

CASE REPORT

A case report of COVID-19 in an asymptomatic patient with newly diagnosed breast cancer

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Abstract

COVID-19 can be especially dangerous in vulnerable populations such as those with cancer undergoing treatment. When it is discovered in an asymptomatic patient through imaging, there is a paucity of evidence-based treatment recommendations.

KEYWORDS

breast cancer, coronavirus, COVID-19, neoadjuvant chemotherapy

1 | INTRODUCTION

The emergence of COVID-19 has rapidly changed breast cancer care. We report an asymptomatic patient with newly diagnosed breast cancer who on staging CT scan revealed signs of COVID-19 infection. Evidence on how to proceed is limited in such situations, but certainly influences recommendations for potentially immunosuppressing chemotherapy.

Much in our world has changed since the World Health Organization (WHO) declared the novel acute respiratory syndrome coronavirus 2 (SARS-COV-2) a pandemic. Unfortunately for women with newly diagnosed breast cancer, treatment paradigms have needed to change quickly to adapt to the closure of operating rooms as hospitals transform into COVID-treatment centers. Many more women who might otherwise undergo surgery as their first phase of treatment are instead receiving neoadjuvant endocrine or chemotherapy, though the prospect of undergoing cytotoxic treatment that may weaken the immune system during a pandemic is daunting, placing them into a particularly vulnerable group. What is also unclear is how to proceed if the patient develops a COVID-19 infection in regard to when treatment may

be initiated or resumed. We present a case of a woman with newly diagnosed triple-negative breast cancer and findings on a chest CT compatible with COVID-19 prior to development of any symptoms.

2 | CASE REPORT

A 52-year-old postmenopausal woman with no personal or family history of breast cancer recently noted 2 masses in her left breast. She underwent a screening mammogram which revealed densities and architectural distortion in her upper outer left breast (Figure 1A). A callback mammogram and ultrasound showed a 2.3 cm and 1.2 cm mass at 2:00, 9 and 10 cm from the nipple (Figure 1B). There was no evidence of abnormal lymphadenopathy.

She had ultrasound-guided core biopsies which revealed poorly differentiated invasive ductal carcinoma at both sites. Biomarkers on both cores were estrogen, progesterone, and HER2 negative, Ki-67 90%. The patient underwent staging, and on CT chest, the patient had nonspecific bilateral patchy parenchymal ground-glass opacities, concerning for COVID-19 (Figure 2).

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At this point, the patient was asymptomatic, but over the course of the following days, the patient developed low-grade fevers, cough, and shortness of breath. COVID-19 testing (SARS-COV-2 PCR) was positive. The patient was hospitalized for 3 days and required supplemental oxygen. She was treated with hydroxychloroquine, zinc, and vitamin C with significant improvement, but remained symptomatic after discharge. The patient was discussed at our interdisciplinary tumor board with the consensus to postpone initiation of neoadjuvant chemotherapy (paclitaxel, followed by doxorubicin and cyclophosphamide) until at least 2 weeks after resolution of COVID-19 symptoms.

3 | DISCUSSION

Patients with cancer are a unique population with specific concerns during a pandemic. A recent investigation, which included 18 cancer patients with COVID-19 infections in China, found that those with cancer were at higher risk for severe clinical events compared to those without cancer, with mortality at 5.6% among cancer patients compared with 2.3% in the general population.^{1,2} An additional published report of 28 cancer patients found that coinfection with COVID-19 had a mortality rate of up to 28.6%.³ Six of these patients had received anticancer treatment in the form of chemotherapy, radiotherapy, or immunotherapy within 14 days of COVID-19 diagnosis. The authors recommended that cancer patients receiving anticancer treatments should be screened for COVID-19 infection, and if infected, should avoid treatments, or have their dosages decreased.³

