

COVID Abdomen: SARS-CoV-2 Infection presenting as 'Acute Abdomen' in a Child

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Case Report

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Abstract

Despite lesser incidence and disease severity of COVID-19 in children, growing evidence of heterogeneity in clinical presentation viz., extra-pulmonary manifestations and inflammatory syndromes emphasize the importance to understand atypical presentations. We describe an 11-year-old boy presented with fever, loose stool, transient maculopapular rash over both feet, severe abdominal pain with guarding suggestive of the acute abdomen that later turned out to be COVID-19 positive in the second RT-PCR swab based on suggestive lab parameters and high clinical suspicion. The child didn't have respiratory symptoms, and both parents were tested negative for COVID. Our case brief depicts one of the uncommon presentations – 'Acute Abdomen' of this novel virus infection in children, unravels the difficulties in reaching the diagnosis and discuss the treatment dilemmas involved in these hyper-inflammatory presentations. We hope this case would sensitize the paediatricians, pediatric surgeons to suspect COVID-19 in such conditions, especially before proceeding for surgical exploration.

Background

Coronavirus disease (COVID-19) started in China and became a pandemic in a short time threatening human lives. Although reports from most countries confirm lower incidence in children [1], growing evidence suggests heterogeneity in clinical presentation dominating extra-pulmonary manifestations [2] and inflammatory syndromes [3]. Understanding these myriad presentations is not essential to make an early diagnosis and optimizing the treatment. Our case depicts an unusual presentation as "Acute Abdomen" and unravels the difficulties in diagnosing 'extra-pulmonary manifestation with an un-identifiable contact/exposure'.

Report Of A Case

We describe an 11-year-old well-grown boy, a single child from a nuclear family presented with fever, pain abdomen for five days, vomiting, loose stool for three days, transient non-itchy, maculopapular rashes on both feet. There were no respiratory symptoms. At admission, he had diffuse abdominal tenderness with guarding, raised doubt of an acute surgical abdomen. He was kept nil by mouth and started on intravenous fluid maintenance and ceftriaxone.

Abdominal ultrasound revealed thickening of terminal ileum and caecum with multiple lymph nodes in the right iliac fossa. Initial blood investigations showed Hemoglobin 11.6 g/dl; total leukocyte count (TLC) - 11,500 cells/mm³ with 90% neutrophils(N) and 9% lymphocytes(L), Platelets - 3.0Lakhs/mm³, CRP - 107 mg/L, hypoalbuminemia (2.6g/dl), INR 1.46, Ferritin 666ng/ml, LDH 233U/L with preserved renal function, lactate and transaminases. CXR was normal.

As a part of fever workup, COVID-19 RT-PCR was done (6th day of illness) from a nasopharyngeal sample and reported as negative. Due to persistent fever, abdominal pain, and the inability of USG to locate

appendix, CECT abdomen was done showed normal appendix, diffuse mural wall thickening in the terminal ileum, ileo-caecal junction and ascending colon with adjacent significant mesenteric lymphadenopathy [Figure 1].

On day 3 of hospitalization i.e. 8th day of illness, the child developed features of compensated shock, required 40 ml/kg crystalloid fluid resuscitation. As there was resurfacing of shock on next day, shifted to PICU and received another 20 ml/kg fluid bolus and started on face mask oxygen. Given worsening clinical status, the antibiotic was upgraded to Piperacillin + Tazobactam, and Azithromycin was added. 2D ECHO was normal. Repeat investigation showed TLC- 13,730cells/mm³ (N-91%, L-06%), platelets - 5.05Lakhs/mm³, CRP increased to 142 mg/L, D-dimer was high (2.16mg/L) with negative pro-BNP and Troponin T. Due to worsening clinical condition, and negative yield in all other infective (leptospirosis, typhoid, scrub typhus) workup, nasopharyngeal and oropharyngeal swab were re-sent for COVID on 10th day of illness and reported as positive.

We have planned immunomodulation and chosen to start 2g/kg of IVIG over steroid for fear of intestinal perforation. He was also given iv thiamine and ascorbic acid as part of supportive therapy. Hydroxychloroquine was not added as the corrected QT was 470ms. Over the next 72 hours, his tachypnea improved, became afebrile, appetite improved and tolerated oral liquids and soft diet. Blood parameters also showed concurrent improvement with CRP coming down to 38 mg/L. Both parents were tested negative for COVID. The child was shifted to public healthcare facility for continuation care and discharged after seven days of observation and PCR negative status.

Discussion

We did a literature review to identify 'abdominal symptoms' in children with COVID-19 infection. Among the pediatric cohorts, Dong et al. [4] reported that 'some milder cases had nausea, vomiting and abdominal pain without fever'. In other cohorts, abdominal pain was documented to be 4% and 5.8% [5], more as a concomitant symptom like diarrhoea. There was no data on 'dominant abdominal presentation of severe cases', especially in children. While reviewing adult data, Lima et al. [6] reported the importance of Chest CT evaluation in addition to abdominal CT in patients presenting as acute abdomen to identify basal pneumonia to ignite a suspicion of COVID-19, not as a primary acute abdomen presentation.

Our index case was a pure abdominal presentation at the onset, symptoms persisted through the second week and progressed to shock without lung parenchymal involvement or escalation of respiratory support needs. In such a scenario, 'persistent diffuse abdominal tenderness and guarding' could easily confuse as a surgical abdomen and urge us to proceed for exploratory laparotomy. However, the preserved bowel sounds and the diarrheal onset of illness allowed us to wait with medical management. Varying skin lesions [7] had been described with COVID-19 infection, history of maculopapular rashes on the dorsum of feet had added the suspicion of COVID-19 in the index case.

Growing data on persistent faecal shedding of virus for a more extended period [8,9] suggest that gut may be one of the most susceptible organs for COVID-19 manifestation. It supports the plausibility of

'gastrointestinal tract can be the only manifesting organ with varying degrees of severity'. We hope this letter would sensitize the paediatricians, pediatric surgeons to suspect COVID19 in children presenting with acute abdomen, especially before proceeding for surgical exploration.

Declarations

Conflict of Interest - None

Source of Funding- None.

Written consent has been obtained from patient parents

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Figures



Figure 1

CT Abdomen showing A) diffuse mural wall thickening in the terminal ileum, ileo-caecal junction and ascending colon B) Significant mesenteric lymphadenopathy