Clinical and Imaging Characteristics of Two COVID-19 Cluster Infections in Beijing, China: A Retrospective Study

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Research article

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Abstract

Background: As a new infectious disease, coronavirus disease 2019 (COVID-19) is not fully understood. During January - July 2020, there were two clusters infections in Beijing, China. This study was to analyze the features of the two COVID-19 infections in Beijing.

Methods: In this retrospective single-center study, 89 cases with the positive novel coronavirus nucleic acid test were collected from January to July 2020 in Beijing. They were divided into January-March group and June-July group. Two groups of data were compared.

Results: The eighty-nine cases, 47 males and 42 females, mean age (41±14 years), were used for our study. The most common symptoms were fever (46/89, 52%) and cough (34/89, 38%). The clinical classification were moderate type (56/89,63%), mild type (24/89, 27%), severe type (4/89, 4%), critical type (0), respectively. Ground glass opacity (GGO) (47%) was the majority CT pattern. The frequency of involvement of lower lobe was higher than that of upper lobe (P<0.01). In January - March group, there were 5 patients (18%) exposure to Wuhan, 15 patients (54%) family clusters, 5 patients (18%) colleague clusters, 3 patients (11%) imported cases. In June-July group, 41 patients (68%) had an exposure to Xinfadi market of Beijing, 6 patients (10%) family clusters, and 14 patients (23%) colleague clusters. The number of patients with fever, cough, chest CT severity score and the number of lesion lung lobes in January-March group was higher than that in June-July group (P<0.05).

Conclusions: Two COVID-19 clusters were dominated moderate and mild type, but few severe types. Patients in June-July group had less symptoms, imaging and family clusters than that in January-March group. This suggested that closely monitoring, early quarantined, nucleic acid test of COVID-19 and chest CT were important measures to prevent epidemic.

Background

Coronavirus disease 2019, as a new infectious disease, has become a global epidemic and serious threat to public health. At present, there are more than 10 million confirmed cases in the world. On February 11, 2020, WHO named COVID-19 pneumonia.

There were two cluster infections of COVID-19 in some areas of Beijing in January - March 2020 and June-July 2020，respectively. The first cluster transmission was linked to Wuhan, China. The second transmission in June was closely related to Xinfadi, Beijing's major wholesale market. After the cluster infection in June, Beijing closed this market and began nucleic acid testing of COVID-19 to all people who came in contact with Xinfadi agricultural wholesale market. The virus was soon isolated and genome sequencing showed that this coronavirus in Beijing was different from the novel coronavirus gene sequence that broke out in Wuhan. The virus belonged to the novel coronavirus L genotype, a branch of the European family I.

The purpose of this study was to compare the epidemiological, clinical and imaging characteristics of the two COVID-19 cluster infections in Beijing.

Methods

Study design and participants

In this retrospective single-center study, 89 cases with the positive novel coronavirus nucleic acid test were collected from January-July 2020 in some areas of Beijing, China. All subjects underwent lung high-resolution computer tomography (HRCT) of chest examination. Other causes of pneumonia were ruled out. They were divided into the January-March group and the June-July group. The epidemiological, clinical and imaging data were collected and analyzed. The definition of disease severity was based on the Chinese guideline for the management of COVID-19 [1]. According to the guidelines, patients were classified into mild, moderate, severe and critical types. Mild type was defined as clinical symptoms mild without manifestations of pneumonia. Moderate type was defined as having clinical symptoms such as fever, cough and imaging findings of pneumonia. Severe type should meet one of three criteria: 1) dyspnea, respiratory rate greater than 30 times/min; 2) Oxygen saturation less than 93% in ambient air; 3) arterial oxygen tension (PaO_2) over inspiratory oxygen fraction (FiO_2) of less than 300mmHg. Critical type should meet one of three criteria: 1) Respiratory failure and the need for mechanical ventilation; 2) Shock; 3) Multiple organ failure.

