













CASE REPORT

Interstitial pneumonia as a manifestation of COVID-19: case report

Neumonía intersticial como manifestación de COVID-19: reporte de caso

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ABSTRACT

Idiopathic interstitial pneumonia is a group of progressive diseases of unknown origin affecting the lower respiratory tract; diffuse alveolitis and disorders in the alveolar structures characterize it. This report presents the case of a male 52-year-old patient with pulmonary nodule antecedents suspected of having tuberculosis and a positive PCR test. He went to the doctor because he had a 15-day evolution manifestation characterized by a thermal increase and malaise. The physical examination showed dyspneic facies with a semi-fowler attitude and kept psychomotor activity, as well as the presence of dry oral mucosa. The other parameters were normal. After several tests, he was diagnosed as having viral COVID-19 pneumonia and acute respiratory distress syndrome; due to the serious condition of the patient, he was transferred to the ICU, where he was treated with oxygen therapy via a mask with a reservoir for SAT >90 %, Ringer's lactate 1000 cubic centimeters + 2 grams of vitamin C + 5 cubic centimeters of complex B (40 milliliters per hour) and antibiotic therapy with Piperacillin Tazobactam 4,5 grams in slow diffusion in 3 hours every 6 hours.

Keywords: Interstitial Pneumonia; COVID-19; PCR.

RESUMEN

La neumonía intersticial idiopática es un grupo de enfermedades progresivas que afectan a las vías respiratorias inferiores de origen desconocido, se caracteriza por presentar alveolitis difusa y trastornos en las estructuras alveolares. Se presenta un caso de un paciente hombre de 52 años, con antecedentes de nódulo pulmonar ante sospecha de tuberculosis y una prueba de PCR positiva, acude por un cuadro de evolución de 15 días, el cual se caracteriza por presentar alza termina y malestar general. Se evidencio en el examen físico una facie disneica con actitud semifowler y actividad psicomotora conservada al igual que la presencia de mucosa oral seca, los demás parámetros se encontraban dentro de normalidad. Posterior a varios estudios, se llega al diagnóstico de neumonía viral por COVID-19 y síndrome de dificultad respiratoria aguda, dada la gravedad del paciente, se lo traslada a la UCI y se inicia el tratamiento con oxigenoterapia por mascarilla con reservorio para SAT >90 %, lactato de Ringer 1000 centímetros cúbicos +2 gramos de vitamina C +5 centímetros cúbicos de complejo B (40 mililitros por hora) y antibiototerapia con Piperacilina Tazobactam 4,5 gramos en dilución lenta en 3 horas cada 6 horas.

Palabras Clave: Neumonía Intersticial; COVID-19; PCR.

INTRODUCTION

COVID-19 pneumonia is considered a sanitary emergency since there is an unbalance between the high transmissibility, mortality and morbidity of this virus.⁽¹⁾ Idiopathic interstitial pneumonia (IIP) consists of a wide group of progressive diseases affecting the lower respiratory tract, and its origin is unknown. It is characterized by diffuse alveolitis and also alveolar structural disorders, which result in fibrosis of the lungs, pulmonary heart disease, right heart failure caused by fibrosis of the lungs and hypertension.⁽²⁾ IIP has imprecise clinical manifestations, surviving up to 5 years afterwards without receiving any treatment; 50 % of IIP patients die of respiratory failure.⁽³⁾

Within IIPs, fibrosis of the lungs is the most frequent because it is both relentlessly progressive and a threat of respiratory failure and even death, as it is associated with very poor prognosis. There are currently treatments helping to delay the progression of this disease, and it is also fundamental to make an early diagnosis to avoid future complications.⁽⁴⁾ A high-resolution computed tomography can be very important for the process of multidisciplinary diagnosis to be more efficient. Among the less frequent ones are nonspecific interstitial pneumonia, one of the most chronic, respiratory bronchitis associated with diffusing interstitial lung disease (DILD) and desquamative interstitial pneumonia; it should be pointed out that the last two aforementioned pathologies are related to tobacco consumption.^(4,5) This article aims to understand the relationship between idiopathic interstitial pneumonia and COVID-19 manifestation by presenting the following clinical case.

CASE REPORT

A male 52-year-old patient with pulmonary nodule antecedents, under study with positive culture for streptococcus and pseudomonad, without any antibiotic therapy for suspected tuberculosis. He had a 15-day evolution manifestation characterized by fever and malaise, so a positive PCR test was conducted on the patient. Five days before his hospitalization, the patient had medium exertional dyspnea that 48 hours later progressed into mild exertional dyspnea, so the patient went to a hospital of the Ecuadorian Institute of Social Security (EISS) where he was hospitalized for three days and received complementary oxygen, dexamethasone 8 mg i.v., enoxaparin, ipratropium bromide, clarithromycin, fluimucil and 1 dose of ceftriaxone, without any apparent improvement, so he decided to go to this hospital where, after being assessed, he was hospitalized for third-level management. At the thorax level, the lung fields were hypoventilated, accompanied by a vesicular breath sound reduced at the bases, ventilated in apexes and kept fremitus, presence of predominantly right bibasilar rales plus dullness in both lung fields.

Several laboratory tests (table 1) and a computed thorax tomography were performed with the following report to confirm the findings. In the lung parenchymas, there are severe interstitial infiltrates with opacities on frosted glass and paving of a pneumonic coalescent type with air bronchogram of possible viral etiology and free costophrenic sinuses. After the results, the diagnosis was viral COVID-19 pneumonia and acute respiratory distress syndrome; due to the severe condition of the patient, he was transferred to the ICU where he was treated with oxygen therapy via a mask with a reservoir for SAT > 90 %, Ringer's lactate 1000 cubic centimeters, 2 grams of vitamin C, 5 cubic centimeters of complex B (40 milliliters per hour), antibiotic therapy with Piperacillin Tazobactam 4,5 grams in slow diffusion in 3 hours every 6 hours. Ranitidine 50 grams in the vein every 12 hours and Dexamethasone 6 milligrams in the vein every 24 hours.

