

# COVID-19, Abdominal pain and Acute Appendicitis – “Cut, but not with Occam’s razor”

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## Introduction

- Novel coronavirus (COVID-19) has spread rapidly, infecting over 192 million people worldwide.<sup>1</sup>
- Children mostly exhibit mild disease. A tiny minority present with respiratory distress syndrome or multi-organ failure. This is known as PIMS-TS
- Acute appendicitis is the most common abdominal surgical emergency in the world<sup>4</sup>; early diagnosis and treatment, surgically or with conservative measures is valuable in avoiding death and significant morbidity.<sup>5</sup>
- We describe an 11 year old girl with fever, and abdominal pain in whom the dual presence of COVID-19 and acute appendicitis complicated her diagnostic and treatment course.

## Subsequent clinical course & outcome

- Initially treated with IV fluids, anti-emetics, analgesia and IV antibiotics.
- Failure to improve resulted in a CT abdomen/pelvis on DAY 3:
- Acute Appendicitis with free fluid in right iliac fossa and pelvis and peripheral enhancement consistent with a developing abscess seen.
- Laparoscopy on DAY 3 revealed an inflamed, gangrenous, perforated appendix, which was removed successfully.
- The young girl required hospital treatment until DAY 9 post-op as she required ongoing hospital care possibly as a result of her concurrent COVID-19 infection.
- Surgical OPD follow-up 4 weeks post-op confirmed a full recovery.

## Discussion

- Under 18s comprised only 1-2% of cases of COVID-19 worldwide during 1<sup>st</sup> wave of the pandemic.<sup>2</sup>
- Abdominal symptoms seem more common in PIMS-TS.
- Two small case series have documented increased rates of terminal ileitis in PIMS-TS; whilst others postulate that the inflammatory response caused by PIMS-TS is associated with increased rates of appendicitis.<sup>7,8,9,10</sup>
- COVID-19 has changed protocols and pathways across the UK with national bodies all advocating minimizing exposure to COVID-19, perhaps leading to less operative management of surgical pathologies.
- A few cases studies report increased incidence of complicated appendicitis (i.e. abscess, perforation etc.) of up to 40% or more, during the COVID 19 pandemic.
- Despite multiple clinical, laboratory and imaging modalities to assist diagnosis, the decision to operate may remain very challenging. This case highlights complexity in decision-making and some barriers to speedy care in time of COVID-19 for the commonest paediatric surgical emergency.
- Dual diagnosis may occur in COVID-19 with abdominal pain. A clear focus upon presenting symptoms and clinical signs remain paramount during the pandemic.

## Case Presentation

- An 11 year old girl presented to the Emergency Department with 17 hours of abdominal pain.
- Her pain was initially central and moved to her lower abdomen with radiation into her back.
- She also described dysuria and had vomited several times.
- Upon examination her abdomen was soft but tender, maximally in her right renal angle with mild tenderness in her right iliac fossa.

## Initial Investigations and management

- White cell count=15.3 x10<sup>9</sup>/L
- C-reactive Protein = 43mg/L.
- Dipstick urinalysis = no nitrites or leucocytes.
- A routine nasal PCR swab confirmed the presence of SARS-CoV2.
- All other bloods normal
- The young girl was referred to the regional paediatric surgical team as likely appendicitis.
- At the time of referral, the telephone opinion of the receiving surgeon was that acute appendicitis was very unlikely in the presence of COVID-19 disease.

**PIMS-TS**

**DEFINITION**

- Fever, inflammation, & single or multi-organ failure
- Exclusion of any other microbial cause
- SARS Co-V 2 PCR +ve or -ve (with some additional features below)

**ALL** Persistent fever >38.5

**SOME** Oxygen requirement  
Hypotension

**HEADACHE/CONFUSION**

**CONJUNCTIVITIS**

**COUGH**

**LYMPHADENOPATHY**

**SORE THROAT**

**SYNCOPE**

**RESP SYMPTOMS**

**VOMITING**

**RASH**

**ABDO PAIN**

**DIARRHOEA**

**HAND/FEET SWELLING**

**TESTS**

↑ D-Dimer  
Ferritin  
CRP  
Neutrophils (often)

↓ Albumin  
Lymphocytes  
Abnormal fibrinogen

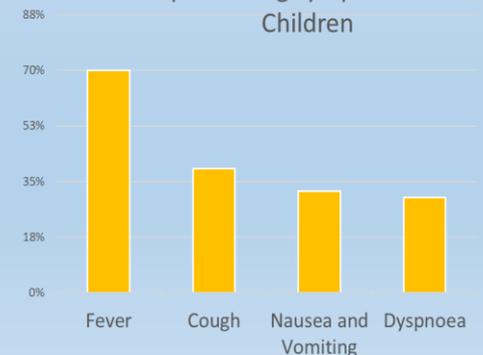
**DIFFERENTIALS**

Kawasaki disease  
Toxic shock syndrome  
Sepsis  
MAS

See the RCPCH guideline at:  
<https://dftbubbi.es/RCPCHPIMS>

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Common presenting symptoms COVID-19 In Children



## References

Available on request