Chest CT interpretation

All subjects underwent lung HRCT of chest examination. Scanning was performed on MDCT units (128-MDCT, 256-MDCT, GE Healthcare) using a high-spatial-frequency reconstruction algorithm with a 1.25 mm section thickness and 1.25-mm gap. The subjects were scanned in a supine position during breath-holding at full inspiration and at maximal expiration. The images were photographed at conventional lung

window settings(window level,–600 Hu; window width, 1,000–1,500 Hu). All CT images were evaluated by three radiologists with more than 10 years of experience.

The chest CT score was defined by the summation of individual scores from 5 lung lobes: scores of 0, 1, 2, 3 and 4 were assessed, respectively. Each of lobe if pulmonary involvement was 0%, 1% - 25%, 26 %- 50%, 51% - 75%, or 76% - 100% of each region. An overall lung “total severity score” was reached by summing the five lobe scores (range of possible scores, 0 - 20). CT imaging was classified into six groups: GGO, consolidation, GGO/consolidation (mixed), reverse halo sign, crazy-paving and fiber cord shadow. Distribution of lung lesions was grouped into four categories: peripheral, peribronchovascular, peripheral/peribronchovascular and perihilar. In addition, according to morphology, lung opacifications fell into five different categories: round, linear, triangle, banding and non-specific opacities. Other CT findings such as cavity, nodule, pleural effusion, pericardial effusion and lymphadenopathy >10mm were also recorded.

Statistical analysis

Data are expressed as mean ± standard deviation (SD) when data were normally distributed. Chi-square test or Fisher’s exact test was used for categorical variables. The differences of parametric and non-parametric data were compared between groups by using the independent samples T-test and Mann-Whitney U test, respectively. All statistical analyses were performed by using the SPSS 11.5 for windows (SPSS Inc., USA). *P*-values less than 0.05 were considered statistically significant.

Results

Clinical and laboratory findings

The demographic and clinical characteristics results of 89 patients are demonstrated in Table 1.

The eighty-nine cases, 47 males and 42 females, with ages ranging from 9 to 89 years, mean age (41±14 years), were used for our study. The most common symptoms were fever (46/89, 52%) and cough (34/89, 38%). There were other symptoms included fatigue, headache, sore throat, etc. Five patients were asymptomatic identification of suspected cases. Twenty-four patients had one or more of the following comorbidities: hypertension (10/89, 11%), diabetes (6/89,7%), Hyperlipemia (4/89, 4%) and chronic pulmonary disease (4/ 89, 4 %; Table 1). Most of cases had a normal white blood cell count (45/89,75%) and neutrophil count ((45/89,75%). The lymphocyte count was low (18/89,20%), or normal (68/89,76%). C-reactive protein level was elevated in 31/89 cases (35%). The age distribution was mostly among 18 - 50 years. Comparison of general data of patients with two cluster infections COVID-19 showed a difference in age distribution between the two groups ($\chi^2 = 11.437$; $P = 0.043$; Figure 1). The number of patients with fever and cough in January-March group was higher than that in June-July group, while the number of patients with nasal congestion and runny nose the former was lower than that the latter. There was no statistical difference in gender and comorbidities（P ＞0.05）. (Table 1)

The eighty-nine cases of clinical classification were moderate type（56/89,63%）, mild type (24/89, 27%）, severe type（4/89，4%）, critical type（0）respectively. In January-March, there were moderate type (17/28, 61%), mild type (8/28, 29%), severe type (3/28, 11%), critical type (0), respectively. In June-July group, there were moderate type (39/61,64%), mild type (16/61, 26%), severe type (1/61，2%), critical type (0), respectively. Both groups were dominated by moderate type, followed by mild type and severe type. There was no statistical difference between the two groups（$\chi^2=5.882$，$P=0.117$）（P ＞0.05）.

Epidemiological history

The first cluster transmission was linked to Wuhan, China. The second cluster transmission in June was closely related to Xinfadi, Beijing’s major wholesale market. The first cluster infection, 5 patients (18%) had an exposure to individuals from Wuhan. 3 patients (11%) were imported cases. 15 patients (54%) were family clusters related to Wuhan. The remaining 5 patients (18%) had colleague cluster cases related to Wuhan. The second cluster infection, 41 patients (68%) had an exposure to Xinfadi agricultural wholesale market. 14 patients (23%) had an history of contact with the colleagues who had related to Xinfadi agricultural wholesale market and 6 patients (10%) family clusters related to Xinfadi agricultural wholesale market. Comparison of two groups showed that family clusters of cases in January – March were more than in June-July（$\chi^2 = 69.125$，P＜0.01）.

