International Journal of Contemporary Pediatrics
Venkatkrishnan A et al. Int J Contemp Pediatr. 2021 Mar;8(3):585-587
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291

DOI: https://dx.doi.org/10.18203/2349-3291.ijcp20210671

Case Report

Uncommon etiology of a common presentation

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Received: 23 December 2020
Revised: 06 February 2021
Accepted: 09 February 2021

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ABSTRACT

Intussusception is the most common cause of bowel obstruction in infants. The authors present a rare case of intussusception in a SARS-CoV-2 positive infant, and a severity score of 5 on HRCT. This is the first documented case of survival in SARS-CoV-2 patient where intussusception was the primary manifestation, which required surgical intervention.

Keywords: Intussusception, SARS-CoV-2, Obstruction

INTRODUCTION

Intussusception is the most common cause of bowel obstruction in infants, most commonly occurring between the ages of 4 and 10 months.[1] Viral illness are known to cause intussusception.[2]

Children infected with COVID-19 showed less severe symptoms than adults during the acute phase of the illness, most of them remaining asymptomatic. However, infants and toddlers were vulnerable to a moderate and severe infection and to delayed manifestations.[3]

Gastrointestinal manifestations of COVID-19 have primarily been limited to diarrhoea, vomiting and abdominal pain. Studies have identified SARS-CoV-2 RNA in stool samples of infected patients, and its viral receptor angiotensin converting enzyme 2 (ACE2) was found to be expressed in gastrointestinal epithelial cells. These suggest that SARS-CoV-2 can actively infect and replicate in the gastrointestinal tract.[4] In a case series done in Wuhan with 5 pediatric patients presenting with non-respiratory symptoms, 1 child was a 10-month-old female with intussusception who tested positive for SARS-CoV-2.[5]

The authors present an unusual case of intussusception with RT-PCR positive of SARS-CoV-2, requiring surgical intervention for intussusception. This infant did not have respiratory manifestations or hyper inflammatory syndrome.

CASE REPORT

An 8-month-old girl was brought with a history of vomiting, red currant jelly stools and fever for 2 days. On examination, heart rate was 180 per minute, temperature was 101˚F, respiratory rate of 46 per minute and saturation of 98% with 5 litres of oxygen, capillary refill time>3 seconds, GCS of 10/15, Q SOFA score of 2. Signs of dehydration were present. Abdominal examination revealed distension with no bowel sounds, no palpable mass in the abdomen.

Intussusception was suspected, intravenous fluids and antibiotics were started. X-ray abdomen showed dilated small bowel with multiple air fluid levels. Ultrasound abdomen showed target sign suggestive of intussusception. CT abdomen showed features suggestive of ileocolic obstruction. CT chest was done as a part of

COVID protocol showed CT Severity Score of 5 out of 40.

Investigations revealed haemoglobin of 10.5 g/dl, total leukocyte count of 18700 cells/cu.mm and absolute lymphocyte Count was 2600. Ferritin was 177ng/ml, D-dimer was 4086 ng/ml, procalcitonin of 4.7ng/ml, C-Reactive Protein of 64mg/L and lactate dehydrogenase of 334 U/L. Renal functions, electrolytes, coagulation parameters were within normal limits.

Ultrasound guided saline reduction was attempted but reduction was not possible. Hence, the child was taken up for laparotomy. Intraoperative findings were ileo-ileal intussusception with serosal tears involving distal ileum. Manual reduction was attempted but intussusception could not be reduced, and hence intussuscepted segment of distal ileum was resected and end to end ileo-ileal anastomosis was done (Figure 1).

Figure 1: Dialated small bowel telescoping into the distal ileum.

Child needed ventilatory and inotropic support post operatively. Shock recovered, hemodynamics improved and child was extubated 48 hours after surgery. Inotropes were tapered off on day 3 post operatively. She was on face mask oxygen support till 4th post-operative day. On day 5, trophic feeds started which was tolerated well.

As fever spikes persisted, repeat infective markers and cultures were checked, infective markers showed a down trend and cultures were sterile. By day 6, fever spikes subsided, and abdomen drain was removed.

RT-PCR for SARS-CoV-2 was positive but there was no history of contact. Parents tested negative for COVID-19 by nasopharyngeal swab on day 3 of admission. Infant's Antibody levels (IgG) was 20.0 IU by Clia method.[6]

The patient was discharged home on day 10. The isolation procedures, home quarantine, screening of contacts was done as per government rules.

DISCUSSION

Literature search showed that to the best of our knowledge, this is a second such instance of a SARS-CoV-2 positive patient presenting to a healthcare centre with intussusception as the primary manifestation, and the first documented case which required surgical intervention that yielded a good result.

Although gastrointestinal symptoms have been documented in COVID-19, they are rare and have primarily been limited to diarrhoea or vomiting. A review of 452 patients in 23 studies revealed that diarrhoea (6.6%) and vomiting (5.8%) were far less than common than fever (43.1%) or cough (43.4%).[7]

Emerging data shows that the gastrointestinal tract and liver also represent target organs of Coronavirus 2 (SARS-CoV-2) on the basis of findings that angiotensin-converting enzyme 2 (ACE2), the major receptor of SARS-CoV-2, is expressed in gastrointestinal tract as well as liver cells.[8]

Genome sequences showed that SARS-CoV-2 encodes and expresses the spike (S) glycoproteins that could bind to the entry receptor ACE2 to enter human cells. 4 Clinicians should be alert of the gastrointestinal symptomatology of Covid-19, especially as they may occur before the onset of pyrexia and respiratory symptoms.

In a study by Xiao et al, out of 73 Covid-19 patients, 39 (53.4%) were tested positive for SARS-CoV-2 RNA in stool, with a duration of positive stool ranging from 1 to 12 days. Rather of concern, 17 (23.3%) patients remained positive for stool viral RNA even after their respiratory samples were negative for viral RNA.[9]

The radiologic manifestation can be distended fluid filled small and large bowel loops with mural post-contrast enhancement and surrounding stranding on CT and diarrhoea state and ileus pattern on abdominal radiographs.[10]

Very few cases of intussusception have been reported, one by Lu et al, a 10-month-old child with intussusception died with multiorgan failure 4 weeks after admission.[11] In another case report series, 2 infants with intussusception with SARS-CoV-2, underwent pneumatic reduction, one died due to multiorgan failure while one was discharged home.[12]

Our patient required laparotomy and excision of distal ileum with end-to-end ileo-ileal anastomosis as manual reduction could not reduce the intussusception. Due to the absence of lead point and an ileo-ileal intussusception, it is more in favour of viral enteritis. She did not have cytokine storm syndrome and could easily be weaned off ventilator though there was evidence of respiratory involvement on CT Chest. The inflammatory markers were mildly elevated, but the patient did not require treatment for hyperinflammatory syndrome. RT-PCR for SARS-CoV-2 was positive while parents were negative. Antibody testing was done for the patient at the

time of discharge which revealed presence of IgG antibodies. Antibody levels were done only for academic purpose.

CONCLUSION

This case report shows gastrointestinal manifestations like intussusception should raise the suspicion of COVID-19. A lot of attention must be paid to patients presenting with gastrointestinal symptoms.

All children with acute abdomen must be evaluated with all tests for COVID-19 to identify the association with COVID-19. Protective and preventive measures like hand hygiene and wearing PPE should be of paramount importance when intervention is necessary even when initial screening is negative for COVID-19 infection.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Venkatkrishnan A, Chelliah S, Pachamuthu M, Jayabalan SD. Uncommon etiology of a common presentation. Int J Contemp Pediatr 2021;8:585-7.