

International Travel-Related COVID-19 Infection and Outbreak from Wedding Ceremony: First Case in Turkey

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Abstract: The SARS-CoV-2 virus is a new and highly contagious respiratory virus that is mainly transmitted by air droplets. Here we reported the event in which the case that came to the wedding with a trip abroad led to SARS CoV-2 transmission and then an epidemic. Two index passenger groups include three families arriving in İstanbul from Paris to attend the wedding ceremony that infected Turkey with the COVID-19 infection. They were in close contact with about 350 people during and after the wedding ceremony. Clinically, the picture of COVID-19 infection was seen in 53 relatives. PCR positivity was found in 35 hospitalized cases. The infection spread to four cities in Turkey. The most frequent symptoms of 35 confirmed cases were dizziness (77%), fever (57.1%), joint and muscle pain (57.1%), loss of smell (45.7%), loss of taste (42.9%), sore throat (37.1%), dry cough (34.3%), diarrhea (25.7%), rhinorrhea (14.3%), and dyspnea (8.5%). The severity of 48 cases (90.5%) were mild-moderate. Severe pneumonia developed in five cases (9.4%), requiring intensive care and intubation, and four died (7.5%).

COVID-19 virus can be easily picked up during air travel and transmitted to other people through unprotected contact. The infection prevention rules should be strictly applied for the protection from disease. Persons should avoid attending meetings, even with their family or relatives, and should stay at home. The wedding and other social activities should be postponed until after the pandemic. © 2023 NTMS.

Keywords: Coronavirus; Travel; Wedding; Spread; Source.

1. Introduction

SARS-CoV-2 virus is a new and highly contagious respiratory virus from the coronavirus family. SARS-CoV-2 causes a wide range of diseases from asymptomatic diseases to severe fatal pneumonia characterized by ground-glass opacity. Multisystem involvement can also be seen in the infection 1.

Identified in January 2020, SARS-CoV-2 virus spreads rapidly and caused a pandemic in four months. The number of confirmed cases reached nearly 170 billion and death 3.5 billion in June 2021 ². All global regulations and social life have changed to prevent infection transmission. Some countries have banned or controlled international travel from endemic

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to non-endemic areas.

We report here that the source of the epidemic is due to international travel for the wedding ceremony.

Outbreak

First index cases (A) were members of a family [mother (A1), father (A2), and daughter (A3)], who came to Turkey from France to attend his relatives'

wedding on 7 March 2020. During the travel, the mother had conjunctivitis and the father had a sore throat. Daughter had no symptoms. Second index families (B and C) were 4 persons consisting of two couples (B1, B2, C1, C2), they arrived by plane from Paris on 8 March and attended the wedding ceremony in Istanbul the same night (Figure 1).