CT images analysis

There were statistically significant differences in the frequency of pulmonary involvement（$\chi^2 = 20.636$, P＜0.01）. The frequency of involvement of right upper lobe was lower than that of right lower lobe and left lower lobe（$\chi^2 = 9.329$， P=0.002，$\chi^2 = 4.72$， P=0.03），respectively. The involvement frequency of the right middle lobe was lower than that of the right lower lobe and the left lower lobe（$\chi^2 = 14.959$， P＜0.01，$\chi^2 = 9.004$， P=0.003）. The frequency of involvement of the left upper lobe was lower than that of the right lower lobe（$\chi^2 =$

6.659, *P*=0.01Table 2. The frequency of involvement of lower lobe of both lungs was higher than that of upper lobe and middle lobe, showing statistical difference*P*0.01. The chest CT severity score and the number of lesion lung lobes in June-July group were milder than that in January-March groupZ=-2.118, *P*=0.034Table 2. The most common chest CT pattern was GGO, especially in early stage, followed by crazy-paving, GGO/ consolidationmixed and consolidation. Distribution of lung lesions was mainly in peripheral lungs. Round and triangle were common morphology of lung opacifications.

Discussion

COVID-19 is an emerging infectious disease caused by 2019 novel coronavirus (2019-nCoV), with pulmonary inflammation as a prominent manifestation. It spread rapidly in the world. There were two cluster infections of COVID-19 in some areas of Beijing in January-March 2020 and June-July 2020, respectively. Similarities of clinical classification in two clusters were dominated moderate and mild type, but few severe types. The male to female ratio was 1.1:1. The most common symptoms were fever and cough. Twenty-seven percent patients had one or more of comorbidities. Ground glass opacity, lower lobe involvement and peripheral distribution were all the chest computed tomography features of COVID-19. Comparison of two groups, it was showed that patients in June-July group had milder symptoms and imaging than that in January-March group. In addition, family clusters of cases in the former were less than in the latter.

As a new infectious disease, COVID-19 needs to be recognized gradually. The influence of gender and age on the disease was inconsistent with the results reported in different studies. Some early research reports of gender and age showed that old people and men were more likely to be infected novel coronavirus, and old people with comorbidities were more likely to develop into severe cases with high mortality [2-5]. Howeveran analysis of 44,672 confirmed cases in Wuhan showed that 51.4 % of the patients were male, with a similar ratio of male to female[6]. In this paper, 44% of the patients were aged between 20 and 50 years old, and 42% were aged between 50 and 70 years old. In our study, 69% of the patients were between 20 and 50 years old, and 26% were between 50 and 70 years old, which was younger than that reported in the literature. In addition, according to the official data of China Center for Diseases Prevention and Control (CDC), as of July 6, a total of 366 cases (335 confirmed cases and 31 asymptomatic infected cases) have been reported in Beijing. The male to female ratio is 1.2:1. The median age is 43 years old. There were moderate type74.6%, mild type (15.0%, 2 severe type cases, 4 critical type cases. The proportion of severely and critically patients was significantly lower than those patients between January and March this year. These were consistent with our results. The most common symptoms of COVID-19 were fever and cough. However, the proportion of patients with fever and cough in our study was lower than other reports [3,5,7,8], especially in the June-July group. According to previous literature [3,5,7,8], there were fever (86%~100%) and cough (47%~77%). In our study, fever and cough were 52% and 38%, respectively. On the one hand, it was due to different from the research subjects. On the other hand, it was related to disease course and disease severity. Because severe cases and old people in our study were rare, we did not see the similar results.

