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Case Report

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Acute Pancreatitis Revealing Covid 19 in A Child

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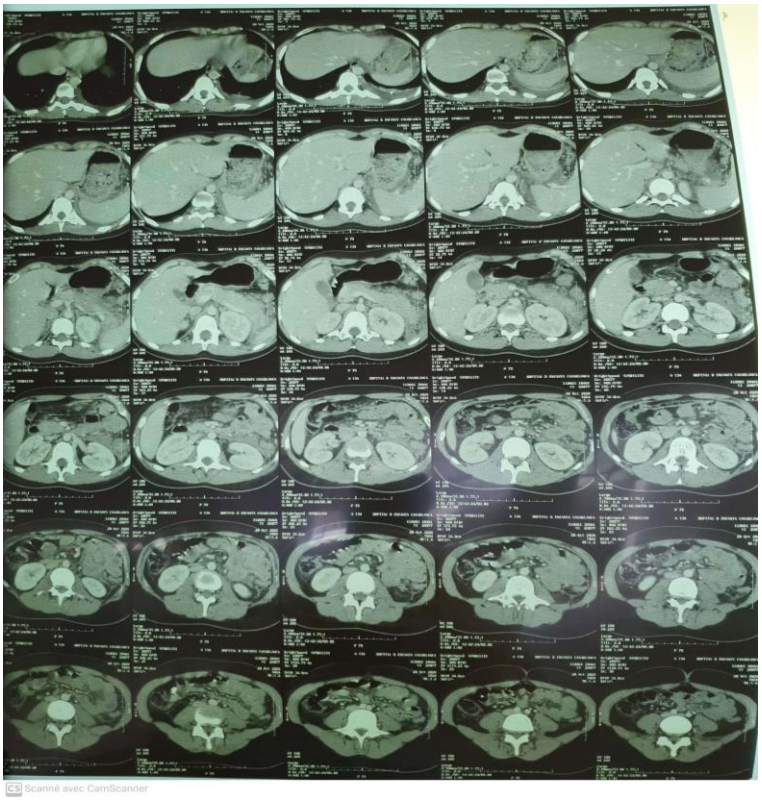
Introduction

The novel coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) has caused a global health crisis [1]. Pulmonary manifestations of the disease appear to be the most common presentation of COVID-19, but extrapulmonary disease including gastrointestinal symptomatology are becoming more apparent. This virus uses angiotensin converting enzyme 2 (ACE2) receptors to facilitate cellular entry [1]. ACE2 receptors appear to be highly expressed in pancreatic exocrine glands and islet cells, more so than in lung tissues, suggesting that pancreatic injury can occur despite having only mild COVID-19 symptoms. To date, the association between COVID-19 and pancreatitis has been limited to a few case reports, mostly in adult patients. The authors of this article report a rare case of pediatric patient with COVID-19 who presented with pancreatitis in the absence of respiratory symptoms.

Case report

A previously healthy, 17-year-old female presented to the emergency department with non-bloody, non-bilious vomiting, worsening epigastric abdominal pain. She reported a 4 days of flu syndrome and diarrhea. On examination, she was conscious (GCS 15/15), hemodynamically stable, with tenderness to palpation of the epigastric region and no signs of respiratory distress. Laboratory studies demonstrated a high white blood cell count of 20300/uL with 17240/µL polynuclear neutrophils and 1450/µL lymphocytes, c-reactive protein (CRP) was elevated to 233.9 mg/dL, procalcitonin of 0.06, her lipase was elevated to 455 U/L, aspartate aminotransferase (AST) and alanine aminotransferase (ALT) were normal 18 and 7 U/L, respectively. Her triglycerides were within the normal range.

An abdominal computed tomography (CT) demonstrated a swollen pancreas at the level of its caudal part, it is associated with an infiltration of peri-pancreatic fat and two peri-pancreatic and left pararenal collections. The liver is of normal size and homogeneous density with no dilation of the intra and extra hepatic bile ducts. The lower chest on the abdominal CT showed a small right pleural effusions, and clear lung bases. Based on the laboratory results and abdominal imaging, she was diagnosed with acute pancreatitis (AP) classified stage E of Balthazar. Due to flu syndrome, a SARS-CoV-2 real-time reverse transcription-polymerase chain reaction (RT-PCR) and serology were performed, SARS-CoV2 was négatif, but COVID-19 immunoglobulins positive confirming the diagnosis of COVID-19. She was admitted and placed on intravenous fluids and a liquid diet and prescribed pain medications to ease her abdominal pain in addition to standard covid treatment based on azithromycin. She was discharged on day 10 of admission with resolution of abdominal pain, improving lipase level, and tolerating a normal diet. There were no signs of respiratory distress throughout his entire hospitalization.



Discussion

While there is evidence that children with COVID-19 develop abdominal pain and vomiting, the effects of the virus specifically on the pancreas have not been described [2]. Acute pancreatitis in children occurs in approximately 1/10,000 children per year [3]. Viral infections are identified as a cause of acute pancreatitis in approximately 8%-10% of cases in children with other common causes being biliary/obstructive (10%-30%),medications (5%-25%), and trauma (10%-20%) [3].

Three cases of AP have been reported in adult patients with concurrent or recent diagnosis of COVID-19; all 3 tested positive for SARS-CoV-2 via PCR [4,5]. A separate case series reported 9 patients admitted for COVID-19 pneumonia in a Wuhan hospital with hyperlipasemia; however, as imaging findings and concurrent symptoms were not reported, it is difficult to determine how many patients fulfilled AP criteria [6]. Hyperlipasemia in COVID-19 can be due to additional factors including acidosis, renal failure, diabetes, and enhanced intestinal permeability due to systemic inflammation [7]. Our patient had normal pH and renal function and met formal criteria for pediatric AP based on abdominal pain, hyperlipasemia, and imaging findings.

To our knowledge, there is one serie of cases illustrating the clinical presentation of 3 pediatric patients who were diagnosed with pancreatitis about a week after the onset of COVID-19 symptoms. The association between AP and SARS-CoV-2 is not well understood. Angiotensin-converting enzyme 2 is the human receptor for coronaviruses, including both the 2003 SARS-CoV strain and the current SARS-CoV-2 strain [8,9]. Angiotensinconverting enzyme 2 is widely expressed in epithelial tissues including the pancreas, and autopsy data from the 2003 SARSCoV outbreak detected viral RNA polymerase in pancreatic acinar cells [10]. Mechanisms by which pancreatic injury could occur include the direct cytopathic effects of SARS-CoV-2, or indirect systemic inflammatory and immune-mediated cellular responses, resulting in organ damage or secondary enzyme abnormalities. Biomarkers including C-reactive protein, procalcitonin, and interleukin 6 are significantly elevated in both adult and pediatric patients with COVID-19 [11–12]. Those biomarkers were significantly elevated in our patient (the interleukin 6 was not performed).

Thus, providers should consider SARS-CoV-2 in their differential diagnoses when managing patients with extrapulmonary symptoms including gastrointestinal symptoms.

Conclusion

SARS-CoV-2 seems to have some tropism for pancreatic (exocrine and endocrine) cells, causing acute pancreatitis. Physicians should be aware that asymptomatic or mildly gastrointestinal symptomatic patients with COVID-19 require pancreatic enzymes and even abdomen imaging to diagnose pancreatitis [13]. This diagnosis is important for adequate treatment and better management of systemic repercussions, such as SIRS, decreasing SARS-CoV-2 mortality.

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