

## COVID OR NOT COVID?

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### Abstract

### Case Report

**Introduction:** Covid 19 symptoms are not specific. They may be encountered in other diseases and this may lead to diagnosis confusions. **Observation:** A 24 years old young male without medical background was admitted to emergency department for shortness of breath. Physical examination found a laborious rapid breathing to 30 breaths/min and peripheral pulsed saturation was 85 % under room air, blood pressure was about 130 / 70 mmHg, heart rate about 112 beats per minute, and there was no fever. Chest computed tomography was realized and covid19 was suspected. Patient was admitted to isolation room and treated in this way without improvement. rt-PCR was negative to SARS-CoV2 and patient was transferred to non covid intensive care unit. Echocardiography has completely changed the outcome. **Conclusion:** Being a major public health emergency these days, respiratory symptoms make suspect covid19 first. Focusing on covid19 doesn't exempt searching other diagnosis. Echocardiography has a beneficial impact on patient with suspected or confirmed covid19. It must figure in the initial assessment of patients.

**Keywords:** Covid 19 symptoms, Echocardiography, SARS-CoV2.

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## INTRODUCTION

The emergence of the novel coronavirus (SARS Cov2) has been declared first in Wuhan, china in December 2019 and rapidly spread around the world, it was declared as pandemic by the world health organization in march 12, 2020 [1, 2]. Covid19 is defined as the respiratory disease caused by the emergent virus. In the severe forms of covid19, main symptoms are shortness of breath, rapid breathing and cyanosis which can also be encountered in other diseases leading to some differential diagnosis problems. We report here an example of those diagnosis confusions.

## OBSERVATION

A 24 years old young male, without any medical background was admitted in emergency department for shortness of breath with labored respiration, and cyanosis. First investigation of the case didn't find any previous contact with covid 19 suspected or confirmed cases, but the patient was not respecting safety measures in his daily life. Physical examination found an increased respiratory rate to 30 breaths per minute, peripheral pulsed saturation to 85 % under room air, blood pressure to 130 / 70 mmHg, heart rate to 112 beats per minute. There was no fever. Faced to the epidemic context in our country, covid 19 was

suspected and patient was admitted to isolation room and putted under oxygen mask (6l/ min). A nasopharyngeal swab was taken for rt-PCR, also a blood test was realized and patient was scheduled for a chest computed tomography. blood test showed high white cells count (17.000 /mm<sup>3</sup>) with neutrophilia (14.090/mm<sup>3</sup>) and lymphopenia (800/mm<sup>3</sup>); plasmatic urea concentration was about 0.77 g/l and creatinine about 11.47 mg /l, C reactive protein about 141,62 mg/l, sodium concentration was about 130 meq/l and potassium about 4.5 meq/l; Lactate deshydrogenase level was about 446 U/l and high sensitive troponine was about 400 times normal level. Chest computed tomography showed extended lung consolidation patterns (Figure 1). Clinical, biological, and imaging findings evoked diagnosis of covid 19 complicated with acute heart injury and treatment was initiated with hydroxychloroquine, azithromycine, corticosteroids without amelioration. The next day rt-PCR was negative for SARS – CoV2 and a second and a third swabs were negative, also serological test was realized and didn't show presence of antibodies, neither Igm nor Igg. There was no amelioration and facing the worsening of patient clinical condition and negative SARS- Cov 2 tests results, patient was admitted to non-covid intensive care unit, and once admitted an echocardiography was realized and found a left ventricular systolic dysfunction with reduces ejection

fraction (EF = 35 %) (Figure 2), also diastolic left ventricular function was altered with high left ventricle filling pressures (E/A = 4, 52) (Figure 3), right ventricular function and arterial pulmonary pressure were normals, inferior vena cava was dilated with a collapsibility index about 36% (figure 4). Diagnosis of Acute Heart Failure was made, patient received diuretics, beta blockers associated with CPAP support. Amelioration was observed within the first 24 hours and patient was transferred to cardiology department after 3 days.

## DISCUSSION

Since covid19 epidemic has been declared first in wuhan and then around the world all our attention and efforts went round about fighting this disease. It's about a worldwide public health emergency that put all healthcare workers (HCW) to a tremendous ordeal by exposing them to a major infection risk.

