

PARVOVIRUS B19 MYOCARDITIS IN A COVID19 MIS-C SYNDROME: CAUSE OR CAUSALITY?

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Background: myocarditis has been recognized as one of major complication during COVID 19 infections and vaccination. Few data are currently available on viral detection during myocardial damage in pediatric population. We report a case of myocarditis PVB19 related during MIS-C syndrome.

Case presentation. Clinical scenario at Emergency Department in Bambino Gesù Hospital, January 2021:

- previously healthy 13 years old
- abdominal pain, vomit and fever
- asymptomatic infection by SARS-CoV2 two months before
- Abdominal US: minimal fluid distension without significant parietal thickening

First suspicion of
appendicitis:
antibiotic therapy started

Nasopharyngeal swabs was positive for a new SARS CoV-2 infection

Rapid evolution:

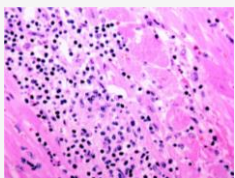
- frequent diarrhoea
- pallor
- hypotension
- galloping rhythms

Echocardiogram:

severe left ventricular dysfunction
(**LVEF 25%**) with no dilation
+ mild pericardial effusion

C reactive protein	30.7 mg/dl (NV < 0.5)
Procalcitonin	8 ng/ml
Ferritin	1.529 ng/ml (NV 30 -400)
Leucocytosis	23.270/uL (2.000/uL Lymphocyte)
NTproBNP	14.305 ng/ml
Troponin (HsTnT)	1.500 ng/ml (NV < 14 ng/ml)

Rapid progression to **cardiogenic shock** :
oro-tracheal intubation and inotropes support



EMB: inflammatory lymphomonocyte infiltrate (CD3++, CD4+, CD8++, TIA-1+, Granzyme B+, CD20+/-), myocellular cytotoxic aggression and necrosis. **Parvovirus B19 genome found on myocardial muscle. No COVID 19 detectable.**

Anti-parvovirus B19 serum IgM negative, IgG positive.

**VIRAL MYOCARDITIS
PARVOVIRUS B19
RELATED**

Therapeutic strategy:

1. High-dose iv immunoglobulins (2 g/kg)
2. CytoSorb® for 3 consecutive days

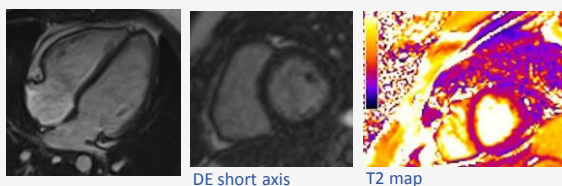
After 48 hours Anakinra was added.

LMWH at therapeutic dose. High dose iv diuretics

24 h after Immunoglobulin infusion LVEF promptly recovered from 25 to 50%



General clinical condition and VP gradually normalized. At 7th day inotropes weaned and extubation. Helmet Cpap support was used until clinical improvement. Sars-CoV-2 swabs were negative after 7 days. No major arrhythmias detected during hospitalization. Discharged after 20 days: NYHA class I, normal cardiac function and biomarkers.



DE short axis

T2 map

Cardiac MRI after 3 months: no myocardial tissue alterations, normal biventricular function. Aldactone was administered for 6 months. After 18 months the patients is asymptomatic and echocardiogram, EKG and functional tests are normal.

In this patient **Multisystem Inflammatory Syndrome** due to SARS-CoV2 infection was associated to **viral myocarditis by Parvovirus B19**. The huge inflammatory stimulation probably activated cardiac damage by a latent, recent Parvovirus B19 infection, leading to severe cardiac dysfunction and cardiogenic shock. The therapeutic strategy with the promptly use of immunoglobulin and CytoSorb permitted to modulate immune response with the complete recovery of cardiac muscle.