



Para citaciones: Arenas, G., De Leon, J., Negrete, M., Lora, M., Carvajal, M., Dueñas, C. (2021). An uncommon presentation of COVID-19, with diarrhea as initial symptom, the first case diagnosed in Cartagena, Colombia. *Revista Ciencias Biomédicas*, 10(1), 65-74.

Recibido: 16 de noviembre de 2020

Aprobado: 8 de enero de 2021

Autor de correspondencia:

Germán Enrique Arenas

enriquearenashoyos@hotmail.com

Editor: Inés Benedetti. Universidad de Cartagena-Colombia.

Copyright: © 2021. Arenas, G., De Leon, J., Negrete, M., Lora, M., Carvajal, M., Dueñas, C. Este es un artículo de acceso abierto, distribuido bajo los términos de la licencia <https://creativecommons.org/licenses/by-nc-sa/4.0/> la cual permite el uso sin restricciones, distribución y reproducción en cualquier medio, siempre y cuando el original, el autor y la fuente sean acreditados.



An uncommon presentation of COVID-19, with diarrhea as initial symptom, the first case diagnosed in Cartagena, Colombia

Una presentación infrecuente de COVID-19, con diarrea como síntoma inicial, el primer caso diagnosticado en Cartagena, Colombia.

Germán Enrique Arenas¹, Jesús De León Martínez², Marcela Negrete Vasquez³, Mario Lora⁴, Martín Carvajal⁴, Carmelo Dueñas Castel⁵

¹ Outpatient clinic, Medihelp Services Clinic, Cartagena, Colombia.

² Department of Radiology, Medihelp Services Clinic, Cartagena, Colombia.

³ Health Management postgraduate student, University of Cartagena, Cartagena, Colombia.

⁴ Department of Intensive Care Unit, Medihelp Services Clinic, Cartagena, Colombia.

⁵ Consultant, Department of Intensive Care Unit, Medihelp Services Clinic, Cartagena, Colombia.

ABSTRACT

Introduction: the Coronavirus disease 2019 (COVID-19) was declared as a global pandemic by the World Health Organization on March 11, 2020. The clinical presentation and severity of the disease has been described from its most typical symptoms, the common cold, pneumonia and respiratory distress syndrome, to the involvement of other organs and systems such as the gastrointestinal, renal and cardiovascular.

Case report: we describe the first case of COVID-19 diagnosed in Cartagena, Colombia, on March 11, 2020, and its uncommon clinic presentation, which was almost unknown at the time. An 85-year-old woman with week-long initial symptoms of nausea and occasional vomiting, with progression to diarrhea and a 38.5 °C fever during the last three days. The patient came from Oxford, UK, and she had been on a Caribbean cruise excursion since the end of February, 2020. Chest computed tomography showed ground glass opacities in both peripheral and central lung fields, multilobar and predominantly subpleural; without evidence of consolidation or pleural effusion. COVID-19 was confirmed three days after admission, when a RT-PCR molecular test performed on a nasopharyngeal swab sample tested positive for SARS-Cov-2

Conclusion: this first case of COVID-19 diagnosed in Cartagena occurred at a time when our health system was not prepared to face the pandemic. However, despite having manifested with a clinical that had not been described at the time, and thanks to the epidemiological, clinical and imaging data, the case could be adequately approached, diagnosed and treated according to the necessary and recommended measures at the time.

Keywords: COVID-19; Coronavirus Infection; tomography; 2019 novel coronavirus Pneumonia; X-ray computed.

RESUMEN

Introducción: la enfermedad por Coronavirus 2019 (COVID-19) fue declarada como pandemia por la Organización Mundial de la Salud el 11 de marzo de 2020. Su presentación clínica se describe a partir de cuadros típicos: resfriado común, neumonía y síndrome de dificultad respiratoria, hasta el compromiso de los sistemas gastrointestinal, renal y cardiovascular.

Reporte de caso: se describe el primer caso de COVID-19 diagnosticado en Cartagena, Colombia, y su presentación clínica infrecuente, casi desconocida en ese momento. Mujer de 85 años con síntomas de náuseas y vómitos ocasionales de una semana de duración, con progresión a diarrea y fiebre de 38,5 °C durante los últimos tres días. La paciente, procedente de Oxford, Reino Unido, había estado en un crucero por el Caribe desde finales de febrero de 2020. La tomografía computarizada de tórax mostró opacidades en vidrio esmerilado en los campos pulmonares periféricos y centrales, multilobares y predominantemente subpleurales; sin evidencia de consolidación o derrame pleural. El diagnóstico de COVID-19 se confirmó tres días después de la admisión, cuando una prueba molecular RT-PCR realizada en una muestra de hisopado nasofaríngeo dio positiva para SARS-Cov-2.