Chest HRCT was a key way in diagnostic of COVID-19. The most common chest CT pattern was GGO in early stage of COVID-19. consolidation indicated disease progression [7,8]. According to guidelines[9], four phases were divided: 1) Early stage: ground-glass opacity (Fig. 2), GGO, which was mostly confined and scattered in the lower and middle lungs, mainly under the pleura. 2)Progressive stage (Fig. 3): GGO range expanded, density of lung opacities increasing, multiple lesions, multi-lung segment fusion accompanied by consolidation, especially in both peripheral lungs. 3) Severe stage: diffuse and extensive lung density was further increased, mainly with consolidation (white lung), which progressed rapidly. The density shadow of the original lesion was increased by more than 50% within 48 hours. 4) Absorption stage (Fig. 4): The inflammation will be absorbed and the extent will be minimized. The disease will improve, perhaps leaving the lung fiber cord focus. In our study, four phases were early stage (65%), progressive stage (27%), severe stage (3%), absorption stage (5%), respectively. Previous literature [8,10,11] evaluated the severity of pulmonary involvement by CT score, and the higher the score, the more severe the pulmonary lesion. The frequency of involvement of lower lobe of both lungs was higher than that of upper lobe. Distribution of lung lesions was mainly in peripheral lungs. These were in accordance with others studies. It was worth noting that some patients with no symptoms had abnormal chest imaging [8]. A similar phenomenon was found in our study. This suggests that early imaging examination was important to suspected patients.

Compare the different characteristics of COVID-19 between January-March group and June-July group, the clinical symptoms of the latter were obviously milder than the former. In addition, the chest CT severity score and the number of lesion lung lobes in the latter were also less than in the former. But, family clusters of cases in the former were more than in the latter. There are several possible reasons. 1) People tend to gather at the beginning of this year. During the Spring Festival in January- February, as the biggest traditional Chinese festival, the people tended to be densely populated. This condition easily led to the spread of diseases among families. 2In the early stages of a new infectious disease, there was a lack of awareness about this disease. From January to March, the first cluster infection of the disease began, patients did not come to the hospital until they developed significant symptoms. The number of patients in January-March was more symptoms than that in June-July. 3Effective measures were taken early in the second cluster infection. Since June 11, 2020 Beijing has seen its second cluster infection. A series of measures to prevent transmission disease were taken immediately. For example, the market was immediately

closed, contact people were quarantined, and nucleic acid testing was strengthened. As a result, the disease was effectively controlled in early stage. 4The genetic sequence of the infected virus was also different in two cluster infections.

The present study has some sort of limitations. Firstly, the sample size was small. Larger prospective studies among different populations are needed to do. Secondly, there was lack of severe infection cases. Therefore, data on severely ill patients were insufficient. Thirdly, there was lack of information on patient treatment and outcomes. As confirmed patients were all transferred to designated hospitals for treatment. This leads to incomplete information about the treatment process and the final outcome of the patient, unable to fully grasp the entire development process of the disease.

Conclusions

Two COVID-19 clusters were dominated moderate and mild type, but few severe types. Symptoms and chest CT of patients in June-July group were milder than that in January-March group. Therefore, closely monitoring, early quarantined, nucleic acid test of COVID-19 and chest CT examination were important measures to prevent epidemic.

Abbreviations

CDC= Center for Diseases Prevention and Control

COVID-19= Coronavirus disease 2019

GGO = Ground glass opacity

HRCT = High-resolution computed tomography

nCoV = Novel coronavirus

WHO= World health organization

Declarations

Ethics approval and consent to participate

Approval for this study was obtained from the ethics committee of Daxing Teaching Hospital of Capital Medical University.

All participants provided informed verbal consent. The consent obtained was verbal because of the infectivity and the exploration urgency of COVID-19.

Consent for publication

Not applicable.

Availability of data and materials

All data generated or analyzed during this study are included in this published article. The datasets used during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors have no funding and conflicts of interest to disclose.

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None.

Authors' contributions

Ying Zhao was responsible for the conception, design of this study and took part in collection data and drafting the manuscript.

Jingbo Du participated in the collection, analysis and interpretation of imaging data.

Qi Leng and Zhenwu Li were involved in the analysis of the image data.

All authors read and approved the final manuscript.