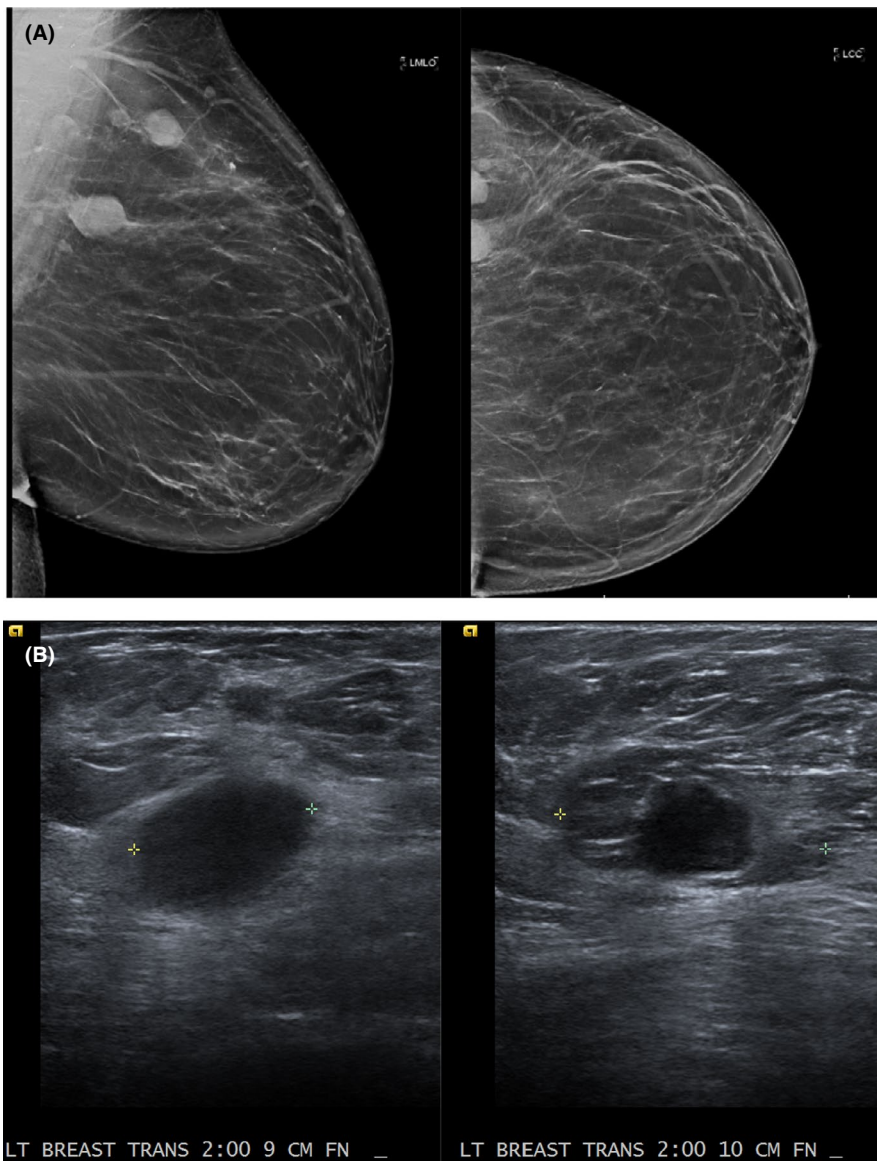
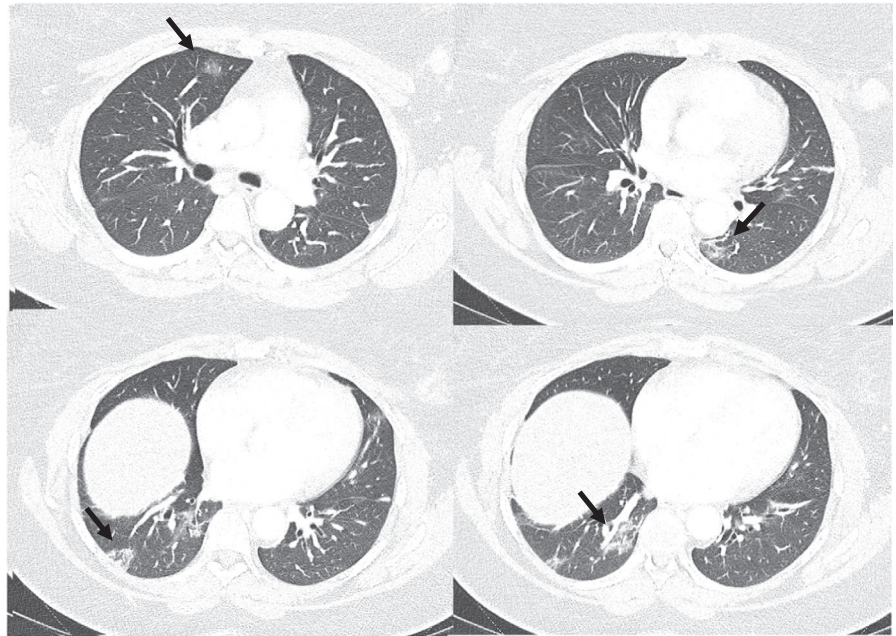