Conclusiones: este primer caso de COVID-19 diagnosticado en Cartagena ocurrió en un momento en que nuestro sistema de salud no estaba preparado para enfrentar la pandemia. Sin embargo, a pesar de manifestarse con una clínica que no había sido descrita en su momento, gracias a los datos epidemiológicos, clínicos y de imágenes, pudo ser adecuadamente abordado, diagnosticado y tratado de acuerdo con las medidas necesarias y recomendadas en ese momento.

Palabras Clave: COVID-19; Infección por el Nuevo Coronavirus; Neumonía por el Nuevo Coronavirus; tomografía computarizada.

INTRODUCTION

The Coronavirus disease 2019 (COVID-19) was declared as a global pandemic by the World Health Organization (WHO) on March 11, 2020 [1]. Since then, SARS-CoV-2 has caused an enormous impact on the global economy and ordinary life, and an unparalleled burden on the healthcare system [1]. In Colombia, the first cases were imported from Europe, and other countries from The Latin America and North America, forcing a strict lockdown procedure from the beginning of the pandemic, closing schools and universities, cancelling almost all in-person work activities, stopping national and international land and air travel, regulating all public and private gatherings, and imposing self-isolation for people over 70 years of age, among other measures; which initially avoided the rapid progression of COVID-19, in contrast to what happened in other countries of the continent during the same time [2].

The etiologic agent of COVID-19 is Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), an enveloped, non-segmented positive-sense RNA virus belonging to the beta-coronaviridae family [3]. This virus is known to cause severe bilateral pneumonia and acute respiratory distress syndrome (ARDS) which can lead to difficulty breathing that requires mechanical ventilation and intensive care unit management [4].

The clinical presentation and severity of the disease has been described from its most typical symptoms, the common cold, pneumonia and respiratory distress syndrome, to the involvement of other organs and systems such as the gastrointestinal, renal and cardiovascular [5][6]. In the following, we describe the first case of COVID-19 diagnosed in Cartagena, Colombia, on March 11, 2020, and its uncommon presentation, which was almost unknown at the time.

CASE REPORT

On March 8, 2020, an 85-year-old woman, arrived to the Medihelp Services Clinic in Cartagena, Colombia, with week-long initial symptoms of nausea and occasional vomiting, with progression to diarrhea and a 38.5 °C fever during the last three days of care. The patient came from Oxford, UK, and she had been on a Caribbean cruise excursion since the end of February, 2020. The symptoms were first described by the healthcare personnel on the cruise. The clinical history of reference did not include any reports of contact between the patient and people affected with COVID-19 on or off the cruise. The patient had been prescribed ciprofloxacin 500 mg twice per day and paracetamol 1 g every 6 hours, by a doctor on the cruise six days prior to her admission.

In the anamnesis, the patient reported persistent nausea and diarrhea, and denied any dyspnea or chest discomfort. She had a medical history of hypothyroidism, atrial fibrillation, and gastroesophageal reflux; furthermore, she had undergone a right mastectomy due to a history of breast cancer, and a hysterectomy. She was being medicated with apixaban 5 mg twice per day, levothyroxine 25 µg once per day and omeprazole 20 mg once per day.

Upon admission the patient had a blood pressure of 150/82 mm/Hg, a body temperature of 36.8°C, a heart rate of 87 per minute, a respiratory rate of 19 breaths per minute and 99% oxygen saturation. The pulmonary physical examination showed a symmetrical expandable thorax, no rib retractions, with vesicular murmurs, cardiac physics with rhythmic noises and no murmurs; the abdominal physical examination revealed normal peristalsis, and during the palpation she referred pain in the upper right quadrant, with doubtful Murphy's sign, the abdomen was soft and depressible, with no signs of peritoneal irritation; and the neurological examination was normal. She presented signs of mild dehydration.

The initial clinical approach was focused on abdominal pathology of a surgical nature, so further

tests and an evaluation by a general surgeon were requested. During medical evaluation by the surgeon, the patient manifested the persistence of the nausea, dark diarrheal stools, regurgitation and dry cough, and during the physical examination of the thorax, the doctor found fine crackles in both lung bases. Due to these findings and the suspicion of a pulmonary pathology, an internal medicine evaluation and a chest X-ray were requested.

