



Case Report

COVID-19 presenting as right flank pain in a postpartum woman: A case report

Venus Chegini^{a,*}, Reihaneh Hosseini^b, Neda Zarei^b, Victoria Chegini^c, Faezeh Aghajani^d, Amin Nakhostin-Ansari^{e,f}, Sara Kasraei^b

^a Department of Obstetrics and Gynecology, Qazvin University of Medical Sciences, Qazvin, Iran

^b Department of Obstetrics and Gynecology, Arash Women's Hospital, Tehran University of Medical Sciences, Tehran, Iran

^c Department of Pediatrics, Shahid Beheshti University of Medical Sciences, Tehran, Iran

^d Research Development Center, Arash Women's Hospital, Tehran University of Medical Sciences, Tehran, Iran

^e Sports Medicine Research Center, Neuroscience Institute, Tehran University of Medical Sciences, Tehran, Iran

^f Research Center for War-affected People, Tehran University of Medical Sciences, Tehran, Iran



ARTICLE INFO

Keywords:

SARS-CoV-2

COVID-19

Postpartum period

Flank pain

Case report

ABSTRACT

Introduction: Patients with COVID-19 infection may present a wide range of symptoms that make its diagnosis challenging, especially in patients with underlying conditions.

Presentation of case: A 30-year-old postpartum woman presented to the Emergency Department (ED) of Arash Women Hospital with right flank pain. Physical examination revealed tachycardia and decreased sounds in the base of the lung. Chest CT scan demonstrated patchy consolidations in bases of the lungs in favor of COVID-19 infection. The patient underwent pharmacotherapy with Remdesivir, steroid, and interferon beta-1a for eight days and was discharged in a good condition.

Discussion: This study suggests that involvement of lungs' bases may be associated with gastrointestinal symptoms such as abdominal or flank pain in the COVID-19 patients. It makes the diagnosis difficult in a scenario such as the described patient in our study where there may be other differential diagnoses correlating with the patient's clinical course.

Conclusion: COVID-19 should be in the differential diagnosis of any patient presenting to ED with relevant complaints. Correct and immediate diagnosis is critical for proper treatment and isolation of patients with COVID-19.

1. Introduction

Since its introduction in 2019, COVID-19 has infected more than 116 million people worldwide. Although it was primarily known as a virus that infects the respiratory system, it affects almost all organs and presents a wide range of signs and symptoms. Fever, headache, myalgia, and fatigue are common among patients with COVID-19 [1]. COVID-19 symptoms in pregnant women are not different from those of non-pregnant patients [2]. However, COVID-19 does not always present with typical symptoms. Organs that their cells express ACE 2 receptors are vulnerable to COVID-19 infection, and COVID-19 may present with renal, ocular, neurological, gastrointestinal, cardiac, musculoskeletal, cutaneous, and renal symptoms [3]. COVID-19 has been associated with gastrointestinal symptoms, including abdominal pain, diarrhea, and

vomiting, which may distract the physicians from suitable workup and diagnosis [1]. In this article, we present a case of COVID-19 infection in a postpartum woman with extrapulmonary symptoms who were admitted in an academic setting according to the SCARE guideline [4].

2. Case

Written informed consent was obtained from the patient for publication of this case report and accompanying images. Also, we reported this case report according to the SCARE guideline [4].

The subject was a 30-year-old Iranian primigravida woman in 26th week of gestation who came to our hospital's emergency department (ED) by herself complaining of a headache. She was a housewife who had a bachelor's degree. On initial evaluation, she had blood pressure

* Corresponding author. Department of Obstetrics and Gynecology, Kowsar Hospital, Kowsar Street, Taleghani avenue, Qazvin, Iran.

E-mail address: Venus.chegini@yahoo.com (V. Chegini).