Acknowledgements

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References

1. National Health Commission of the People's Republic of China. Chinese guideline for the management covid-19 (version 6.0, in Chinese) http://www.nhc.gov.cn/yzygj/s7653p/202002/8334a8326dd94d329df351d7da8aefc2/files/b218cfeb1bc54639af227f922bf6b817.pdf.
2. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu y, Zhang L, Fan G, Xu J, Gu X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020;395(10223): 497–506.
3. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, Qiu Y, Wang J, Liu Y, Wei Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. Lancet. 2020; 395(10223): 507–513.
4. Yang X, Yu Y, Xu J, Shu H, Xia J, Liu H, Wu Y, Zhang L, Yu Z, Fang M, et al. Clinical course and outcomes of critically ill patients with SARS-COV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. Lancet Respir Med. 2020; 8(5):475-481.
5. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, Ren R, Leung KSM, Lau EHY, Wong JY, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. N Engl J Med. 2020; 382(13):1199-1207
6. Epidemiology working group for NCIP epidemic response, Chinese center for disease control and prevention. The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China. Chin J Epidemiol 2020;41(2):145-151
7. Song F, Shi N, Shan F, Zhang F, Shen J, Lu H, Ling Y, Jiang Y, Shi Y. Emerging coronavirus 2019-nCoV pneumonia. Radiology.2020; 295(1): 210-217.
8. Zhang L, Kong X, Li X, Zhu J, Liu S, Li W, Xu C, Du H, Jing H, Xu J, et al. CT imaging features of 34 patients infected with COVID-19. Clinical Imaging. 2020; https://doi.org/10.1016/j.clinimag. 05.016
9. Radiology Committee on Infectious and Inflammatory Disease, Chinese Research Hospital Association; Radiology of Infection Branch, Working and Treating Committee of HIV/AIDS and STD Association; Radiology of Infection Sub-branch, Radiology Branch, Chinese Medical Association; Committee on Radiology of Infection, Radiologist Branch, Chinese Medical Doctor Association; Radiology of Infectious Disease Management Sub-branch, Infectious Disease Management Branch , Hospital Management Association in China; Infectious Disease Group, General Radiology Equipment Committee, China Association of Medical Equipment; Beijing Imaging Diagnosis and Treatment Technology Innovation Alliance. Guideline for medical imaging in auxiliary diagnosis of coronavirus disease 2019[Chin J Med Imaging Technol. 2020; 36:321-331]
10. Chung M, Bernheim A, Mei X, Zhang N, Huang M, Zeng X, Cui J, Xu W, Yang Y, Fayad ZA, et al. CT imaging features of 2019 novel coronavirus (2019-nCoV). Radiology. 2020; 295(1):202-207.
11. Yang W, Cao Q, Qin L, Wang X, Cheng Z, Pan A, Dai J, Sun Q, Zhao F, Qu J, et al. Clinical characteristics and imaging manifestations of the 2019 novel coronavirus disease (COVID-19): A multi-center study in Wenzhou city, Zhejiang, China. J Infect.2020; 80(4):388-393

Tables

Table 1:
Demographics and baseline characteristics of patients infected with COVID-19

Characteristics	All cases(n=89)	Jan.-Mar.(n=28)	Jun.-Jul. (n=61)	*P* value
Age, years	40.7±14.3	42.7±16.9	39.8±13.0	0.378
gender	-	-	-	0.922
men	47(53%)	15(54%)	32(52%)	-
women	42(47%)	13(46%)	29(48%)	-
Any comorbidity	24(27%)	5(18%)	19(31%)	0.19
Hypertension	10(11%)	4(14%)	6(10%)	0.537
Diabetes	6(7%)	2(7%)	4(7%)	0.919
Hyperlipemia	4(4%)	1(4%)	3(5%)	0.776
Asthma	2(2%)	1(4%)	1(2%)	0.568
Chronic obstructive pulmonary disease	2(2%)	1(4%)	1(2%)	0.568
Cardiovascular disease	2(2%)	1(4%)	1(2%)	0.568
Rheumatoid arthritis	1(1%)	1(4%)	0	0.138
Anemia	2(2%)	0	2(3%)	0.332
Allergic rhinitis	1(1%)	0	1(2%)	0.496
Hepatitis	1(1%)	0	1(2%)	0.496
Signs any symptoms				
Fever	46(52%)	20(71%)	26(43%)	0.012
Height temperature, ℃	-	-	-	0.469
37.3	1(1%)	0	1(2%)	-
37.3-38.0	27(30%)	14(23%)	13(21%)	-
38.0-39.0	14(16%)	3(11%)	11(18%)	-
39.0	4(4%)	3(11%)	1(2%)	-
Cough	34(38%)	17(61%)	17(28%)	0.003
Sore throat	22(25%)	8(29%)	14(23%)	0.568
Fatigue	18(20%)	7(25%)	11(18%)	0.447
Nasal congestion	13(15%)	0	13(21%)	0.008
Runny nose	8(9%)	0	8(13%)	0.045
Hyposmia	1(1%)	1(4%)	0	1.138
Headache	7(8%)	3(11%)	4(7%)	0.499
Diarrhoea	6(7%)	2(7%)	4(7%)	0.919
Dyspnoea	5(6%)	3(11%)	2(3%)	0.157
Nausea and vomit	1(1%)	0	1(2%)	0.496
No Obvious Symptoms	5(6%)	0	5(8%)	0.119

