be noted that among the examined patients included in our work there were no patients with X-ray radiological picture of CT-4 (critical) in whom the characteristic features are diffuse compaction of lung tissue of the "ground glass" type and consolidation in combination with reticular changes, pleural effusion, involvement of the lung parenchyma is more than 75%, since, based on the goals and objectives of our work, critically ill patients are not included.

In the majority of our studied patients, bilateral lung damage was observed, 221 (98.6%). Pleural

effusion, hydrothorax was detected in 8 (3.5%), of them in 3 (1.3%) patients bilateral, in 5 (2.2%) unilateral (3 on the left, 2 on the right).

All these signs were mainly determined on the 6-10th day of the disease.

In the course of complex treatment, synchronously with the improvement of the general condition and clinical and X-ray laboratory data of the examined CT patients, the picture also had a positive trend by 9-10 days of treatment. In most cases, the CT picture over time has normalized.

It should be noted that in 30-35% of patients at this time, CT examination showed residual X-ray phenomena in the form of subpleural areas of "ground glass" and subpleural stripes (the length of which was greater in patients with previously detected consolidation of lung tissue), possibly as initial manifestations of the formation of pulmonary fibrosis.

Up to 35% of patients learned about their disease after the CT scan of the picture of

COVID-19 associated pneumonia was detected, although according to MSCT they had moderate and severe lung damage. This indicates a discrepancy between objective and clinical data with the degree of lung damage in patients with COVID - 19. What is also one of the main distinguishing features of COVID - 19 from purulent-surgical lung diseases.

Conclusions

Our study has revealed that patients with COVID-19 associated pneumonia have their own clinical course and X-ray and radiological course.

The characteristic features of COVID-19 associated pneumonia are as follows:

- When X-ray and radiological diagnostics of COVID-19, the main signs are: zones of compaction of the “ground glass” type, zones of consolidation, reticular changes.

- The clinical manifestations of COVID-19 do not correspond to the degree of lung damage; with moderate and severe CT scans, the disease does not manifest itself clinically in 30% of patients.

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