<https://doi.org/10.1016/j.amsu.2021.102770>

Received 15 July 2021; Received in revised form 18 August 2021; Accepted 22 August 2021

Available online 31 August 2021

2049-0801/© 2021 The Author(s). Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

(BP) of 160/100 mmHg and was hospitalized for further evaluation. Ultrasonographic evaluations showed Intrauterine Growth Restriction (IUGR) of the fetus. She delivered her baby prematurely after two days of hospitalization via cesarean section due to resistant hypertension and a history of pseudotumor cerebri. The procedure was performed by a senior obstetrician and a resident of obstetrics and gynecology. The neonate passed away two days later in NICU, and the mother was discharged from the hospital with a stable condition and Amlodipine 2.5 mg daily, Enalapril 5 mg BID, and Metoprolol 25 mg BID were prescribed for her. She returned to our ED 20 days later with myalgia and right flank pain of four days duration. Her flank pain had severe intensity as she scored its severity 8 out of 10. The patient did not complain of any other symptoms, including urinary, respiratory, and gastrointestinal symptoms. In her past medical history, she had gestational diabetes mellitus, gestational hypertension, and gestational hypothyroidism. She also had a history of appendectomy and breast fibrocystic resection. She mentioned a history of allergic reactions to Penicillin.

At the time of admission, her blood pressure was 111/74 mmHg, and her pulse rate was 124 beats per minute. Her respiratory rate was within the normal range, with peripheral oxygen saturation (SpO₂) of 97%. She was afebrile at presentation but developed a mild fever during hospitalization, with an oral temperature of 38 °C. Auscultation of the lungs revealed decreased sounds at the base of the right lung. Examination of the abdomen revealed mild tenderness in the right upper quadrant. However, there was no tenderness in the costovertebral angle (CVA). Otherwise, the abdominal examination was unremarkable.

A team of a senior obstetrician, a resident of obstetrics and gynecology, and an infectious disease doctor took care of the patient during her hospitalization. We started Remdesivir, interferon beta-1a (Recigen®), steroid, and Azithromycin for the patient as she developed a mild fever during hospitalization, and COVID-19 was highly suspected. We also started workup for her abdominal pain and pathologies in the urinary system and prescribed Meropenem as we suspected intra-abdominal infections. Whole abdominopelvic ultrasound revealed an anechoic area beneath the cesarean section suture line with a thickness of 5.5 mm, which was suggestive of seroma, and a heterogeneous mass (45 × 19mm) between the right side of the bladder and fundus of the uterus. We suspected bladder flap hematoma and hematoma that pressured the ureter as the source of her right flank pain. Therefore we ordered a spiral abdominopelvic CT scan with a delayed post-contrast phase, which was normal; however, there were consolidations in the bases of both lungs. Spiral chest CT scan also revealed patchy consolidations in both lungs' bases, highly favoring the COVID-19 infection (see

Fig. 1). Laboratory data showed elevated ESR and CRP, and D-Dimer levels at the time of admission, slightly elevated AST and ALT, and thrombocytosis during the course of treatment (Table 1). The patient had a positive PCR test for COVID-19 (see Table 2).

On the sixth day of hospitalization, the patient developed swelling, pain, and erythema in the left arm. In the physical examination, the lesion was warm and tender. We ordered color Doppler ultrasound of the left upper limb as we suspected thromboembolism in the left upper limb, which revealed normal blood flow of the left upper limb. Therefore, with the diagnosis of cellulitis, we prescribed Clindamycin and Ciprofloxacin for the patient.

After 48 hours of treatment with Remdesivir and Recigen, the patient became afebrile, and at the time of discharge, her flank pain was also resolved. Positive RT-PCR test and patchy consolidation of lungs' bases were suggestive of COVID-19 in the patient. Involvement of base of right lung and improvement of right flank pain after a course of COVID-19 treatment indicated COVID-19 as the source of right flank pain in this patient. The patient was hospitalized for eight days and was discharged with a stable condition with prescribed clindamycin and ciprofloxacin. In the routine follow-up, the patient did not have any symptoms or complications.

3. Discussion

Persistent abdominal pain is common in postpartum women, with its incidence ranging from 50% to 86%, and is more common among mothers with cesarean delivery. Such pain mostly has a mild intensity, and its intensity decreases over time [5]. Also, cesarean delivery poses a higher risk of complications than vaginal delivery, including infections, thromboembolic events, and surgical wound complications, manifesting as abdominal pain. Several unusual disorders such as ovarian vein thrombosis, mesenteric venous thrombosis, and endometritis may also cause abdominal pain in postpartum women [6]. There are several case reports on the unusual causes of abdominal pain in the postpartum period. Waseem et al. described a multiparous woman with abdominal pain and fever two weeks after cesarean delivery, diagnosed with uterine perforation [6]. Basili et al. reported a postpartum patient admitted to the emergency department with right lower quadrant pain and fever 15 days after the delivery, diagnosed with ovarian vein thrombosis [7]. In this case report, we presented a postpartum woman with right flank pain, which we could not find any possible complication or etiology related to it other than the COVID-19 infection. Our patient had severe flank pain, which is in contrast to Durmus et al.'s findings as they reported that patients with COVID-19 who present with flank pain usually

