Successful Confinement of a Familial Cluster of COVID-19 in Qingdao, China, in the Early Phase of Pandemic

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From January 26, 2020 to February 3, 2020, a total of 7 confirmed cases and 2 asymptomatic infected persons were reported in Qingdao, China. These cases had no history of sojourning in Hubei Province, contact with animals, visits to markets, or eating game meat.

On January 19, 2020, patient 1, the initial case, returned to Qingdao from Kunming by air, a flight on which there were 2 persons from Wuhan City with fever. She developed fever, cough, and weakness on January 21, 2020. She went to an outpatient clinic near her community and was treated with intravenous cefazolin from January 23 to 24. Due to persistent symptoms, she was admitted to hospital on January 25, 2020, and diagnosed as a suspected case. The throat swab tested positive for coronavirus disease 2019 (COVID-19) by reverse transcriptase polymerase chain reaction (RT-PCR) on January 26, 2020.

Patient 2 lived together with her mother (patient 1), and the older daughter of patient 1 (patient 4) lived in the same community. Patient 1 had gone to the house of patient 4 many times since she returned to Qingdao. On January 20, patient 1 had lunch in her father’s house, which was in another community, with her father, sister, niece (asymptomatic infected person, patient 9), and granddaughter (patient 5). In the evening, the 2 daughters (patients 4 and 2), son-in-law (patient 3, husband of patient 4), grandson, and granddaughter (patient 5) had supper with patient 1 in the house of patient 4. Patient 3 and 4 took their children back to their parents’ home for the Spring Festival on January 23. The family visited their aunt (patient 6) and uncle-in-law (asymptomatic infected person, patient 8) on the evening of January 23. None wore surgical masks during the entire visit.

On January 25, 2020, patient 1 had fever, cough, and weakness. She went to a community hospital and was admitted to hospital on January 26. She was diagnosed as a confirmed case of COVID-19 on January 27, 2020.

As shown in our study, it was crucial to detect and isolate cases and trace and quarantine close contacts as early as possible, which was particularly important when PCR results were delayed. The timely detection and isolation of cases and their close contacts could effectively prevent further spread of the epidemic. Our study had limitations. First, we only tested samples from patients. Samples from the environment were not obtained. Second, the isolated virus was not sequenced, and the homology analysis was not performed.

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References

