

Coronavirus in Espirito Santo | A Case Report on the Evolution of COVID-19 in an Onboard Population

Coronavírus no Espírito Santo | Um relatório de caso sobre a evolução da COVID-19 numa população a bordo

DOI:10.34119/bjhrv4n4-157

Recebimento dos originais: 05/07/2021

Aceitação para publicação: 04/08/2021

Cristiano Soares da Silva

Master in Health Sciences at Sírio-Libanês Teaching and Research Institute, São Paulo, São Paulo, Brazil. State Secretariat of Health of Espírito Santo. Special Center for Epidemiological Surveillance, Vitória, ES, Brazil.
Av. Mal. Mascarenhas de Moraes, 2025 - Bento Ferreira, Vitória - ES, 29050-755
E-mail: cristianosilva@saude.es.gov.br

Raphael Lubiana Zanotti

Infectologist. State Secretariat of Health of Espírito Santo. Special Center for Epidemiological Surveillance, Vitória, ES, Brazil.
Av. Mal. Mascarenhas de Moraes, 2025 - Bento Ferreira, Vitória - ES, 29050-755
E-mail: raphaelzanotti@saude.es.gov.br

Danilo Cardoso Ourique

Nursing management specialist. State Secretariat of Health of Espírito Santo. Special Center for Epidemiological Surveillance, Vitória, ES, Brazil.
Av. Mal. Mascarenhas de Moraes, 2025 - Bento Ferreira, Vitória - ES, 29050-755
E-mail: daniloourique@saude.es.gov.br

Gilton Luiz Almada

Master in Physiological Sciences. State Secretariat of Health of Espírito Santo. Special Center for Epidemiological Surveillance, Vitória, ES, Brazil.
Av. Mal. Mascarenhas de Moraes, 2025 - Bento Ferreira, Vitória - ES, 29050-755
E-mail: giltonalmada@saude.es.gov.br

Juliana Rodrigues Tovar Garbin

Master in Public Health. State Secretariat of Health of Espírito Santo. Special Center for Epidemiological Surveillance, Vitória, ES, Brazil;
Av. Mal. Mascarenhas de Moraes, 2025 - Bento Ferreira, Vitória - ES, 29050-755
E-mail: julianatovar@saude.es.gov.br

Camila Brandão Souza

Phd of Science. State Secretariat of Health of Espírito Santo. Special Center for Epidemiological Surveillance, Vitória, ES, Brazil.
Av. Mal. Mascarenhas de Moraes, 2025 - Bento Ferreira, Vitória - ES, 29050-755
E-mail: camilasouza@saude.es.gov.br

Larissa Dell' Antonio Pereira

Master in Public Health. State Secretariat of Health of Espírito Santo. Special Center for Epidemiological Surveillance, Vitória, ES, Brazil;
Av. Mal. Mascarenhas de Moraes, 2025 - Bento Ferreira, Vitória - ES, 29050-755
E-mail: larissapereira@saude.es.gov.br

ABSTRACT

Crew member arrived in Brazil on August 20, 2020, rapid test for COVID-19 with a negative result. On the 28th, already on board, he developed: fever, cough and malaise. On the 29th, was closely monitored for 2 hours and 30 minutes. In the first hour, he presented hypothermia, high blood pressure and tachycardia, requiring oxygen therapy, he presented in the last 90 minutes to hypothermia, an abrupt drop in blood pressure and bradycardia, ultimately evolving to hypothermia, lack of blood pressure and electrical activity of the heart. A review of the protocol for coping with COVID-19 is required.

Key-words: Coronavirus Infections, Public Health Surveillance, Sanitary Control of Harbors and Vessels.

RESUMO

O membro da tripulação chegou ao Brasil a 20 de Agosto de 2020, teste rápido para COVID-19 com resultado negativo. No dia 28, já a bordo, desenvolveu: febre, tosse e mal-estar. No dia 29, foi acompanhado de perto durante 2 horas e 30 minutos. Na primeira hora, apresentou hipotermia, tensão arterial elevada e taquicardia, necessitando de oxigenoterapia, apresentou nos últimos 90 minutos hipotermia, uma queda abrupta da tensão arterial e bradicardia, acabando por evoluir para hipotermia, falta de tensão arterial e actividade eléctrica do coração. É necessária uma revisão do protocolo para lidar com a COVID-19.

Palavras-chave: Infecções por Coronavírus, Vigilância da Saúde Pública, Controlo Sanitário de Portos e Embarcações.

1 INTRODUCTION

COVID-19 originated in Wuhan, China in December 2019. After an exponential increase in the number of cases throughout China and Asia, the World Health Organization (WHO) declared a Public Health Emergency of International Importance (PHEII) on January 30, 2020. In Brazil, the epidemic was declared a Public Health Emergency of National Importance (PHENI) on February 3, 2020. When the epidemic reached 110 thousand cases and more than 4 thousand deaths, the WHO declared a situation of pandemic of COVID-19 on March 11, 2020. Since then, COVID-19 (SARS COV-2) has been the object of study in the most diverse fields of health, including repercussions and studies in the fields of medicine and occupational safety¹.

In the field of occupational medicine, the COVID-19 pandemic has been considered to be of primary importance for health professionals, as they work directly

with potentially infected patients. However, other work activities may contribute to the spread of the virus, for example, professionals in the aviation areas, workers in confined environments, and vessels, among others. Thus, both working conditions and the exercise of some activities can contribute to the exposure and spread of the virus².

This report presents a case of SARS COV-2 infection in a crew member of an international cargo ship, whose abrupt evolution of the disease culminated in death, even though he was asymptomatic or oligosymptomatic in the tests that preceded his journey.