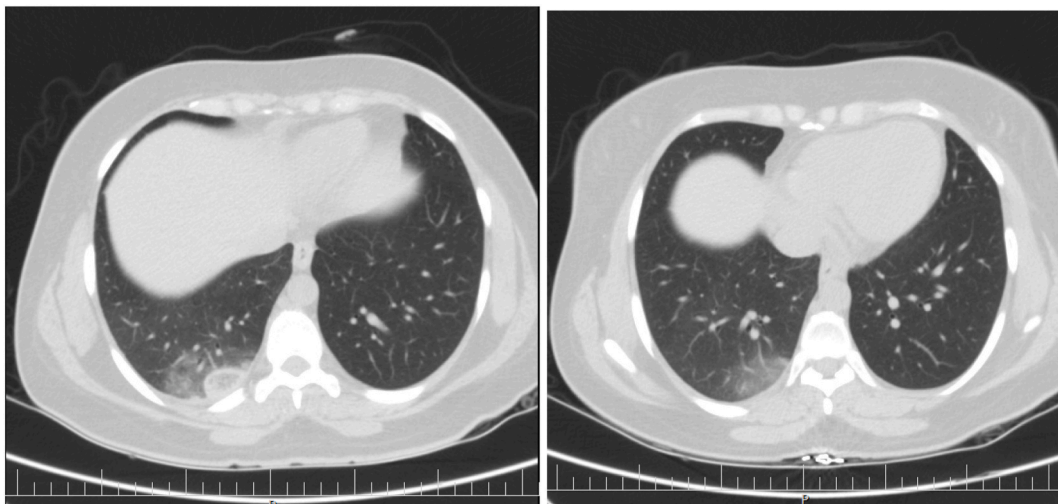


Fig. 1. Patient's abdominopelvic CT scan indicating the involvement of the base of right lung.

Table 1

Results of the patient's laboratory tests in her second admission.

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
WBC (cells/cm ³)	9600	7400	4500	8700	–	4500	8000
RBC (cells/cm ³)	4060000	3560000	4160000	3950000	–	4160000	4250000
Hemoglobin (mg/dl)	11.5	10.4	11.7	11.3	–	11.7	12.3
Platelet (cells/cm ³)	316000	366000	418000	510000	–	418000	334000
AST (U/L)	14	48	18	26	22	–	20
ALT (Iu/L)	12	54	15	34	29	–	21
ESR (mm/h)	75	37	–	–	–	–	–
CRP (mg/l)	20	20	–	–	–	–	–
BUN (mg/dl)	10	17	10	15	–	–	13
Creatinin (mg/dl)	1	0.8	0.7	0.9	–	–	0/9
LDH (U/L)	351	–	–	367	395	–	441
Ferritin (ng/ml)	140	–	–	–	–	–	–
D-Dimer (micg/ml)	11.52	–	–	–	–	–	–
Urine analysis			Blood: 16-18 WBC: 10-12 Epithelial cell: 8-10				
Urine culture			Negative				

Table 2

Timeline of events.

Day one	Patient hospitalized due to headache.
Day three	Preterm delivery due to resistant hypertension
Day five	Neonate passed away. Mother discharged from hospital
Day twenty one	Beginning of right flank pain
Day twenty-five	The patient returned to the hospital due to right flank pain. A nasopharyngeal swab for the COVID-19 RT-PCR test was obtained. Remdesevir, Azithromycin, and Recigen were prescribed for the patient.
Day twenty-six	Abdominal ultrasound revealed a heterogeneous mass (45 × 19mm) between the right side of the bladder and the fundus of the uterus. The steroid was prescribed for the patient.
Day twenty-eight	Abdominopelvic CT scan with delayed post-contrast phase revealed the involvement of the bases of both lungs and was otherwise normal. COVID-19 RT-PCR test was positive.
Day thirty-two	Patient discharged

