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Short Communication

A case of COVID-19 and pneumonia returning from Macau in Taiwan: Clinical course and anti-SARS-CoV-2 IgG dynamic



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Abstract A 46-year-old woman presented to the emergency department with 2-day fever and cough at seven days after returning from Macau. COVID-19 and pneumonia was diagnosed based on the positive real-time RT-PCR tests for oropharyngeal swab samples and the presence of anti-SARS-CoV-2 IgG starting from the illness day 11 and post-exposure 18–21 days.

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and middle lung fields (Fig. 1A). The patient received empiric oseltamivir and levofloxacin therapy for pneumonia. Throat swabs were negative for influenza virus A and B using polymerase chain reaction (PCR) method. SARS-CoV-2 was detected in a throat swab sample by real-time reverse-transcription PCR (RT-PCR) for E/RdRp1/RdRp2/N genes (cycle threshold value, 26.34) on hospital day 1 (February 5, 2020). A follow-up chest film at hospital day 14 (illness day 18) showed resolving patchy infiltrates (Fig. 1B). The chest computed tomography at hospital day 26 showed no lesion at left upper lobe. Fever, cough, and dyspnea improved on hospital day 2 (Table 1). With three consecutive negative results of real-time RT-PCR tests for SARS-CoV-2 in nasopharyngeal swab, she was discharged after 24 days of hospitalization. None of four members in the family had SARS-CoV-2 detected in their nasopharyngeal swabs sampled after 14 days' quarantine.

SARS-CoV-2 serology

SARS-CoV-2 (ALLTEST 2019-nCoV IgG/IgM Rapid Test Cassette, Hangzhou ALLTEST Biotech Co., Ltd. Hangzhou, China)⁵ was utilized for in vitro diagnosis and used to examine the presence of SARS-CoV-2 IgG antibody in seven serum samples (obtained on the hospital day 2, 3, 7, 9, 13, 20, and 23) from the patient. The SARS-CoV-2 IgG antibody was detected in five serum samples since the hospital day 7 (illness day 11, Table 1).

Discussion

Now, the popular diagnostic confirmatory test for COVID-19 is the real-time RT-PCR. In contrast, the chronological dynamics of blood or serum antibodies in the cases of COVID-19 were not well evaluated. In China, a rapid lateral flow immunoassay using a recombinant antigen which is the receptor binding domain of SARS-CoV-2 spike protein to detect both IgM and IgG antibodies, was tested on 397 confirmed cases of COVID-19 and 128 control cases, and showed a promising testing sensitivity of 88.7% and specificity of 90.3%, when all of IgM and IgG positivity, only IgM positivity, and only IgG positivity, were regarded as positive testing results.⁵ In comparison with real-time RT-PCR, the relative sensitivity, specificity, and accuracy rate of IgG

detected by the kit we used, the ALLTEST 2019-nCoV IgG/IgM Rapid Test Cassette, was claimed to be 100%, 98.0% and 98.6%, respectively.⁶ However, this kit has been tested on serum samples from only 20 RT-PCR confirmed patients and 50 RT-PCR excluded patients and the relative sensitivity for anti-SARS-CoV-2 IgM antibody was 85% (95% CI, 62.1%–96.8%).⁶ Herein, only the testing results of anti-SARS-CoV-2 IgG antibody was shown (Table 1).

In conclusion, we reported that an initially healthy woman with COVID-19 which developed after Macau travel recovered without evident sequelae, in spite of chest radiographic abnormalities. With an evident travel exposure in this case, the incubation time could be reasonably estimated to be a period of 8–11 days and anti-SARS-CoV-2 IgG appeared at post-exposure 18–21 days or the illness day 11. Of course, more serological data should be collected to elucidate the clinical and epidemiological utility of IgM/IgG measurements to detect symptomatic and asymptomatic cases of COVID-19.

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