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Introduction:

The objective of this case description is to create awareness among pediatric intensivists about the diagnostic pitfalls regarding Multisystem Inflammatory Syndrome in Children (MIS-C) and its differential diagnosis

Methods:

By means of two case descriptions, we illustrate and reflect on the pitfalls that led to both under- and overdiagnosis of MIS-C

Results:

Brief patient descriptions are presented in table 1. The 3-year-old patient was misdiagnosed for MIS-C and turned out to have a perforated appendicitis with peritonitis. The suspicion of MIS-C was based on clinical symptoms in combination with the elevated NT-pro-BNP, which is often seen in MIS-C. However, elevated cardiac biomarkers as NT-pro-BNP and Troponin-T may also be caused by non-cardiac causes, like sepsis, shock and ARDS [1]. The combination of fever, gastrointestinal symptoms and hypotension that were present in this girl, are often presenting symptoms of patients with MIS-C. However, they are not specific and are seen in a range of other diagnoses as well. The 8-year-old girl, with the same symptoms of fever, gastrointestinal symptoms and hypotension, was initially diagnosed for acute appendicitis, but turned out to have MIS-C with left ventricular failure. While no clear symptom or biomarker can distinguish between MIS-C and its differential diagnosis, the presence of conjunctivitis, skin rash and/or coronary dilatation on echocardiography are suggestive for MIS-C, while blood cultures can help to differentiate MIS-C from septic shock / toxic shock syndrome

Conclusion:

Intensivist have to be aware of the existence of MIS-C and the pitfalls of its broad clinical and biochemical abnormalities. Accurate physical examination, including examination for conjunctivitis and rash, echocardiography and blood culture results can be supportive to make the correct diagnosis and to start the right treatment, right on time! Consent to publish is obtained from parents of both patients

References:

1. Yoldas T et al. Pediatric Cardiology 40:1638–1644.2019

Table:

Age (years)	Presenting clinical features	Results	Primary diagnosis and therapy	Final diagnosis
3	abdominal pain, fever, hypotension, vomiting,	CRP 270mg/l, troponin-T <3ng/l, NT-proBNP 1000pg/ml,	MIS-C or acute abdomen	Perforated appendix with generalized peritonitis
	diarrhea, no conjunctivitis or skin rash	PCR nCoV neg, nCoV pos contact unknown, blood culture neg, abd. ultrasound tubid ascites	Diagnostic laparoscopy	

8	abdominal pain,fever,hypotension,vomiting, headache,skin rash,no conjunctivitis	CRP 140mg/l,troponin- T124 ng/l,NT- proBNP13000pg/ml PCR nCoVneg,nCoV pos contact yes, blood culture neg,echo left ventricular failure	Acute appendicitis Laparoscopy: appendix sana	MIS-C
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Brief case description of two patients