experience mild to moderate pain [8]. There may be two possible explanations for such findings in patients. First, ACE 2 receptors are expressed in the small intestine, explaining the gastrointestinal symptoms in patients with COVID-19 [9]. Second, patients with pneumonia may present with flank pain [10]. Abolyazid et al. reported three cases of COVID-19 infection presented with predominant abdominal and flank pains. Abdominal CT scans had revealed basal involvement of lungs in these patients as there were ground-glass opacities and patchy areas in the inferior lobes of the lungs [11]. Parambil et al. also reported that a patient with COVID-19 presented with right flank pain associated with consolidations, especially in the right lung [12]. Siegel et al. also reported three COVID-19 patients with gastrointestinal symptoms who had the lungs' involvement on the CT scan [13]. The studies suggest that lung bases' involvement may be associated with gastrointestinal symptoms such as abdominal or flank pain in the COVID-19 patients. It makes the diagnosis difficult in a scenario such as the described patient in our study where there may be other differential diagnoses correlating with the patients' clinical course. A review of the lungs' bases in the abdominal CT scan may be helpful as it may reveal the lungs' involvement in patients with COVID-19, and it may guide the physicians to the correct diagnosis.

4. Conclusion

COVID-19 can present with many symptoms, and physicians, especially in the ED, must rule out this infection in any incoming patient at the time of the pandemic.

Source of funding

This study was not funded.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Ethics

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Data availability

All relevant data are reported in the manuscript.

Ethical approval

N/A.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

Conceptualization, Venus Chegini, Reihaneh Hosseini, Victoria Chegini; Data curation, Sara Kasraei, Neda Zarei; Roles/Writing - original draft, Amin Nakhostin-Ansari, Faezeh Aghajani; Writing - review & editing, All authors.

Trial registry number

1. Name of the registry:
2. Unique identifying number or registration ID:
3. Hyperlink to your specific registration (must be publicly accessible and will be checked):

Guarantor

Venus Chegini.

Declaration of competing interest

Authors have no conflict interest to declare.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2021.102770>.

References

- [1] T. Struyf, et al., Signs and symptoms to determine if a patient presenting in primary care or hospital outpatient settings has COVID-19 disease, *Cochrane Database Syst. Rev.* (7) (2020).
- [2] H. Chen, et al., Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records, *Lancet* 395 (2020) 809–815, 10226.
- [3] N. Coulter, N.L.B. Small, Atypical features of COVID-19: a literature review, *J. Clin. Outcome Manag.* 27 (3) (2020) 131–134.
- [4] R.A. Agha, et al., The SCARE 2020 guideline: updating consensus surgical CARE REport (SCARE) guidelines, *Int. J. Surg.* 84 (2020) 226–230.
- [5] E. Declercq, et al., Mothers' reports of postpartum pain associated with vaginal and cesarean deliveries: results of a national survey, *Birth* 35 (1) (2008) 16–24.
- [6] M. Waseem, H. Cunningham-Deshong, J. Gernsheimer, Abdominal pain in a postpartum patient, *J. Emerg. Med.* 41 (3) (2011) 261–264.
- [7] G. Basili, et al., Postpartum ovarian vein thrombosis, *Jcls* 15 (2) (2011) 268–271.
- [8] E. Durmus, et al., Could flank pain be an indicator of COVID-19 infection? *Malawi Med. J.* 32 (4) (2020) 192–196.
- [9] R.N. Vuille-dit-Bille, et al., SARS-CoV-2 receptor ACE2 gene expression in small intestine correlates with age, *Amino acids* 52 (6) (2020) 1063–1065.
- [10] C. Birkin, C.S. Biyani, A.J. Browning, Legionella pneumonia presenting with bilateral flank pain, hyponatraemia and acute renal failure, *Can. Urol. Assoc. J.* 5 (6) (2011) E96.
- [11] S. Abolyazid, et al., COVID-19 pneumonia identified by CT of the abdomen: a report of three emergency patients presenting with abdominal pain, *Radiol. Case Rep.* 15 (11) (2020) 2090–2094.
- [12] J. Veliyankodan Parambil, R. Abdulrahman, S. Al-Shokri, A 73-year-old man with a history of hypertension and ischemic heart disease who presented with pain in the right flank as a symptom of COVID-19 pneumonia, *Am. J. Case Rep.* 21 (2020), e925771.
- [13] A. Siegel, et al., Lung base findings of coronavirus disease (COVID-19) on abdominal CT in patients with predominant gastrointestinal symptoms, *Am. J. Roentgenol.* 215 (3) (2020) 607–609.