COVID-19, coronavirus disease 2019.

Data are expressed as mean ± SD and n (%).

Table 2:
Chest computed tomography results of patients

	Total	Jan.-Mar.	Jun. - Jul.	*P*-value
Total CT scan	89	26	63	
Frequency of lobe involvement				
Left upper lobe	29□33%□	12 (46%)	17□27%□	0.079
Left lower lobe	40□45%□	16 (62%)	24 □38%□	0.043
Right upper lobe	26□29%□	12 (46%)	14□22%□	0.024
Right Middle lobe	21□24%□	10 (38%)	11 □17%□	0.034
Right lower lobe	46□52%□	16 (62%)	30□48%□	0.232
Total CT severity score				
Mean	1.0□0,5.0□	2.5□0.75,7.5□	1.0□0, 3.0□	0.034
Range	0-17	0-17	0-15	
Number of lobes affected				
0	31□35%□	6□23%□	23□37%□	0.219
1	21□24%□	4 (15%)	17□27%□	0.241
2	11 □12%□	2 (8%)	9 □14%□	0.39
3	5□6%□	2 (8%)	3 □5%□	0.585
4	5□6%□	2 (8%)	3 □5%□	0.585
5	18□20%□	10 (38%)	8 □13%□	0.006
Predominant CT pattern				
GGO	42□47%□	14 (54%)	28□44%□	0.419
Consolidation	11□12%□	5 (19%)	6 □10%□	0.206
GGO/Consolidation□mixed□	23□26%□	7 (27%)	16 □25%□	0.881
Crazy-paving	30□34%□	10 (38%)	20 □32%□	0.542
Reverse halo sign	3 □3%□	1 (4%)	2 □3%□	0.873
Fiber cord shadow	14□16%□	8 (31%)	6□10%□	0.012
Distribution of lung lesions				
Peripheral	57□64%□	19 (73%)	38□60%□	0.254
Peribronchovascular	22□25%□	6 (23%)	16□25%□	0.818
Peripheral and Peribronchovascular	19□21%□	5 (19%)	14□22%□	0.754
Perihilar	0□0□	0 (0)	0□0□	
Morphology of lung opacifications				
Round	32 □36%□	10 (38%)	22 □35%□	0.714
Linear	11 □13%□	8 (31%)	3 □5%□	0.001
Triangle	44 □49%□	15 (58%)	29 □46%□	0.317
Banding	16□18%□	8 (31%)	8 □13%□	0.044
Non-specific	6□7%□	2 (8%)	4 □6%□	0.818
Other findings				
Cavitation	0	0	0	

Discrete pulmonary nodules	0	0	0	
Pleural effusion	1□1%□	1(4%)	0	0.117
Lymphadenopathy	0	0	0	
Pulmonary emphysema	0	0	0	
Pulmonary fibrosis	0	0	0	

CT, computed tomography; GGO, ground glass opacity.

Data are represented as n (%) and *M* (*P*25, *P*75).