FIGURE 1 (A) Mammogram revealed 2 indeterminate masses in the upper outer left breast, 9 and 10 cm from the nipple. (B) Ultrasound revealed 2.3 cm and 1.2 cm masses at 2:00 o'clock, 9 cm and 10 cm from the nipple, for which biopsy was recommended

FIGURE 2 Axial 1mm lung CT images of thorax at selected levels demonstrate multiple peripheral predominate patchy ground-glass opacities, more pronounced in the lower lobes, consistent with reported appearance of COVID-19 pneumonia (arrows)



Once infected, however, it is unclear how long one should wait prior to initiating or restarting anticancer therapy. Per the American Society of Clinical Oncology (ASCO), treatment should not be resumed until symptoms of COVID-19 have resolved, unless the cancer is progressing rapidly.⁴ The United Kingdom National Institute for Health and Care Excellence (NICE) recommends that treatment may be initiated or resumed after the patient tests negative for COVID-19, also with the caveat that the cancer is not progressing rapidly.⁵ This requires accessibility to testing that is not yet widely available in all locations.

One of the dangers of COVID-19 is its spread through asymptomatic patients. A study of 58 asymptomatic patients in China with COVID-19 exposure had chest CT scans performed that all showed abnormalities.⁶ The majority showed ground-glass opacities (GGO) ($n = 55$, 94.8%) with peripheral ($n = 44$, 75.9%) distribution, and unilateral location ($n = 34$, 58.6%).⁶ Progression to onset of symptoms was approximately 3.71 ± 2.86 days.⁶ Another study with 81 COVID-19-positive patients found that GGO appeared first before symptom onset, followed by patchy consolidation, which further consolidated as time progressed.⁷ CT findings can therefore provide information on timeline of infection, which may not be clear in the absence of symptoms initially. While CT scans are not feasible as a screening tool for COVID-19, they can be considered an adjunct in diagnosis, particularly if breast cancer patients require staging imaging. Radiologists can therefore play a role in detecting early signs of infection that can help plan a patient's oncologic treatment.

The speed at which COVID-19 literature is being published to aid clinicians navigate such uncertain times is a testament to the dedication of researchers around the world.

However, caution should still be taken when drawing conclusions based off retrospective studies containing only small numbers of cancer patients. This case report illustrates an example of how quickly different disciplines came together in new circumstances to make decisions impacting cancer care. As we now move to reopen some of our ORs for urgent cases, we will need to continue to stay vigilant and assess patients for COVID-19 preoperatively. Lessons learned now during this pandemic may apply to similar situations in the future.

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Published with written consent of the patient.

CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

AG and FS: proposed the idea for the case report; MS: reviewed imaging and created figures; all authors (CC, MS, SA, FS, and AG) contributed to writing and editing the manuscript.

ETHICS STATEMENT

Informed consent was obtained as part of the patient's inclusion in our IRB-approved institutional breast cancer database.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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