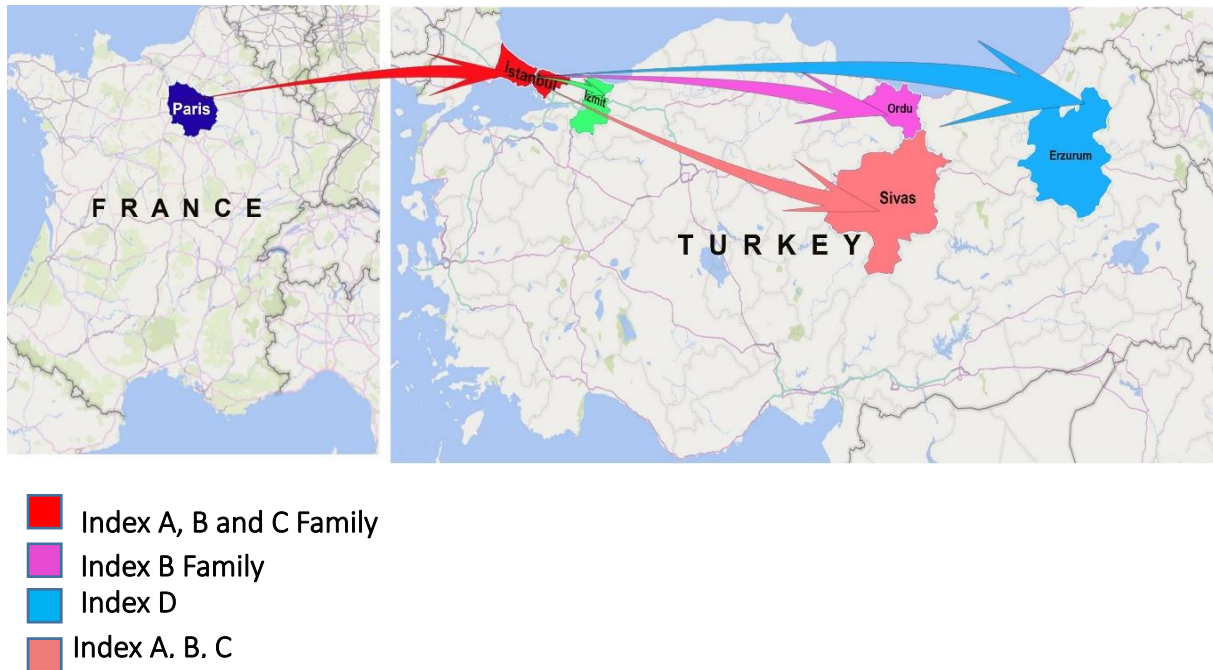


Figure 1: The travel map of index cases.

There were no complaints related to COVID-19. The index families and their relatives had close contact for hours, such as hugging, handshaking, dancing, and sharing the same environment in the wedding ceremony that 250 persons attended. At night, many relatives stayed at the same houses in a family apartment include three-floor, together with the index families (Figure 2).

Since there were no cases of COVID-19 in Turkey yet, they did not wear masks or follow social distancing. The next day vomiting started at index A1 and A2.

Turkish Public Health Department called B and C index families and said that there was a COVID-19 positive passenger on the plane departing from Paris and died, so they should be quarantined 14-days. But they did not comply with the isolation, and the next day, Index B family traveled to Sivas and Ordu cities of Anatolia (Figure 1 and 3).

Moreover, one another relative (index D) from Erzurum city was attended the same wedding ceremony and contacted them. Thus, the infection spread to four cities in Turkey (Figure 1).

There were approximately 350 people in contact with the A and B index cases during the wedding ceremony and subsequent travel period. In the following weeks, 53 relatives (8 children) became ill. 35 of them were diagnosed with COVID-19 with RT-PCR test positivity and were hospitalized. Other 18 persons in close contact had complaints but tested negative. They were probable COVID-19 infections.

Only one woman did not become ill, despite household contact (staying in the same home) who used traditional wearing “yaşmak” to cover her nose and mouth similar to mask.

There were 53 cases (26 females, 27 male) in this outbreak. The mean age was 51 years (range: 8-79).

Eight cases (15.0%) were children. Symptoms of confirmed cases showed in Table 1. The complaints of the patients were dizziness, fever, sore throat, dry cough, back and chest pain, myalgia, vomiting, diarrhea, loss of taste, and sense of smell (recovered in one-month period). Conjunctivitis was seen in two cases. Enuresis and sensory loss occurred in the legs in two cases but improved one month later. Forty-eight cases (90.5%) were mild-moderate. Five cases

(9.4%) had severe pneumonia, monitored and intubated in the intensive care unit. One of the intubated cases was the A1 index case, a 60-year-old woman with asthma. Another one was a 35-year-old woman, who has a breast cancer history and stayed at the same home with A1. Four cases (7.4%) died: A diabetic man (79), a man with chronic obstructive pulmonary disease (COPD) (63), a 70-year-old man, and a 70-year-old woman (Figure 3). Among intubated patients, only young women

recovered. Pericardial effusion, prolonged QT as a drug side effect, and arrhythmia were developed in an intubated young woman. Two weeks after discharge, she was hospitalized again with dyspnea and treated again with favipiravir, and hallucinations were detected during the last therapy period. In this case, cough continued for one month, similar to bronchial activation syndrome. All of the other cases improved after one month. In this outbreak, the secondary attack rate was estimated as 15%.

