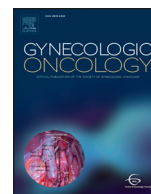




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## Gynecological malignancies with asymptomatic SARS-CoV-2 infection during the convalescence of outbreak

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### H I G H L I G H T S

- COVID-19 has become a global pandemic.
- Gynecologic malignancies with lung metastasis should be alert to asymptomatic infection.
- Gynecologic malignancies with asymptomatic COVID-19 can be controlled under strict measures.

The new coronavirus disease (COVID-19), which first reported in China at the end of 2019, has become a global pandemic [1]. With the joint efforts of medical works around the country, the epidemic has been well controlled. Recently, there is an increasing concern on asymptomatic COVID-19 carriers. Two case series reported cancer patients were at a higher risk of the severe adult respiratory syndrome coronavirus 2 (SARS-CoV-2) infection than general communities [2,3]. Herein, we reported two asymptomatic SARS-CoV-2 patients suffered from gynecological malignancies from a tertiary cancer center in epicenter.

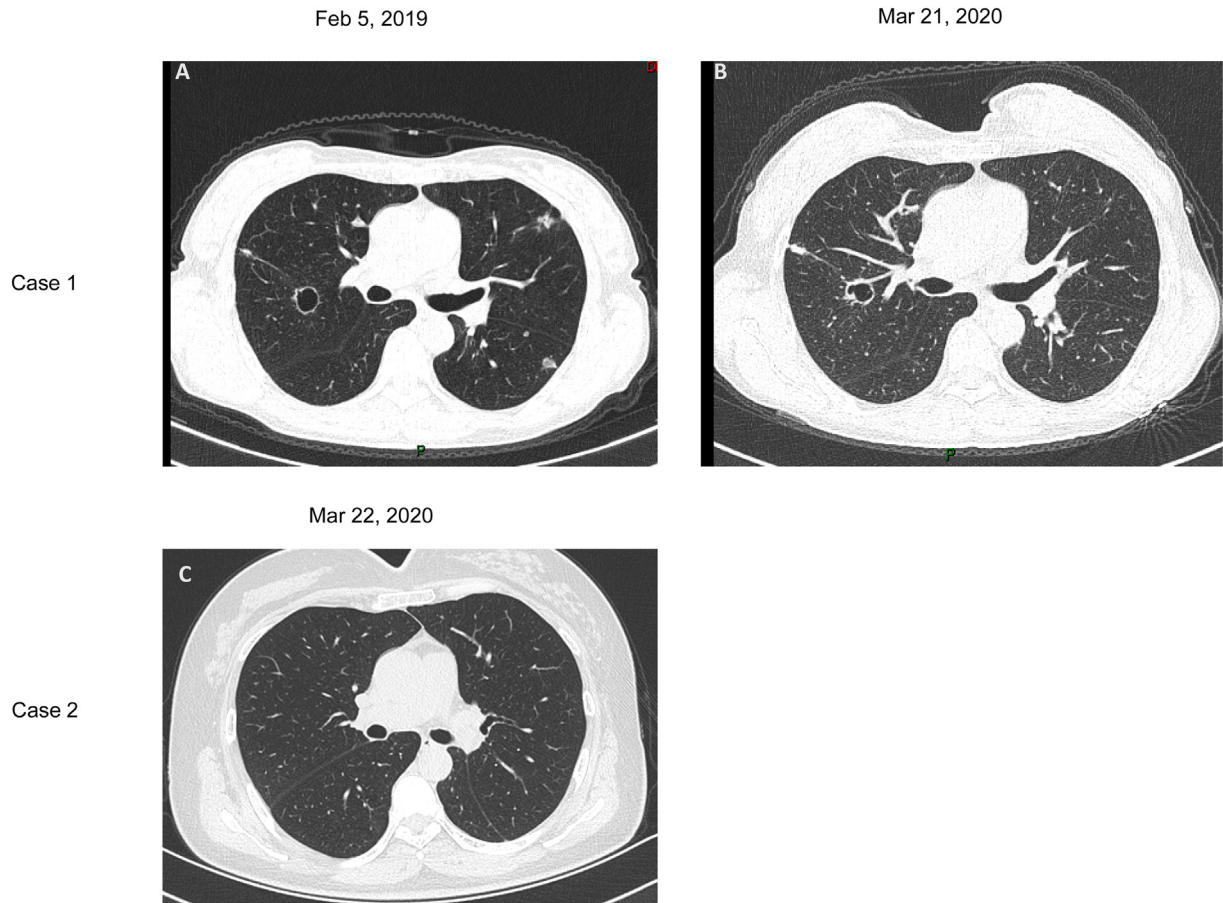
**Case 1:** A 61-year-old female patient diagnosed as advanced ovarian cancer with extensive peritoneal and pulmonary metastases, received a cytoreductive surgery plus intraperitoneal chemotherapy and subsequent first-line chemotherapy of paclitaxel combined with carboplatin for a total of 5 cycles. After the lockdown of Wuhan on January 14, 2020, the patient experienced a short treatment delay. On Feb 10, she complained of a slight dry cough, but without any other symptoms covering fever, diarrhea, nausea, vomiting and myalgia. Whereafter, she resumed hospitalization for the second-line chemotherapy due to a poor control of CA-125. On March 21, routine admitted screening of COVID-19 showed her serological IgG antibodies to SARS-CoV-2 was positive, but serological IgM antibodies, chest computed tomography (CT) (see Fig. 1) and throat swab reverse transcriptase polymerase chain reaction (RT-PCR) of SARS-CoV-2 were all negative. Subsequently, she was receiving a supportive therapy of elevating platelets due to the chemotherapy-related grade 4 thrombocytopenia.