Laboratory tests showed a leukocytes count of 28.730 per µl, with a neutrophil count of 26.370 per µl and lymphocyte count of 1.240 per µl, procalcitonin: 0,09ng/ml and stool test results were normal. The chest X-ray showed faint, poorly defined opacities in both lung fields, without evidence of pleural effusion, and, grade 2, predominantly left ventricular cardiomegaly (Figure 1). Chest computed tomography showed ground glass opacities in both peripheral and central lung fields, multilobar and predominantly subpleural; without evidence of consolidation or pleural effusion (Figure 2).

The patient was evaluated by internal medicine and, taking into account the patient's origin and the clinical and imaging findings, a diagnostic impression of pneumonia by COVID-19 was made. This was confirmed three days after admission, when a RT-PCR (real-time polymerase chain reaction) molecular test performed on a nasopharyngeal swab sample tested positive for SARS-Cov-2.

Due to the public health alert, the mandated precautions, and the patient's origin, she was isolated from admission and cared for by healthcare personnel with personal protective equipment. With the test result of the positive molecular test for SARS-Cov-2, the institutional management protocol for patients with the COVID-19 disease was initiated: CDC recommendations for contact, droplet, and airborne precautions with and eye protection were followed, while patient care and attention by health personnel was limited to what is strictly necessary. The hospital immediately notified

this case to the competent health authorities (Departmental Health Secretary) and the patient was hospitalized with strict surveillance.

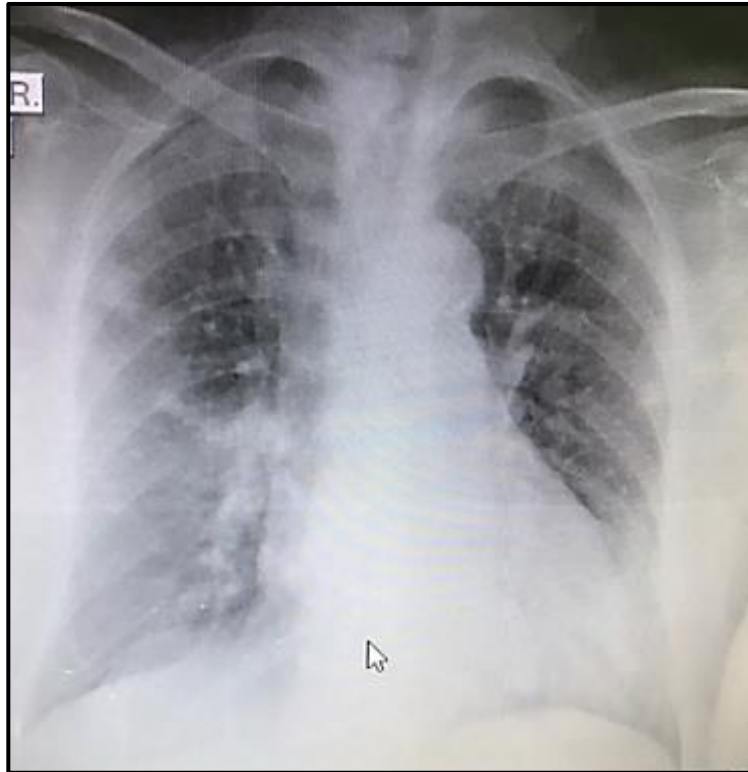


Figure 1. Chest X-ray depicting faint, poorly defined opacities in both lung fields.

On the first day, broad-spectrum antibiotic management was started with piperacillin/tazobactam + azithromycin in addition to oseltamivir and ranitidine, considering community-acquired pneumonia, multilobar. Culture samples were taken, including stool studies due to diarrhea. The coprologic study reported yeast and, due to a history of breast cancer, she was medicated with fluconazole. The rest of the medical management included supportive measures such as intravenous fluids in continuous infusion and antipyretic and antiemetic medications.

On the second day, the patient reported a lack of an appetite. She continued having a high output (> 6 episodes per day) of diarrheal stools without mucus or blood. Her abdominal pain had improved, she experienced no dyspnea, chest pain, chest

palpitations, or urinary symptoms. The following day, the patient developed dyspnea that carried on through her stay experiencing episodes of dry cough. During the physical examination she was tachypneic, with oxygen saturation at its lowest level (SpO₂: 91%), and pulmonary auscultation showed occasional expiratory wheezing. A control chest X-ray showed progression of alveolar opacities, mainly in the upper right and lower left lobes (Figure 3). She was transferred to an intermediate care unit for intensive monitoring due to high risk of ventilatory failure, where supplemental oxygen was delivered by nasal cannula at 3 liters per minute, and bacterial coverage was expanded due to the progression of the lung disease (vancomycin + meropenem). Rapid-acting bronchodilators were started through an inhalochamber for the management of mild bronchospasm.

