

## Post Traumatic Lung Contusion Revealing COVID-19 Pneumonia: A Case Report

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### Abstract

*The COVID-19 disease is a major public health emergency in which early identification and proper treatment are important. Managing patients with pulmonary contusion safely and effectively during the coronavirus disease 2019 pandemic is challenging.*

*Although Chest computed tomography (CT) has a high sensitivity for detecting COVID-19, similarities to pulmonary contusion makes it challenging to diagnose in trauma patients. So, as Differential diagnosis of lung contusion and COVID-19 must be emphasized, we would like through the column of this article, to report a case and share some experiences.*

### Introduction

The coronavirus pneumonia has spread rapidly in China, and worldwide [1-2]. It result in severe and even fatal respiratory diseases such as acute respiratory distress syndrome [3]. Chest computed tomography (CT) is highly sensitive for diagnosis COVID-19 infection; however, guidelines do not recommend using it for routine screening [4].

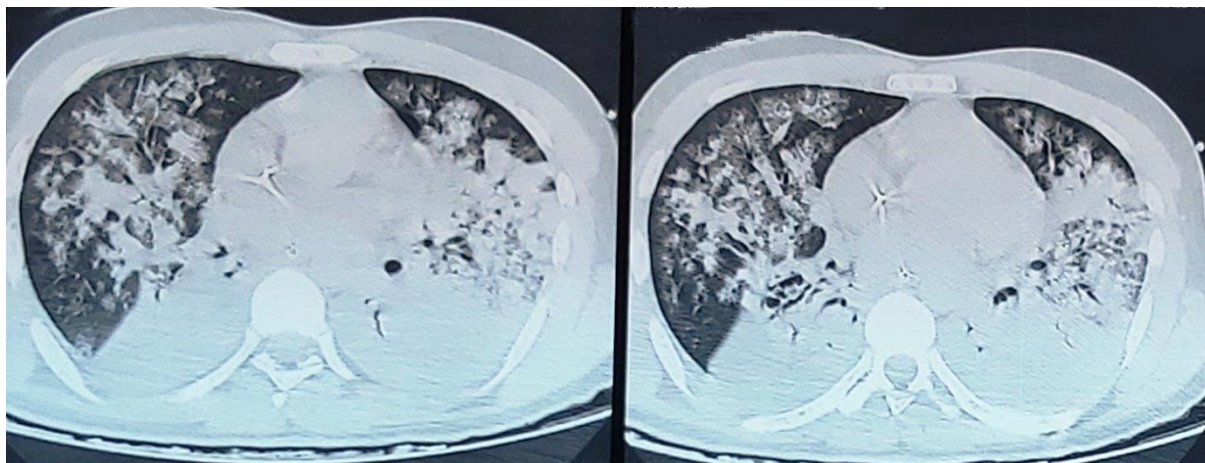
Despite its high sensitivity, it may be difficult to distinguish COVID-19 findings from those of other disease [5]. In particular, pulmonary contusion, which is a bruise of the lung, caused by thoracic trauma, has a lot of similarities on findings of COVID-19 on chest CT, including peripheral sub pleural consolidation and ground-glass opacity (GGO) [6,7]. In this case report, we describe the clinical characteristics, imaging findings, challenges and outcome of a trauma patients who was diagnosed with COVID-19 pneumonia.

### Case Report

We report a history that goes back to 19/05/21 of a 23 years old man, victim of a road accident resulting in loss of consciousness and dyspnea due to craniofacial and thoracic impact.

Examination on admission shows an unconscious patient with a GCS of 08/15, his blood pressure was at 10/06 mmHg and his heart rate was at HR 122 pulses per minute. Respiratory rate at 35c /min and arterial oxygen saturation at 80% at room air without fever (body temperature at 36°.9C), However, we noticed bilateral humming groans on pleuropulmonary auscultation, without any other particular cardio-vascular signs the patient was intubated and a body-scan was requested.

The head-CT showed frontal hemorrhagic contusion associated to meningeal hemorrhage. The chest-CT revealed diffuse bilateral lung contusion and ground glass opacities at the level of the two pulmonary fields.



**Figure 1:** Chest-CT scan revealing diffuse bilateral lung contusion and ground glass opacities.

The ECG shows regular sinus rhythm at 122bpm, PR fixed at 0.18, fine QRS without repolarization disorder, QT corrected at 340 ms.

The transthoracic ultrasound showed no left ventricle dysfunction, an ejection fraction estimated at 60%, no valvular leakage or stenosis, a good right ventricle systolic function.

The patient's biological assessment revealed a white blood cell number of 12,930 cells / mm<sup>3</sup> (Neutrophils 12000, lymphocytes 930), hemoglobin of 11.5 g / dl, thrombocytes at 191,000 cells / mm<sup>3</sup>. Prothrombin time and partial thromboplastin time were normal (TP at 96% and TCA at 32s for a witness of 30s).

Natremia:145 mmol / l, kalemia: 4.2mmol / l, correct liver and renal function (urea: 0.50 g / l and creatinine: 7.3 mg / l, ASAT : 83 IU / l and ALT: 32 IU / l), fasting blood sugar at 0.98 g / l, C-reactive protein at 320 mg / l, Troponin at 164 ug / l, ferritin at 757 ng/ml therapeutic management included oxygen therapy, medical treatment associated, as the national protocol suggested Hydroxychloroquine 200 mg 3 times a day, Azythromycin 500mg the first day then 250mg per day, methylprednisone at 80mg a day for 7 days and curative anticoagulation treatment including enoxaparin 100 UI/kg (1mg/kg) twice a day started 48 hours after a control head-CT showing stable lesion aspect.

## Discussion

COVID-19 infection can cause severe and fatal acute respiratory distress syndrome [1,8-11]. Despite its high sensitivity in diagnosing COVID-19, due to its low specificity [12], guidelines do not recommend using it for routine screening of COVID-19 [13].

Chest CT may be difficult to distinguish COVID-19 findings from those of other disease or pulmonary contusion defined as alveolar consolidation or GGO [14], which is similar to CT images of COVID-19 pneumonia, developed in accidental injuries such as traffic accidents.

Several studies have demonstrated that chest CT can help identifying newly infected COVID-19 patients [15-17]. the images include ground-glass opacities with consolidations,

and crazy-paving appearance. However, recent studies reported that 56% of early patients with COVID-19 had normal chest CT [18].

Furthermore, clinical course will help differentiating the two lesions, as most pulmonary contusions occur after high energy trauma. Uncomplicated contusions begin clearing within 48 hours and may resolve after 1–2 weeks [7,19,20]. In contrast, the lesions of COVID-19 progress rapidly and show concurrently increased number, extent and density of lesions in follow up CT scan [21-24].

## Conclusion

In conclusion, patients with pulmonary contusion and those with COVID-19 may present some similarities during their clinical, therefore the differential diagnosis must be emphasized in trauma patients as both COVID-19 pneumonia and pulmonary contusion each have characteristic features in chest CT images

During the pandemic, the possibility of COVID-19 infection coexisting with pulmonary contusion must be borne in mind.

## Competing interests

The authors declare no competing interests.

## Authors' contribution:

All the authors contributed equally in drafting of the manuscript. All the authors read and agreed to the final manuscript

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