

# A Review of COVID-19 Clinical Presentation

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## ABSTRACT

COVID-19 is a present pandemic infecting at exponential rates. Clinical presentations include fever, fatigue, myalgia, and dry cough; however, many atypical presentations have also been reported. COVID-19 is found to have cause pregnancy complications and is said to produce a multisystem inflammatory syndrome in children. This article is a review on clinical presentation of COVID-19 including its atypical presentation and presentation in pregnancy, children, and old age.

**Keywords:** COVID-19, Fever, Multisystem inflammatory syndrome in children.

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## INTRODUCTION

Coronaviruses were important human pathogens;<sup>1</sup> however, by December 2019, a novel coronavirus which is designated as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was identified as the cause of a cluster of atypical pneumonia cases in Wuhan, China.<sup>2</sup> It soon became a pandemic, infecting lakhs of people across the world and causing over 100,000 deaths worldwide. WHO declared COVID-19 a pandemic on March 11, 2020.<sup>3</sup>

## INCUBATION PERIOD

The incubation period of COVID-19 is thought to be 14 days.<sup>4-6</sup> A study from China reported that symptoms would develop in 2.5% of infected individuals within 2 days and in 97.5% of infected individuals within 11 days and the median incubation period in this study was 5 days.<sup>7</sup>

## RISK FACTORS

Comorbidities and other conditions that have been associated with severe illness and mortality include:<sup>8-11</sup>

- Age >65 years
- Preexisting pulmonary disease
- Chronic kidney disease
- Diabetes mellitus
- Hypertension
- Cardiovascular disease
- Obesity
- Immunosuppressant therapy
- Transplant history
- HIV, CD4 count <299 cells.

Among patients with advanced age and medical comorbidities, presentation was severe<sup>12</sup> and according to the reports from China, Italy, and United States males had a higher number of deaths.<sup>13-15</sup>

Particular laboratory features have also been found to be associated with worse outcomes.<sup>16-18</sup> These include:

- Lymphopenia
- Elevated liver enzymes
- Elevated lactate dehydrogenase
- Elevated inflammatory markers
- Elevated D-dimer
- Elevated prothrombin time

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- Elevated troponin
- Elevated creatine phosphokinase
- Acute kidney injury.

## CLINICAL PRESENTATION

The presentation varies from mild to critical disease with majority being not severe. A report from Chinese Center for Disease Control and Prevention states that out of the 44,500 confirmed cases 81% were having no or mild symptoms of pneumonia and 14% had dyspnea and hypoxia and 5% developed respiratory failure and multiorgan dysfunction and overall fatality rate was found to be 2.3%.<sup>10</sup>

A study from New York showed out of the 2,634 patients hospitalized for COVID-19, 14% were treated in intensive care unit and 12% received invasive mechanical ventilation and mortality rates among patients wanting ventilator support was 88%.<sup>13</sup>

According to Indian demographic report, 15.3% of patients required intensive care and 6.6% required mechanical ventilation.<sup>19</sup>

Pneumonia is the most frequent serious presentation of infection characterized by fever, cough, dyspnea, and bilateral infiltrates on X-ray.<sup>5,20,21</sup> Other presenting features include upper respiratory tract symptoms, myalgia, and diarrhea. Development of dyspnea several days after the onset of clinical symptoms is suggestive of COVID-19 (Tables 1 and 2). Conjunctivitis has also been described as presenting feature of COVID-19.<sup>22</sup>

Dermatological findings, such as maculopapular rash, urticarial and vesicular eruptions, and transient livedo reticularis, have been reported.<sup>23,24</sup>

**Table 1:** Differences between influenza and COVID-19

	<i>Influenza</i>	<i>COVID-19</i>
Incubation period	1–4 days	1–14 days
Children	Important drivers	Less affected
Risk factors	Children, pregnant women, elderly and underlying chronic illness	Old age, chronic medical illness
Cardiovascular disease and ARDS	<10%	30–35%
Case fatality rate	<1%	3–4%

ARDS, acute respiratory distress syndrome

**Table 2:** Differences in symptom presentation between influenza and COVID-19

<i>Symptoms</i>	<i>Influenza</i>	<i>COVID-19</i>
Fever	85–90%	82–87%
Cough	90–95%	36–44%
Breathlessness	60–70%	40–50% of severe cases
Fatigue	15–18%	60–63%
Myalgia	5–6%	30–38%
Gastrointestinal symptoms	12–15%	30–35%
Rhinorrhea	80%	10%
Sore throat	35%	<5%

Several complications have been described:

- Acute respiratory distress syndrome<sup>17</sup>
- Arrhythmias<sup>14</sup>
- Cardiogenic shock
- Pulmonary embolism.<sup>25</sup>

## COVID-19 AND INFLUENZA: SIMILARITIES AND DIFFERENCES

### Similarities

- Disease presentation is similar.
- Produce respiratory illness with a wide range of severity.
- Transmitted by contact, droplets, and fomites.
- To prevent: hand hygiene and good respiratory etiquette (coughing into your elbow or into a tissue and immediately disposing of the tissue).