**Case 2:** A 51-year-old female patient diagnosed with stage IIA cervical squamous cell carcinomas has completed 3 cycles of induction chemotherapy. During the outbreak, the patient suffered a treatment interruption of approximately one month. She reported a single symptom of mild fatigue on Feb 14, but spontaneous recovery one day later. Upon the admission screening on March 22, she was tested positive for serological IgG antibodies alone as well as negative for both chest CT (see Fig. 1) and throat swab SARS-CoV-2 RT-PCR. The patient was currently undergoing pelvic radiation therapy as an inpatient. Their treatment history was summarized in Fig. 2.

According to experts' consultation, the two patients were confirmed as previously asymptomatic SARS-CoV-2 carriers. After admission, they were respectively placed to a single ward and tested for serum antibody for three consecutive times each day, all of which showed only IgG positive but IgM negative. To investigate the risk of transmission, we further screened their family members, and subsequent laboratory assay including throat swab SARS-CoV-2 RT-PCR and serological antibody tests, and chest CT scan, were all negative. According to their accounts, even during quarantine at home, they were given strict protective measures, such as living in separate room, enhancing indoor ventilation and disinfection, reducing family gathering, donning masks when going out and washing their hands frequently, in consideration of possible susceptibility caused by cancer history. Until discharge, no new nosocomial infection occurred between patients and health care workers in our department.

Recently, a growing body of reports has witnessed a highly infectivity of asymptomatic carrier, there are fears of the resurgence of COVID-19 [4,5]. Although most people hold the idea that asymptomatic carriers are somewhat contagious, their actual infectivity is unclear. Based on our observation, although intensive anti-tumor treatments might result in an immunosuppression and thereby

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**Fig. 1.** Chest CT for gynecological malignancies with asymptomatic SARS-CoV-2 infection. Case 1: Chest CT images before (A) and after (B) the suspected symptoms (mild dry cough) showed no significant difference. Case 2: Negative chest CT finding (C) after the advent of a suspected symptom (mild fatigue).

increasing susceptibility to SARS-CoV-2. However, under strict infection control measures, the two asymptomatic patients did not confer any in-family or nosocomial infection, highlighting the importance of adhering to the established infection control measures during hospitalization as well as at home, even in convalescence. However, according current studies, some of asymptomatic carriers may harbor some transient, reversible symptoms, which would be confused with those lung inherent disorders. Take the case 1 for example, a mild dry cough can easily be misdiagnosed as the progression of lung metastases, whereas, subsequent follow-up examination confirmed that those symptoms were probably associated with SARS-CoV-2 infection. Therefore, we refer an active screening to SARS-CoV-2 for cancer patients, especially when suspicious symptoms detected.

Collectively, more data are still need to interpret the infectivity of asymptomatic carriers with cancer history. For gynecological tumor

patients, under strict control measures, the transmission capacity is controllable.

