



## Case Report

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# Incidentally Diagnosed COVID-19 in the Emergency Department: A Case Series

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**ABSTRACT**

Coronavirus disease 2019 (COVID-19) has become the most important challenge for health care worldwide. COVID-19 can be presented as an asymptomatic infection primarily or entirely, which plays a critical role in human-to-human transmission. This issue poses a huge challenge to the patients seeking care in the Emergency Department (ED).

We described the incidental diagnosis of COVID-19 among 11 patients referring to the ED due to the complaints not in favor of COVID-19. All patients had lung involvements in their chest computed tomography scan, and positive reverse transcriptase-polymerase chain reaction test.

It is suggested that during the COVID-19 outbreak, all the staff in the ED must be extremely cautious and deploy recommended personal protective equipment regardless of the patient's primary complaint. All patients and their family members must be protected against any suspicious contacts while visiting the ED.

**Introduction**

The coronavirus disease 2019 (COVID-19) outbreak caused by a coronavirus belonging to the coronaviridae family was first emerged in Wuhan, in China, and rapidly has caused a pandemic worldwide leading to an

enormous challenge for the health system [1]. COVID-19 mostly presents with various nonspecific symptoms, like fever, dry cough, dyspnea, and less frequently presents with diarrhea, headache, and productive cough [2-4]. However, it can be presented as an asymptomatic infection, primarily or entirely, and be diagnosed completely incidental [5]. Asymptomatic carriers can be an essential

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source of human-to-human transmission [6]. A study in China showed that about 10% of asymptomatic travelers were positive for COVID-19 [7]. In another report in London, among 400 asymptomatic health-care workers, 7.1% were positive for COVID-19 [8]. There are also other reports showing an incidental diagnosis of COVID-19 [6, 9].

Because of the importance of asymptomatic COVID-19 carriers, which can increase the prevalence of infected patients, especially in the Emergency Department (ED) where many vulnerable people (including elderly, pregnant women, and patients with a suppressed immune system) every day are seeking health care, in this study, we presented the incidental diagnosis of COVID-19 among 11 patients who were referred to the ED with different reasons not in favor of COVID-19 and their outcome, as well.

### Case Presentation

This study was performed in an ED affiliated with the university with an annual census of 90,000 ED visits in Tehran, Iran during March 2020. Eleven confirmed COVID-19 cases were diagnosed among asymptomatic patients who were referred to the ED with various compliant, not in favor of COVID-19, such as hypertension crisis, multiple trauma, and syncope. None of the patients had symptoms of COVID-19, such as fever, dry cough, and fatigue and the physical examination did not reveal high temperature or any abnormalities of pulmo-

nary function, like low oxygen saturation, tachypnea, wheezing, crackles, etc.

All patients underwent a non-enhanced chest Computed Tomography (CT) scan due to the main complaint of referring to ED and/or to confirm the chest- x-ray abnormalities. Two different radiologists reported the results and showed that all the patients had different levels of lung involvement. The radiologists scored the severity of lung involvements in CT-scan from zero to ten and a higher score represents a higher rate of lung involvement. The score from zero to three and four to six and seven to ten was defined as mild, moderate, and severe involvements, respectively.

Patients also underwent reverse transcriptase-polymerase chain reaction (RT-PCR) test with at least 4 nasopharyngeal swabs from each patient and other laboratory tests. The results showed that all of the patients had positive RT-PCR test results but none of them had abnormal White Blood Cell (WBC) count or elevated C-Reactive Protein (CRP) levels except for cases number 3 and 8 who had leukopenia (defined as WBC count of less than 3500) and elevated CRP.

All patients were recommended to use the COVID-19 treatment regimen, including oral administration of hydroxychloroquine (200 mg) twice daily for seven days; however, case number 3 also received oral administration of Atazanavir/ritonavir (300/100 mg) daily for

**Table 1.** Demographic and coronavirus disease 2019 (COVID-19)-related data of the studied patients

Case	Gender	Age	Chief Compliant	Chest CT-scan Score	Treatment	Outcome
1	Female	77	Hypertension crisis	6	Hydroxychloroquine	Discharged
2	Male	37	Multiple trauma	4	Hydroxychloroquine	Discharged
3	Male	62	Hemorrhagic Stroke	10	Atazanavir/ritonavir + Hydroxychloroquine	ICU Admission
4	Male	34	Multiple trauma	6	Hydroxychloroquine	Discharged
5	Male	72	Hematuria	5	Hydroxychloroquine	Discharged
6	Male	50	Multiple trauma	2	Hydroxychloroquine	Discharged
7	Male	38	Syncope	2	Hydroxychloroquine	Discharged
8	Male	62	Chest Pain	8	Hydroxychloroquine	Discharged
9	Female	83	Urinary retention	5	Hydroxychloroquine	Discharged
10	Male	52	Blunt chest trauma	7	Hydroxychloroquine	Discharged
11	Male	62	Cervical trauma	5	Hydroxychloroquine	Discharged

CT: Computed Tomography; ICU: Intensive Care Unit.

seven days in addition to aforementioned doses of hydroxychloroquine.

Age, gender, the main reason for referring to the ED, total CT-scan score, treatment regimens, and outcome of patients are described in detail in [Table 1](#). Except the case number 3 who admitted to the intensive care unit (ICU) due to the hemorrhagic stroke, other patients were discharged from the hospital, and received outpatient COVID-19 treatment, and were recommended a two-week quarantine period. The patients were followed up for 30 days. All patients were discharged and revealed no developed symptoms in favor of COVID-19 except case number 3 who was still at ICU.

## Discussion

The ongoing COVID-19 pandemic has infected more than five million people and caused more than 300,000 deaths globally [\[10\]](#). Enhancing the knowledge about the virus transmission modes plays an important role to control the outbreak. COVID-19 can be transmitted through different routes, such as contaminated food, respiratory secretions, and touching the face with infected hands [\[11\]](#). The incubation period is about 14 days, which is mostly asymptomatic but with a high potency of transmission, and during the asymptomatic stage, the disease can be spread from one to another [\[7\]](#).

Asymptomatic carriers of the COVID-19 should highly be considered. More importantly, studies have shown that the coronavirus sheds at high concentrations from upper respiratory secretions even in asymptomatic carriers [\[12\]](#).

In order to block the transmission chain, isolation of COVID-19 patients is of undisputed importance. Asymptomatic carriers can impede the quarantine and serve as an important source of infection in crowded places, like ED. The issue is extremely important and poses a huge risk for susceptible patients, such as patients with a suppressed immune system and elderly patients.

In our study, ten incidental COVID-19 patients were discharged from the hospital and did not develop any symptoms, such as fever, cough, dyspnea, diarrhea, or malaise. Only one patient with severe infection and hemorrhagic stroke showed hypoxemia and underwent intubation in the ICU, which was due to the initial presentation of loss of consciousness and hemiplegia.

Samsami et al. reported an incidental diagnosis of COVID-19 in eight patients referring to the ED due to

trauma. They emphasized the importance of considering the diagnosis of COVID-19 besides other diagnoses in order to consider the personal protective equipment precautions for medical staff [\[13\]](#).

## Conclusion

Considering our study and other similar reports, it seems that during the COVID-19 outbreak, all the staff in the ED must be cautious and use recommended personal protective equipment regardless of the patient's primary complaint. Also, all patients and their family members must be protected against any possible suspicious contacts while visiting the ED.

## Ethical Considerations

### Compliance with ethical guidelines

All ethical principles are considered in this article. The participants were informed of the purpose of the research and its implementation stages. They were also assured about the confidentiality of their information. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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### Conflict of interest

The authors declared no conflict of interest.

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