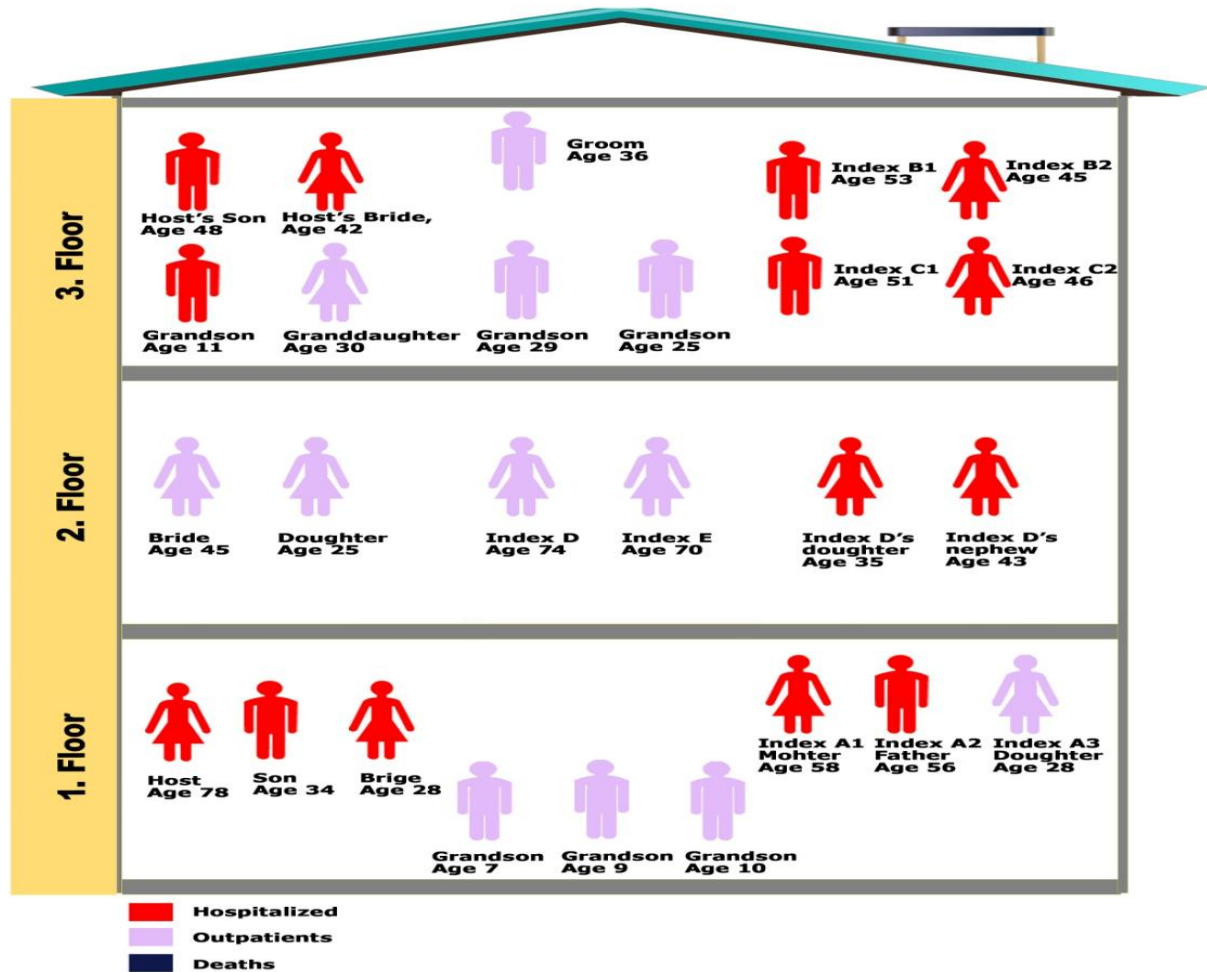


Figure 2: Household contact history of index cases in the family apartment in İstanbul after the wedding.

2. Discussion

Emerging infectious pathogens rapidly spread to distant areas by air travel such as the highly virulent respiratory pathogens SARS-CoV-1 and SARS-CoV-2. COVID-19 infection spread worldwide by international travelers and became a pandemic. International travel capacity has an important role in dispersing infection (3). Thus the travel restriction may have reduced the infection rate (4). In this study, we described COVID-19 infection due to international travel between countries, and passengers caused an outbreak in Turkey. They were probably one of the first patients in Turkey. Since they arrived before the COVID-19 cases were detected in

our country, they had unprotected contact with many people without taking any precautions. Turkey is one of the countries where the COVID-19 pandemic emerged later, due to the limited international travel, a strict 14-day quarantine was imposed for people returning to the country from international travel, regardless of the presence of COVID-19 symptoms. The Turkish authorities, to prevent COVID-19, banned all meetings and weddings, closure of schools, closure of workplaces and markets, etc. They quickly implemented such broad prevention policies. Public training and relevant guidelines were published for infection prevention rules such as social distancing,

hand washing, and mask use. But the index cases in our study came just before or at the beginning of these measures. The first cases have not yet been identified in our country. So they probably didn't follow the

isolation rules. Thus, they caused the start of the COVID-19 epidemic in four different cities of our country and the death of their close relatives.