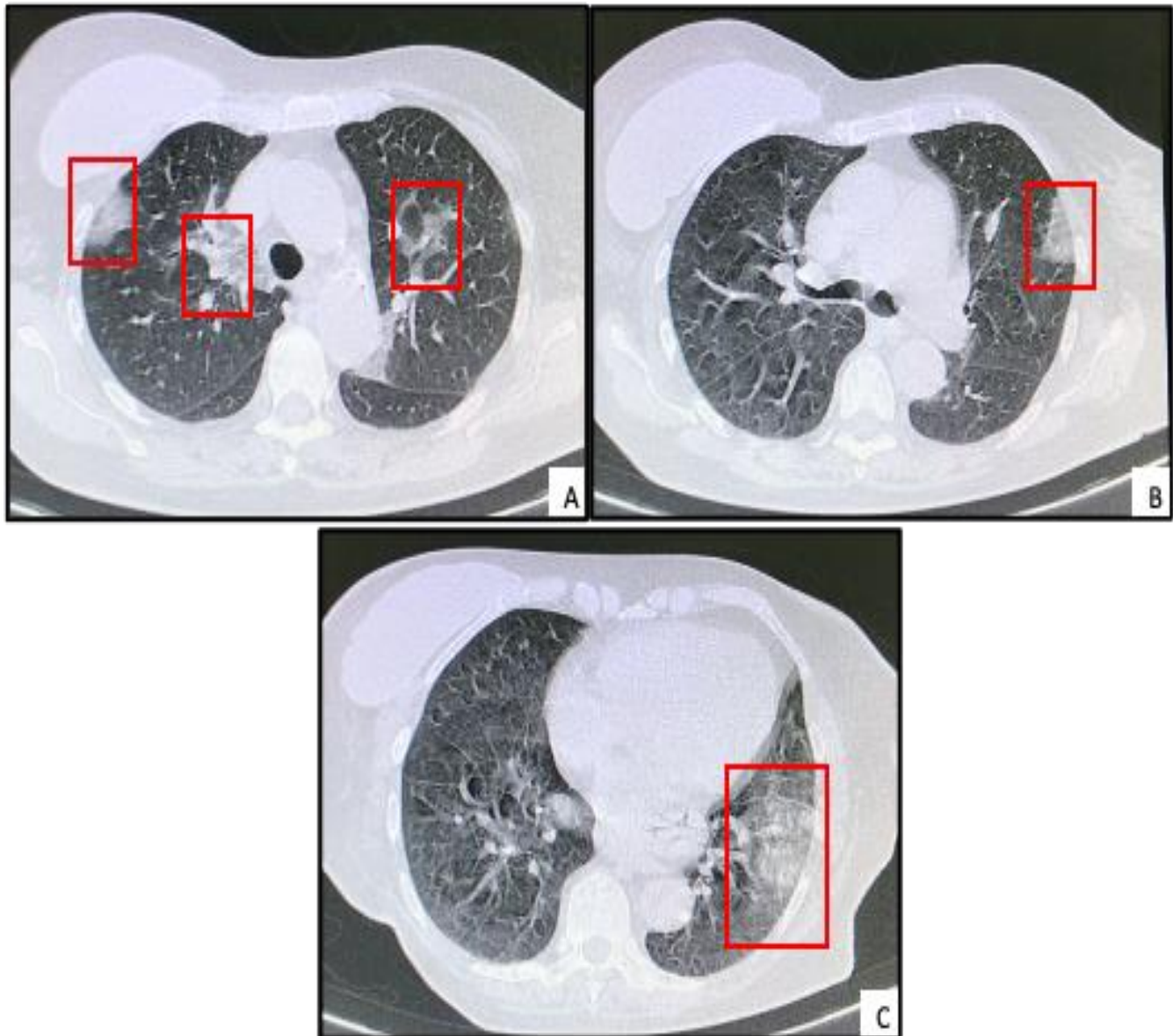


Figure 2. Chest computed tomography. A: subpleural and central ground glass opacities in right superior lobe, and subpleural ground glass opacities in left superior lobe, (red frames). B: subpleural ground glass opacities in left superior lobe, (red frame). C: subpleural and central ground glass opacities in left superior lobe, (red frames).