To report the case of a crew member who was infected by the new coronavirus, but presented an abrupt worsening of his clinical condition and passed away.

2 CASE REPORT

This is a study of the case report type in which data were obtained on 09/01/2020 through the report that was sent to the National Health Surveillance Agency (ANVISA, or NHTSA in English) and passed on to the Center for Strategic Information on Health Surveillance at the State Secretariat of Health of Espírito Santo (CSIHS of Espírito Santo); to the Death Verification Service of the state of Espírito Santo; and to the Legal Medical Department of the Civil Police (Vitória, Espírito Santo), as well as data from the official notification system for diseases and conditions in the state of Espírito Santo and SUS (the Unified Health System).

MRI, a 42-year-old male resident of India, who was a mechanical crew member from Bangladesh, arrived at the Port of Santos in the state of São Paulo, Brazil on August 20, 2020. The ship sailed from the Port of Santos on 08/24/20 bound for the port of Tarragona, Spain.

According to information provided by the ship's management, the entire crew (21 crew members) was tested on August 20 and 23, 2020 by means of rapid tests, with negative results for MRI in both tests.

On August 28, 2020, already on board and en route to Spain, the patient started to develop fever, cough and malaise, and medications were administered to relieve the signs and symptoms presented. There was no doctor on the vessel so the clinical evaluation was carried out by the officers on board. The vital signs of the crew member were monitored after dinner, around 7:00 PM, verifying: a temperature of 36.1° C, Blood Pressure of 133 x 72 mmHg, and Heart Rate of 106 bpm. During the assessment the patient complained of difficulty in breathing.

On August 29, 2020, the patient was monitored at shorter intervals, showing the following parameters:

- 09:00: Temperature 33.3°C, Blood Pressure: 161 x 78 mmHg, Heart Rate: 106 bpm.
- 10:00: Temperature of 33.3°C, Blood Pressure: 174 x 84 mmHg, Heart Rate: 107 bpm.
- 10:15: Supplemental oxygen was offered due to exacerbation of breathing difficulties.
- 11:00: Temperature of 33.3°C, Blood Pressure: 139 x 50 mmHg, Heart Rate: 45 bpm.
- 11:30: Temperature 32.2°C, Blood Pressure: 0 x 0 mmHg, Heart Rate: 0 bpm.
- 11:45 the death of MRI was declared on the high seas, at the following position: Latitude 20-07.85 South, Longitude 038-16.57 North.

After death, ANVISA and CIEVS/ES were notified, which activated the Center for Strategic Information and Responses in Health Surveillance in the capital city of Vitória (CIEVS / VIX) to carry out an investigation of the death.

On September 1, 2020, the body was unloaded from the ship at the port of Tubarão, Espírito Santo and it was sent to the LMD in Vitória. Notification and collection of tests for malaria, meningitis, dengue and Covid-19 were performed. The result of the real-time RT-PCR test showed a detectable result for SARS Cov-2, the virus that causes Covid-19.

According to information passed on by ANVISA, none of the other crew members developed symptoms. After receiving information regarding the Covid-19 diagnosis, ANVISA prevented the vessel from continuing its journey, placing it in quarantine.

3 DISCUSSION

The description of outbreaks on the Diamond Princess³ and the Grand Princess⁴, cruise ships raised questions about the risks related to international mercantile activities.

This risk led countries to recommend testing and observing the appearance of symptoms of passengers and crew on international trips. In the case reported, the recommended measures were followed, according to the information obtained, which

raises the question of whether the proposed measures are effective in preventing the infected people from boarding, and consequently, the risk of new outbreaks.

Another relevant point is the rapid evolution of the reported case from the observation of the first symptoms until the patient's death. It has been recognized that COVID-19 can evolve rapidly in some patients and that the onset of complications from infection can bring on abrupt, highly severe conditions, or even death^{5,6}, because the responses of protective and stressors factors of the immune system is different for every individual⁷. Likewise, it is known that the presence of mild symptoms may be ignored by the patient and, in this case, the absence of reported symptoms, linked to the immunological detection period⁸ can represent deficiencies in the monitoring of the crew before boarding.

The integration between the body responsible for the surveillance of ports, airports and borders (ANVISA) and the State Secretariat of Health of Espírito Santo was essential for the identification of the presence of SARS-CoV 2 on the vessel and thus, it allowed the monitoring of the other crew members.

Performing rapid tests among a crew before boarding does not guarantee the early identification of all those infected, as was demonstrated in this case report. In addition, the information about the health situation of the crew members on a vessel is very fragile, due both to the possibility of asymptomatic individuals, and also to an individual's omission, generated by fear of being prevented from boarding or that the vessel will continue traveling, when already on board, which entails large payments to the managers of the port.

The rapid evolution until the point of death may have been due to a combination of the pathogenic action of SARS-CoV 2 and the inherent characteristics of the crew member, connected to the lack of resources and adequate technical support, as well as there not being experience with a new virus, with evolution in the occurrence of cases being little known.

It has been noted that it is important to revise the protocols regarding passengers and crew members on international voyages, requiring other diagnostic techniques, such as chemiluminescence for asymptomatic patients and molecular testing for symptomatic patients.

4 POTENTIAL CONFLICT OF INTEREST

I declare that there is no conflict of interest.

5 SOURCES OF FINANCING

The present study had no external sources of funding.

6 ACADEMIC CONNECTIONS

There is no connection between this study and graduate programs.

7 ETHICAL APPROVAL AND INFORMED CONSENT

This article does not contain studies with humans or animals carried out by any of the authors.

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