DISCUSSION

It was determined that interstitial pneumonia appeared due to a lack of treatment at the time the patient was suspected of having tuberculosis. This condition worsened when the patient became infected with COVID-19. In this pneumonia, via computed axial tomography, interstitial infiltrations accompanied by opacities with a pattern on frosted glass were identified; likewise, in the physical examination at the time of auscultating the patient, bibasilar rales with predominance in the right lung with the presence of dullness in both lung fields were heard.

As reported by the authors Santos et al.⁽⁶⁾, COVID-19 pneumonia appears first as an acute respiratory infection, hacking cough, fever and dyspnea, and they look like another group of pneumonia, so it is necessary to take into account the past health of the patient as well as his/her physical examination and clinic to determine the seriousness of the disease, either chronic or acute, its latency lasting from 1 to 14 days. Besides, the authors remark that making a correct differential diagnosis is necessary by conducting a viral panel and a human immunodeficiency virus test since they may be taken for another type of viral pneumonia, *P. jirovecii* pneumonia. Likewise, the symptoms caused by COVID-19 can be taken for medication-caused toxicity, its tomographic presentation being unspecified interstitial pneumonia, eosinophilic pneumonia or pneumonia in the organizing process.

Table 1. Laboratory findings

Parameter	Value
Quantitative P.C.R.	3,75 mg/dl
Gasometry	PO2: 93,6 mmHg
	PCO2: 31,7 mmHg
	pH: 7,450
	SO2 97,4 % - mmol/L be -1,3
	CHCO3: 21,6 mmol/L - cto2 21,1 vol %
Glucose	123,0 mg/dL
Urea	44,8 mg/dL
L.D.H.	422 U/L
Dimero D	0,10 ug/mL
Sodium /potassium /chlorine	Sodium: 135,70 mEq/L
	Potassium: 4,38 mEq/L
	Chlorine: 98 mEq/L
Blood biometry	Leukocytes: 13,95 10 ³ /U
	Erythrocytes: 5,12
	Hemoglobin: 15,1 g/dL
	Hematocrit: 42,9 %.
	Mean corpuscular volume: 83,8 fl
	Mean hemoglobin concentration: 35,2 g/dL
	Neutrophils: 90,8 %.
	Lymphocytes: 4,2 %.
	Mean corpuscular hemoglobin: 29,5
	Platelets 428 10 ³ /U

CONCLUSIONS

In conclusion, interstitial pneumonia was caused by the virus COVID-19, and it affected the alveoli and the tissues surrounding them, causing inflammation as a natural response of the body against this infectious agent, where the patient had all the symptoms above. It should be remarked that there were some days when the symptoms worsened during his stay at the intensive care unit. Later on, they returned to normality thanks to the action of the administered medicaments, which ended up with his total recovery and medical discharge.

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CONSENT

Consent was obtained from the patient for the performance of this work.

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CONFLICT OF INTEREST

None.

AUTHORSHIP CONTRIBUTION

Conceptualization: Cordero Díaz SM, Cárdenas Palacios PF, Chávez López CK, Espinoza Tapia EE, Clavijo Rosales C.

Original drafting and editing: Cordero Díaz SM, Cárdenas Palacios PF, Chávez López CK, Espinoza Tapia EE, Clavijo Rosales C.

Drafting -revision and editing: Cordero Díaz SM, Cárdenas Palacios PF, Chávez López CK, Espinoza Tapia EE, Clavijo Rosales C.

UNTRANSLATED SECTION

This section is not translated to avoid misinterpretation of reviewer and editor comments.

OBSERVACIONES DERIVADAS DE LA REVISIÓN POR PARES, GESTIÓN EDITORIAL Y RESPUESTA DE LOS AUTORES

Observaciones de la Revisión por Pares:

Revisor 1/2: Dra. Vanessa Pérez del Vallín. Universidad de Ciencias Médicas de La Habana (Cuba)

Las observaciones del revisor se realizaron en forma de comentarios, por lo que se han colocado los párrafos o frases donde se han colocado los comentarios con la finalidad de contextualizar la observación.

En la frase “La neumonía por COVID-19 es considerada como una emergencia sanitaria, ya que debido a que existe un desbalance entre una alta transmisibilidad, mortalidad y morbilidad de este virus” eliminar el término “debido a que”. Se sugiere escribir el término completo correspondiente a las siglas EPID. Modificar el término “alza térmica” por fiebre o hipertermia. Eliminar signo de puntuación innecesario de la expresión “*sin mejora aparente. por lo que decide trasladarse a esta casa de salud*”. Modificar el término “casa de salud” por hospital. Se sugiere añadir explícitamente el consentimiento y pudiera quedar de la siguiente manera: CONSENTIMIENTO Para la realización de este trabajo se obtuvo el consentimiento del paciente.

Revisor 2/2: Dr. José Alejandro Rodríguez Pérez. Universidad de Ciencias Médicas de La Habana (Cuba)

Las observaciones del revisor se realizaron en forma de comentarios, por lo que se han colocado los párrafos o frases donde se han colocado los comentarios con la finalidad de contextualizar la observación.

Escribir el término completo de las siglas EPID. Añadir consentimiento del paciente.

Respuesta a los revisores por parte de los autores:

Los autores no emitieron carta de respuesta a los revisores y/o editor, sin embargo, aceptaron las recomendaciones y se realizaron las correcciones necesarias.