This clinical deterioration coincided with the positive result of the RT-PCR test for SARS-CoV-2, for which chloroquine was added to the therapy for this new viral entity. Once a positive result for COVID-19 was obtained, the WHO classification was carried out and it was considered a mild disease. Control laboratory examination showed leukocytosis ($25,190 \text{ mm}^3$) with shift to the left and mild lymphopenia (932 mm^3). Additionally, mild normocytic anemia (10.8 g/dl) and reactive

thrombocytosis ($525,000 \text{ mm}^3$) were observed, and C-reactive protein level was $107,9 \text{ mg/liter}$. Electrolyte levels and kidney function tests were normal. Arterial blood gas showed mixed alkalemia with moderate hypoxemia. A transthoracic echocardiogram showed an increase in the diastolic diameter of the left ventricle with remodeling, LVEF 52%, calcified septal walls with septal dyskinesia, mild aortic regurgitation. The requested troponins were always negative.

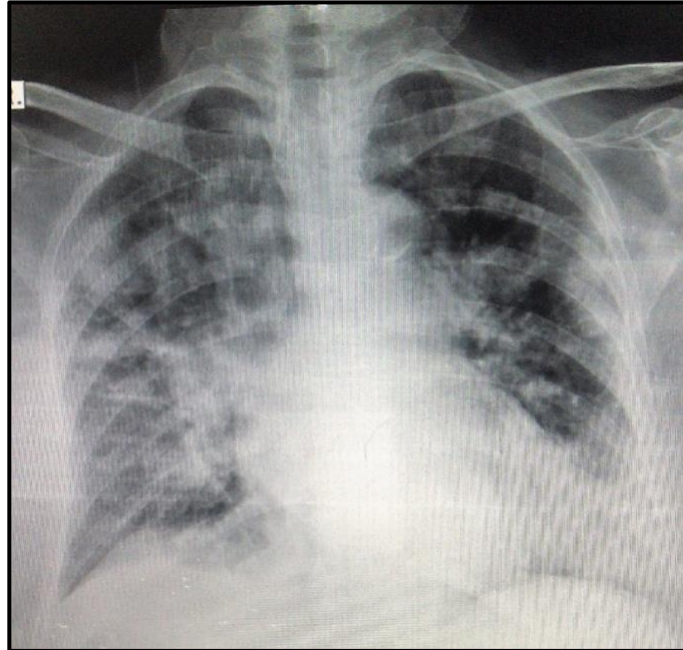


Figure 3. Chest X-ray. Multiple central and peripheral opacities in both pulmonary fields with alveolar pattern aspect.

On the fourth day, the patient evolved satisfactorily with improvement in dyspnea at rest, and persisted with occasional dry cough. She continued with diarrheal stools but with decreased frequency. Potassium replacement was initiated intravenously due to moderate hypokalemia (K: 2.87 mEq/L). Because the persistence of leukocytosis and progression of lymphopenia (808 mm^3), a hematology evaluation was requested to rule out primary bone marrow disorder. The hematology service performed a peripheral blood smear, bone marrow reactivity was considered in the context of a recent infectious process and a primary hematological pathology was ruled out.

After eight days of hospitalization, RT-PCR for control SARS-CoV-2 was ordered according to the Colombian National Institute of Health (INS, Instituto Nacional de Salud) guidelines. The patient showed a good clinical evolution on the ninth day. The same medical management and intensive monitoring continued. Negative cultures were reported after five days of incubation, and she reported only one soft stool per day. From the tenth to the twelfth day, the patient remained asymptomatic, with improved stool characteristics and tolerating the oral route.

As in the previous three days, the patient was asymptomatic on the thirteenth day of her stay, but she did not have diarrheal stools. Hemodynamic stability remained. A control chest CT showed consolidation pattern in posterior segments of both inferior lobes, persistence of subpleural and central ground glass pattern in superior lobes, and lineal, interstitial thickening in the right superior lobe. Additionally, was observed the presence of fibrous tracts and pleural thickening in both inferior lobes (Figure 4). The second RT-PCR test for SARS-CoV-2 was negative. The patient sustained a satisfactory medical evolution and was discharged from the clinic 23 days after hospitalization, with a third negative RT-PCR test for SARS-CoV-2.

This case report was made with the signed informed consent of the patient, and was approved by the institution's Ethics Committee.

DISCUSSION

Until March 10, 2020, only three cases of COVID-19 had been confirmed in Colombia. The 85-year-old English patient, whose diagnosis coincided with three more confirmed cases on March 11th, was the

seventh case in Colombia, the second to require hospital care, and the first reported in a person over 60 [7]. The diagnosis coincided with the date of the WHO's designation of COVID-19 as a Global Pandemic. The following week saw an exponential growth of cases in Colombia, and the measures adopted in China and some European countries began to be implemented in the country. Throughout the rest of March, country borders were closed, as well as schools and universities, and the government decreed mandatory isolation for people aged 70 and over and preventive isolation at a national level. These measures reflected an exponential slowdown of the curve at the end of April [8][2].