## ATYPICAL PRESENTATIONS

### Arrhythmias in COVID-19

Majority of patients with COVID-19 will not have any symptoms or signs of arrhythmias; however, arrhythmias may be seen in patients having other cardiovascular complications, such as myocardial infarction, electrolyte disturbances, and drugs, causing QT prolongation including hydroxychloroquine used in COVID-19 prophylaxis. Arrhythmias vary from atrial arrhythmias to life-threatening Torsades de pointes. Patients with Torsades de pointes may be hemodynamically stable on presentation, may remain stable, or may become unstable rapidly and without warning should be treated according to the usual treatment protocol.<sup>9</sup>

### Guillain–Barré Syndrome in COVID-19

Guillain–Barré syndrome (GBS) was found in five patients from Italy. First symptoms of GBS were lower limb weakness and paresthesia in

four patients and facial diplegia followed by ataxia and paresthesia in one patient. The interval between the onset of symptoms of COVID-19 and first symptom of GBS ranged from 5 to 10 days in those four patients.<sup>26</sup>

### Acute Myopericarditis in COVID-19

Acute myopericarditis in COVID-19 was reported where the patient had only fever, fatigue, and dry cough with ECG showing diffuse ST elevation and elevated cardiac enzymes with normal coronary angiogram; however, cardiac MRI showed increased wall thickness with diffuse biventricular hypokinesis in apical segments with severe left ventricle (LV) systolic dysfunction, biventricular myocardial interstitial edema with circumferential pericardial effusion, these findings were consistent with acute myopericarditis.<sup>27</sup>

### Large Vessel Stroke in COVID-19

Five cases of large vessel stroke were reported in patients younger than 50 years of age in United States. Patient initially had presented with cough, headache, and chills for 1 week and were tested positive for COVID-19. On admission, these five patients had mean National Institute of Health Stroke Scale (NIHSS) score was 17, consistent with severe large vessel stroke with one patient having previous history of stroke. Apart from stroke, coagulopathy and vascular endothelial dysfunction have been proposed as complications of COVID-19.<sup>28</sup>

### COVID-19 in Pregnancy

Pregnancy and childbirth do not necessarily increase the risk of COVID or worsen the clinical course in comparison with non-pregnant females. There are added issues in pregnancy, fever, and hypoxemia from severe pneumonia may increase the risks for preterm labor, premature rupture of membranes, and abnormal fetal heart rate patterns. Fever during the first trimester may be associated with an increased incidence of congenital anomalies like neural tube defects.<sup>29</sup>

### COVID-19 in Children

COVID-19 does not have an age predilection, it can involve all age groups, and many studies have shown presentation in children. The symptoms of COVID-19 in children are very much similar to adults and appears to be milder in children than in adults, although severe cases have been reported. Fever and cough are the most common reported symptoms in children. In young infants, fever without an obvious source and minimal respiratory symptoms have also been seen. Less common symptoms included fatigue, rhinorrhea/nasal congestion, diarrhea, and vomiting.

One of the rare presentations of COVID-19 in children is pediatric multisystem inflammatory syndrome that has been reported in United States. It is also been called as multisystem inflammatory syndrome in children (MIS-C). Clinical features included persistent fever, hypotension, gastrointestinal symptoms, rash, and myocarditis; however, respiratory symptoms may not be more common.<sup>30</sup>

Case definition includes:

- Age <21 years.
- Documented fever >100°F for >24 hours.
- Elevated C reactive protein (CRP), erythrocyte sedimentation rate (ESR), D-dimer, lactate dehydrogenase (LDH).
- Involvement of >3 organ systems.

## CONCLUSION

Pandemic COVID-19 in young individuals may be asymptomatic or mild and may remain undiagnosed, whereas in old age it presents as a severe illness with atypical presentations also. In pregnant females, there is no vertical transmission proven so far; however, droplet transmission during feeding is possible and fever during the first trimester can produce neural tube defects; hence, a high index of suspicion and laboratory confirmation of COVID has to be initiated.

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