In fact, the direct contact with patients, that might be asymptomatic and not already diagnosed with covid19 since the virus is spreading in the community, made number of contaminations among HCW increasing, for example in Spain to April 17<sup>th</sup>, 19 % of total infected cases concerned HCW [3]. This permanent risk was accompanied by a kind of a covid phobia; everyone think about covid first, and this may be harmful to many patients this phobia, although understandable, should not be an obstacle to a normal clinical process, suspecting the covid19 doesn't exempt searching other diagnosis.

After quarantine, our country is facing a second wave of reinfections, and an abnormal increasing in severe cases, and hospitals got rapidly saturated. To face this situation our hospital has redirected the major of his activity to control the outbreak, in this way some departments were closed and health personnel reinjected in covid19 circuit. The circuit begins in the emergency department. Once patient is admitted with suspected covid 19, he got transferred to an isolation room in where nasopharyngeal swabs are taken for rt-PCR and to be scheduled for a chest computed tomography. When patient is confirmed positive; he got hospitalized if he is symptomatic, or has a risk factor for severe forms or has biological signs of cytokine storm. Patients are transferred to mild illness side and for the severe forms to ICU. This isolation room has become the perfect illustration of this covid phobia; admitting a patient to this room is a kind of "looking for covid first and then let's reflect".

Covid 19 symptoms are not specific; hence, thinking about other diagnosis would be judicious, in particular the life threatening ones.

We have reached, today, a point where we must co-exist with the virus. Covid19 should become a diagnosis like any other. Provision of protective

equipments, minimizing exposure and increasing testing among HCH would help to overcome this situation.

In our case patient has an Acute Heart Failure (AHF), treatment with diuretics was benefic and helped him to improve his condition. It was more rational to begin treatment in the isolation room even if the covid 19 treatment has been started.

From the early days of the pandemic, there is a close relationship between heart and covid 19. Respiratory infections are a common cause for cardiovascular diseases decompensation [4], furthermore covid 19 may have cardiovascular complication of which those most frequent is the acute cardiac injury with troponin elevation [5]. This one was found elevated in our patient but pcr was negative three times and we note here the pcr test sensitivity is about 56 and 83% when it is realized once [6].

In addition to rt-PCR, chest computed tomography (CT) is widely recommended for the initial diagnosis of suspected covid19 patients [7]. Nevertheless, the lung oedema caused by acute heart failure may have the same CT findings and it would be difficult to make out the two diagnoses.

Zhu and al. have compared chest CT findings between covid19 and acute heart failure, both diseases give consolidation and ground glass images and there is no difference in lobes affected and septal thickening. However, in covid19 lesions are more peripheral and images of pleural effusion cardiac enlargement were more commons in AHF than covid19. Having said, the study has many limitations. It's a retrospective study that doesn't serve as a guarantee to a certain diagnosis [8]. Moreover our patient has some peripheral and subpleural consolidation patterns and ground glass lesions. In addition to that, to confirm the confusion we have shown CT findings to many colleagues asking them if it was about covid or not, the majority responds covid! Spontaneously and without thinking.

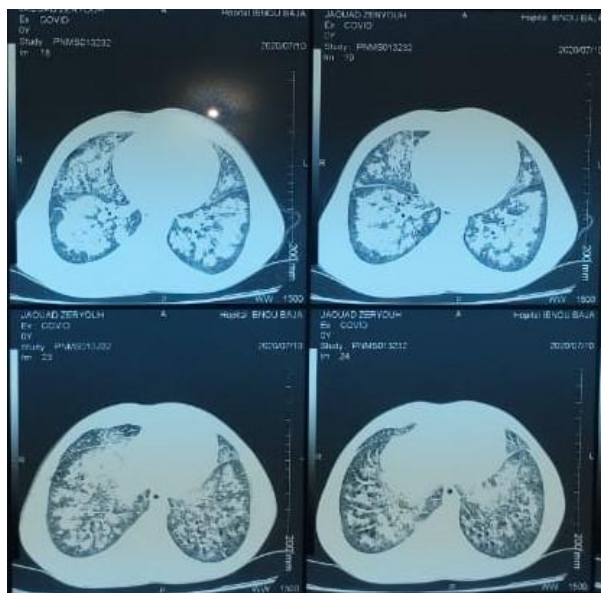
The impact of covid on AHF has been described in an English paper that compared admissions in hospital for AHF between the period of quarantine this year and the same period of the years 2019, 2018 and 2017. Authors found that admissions number has decreased in 2020, but patients admitted have more severe symptoms at admission [9]. In our case, patient was 24 years old with no cardiovascular risk factors, and it was uncommon in this epidemic context to think about AHF in this situation; but this paper reminds us that these times, only serious cases come to the hospital and we should think about all potential diagnosis.