Figures

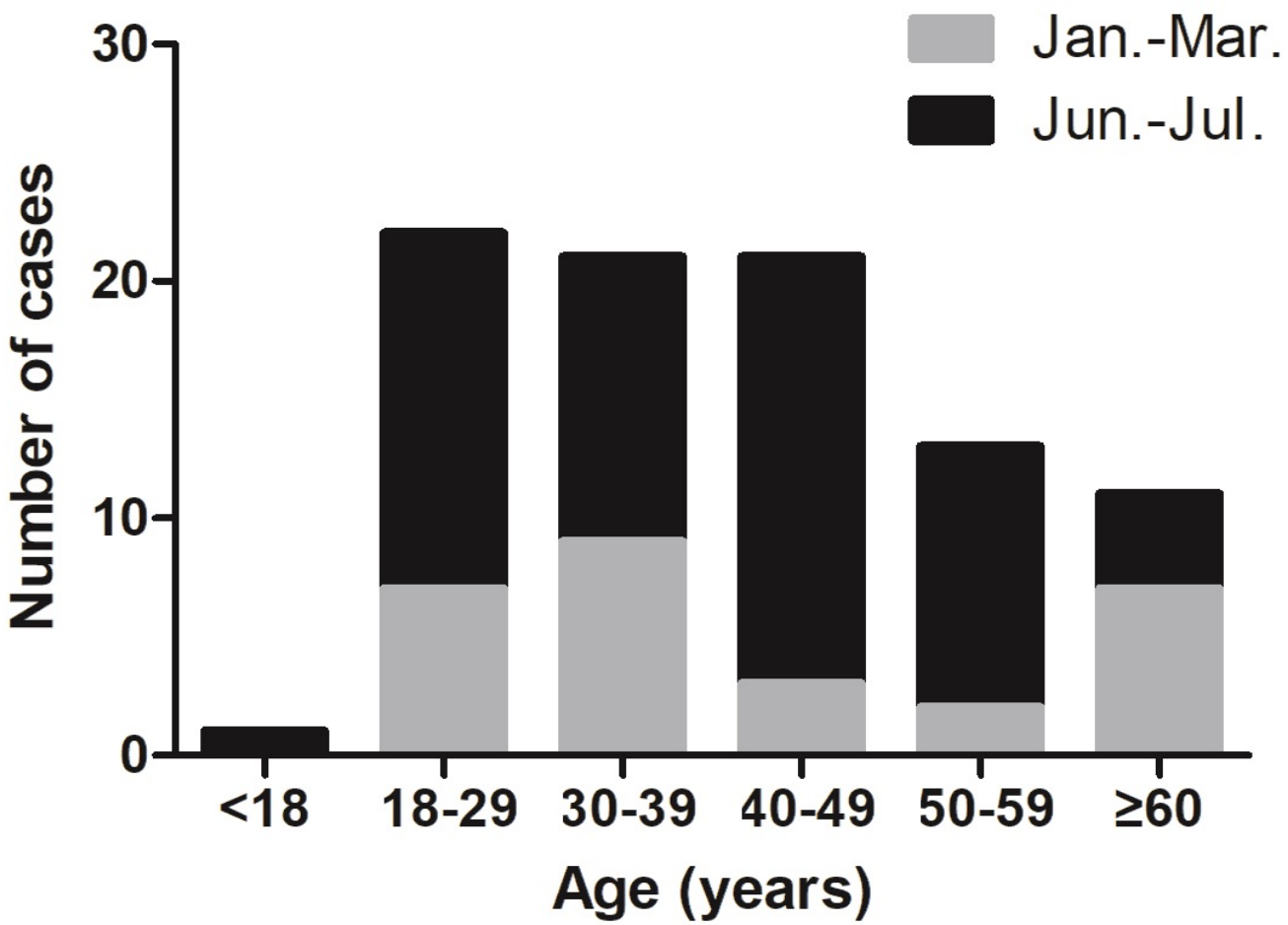

Figure 1

Data of age distribution of patients infected with COVID-19.