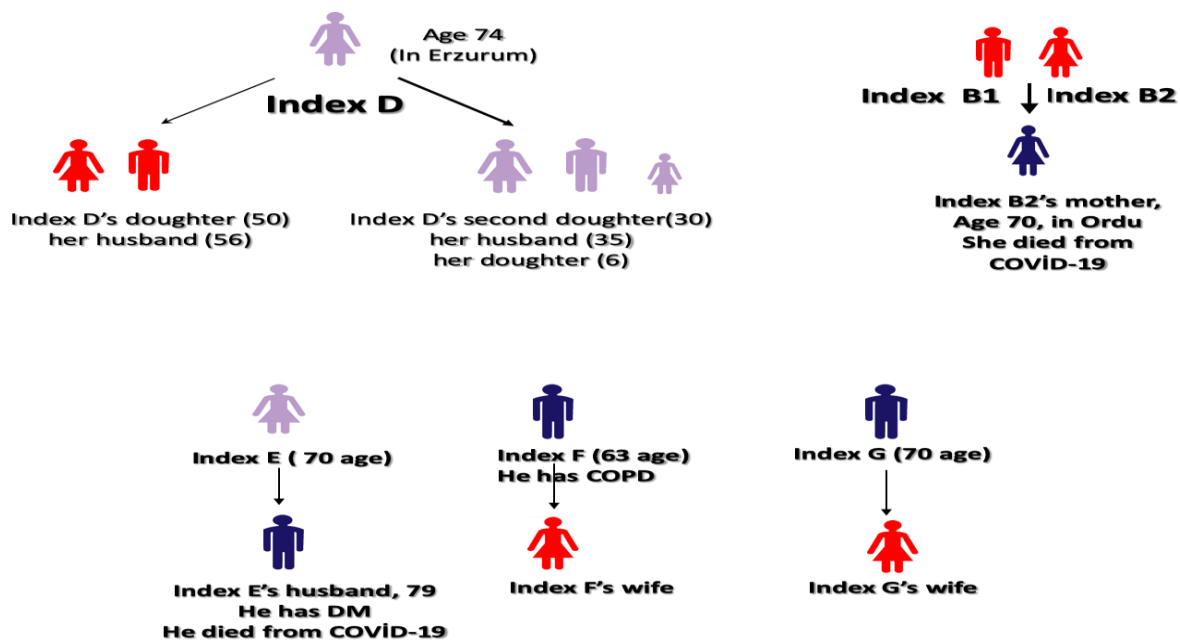


Figure 3: Persons contact with index cases at other cities.

Table 1: Table 1: Symptoms of COVID-19 cases.

Symptoms	Number (n=35)	Percent (%)
Dizziness	27	77.1
Fever	20	57.1
Myalgia	20	57,1
Joint Pain	20	57.1
Loss of Smell	16	45.7
Loss of Taste	15	42.9
Sore Throat	13	37.1
Dry Cough	12	34.3
Diarhea	9	25.7
Rhinorrhea	5	14.3
Dyspnea	3	8.5
Conjunctivitis	2	5.7
Sensory Loss in Legs	2	5.7
Enuresis	2	5.7
Hoarseness	1	2.8
Headache	1	2.8
Hemoptysis	1	2.8
Rash	1	2.8

This wedding ceremony took place before the official quarantine and prohibition. Since there were no cases in Turkey at the beginning of March, it was not necessary and/or obligatory to wear a mask and resort to social distance. All these measures were taken at a later period. So this wedding was one of the last meetings that caused an outbreak. But there were isolation rules for international travelers. The index had to be subject to travel bans and 14 days of isolation. In addition, due to the lack of fever at the

arrival, index cases were probably not detected by thermal cameras.

In this outbreak, index cases had symptoms of COVID-19 infection and relative warning to wear masks or apply social distancing rule. But they did not comply, because they considered their symptoms were not related to COVID-19 infection. Additionally, mask-wearing has not been a rule in that period, yet. Therefore, the infection was transmitted to many persons at weddings and later in household contact.

COVID-19 virus is transmitted through the large respiratory droplets, and both mask usage and distancing between persons are important for protection. Index cases should be quarantined themselves, wearing masks, apply social distancing, and make proper handwashing and environmental cleaning and disinfection.

The risk of secondary transmission of SARS CoV-2 is greater in closed and crowded areas ⁵.

It was reported that the number of flashes increased with the loudness of speech and singing ^{6,7}.