This was the first case of COVID-19 diagnosed in Cartagena, Colombia. Its initial presentation solely involved gastrointestinal symptoms. In March, although cases of respiratory and gastrointestinal symptoms had already been related to patients with COVID-19, the typical clinical manifestations described for the disease had been fever, coughing, dyspnea, and myalgia or fatigue. Less common symptoms included headaches, diarrhea, nausea and vomiting. However, diarrhea as the first symptom had rarely been reported [9]. It wasn't until May that a multicenter study performed by Pan *et.al.*, described a prevalence of 18.6% patients with COVID-19 who presented typical gastrointestinal symptoms (diarrhea, vomiting and abdominal pain) [10]; a few weeks later, Liang described that the symptoms of diarrhea could be underestimated in the COVID-19 diagnosis [11].

The patient's atypical symptoms delayed the request for a chest radiographic image that had to be done immediately after admission, but given that, at the time, there were over 100 cases of COVID-19 in the United Kingdom and that the global health alert had already been issued, the patient remained in an isolated room from the time of her arrival.

A point to highlight in this case is the importance of a chest CT for the clinical suspicion of COVID-19 pneumonia, therapeutic decision-making and patient isolation. The findings typically reported include: peripheral, bilateral, ground glass opacities with or

without consolidation or visible intralobular lines ("crazy-paving"); multifocal ground glass opacities of rounded morphology, reverse halo sign or other findings of organizing pneumonia. However, most of them are also found in other lung diseases such as influenza, pneumonia and organizing pneumonia, and can be seen in drug toxicity and connective tissue disease [12].

At the beginning of the pandemic, large numbers of patients suspected of suffering from COVID-19 overflowed emergency departments, and rapid, reliable diagnoses were necessary to guide clinicians in risk stratification, isolation strategies, and treatment decisions, for which chest CT showed a high performance as a useful risk stratification tool for COVID-19, as was demonstrated in Schalemkap's study, in which pulmonary manifestations of COVID-19 were detected in more than 95% of patients with moderate to severe upper respiratory symptoms 48 hours after symptom onset [13]. Based on this, it can be asserted that chest CT is a necessary study and a tool validated above molecular tests for the diagnostic approach of COVID-19 pneumonia. It is essential to have a chest CT scan in situations such as ours, in which technical difficulties impeded the acquisition of a sufficiently swift molecular test result [2].

On the other hand, one of the treatments initiated in this patient targeting COVID-19 was chloroquine. Aminoquinolines such as hydroxychloroquine and chloroquine were widely used drugs for SARS-Cov-2 at the beginning of the pandemic for their *in vitro* antiviral and immunomodular effects [14]. Subsequently, the use of these drugs for COVID-19 was dismissed by the results of observational and experimental studies where their effectiveness was not demonstrated [15] [16] [17].

In this case, we must highlight that due to the epidemiological link, the clinical findings and the support of high-resolution chest CT, the clinical diagnosis for COVID-19 was made three days before obtaining the report of the molecular test; this allowed the healthcare personnel to take preventive measures that had previously not been considered for

other patients due to the recent onset of the pandemic in our country, and the patient was isolated from the day of admission to avoid nosocomial contagion, and, after three weeks in the isolation ward, was recovered and discharged.

Finally, on March 15, the cruise ship in which the English patient had travelled reported the presence of five confirmed cases of COVID-19 and over twenty people with respiratory symptoms, between the passengers and the crew on board [18][19].