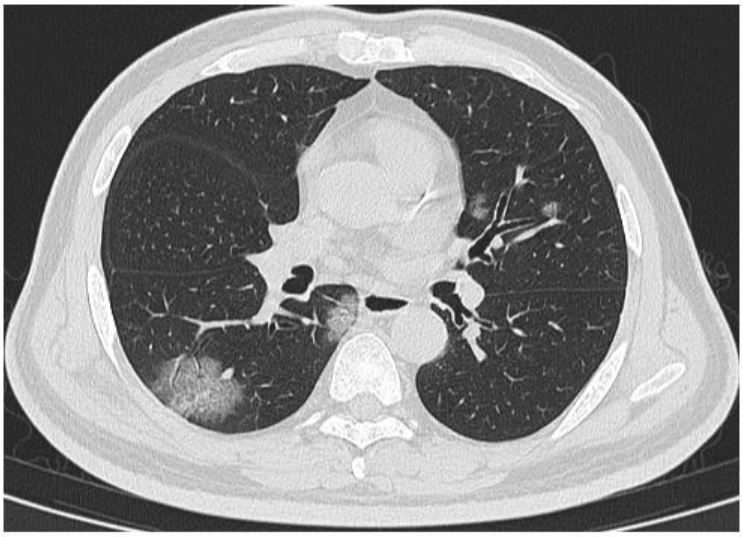

Figure 2

Transverse chest CT shows multifocal ground-glass opacities in the right lower lobe and the left upper lobe.

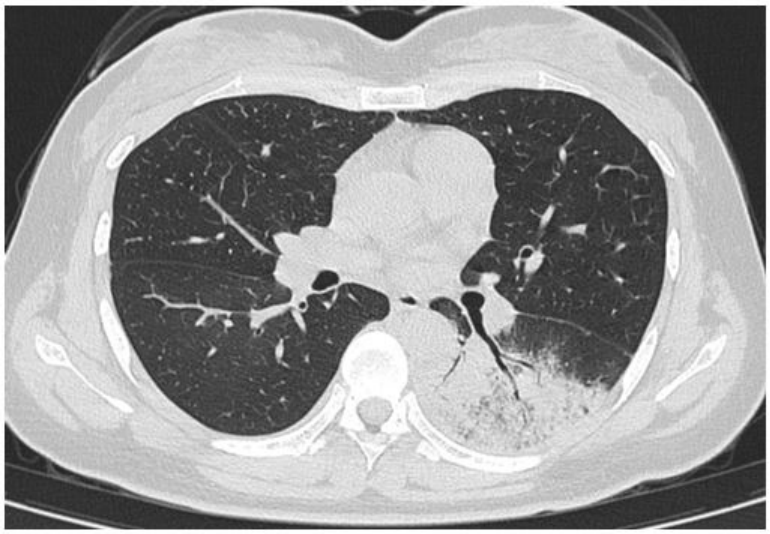

Figure 3

Subpleural consolidation was seen in the left lower lobe.

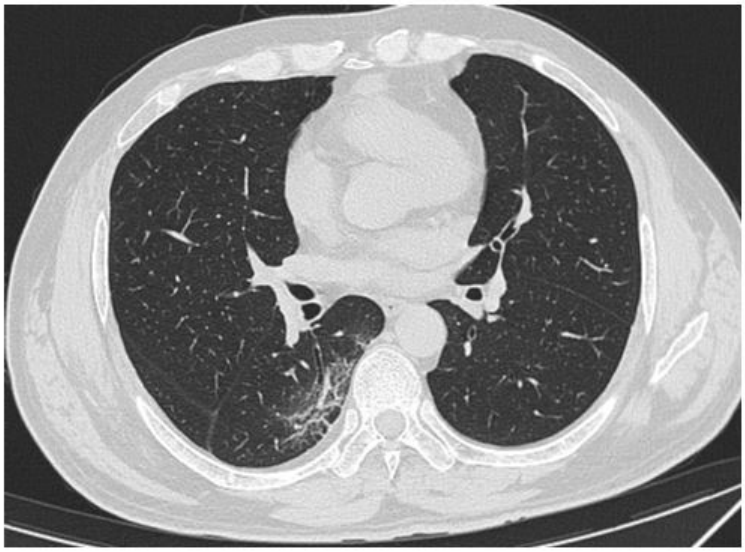

Figure 4

Transverse chest CT shows lesions absorption and leaving the lung fiber cord in right lower lobe.