

## Case Report

# Acute Pancreatitis in a Pregnant Patient With Coronavirus Disease 2019 (COVID-19)

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**BACKGROUND:** Pregnant women with coronavirus disease 2019 (COVID-19) infection are at risk for a variety of COVID-19 complications.

**CASE:** We report a case of acute pancreatitis in a pregnant patient hospitalized for COVID-19 pneumonia. Comprehensive evaluation ruled out other etiologies of acute pancreatitis. Preterm labor developed at 33 5/7 weeks of gestation, and the patient delivered a liveborn male neonate; neonatal severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) screening was negative. The patient improved significantly postpartum and was discharged home on postpartum day 3.

**CONCLUSION:** Coronavirus disease 2019 may present in pregnancy with a myriad of clinical symptoms other than respiratory. Acute pancreatitis represents an infrequent complication of primary COVID-19 infection.

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Experience with the spectrum of clinical presentation of coronavirus disease 19 (COVID-19) in pregnancy continues to accrue in parallel to the national rise in infection rates. A recent report from the Centers for Disease Control and Prevention suggests that pregnant patients appear to be at increased risk of intensive care unit (ICU) admission, need for

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### Teaching Points

1. Pregnant women with COVID-19 infection may present with atypical symptoms, other than respiratory.
2. Acute pancreatitis can be seen in up to 17% of patients with COVID-19 infection.
3. Management of acute pancreatitis and COVID-19 infection in pregnancy is similar to that in nonpregnant patients.

mechanical ventilation or extracorporeal membrane oxygenation, and overall mortality compared with nonpregnant patients.<sup>1</sup> Atypical symptomatology and development of concurrent conditions in patients with pneumonia may represent secondary manifestations of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). We report a case of acute pancreatitis in an otherwise healthy pregnant patient hospitalized for COVID-19 pneumonia.

### CASE

A 20-year-old primigravid patient at 33 0/7 weeks of gestation was transferred to our health care facility for sudden respiratory decompensation in the setting of confirmed COVID-19 infection. Her medical history was significant only for obesity (body mass index [BMI, calculated as weight in kilograms divided by height in meters squared] 36.1) and laparoscopic cholecystectomy for cholelithiasis performed 2 years prior. Approximately 48 hours before admission, she developed a nonproductive cough and myalgias and underwent nasopharyngeal polymerase chain reaction testing for SARS-CoV-2, which was positive. Over the ensuing 24 hours, she developed increasing dyspnea; on presentation to her local emergency department, she was found to be afebrile but tachycardic, tachypneic, and hypoxemic, with oxygen saturation of 90% on room air. Thoracic computed tomography was negative for embolus but revealed features consistent with COVID-19 pneumonia: patchy bilateral consolidative and ground-glass densities in a dominantly peripheral distribution. She was transferred to the ICU at our tertiary care facility for further management.

Laboratory studies on admission were remarkable for a leukocyte count of 10,000/microliter and D-dimer of 740 ng/mL, with normal serum lactate, creatinine, triglyceride, immunoglobulin 4, and transaminase values. Bedside obstetric ultrasonography demonstrated a singleton intrauterine pregnancy in cephalic presentation, and the fetal heart rate pattern remained reassuring. Remdesivir and dexamethasone were started, and a course of antenatal betamethasone was administered for fetal lung maturation. With improvement in pulmonary status after 36 hours, the



patient was transferred to the antepartum obstetric unit, maintaining oxygen saturations of 95% or higher on 1 L/min of oxygen by nasal cannula.

On the morning of hospital day 3, she suddenly developed sharp epigastric pain radiating to her back, with associated nausea and vomiting; vital signs remained normal excepting recurrence of tachycardia and tachypnea. Repeat laboratory studies showed normal transaminase levels, with elevated lipase (916 units/L [normal 60–160 units/L]) and amylase (396 units/L [normal 30–110 units/L]) levels; abdominal ultrasonography revealed a surgically absent gallbladder and extra- and intrahepatic biliary ducts of normal caliber, with pancreatic visualization obscured. A presumptive diagnosis of pancreatitis was made, a gastroenterologist was consulted for further recommendations, and intravenous hydration and analgesia were administered. The patient's symptoms gradually improved over the next 24 hours, and fetal status remained reassuring throughout this episode.

On hospital day 5, the patient's clinical condition again began to deteriorate, and she was urgently returned to the ICU owing to respiratory decompensation. Chest X-ray showed worsening consolidation and atelectasis in the left lung base, and laboratory studies showed a leukocytosis (22,000/microliter), with increase in amylase and lipase levels to 1,168 units/L and 859 units/L, respectively. Abdominal magnetic resonance imaging was consistent with pancreatitis, without evidence of pancreatic hemorrhage, pseudocyst, or necrosis. At this point, the patient required 50% high-flow nasal cannula oxygen supplementation to maintain oxygen saturations of 95% or higher.