Analyzing high-precision laser light scattering, the authors found that it could linger through the air for minutes without speaking aloud, emitting thousands of oral liquid droplets per second ⁶. For this reason, index cases caused the spread of the virus to many unmasked people during the wedding held indoors. Therefore, in closed areas, precautions should be applied to protect SARS CoV-2 transmission ⁷.

The secondary attack rate (SAR) has been estimated as 0.55%-35% in COVID-19 infection ⁸⁻¹¹. Liu et al. reported SAR was 35% in present close contact ⁹. Li et al. all detected SAR was 4% in children and 17% in adults ⁸. It was reported that SAR-related index cases were reported as 0% when index case applies self-quarantine versus as 16.9% if not applied. Additionally, SAR was found to be higher in between spouses (27.8%) than others (17.3%) ⁸. It was reported that males' SAR rate is higher than females ⁹. In the same study, the SAR rate of households was found as 7.5% and it was reported more than work or health care worker contact ⁹.

Symptomatic durations were found as important in the transmission of COVID-19 infection, and first 5 days reported more contagious and high attack rate than later period ¹². In another study, SAR in close contact was found 17-18% with a short incubation period and a very high rate (46%) in family members ¹³. In this outbreak, SAR was calculated as 15.1%. Index cases may be superspreaders. Superspreaders were described during SARS, MERS, and COVID-19 infection. Superspreaders were estimated to have higher viral load and usually in asymptomatic persons or immunosuppression. Another explanation is super spreaders have extensive social interaction ¹⁴. In this outbreak, index cases had close contact with many relatives, living in four different cities. So, they were super spreaders with extensive social interaction.

Recently, an outbreak includes 16 people whose confirmed and probable cases with three deaths, reported from Chicago-Illinois after a funeral and a birthday party ¹⁵. Similarly, after a funeral, 43 new COVID-19 cases were reported in the city of Erzurum. Persons from various cities had attended a funeral and in the subsequent weeks, new cases in the village were admitted to hospitals in the city center (unpublished data) ¹⁶.

SARS CoV-2 infection is a real risk during travel and is a travel-related infection. COVID-19 infection risk in found 4.5-60.2% in a 2-hour airplane trip without

the mask. Infection risk in plain travel without mask found between 4.5- 60.2% in 2-hour flying, and it is estimated to increase 24.1-99.6% in 12-hour flying. If all persons wear masks the risk is reduced by 73% for high efficiency and 32% for low- efficiency masks. Removing masks during food service increases the risk of infection ¹⁷. It was shown that cross-border travel restrictions during the pandemic provide a reduction of cases number between 26% to 90%, the deaths number, the time to outbreak, and the effective reproduction number ¹⁸. Protection rules should be strictly implemented and enforced during airlines and in other travels. Risk assessment for travel health is essential. Many factors contribute to the passenger's health risk. Therefore, a multifaceted approach is needed to prevent the transmission of the disease ¹⁹. Therefore, pre-flight screening, mask-wearing, social distance, hand disinfection, and disinfection of frequently touched surfaces should be applied. Infection transmission is high during eating and drinking; this activity should be prohibited on short trips. Time without a mask on long journeys should be minimized when eating ²⁰. Passenger movements should also be limited. Recently, some countries have added vaccine cards to these measures on international travel ²¹.

3. Conclusions

In conclusion, the COVID-19 virus can be easily picked up during air travel and transmitted to other persons with unprotected household contact. Additionally, persons understood the importance of travel restriction, social distancing, and the usage of masks to prevent transmission of COVID-19. The infection prevention rules should be strictly applied for the protection from disease. Persons should avoid meetings, even with their family or relatives, and should stay at home. Quarantine of index cases is important to prevent disease transmission. All recommendations released by international or governmental health departments should be strictly applied.

Limitations of the Study

The most important limitation of the study is that the data is obtained from verbal data by talking to the patients.

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Conflict of Interests

The authors declared no conflict of interest.

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Author Contributions

ECT and ZO designed the research. ECT participated in data collection and data analysis. ECT and ZO wrote the manuscript, read and approved the final script.

Ethical Approval

Ethical permission was obtained from the Atatürk University Medical Faculty Clinical Research Ethics

Committee for this study (Date: 17.12.2020 Number: 10/15). The work is carried out in accordance with the rules of the Helsinki Declaration.

Informed Consent

Informed consent was obtained from all patients.

Availability of Data and Materials

All data of the study are contained in the article.

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