

CASE REPORTS

INTRIGUING ACUTE ABDOMEN AND COVID-19 IN CHILDREN : A CASE REPORT

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ABSTRACT

Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) is a worldwide pandemic, manifested commonly by infectious pneumonia, some patients also develop gastrointestinal (GI) and hepatic manifestations. To understand the clinical features and possible pathogenic mechanisms leading to gastrointestinal lesions in COVID-19 to formulate therapeutic strategy. Thus, we report the case of a girl with an acute febrile digestive picture revealing COVID19 infection, having direct contact with a COVID-positive person. Surgical exploration was performed when white, on the balance sheet a PCR covid was negative and serology covid 19 (IgM positive and IgG positive). In conclusion, we are slowly starting to understand the complex pathogenesis of SARS-CoV-2 infections. The widespread organo-specific complications of COVID-19, including those of the gastrointestinal system, are now increasingly appreciated. A thorough understanding of the gastrointestinal damage and clinical manifestations of this multi-organ disease remains imperative.

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Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS CoV 2) is a global pandemic, manifested mainly by respiratory symptoms. An increasing number of extra-pulmonary symptoms and manifestations linked to COVID-19 have been observed, including gastrointestinal (GI) and hepatic manifestations. Very few adult case series have reported acute abdomen as a symptom of SARS-COV-2 infection.¹ The objective of our work is to update physicians working with suspected cases of the Covid-19 on acute abdominal events.

Case Report

This is a 9-year-old head girl, with no significant past medical history, having direct contact with his mother who was covid positive two weeks before, admitted for an acute abdomen with shock. The history of the disease dates back to a week before its admission with fever over 39° C, complicated three days later by diffuse acute abdominal pain associated with watery diarrhea and vomiting post meals, without associated respiratory symptoms. The child was initially admitted in pediatric resuscitation in shock, on clinical examination she was drowsy with Glasgow 12/15, febrile at 39° C, capillary refill time above 3 seconds, tachycardia of 160 beats per minute, polypnea to 53 cycles per minute, 96% oxygen

saturation in room air, blood pressure at 80 / 60mmg, severe abdominal pain generalized on palpation associated with contracture of the abdominal muscles, without hepatomegaly or splenomegaly. After the conditioning, an abdominal ultrasound was performed and showed a hypoechogenic ledure in favour of an intraperitoneal fluid effusion of medium abundance. Faced with this clinico-radiological picture, peritonitis was suspected but the surgical exploration carried out urgently, came back unremarkable.

Biologically, we note the presence of a high crp, high ferritinemia, lymphopenia, as well as thrombocytopenia. More details are given in Table 1.

Table 1. Hematological and Biochemical profile of the our patient

Test	Results	Reference interval
CRP	316 mg/l	0.0-5.0
Ferritin	1200 /mm ³	15-200
Urea	1.05 g/l	0.13-0.43
Creatinine	26 mg/l	5.7-11.1
AST	199 IU/l	<47
ALT	61 UI/l	<39
Lymphocytes	900/mm ³	1000-5200
Platelets	46000/mm ³	150000-500000
PR	34%	70-140

CRP: C-reactive protein, AST: Aspartate transaminase, ALT: Alanine transaminase, PR: Prothrombin Ratio.

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The ascites puncture showed a yellow appearance liquid citrine, Globules Blancs 600 é/mm³ lymphocytic (70%), and a sterile culture. The blood culture was normal. The lumbar puncture was normal. The stool culture was normal. The covid 19 PCR was negative while the COVID 19 serology was positive (IgM and IgG positive). From a therapeutic point of view, the child was put on empiric antibiotic therapy based on Ceftriaxone (75 mg/kg/day) on admission, corticosteroid therapy (methylprednisolone) in the form of a bolus, and then direct intravenous (2 mg/kg/dose or 6 mg/kg/day) human immunoglobulins (2 g/kg over 48 hours) and antiplatelet dose of acetylsalicylic acid. The evolution was marked by a clear clinical and biological improvement with a defervescence on D3 of the treatment.

Discussion

In January 2020, a new coronavirus, SARS-CoV-2, was described in Wuhan, China. The virus responsible for the disease Coronavirus 2019 (Covid-19) and its rapid spread led to the declaration of a global health emergency and a pandemic by the World Health Organization. Morocco was one of the countries affected in the world by this pandemic.³

In previous epidemics caused by the Coronavirus, little data on pediatric patients have been published and the impact of the Covid-19 appears to be less in the pediatric population.⁴

The Sars-CoV-2 virus enters the human body and then attaches to the Angiotensin Converting Enzyme II (ACE2) receptor which is found on the surface of cells located in the lungs, arteries, heart, etc. the kidneys, but also the digestive system.⁵ Dr Wenbin Li⁶ suggests that the virus could "infect patients not only from the respiratory tract in the form of air droplets, but also via the digestive tract by contact or transfer oro-fecal".

The intestinal inflammation mechanism can be explained by the binding of virus SARS-CoV-2 on the surface of intestinal cells by angiotensin converting enzyme to angiotensin II (ACE 2), which causes cytokine release and chemokines.^{5,7}

Clinical studies on children with the Covid-19 have shown that gastrointestinal symptoms such as nausea, the vomiting, abdominal pain and diarrhea seem to precede or follow pulmonary symptoms. Acute abdominal pain was rare.⁸

According to the experience of some authors, infection with SARS-CoV-2 could lead to a non-surgical acute abdomen, there can be thrombotic causes (mesenteric ischemia, the appendicitis, the infarction of the omentum) and to non-thrombotic causes (pancreatitis, peritonitis, and colitis).^{9,10,11}

Keeping in mind the causes mentioned above, infection with SARS-CoV-2 should be ruled out in order to avoid unnecessary surgeries even in the absence of respiratory symptoms. The presence of lymphopenia, the high ferritin, of D-dimer, high interleukin-6 levels, and positive serology was in favor of Covid-19 infection.¹²

Although there are currently no recommendations for the treatment of patients with SARS-COV-2, approved indications have shown evidence-based efficacy of

corticosteroids and immunoglobulins for the control of cytokine production in addition to inflammatory response and accumulation of cells and fluids. For this during the pandemic of Covid-19, surgeons should be wary of an overly aggressive approach in children with an acute abdomen associated with peritonitis signs, and increased inflammatory parameters mimicking of perforated appendicitis. A well thought out and potentially conservative attitude are strongly recommended.⁶

Conclusion

In summary, we describe a severe presentation of Multisystem Inflammatory Syndrome in children (MIS-C), which has not been fully described previously and which required close monitoring and advanced supportive treatment. This presentation is not always associated with active infection. By recording and reporting cases like these to the the global Community, a standard of care and an appropriate etiologic diagnosis can be established.

Authors Contribution

Naima Amenzoui : main author.
Khaoulaa Gharib : second author.
Samira Kalouch : supervisor.
Abdelaziz Chlilek : supervisor.
Fatima Ailal : supervisor.
Ahmed Aziz Bousfiha : supervisor.

Compliance with Ethical Standards

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