On hospital day 6, at 33 5/7 weeks of gestation, the patient reported onset of painful and regular contractions and soon thereafter experienced preterm prelabor rupture of membranes and progressed into active labor. She was urgently brought to an operating room in the labor and delivery unit and underwent a preterm vaginal delivery of a 2,500-g male neonate with 1-minute and 5-minute Apgar scores of 9 and 9. Postpartum, the patient was returned to the ICU and the neonate was transferred to the neonatal intensive care unit with minimal initial oxygen requirements. Neonatal SARS-CoV-2 testing was negative.

After delivery, the patient's clinical status improved markedly, with titration of supplemental oxygen to 5 L/min by nasal cannula later in the day and improvement in epigastric discomfort; repeat laboratory studies showed declining amylase (620 units/L) and lipase levels (564 units/L). She was transferred to the routine postpartum obstetric unit on room air on postpartum day 2 and discharged to home in stable condition on postpartum day 3.

## DISCUSSION

Though SARS-CoV-2 is well-established as a respiratory pathogen, it has been associated with gastroin-

testinal conditions as well.<sup>2,3</sup> Epidemiologic studies have frequently described nausea, vomiting, diarrhea, and abdominal pain as presenting symptoms.<sup>4</sup> There have also been case reports (Meyers MH, Main MJ, Orr JK, Obstein KL. A case of COVID-19-induced acute pancreatitis [letter]. *Pancreas* 2020;49:e108–9. doi: 10.1097/MPA.0000000000001696)<sup>5,6</sup> of acute pancreatitis in the setting of COVID-19, with suggestion of pancreatic injury occurring in up to 17% of afflicted patients.<sup>7,8</sup> A review of PubMed using search terms “SARS-CoV-2,” “COVID-19,” “pregnancy,” and “pancreatitis” from inception through November 8, 2020, identified limited data on acute pancreatitis in a previously healthy pregnant patient with COVID-19 infection. The only other case report in pregnancy occurred in a patient with diabetes, and amylase and lipase levels were not three times the upper limit of normal,<sup>6</sup> the generally used threshold to establish the diagnosis of acute pancreatitis.<sup>9</sup>

Recognizing the diagnosis of viral pancreatitis is one of exclusion, and we considered other potential diagnoses. The biliary ducts showed no evidence of recent choledocholithiasis on right upper quadrant ultrasonography, and no other infectious, autoimmune, or toxic etiologies were identified. The patient reported no history of alcohol use disorder or use of alcohol during the pregnancy. Review of her medication list did not identify any plausible contributors. Her triglyceride level was not in the range that would be consistent with triglyceride-induced pancreatitis, and her normal immunoglobulin G subtype 4 level ruled out autoimmune pancreatitis. In rare cases, pancreatitis in pregnancy can occur in the setting of acute fatty liver of pregnancy or preeclampsia,<sup>10</sup> but the patient remained normotensive, and platelet count, creatinine, and hepatic function testing ruled out these possibilities. The collective opinion of her care team was that COVID-19 represented the most likely etiology.

Treatment of acute pancreatitis in pregnancy adheres to the same principles as in nonpregnant patients, with additional considerations for fetal monitoring and appropriate delivery timing. Initial management should include aggressive fluid resuscitation with isotonic crystalloid solution such as lactated ringers and adequate pain control with analgesics such as opioids. Prophylactic antibiotics are not recommended unless there is true evidence of extrapancreatic infection. In the absence of ileus and nausea or vomiting, enteral feeding should be initiated within 24 hours to reduce infectious complications and mortality.<sup>11</sup> Management is inherently individualized based on maternal status, gestational age, and



availability of resources. Some authorities have proposed delivery at 32–34 weeks of gestation for patients with COVID-19 infection in the setting of worsening respiratory symptoms or severe illness.<sup>12</sup> Antenatal corticosteroids should be considered for fetal lung maturation if delivery is anticipated before 34 weeks of gestation.<sup>13,14</sup> In a recent publication on the use of corticosteroids in the management of COVID-19 in pregnant patients requiring mechanical or supplemental oxygen, Saad et al<sup>15</sup> recommend the use dexamethasone (6 mg intramuscularly every 12 hours for 48 hours; total of four doses) over betamethasone (12 mg intramuscularly every 24 hours for 48 hours; total of two doses) owing to its added benefit of improved pulmonary function. To complete a 10-day course of corticosteroids, these authors recommended transition to an additional 8-day course of methylprednisolone owing to its evident benefit in acute lung injury and limited placental transfer. Planned delivery in a controlled environment before respiratory decompensation requiring intubation is preferred; this may reduce the risk of neonatal compromise from maternal hypoxia and also provide the opportunity for a vaginal delivery, thus eliminating risks associated with cesarean delivery.

Coronavirus disease 2019 may present in pregnancy with a myriad of clinical symptoms other than respiratory and should be considered in the differential diagnosis when another etiology is not apparent. Acute pancreatitis represents an infrequent complication of primary COVID-19 pulmonary disease.

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