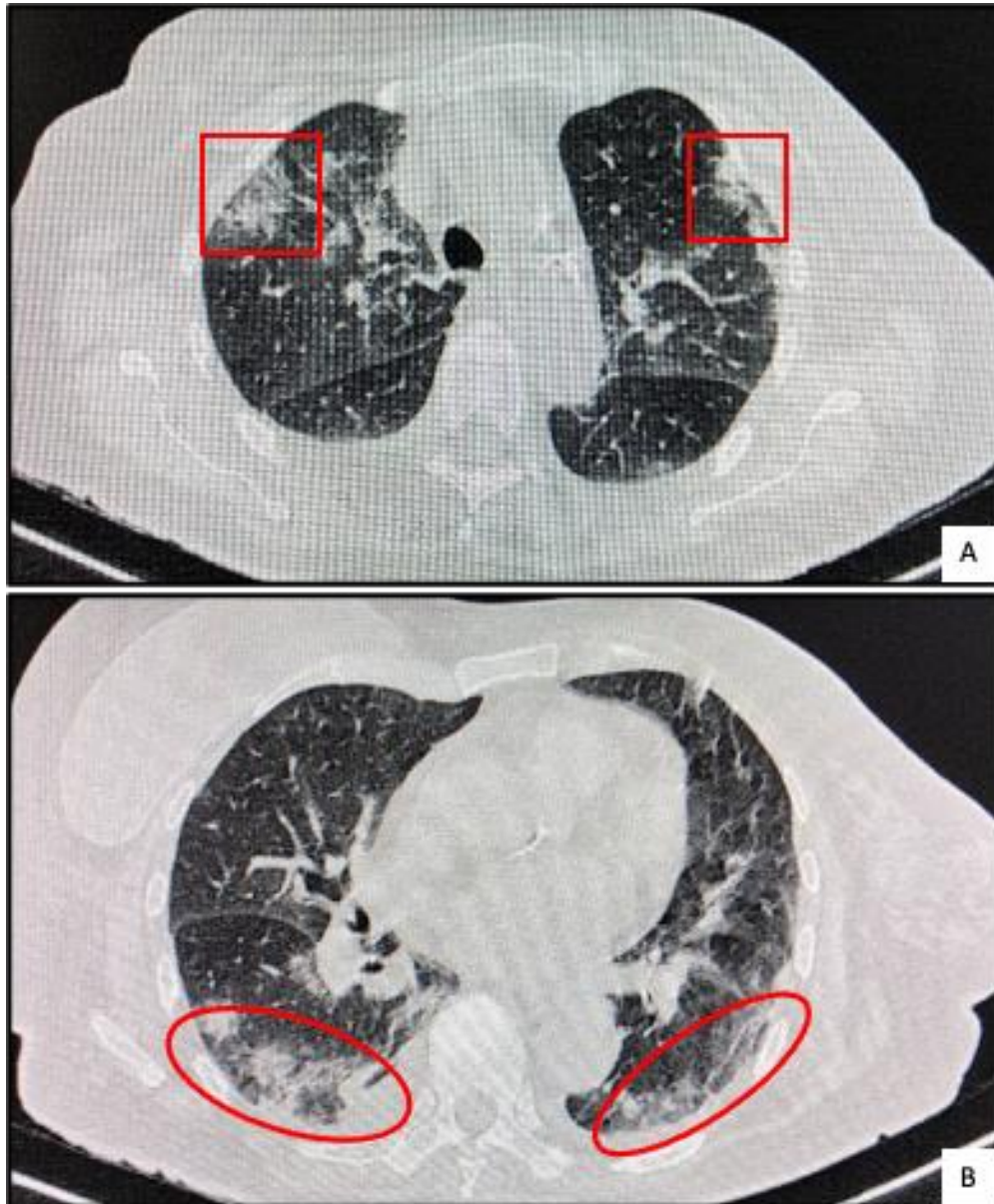


Figure 4. Chest computed tomography. A: subpleural ground glass opacities in the anterior segment of the right superior lobe, medial ground glass opacities in the same lobe, and, periferical subpleural and central ground glass opacities in left superior lobe (red frames); lineal intersititial thickening in right superior lobe. B: ground glass opacities with a tendendency to consolidation in posterior segments of both inferior lobes (red ovals).

CONCLUSION

This first case of COVID-19 diagnosed in Cartagena occurred at a time when our health system was not prepared to face the pandemic. However, despite having manifested with a clinical that had not been described at the time, and thanks to the epidemiological, clinical and imaging data, the case could be adequately approached, diagnosed and treated according to the necessary and recommended measures at the time.

The COVID-19 pandemic has dealt around the world a major hit to healthcare systems and healthcare facilities have been using a wide-range of medications to treat the virus and its symptoms. The alarming increase in cases per day adds additional pressure to find a cure and decrease the global health burden and mortality rate.

Acknowledgments

We thank Valeria De León for her valuable assistance editing this manuscript.

REFERENCIAS

1. Wu Z, McGoogan JM. Characteristics of and Important Lessons from the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72314 Cases from the Chinese Center for Disease Control and Prevention. Vol. 323, JAMA - Journal of the American Medical Association. American Medical Association; 2020. p. 1239–42.
2. De la Hoz-Restrepo F, Alvis-Zakzuk NJ, De la Hoz-Gomez JF, De la Hoz A, Gómez Del Corral L, Alvis-Guzmán N. Is Colombia an example of successful containment of the 2020 COVID-19 pandemic? A critical analysis of the epidemiological data, March to July 2020. *Int J Infect Dis.* 2020;99:522–9.
3. Coronavirus in the Arena: One More Time [Internet]. 2020. Available from: www.cdc.gov/coronavirus/2019-nCoV/hcp/index.html
4. Yang X, Yu Y, Xu J, Shu H, Xia J, Liu H, et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. *Lancet Respir Med.* 2020 May 1;8(5):475–81. Available from:

<https://doi.org/10.1016/>

5. Cappell MS. Moderately Severe Diarrhea and Impaired Renal Function With COVID-19 Infection. *Am J Gastroenterol.* 2020 Jun;115(6):947–8. Available from: <https://pubmed.ncbi.nlm.nih.gov/32453058>
6. Bikdeli B, Madhavan M V., Jimenez D, Chuich T, Dreyfus I, Driggin E, et al. COVID-19 and Thrombotic or Thromboembolic Disease: Implications for Prevention, Antithrombotic Therapy, and Follow-Up: JACC State-of-the-Art Review. Vol. 75, *Journal of the American College of Cardiology.* Elsevier USA; 2020. p. 2950–73.
7. Instituto Nacional de Salud | Colombia Boletines casos COVID-19 Colombia. Available from: <https://www.ins.gov.co/Paginas/Boletines-casos-COVID-19-Colombia.aspx#InplviewHash5872a312-02d0-4090-aa8a-7716dd9fc4df=>
8. Contexto Colombia. Corte 21 de Abril 5 pm. Available from: https://www.paho.org/col/index.php?option=com_docman&view=download&alias=2331-sitrep36-covid19-col-210420&category_slug=covid-19&Itemid=688
9. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet* 2020 Feb 15;395(10223):507–13. Available from: <https://doi.org/10.1016/>
10. Pan L, Mu M, Yang P, Sun Y, Wang R, Yan J, et al. Clinical Characteristics of COVID-19 Patients With Digestive Symptoms in Hubei, China: A Descriptive, Cross-Sectional, Multicenter Study. *Am J Gastroenterol.* 2020 May;115(5):766–73. Available from: <https://pubmed.ncbi.nlm.nih.gov/32287140>
11. Liang W, Feng Z, Rao S, Xiao C, Xue X, Lin Z, et al. Diarrhoea may be underestimated: a missing link in 2019 novel coronavirus. *Gut.* 2020;69(6). Available from: <http://gut.bmj.com/>
12. Simpson S, Kay FU, Abbara S, Bhalla S, Chung JH, Chung M, et al. Radiological Society of North America Expert Consensus Document on Reporting Chest CT Findings Related to COVID-19: Endorsed by the Society of Thoracic Radiology, the American College of Radiology, and RSNA. *Radiol Cardiothorac Imaging.* 2020 Apr 1;2(2):e200152. Available from:

<https://doi.org/10.1148/ryct.2020200152>

<http://www.nejm.org/doi/10.1056/NEJMoa2021801>

13. Schalekamp S, Bleeker-Rovers CP, Beenen LFM, Quarles van Ufford HME, Gietema HA, Stöger JL, et al. Chest CT in the Emergency Department for Diagnosis of COVID-19 Pneumonia: Dutch Experience. *Radiology*. 2020 Nov 17;203465. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/33201791>
14. Wang M, Cao R, Zhang L, Yang X, Liu J, Xu M, et al. Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro. *Vol. 30, Cell Research*. 2020. p. 269–71.
15. Horby P, Mafham M, Linsell L, Phil D, Bell JL, Staplin N, et al. Effect of Hydroxychloroquine in Hospitalized Patients with Covid-19. *n engl j med*. 2020;21:2030–70.
16. Mitjà O, Corbacho-Monné M, Ubals M, Alemany A, Suñer C, Tebé C, et al. A Cluster-Randomized Trial of Hydroxychloroquine for Prevention of Covid-19. *N Engl J Med*. 2021 Feb 4;384(5):417–27. Available from: <https://doi.org/10.1056/NEJMoa2021801>
17. Geleris J, Sun Y, Platt J, Zucker J, Baldwin M, Hripcsak G, et al. Observational Study of Hydroxychloroquine in Hospitalized Patients with Covid-19. *N Engl J Med*. 2020 Jun 18;382(25):2411–8. Available from: <http://www.nejm.org/doi/10.1056/NEJMoa2012410>
18. Ruta del crucero en el que estuvo la mujer diagnosticada en Cartagena - Más Regiones - Internacional - Eltiempo.com. Available from: <https://www.eltiempo.com/mundo/mas-regiones/ruta-del-crucero-en-el-que-estuvo-la-mujer-diagnosticada-en-cartagena-471508>
19. Crucero Braemar, con pasajeros colombianos, busca puerto en el Caribe | El Universal - Cartagena Available from: <https://www.eluniversal.com.co/colombia/crucero-braemar-con-pasajeros-colombianos-busca-puerto-en-el-caribe-JB2553038>