Echocardiography was the pivotal moment in our investigation, it has modified diagnosis, and has permitted literally to save patient and in our experience this is not the first time ultrasounds change patient's

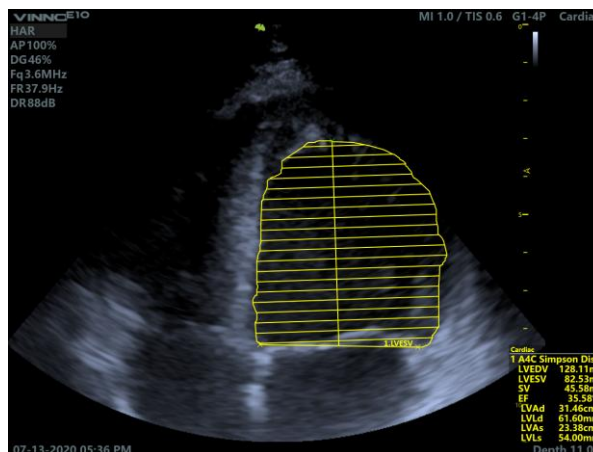
outcomes. We esteem that this attractive feature is beneficial for suspected covid19 patients. This was confirmed in a prospective survey realized in patients with suspected or confirmed covid19. Echocardiographic findings in these patients were captured and analyzed. In patients without cardiac pre existing disease, quarter of patients had an abnormal left ventricle function and a third had an abnormal right ventricle function, 1 in 8 of these patients without pre-existing cardiac disease (13%) had severe cardiac disease identified on echocardiography. Besides, echocardiography changed management in 32% of these patients [10]. This is a solid proof that ultrasounds are becoming a must in emergency departments. More importance should be given to form emergency physicians and intensivists to use the echographic tool. Moreover, with this experience we recommend using echocardiography in the initial assessment of suspected or confirmed covid19 patients.

### CONCLUSION

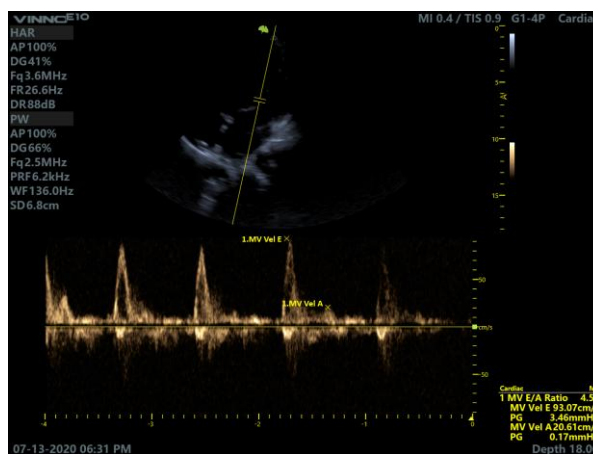
There is a close relationship between cardiovascular diseases and covid 19. Diagnosis confusions are frequent in this pandemic period .distinguishing between both diseases may be a difficult task for physicians. A correct initial clinical assessment would allow avoiding those situations. To make it more efficient, ultrasounds have a major contribution and it should be part of the initial checkup of patients with suspected or confirmed covid 19. More importance should be given to form physical to use ultrasounds.



**Fig-1: Chest computed tomography**



**Fig-2: Ejection Fraction**



**Fig-3: Mitral Doppler inflow**



**Fig-4: Vena cava diameter**

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