#### Author contributions

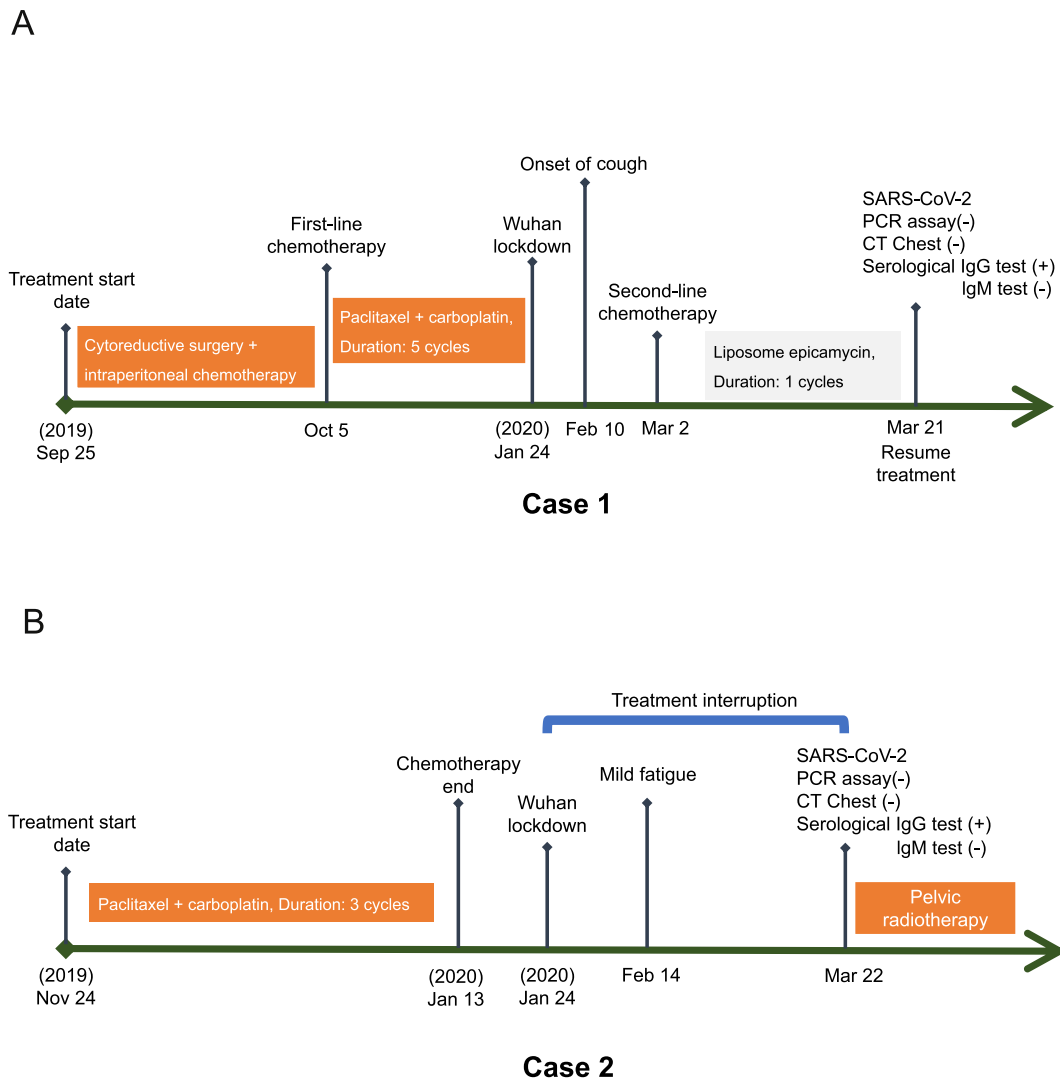
Yeshan Chen: The data collection, conceived and wrote the manuscript; Guiling Li: Provided advice and reviewed the manuscript.

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#### Declaration of competing interest

The authors declare no conflict of interest.



**Fig. 2.** Treatment history of two asymptomatic SARS-CoV-2 patients with gynecological malignancies at the Wuhan Union Hospital. (A) An advanced ovarian cancer patient with asymptomatic SARS-CoV-2 infection completed cytoreductive surgery and subsequent chemotherapy. Base on her chief complaint, she was probably infected on February 10. (B) A patient with stage IIA cervical cancer was undergoing radiotherapy after 3 cycles of induction chemotherapy. According to the date of her previous suspicious fatigue, we speculated she might contracted on February 14.

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