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Case Report

Post COVID Multisystem Inflammatory Syndrome with Progressive Aneurysm Involving Multiple Vessels

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ABSTRACT

Multisystem inflammatory syndrome (MIS-C) is caused by SARS-CoV-2. The real extend of clinical spectrum is still poorly understood. Case of 18 month old child, Febrile Inflammatory type of MIS-C who has giant coronary aneurysm with thrombus. Treated as per protocol still developed progressive axillary aneurysm. Rare case, progression continued even after adequate treatment.

Keywords: KawaCOVID-19; PIMS-TS; SARS-CoV-2; Kawasaki-like; Coronary dilation

INTRODUCTION

Three clinical patterns of MIS-C presentation have been proposed

1. shock and cardiac involvement
2. fever and elevated inflammatory markers
3. features like Kawasaki dieses [1-3]

This is a rare case of patient who had overlapping features of Kawasaki disease and MIS-C with severe presentation as giant coronary aneurysm and organized thrombus which progresses to brachial aneurysm and thrombus.

CASE DESCRIPTION

18 month male was referred to our institute for non-responding fever and raised inflammatory markers since 1 month. He was apparently alright 1 month back, developed loose motions, one episode of convulsion. Admitted and treated as febrile convulsion with diarrhea.

Fever recurred on 5th day, Investigations suggestive of raised total leukocyte count with altered Neutrophil: lymphocyte ratio, thrombocytosis and raised inflammatory markers. Rapid antigen for COVID negative. No family history of COVID contact/ history of COVID vaccination.

Patient was treated as MIS-C received pcv transfusion, steroids Aspirin, Heparin and Antibiotics, discharged on oral Antibiotics, Prednisolone and Aspirin on day 14th. On follow up day 20, Parents had intermittent fever and raised Inflammatory markers, he was referred us.

On admission, patient was febrile, spo2 96% with Normal blood pressure, mild pallor and genital macular rash (Figure 1). On Systemic examination, persistent tachycardia disproportionate to fever with grade 1 murmur, normal heart sounds and mild hepatomegaly.

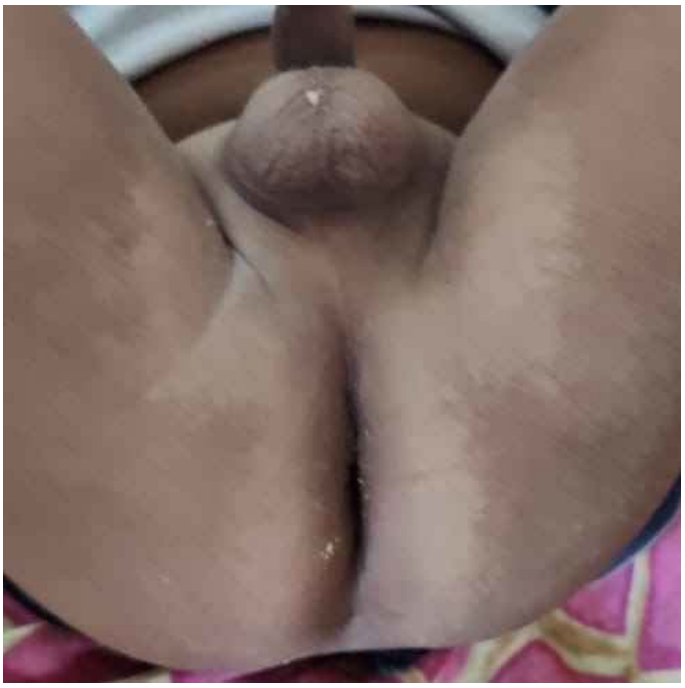

Figure 1: Genital rash

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Investigations suggestive, of raised WBC, thrombocytosis with markedly raised Inflammatory markers, sr,. Albumin. Liver enzymes deranged. ECG suggestive of sinus tachycardia with mild cardiomegaly on Xray Chest (Table 1).

Table 1: Date wise Investigations of patient

Day of Hospitalisation	Day 1	Day 4	Day 7	Day 10	Day 14	Day 20, Admission with our Institute	Day 21	Day 24
HB (gm/dl)	6.4	5.4	10.4	11.7	10.3	9.6	10..6	9.7
TLC (cumm)	10,000	12,500	20,100	18,500	19,700	20,000	28680	11000
	N-71%	N-82%	N-78%	N-45%	N-78%	N-65%	N-50%	N-45%
	L-24%	L-17%	L-21%	L-43%	L-15%	L-24%	L-46%	L-55%
	M-3%	M-0	M-11%	M-11%	M-6%	M-10%	M-3%	M-0%
Platelets	6.1 lac	4.5Lacs	6.45lacs	7.1 lac	8.3lac	9.3 lacs	4.8lacs	5 lacs
CRP (mg/dl)	166	66	51	56	66	87	66	38
ESR (mm/hr)							30	
D-dimer (ng/ml)	2115	2915					4820	388
LDH(U/L)	563	519						19
Sr. ferritin(ng/ml)							115	62
IL6(pg./ml)							5.2	
Troponin I(ng/ml)							2.8	
SGPT(U/L) SGOT							8154	3834
Sr. albumin (gm/l)							3.5	
Sr.sodium (meq/l)							136	

2D-echo (Figure 2) showed pericarditis with mild pericardial effusion with giant coronary aneurysm involving major arteries LMCA 4.7 mm (Z score 8.4), proximal LAD 5.6 mm (Z score+13), RCA 7.5 mm (Z score+17) and thrombus in left circumflex (7 mm), borderline left ventricular systolic function EF: 51%.

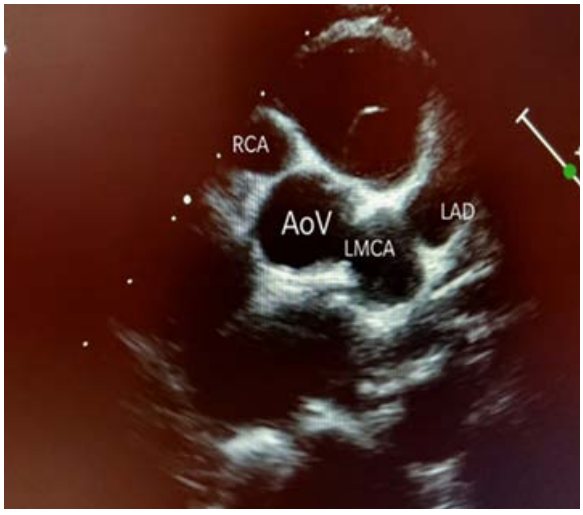

Figure 2: Dilatation of coronary arteries

RTPCR negative, as COVID-19 IgG was positive; we put diagnosis MIS-C stable Kawasaki type with giant coronary aneurysm. Treated with methylprednisolone pulse dose for 5 days and IV immunoglobulin. LMWH, high dose Aspirin both started as thrombocytosis. Empirical Antibiotics and Lasix given due to pericardial effusion. 2D echo rafter 48 hr s/o reduced thrombus size (5 mm), LVEF increased to 55% with effusion. Inflammatory markers reduced and leucocyte count became normal. The LMWH dose was adjusted accordingly to INR and shifted to warfarin after 2 weeks.

In follow up, patient developed right axillary swelling, CT angiography suggestive right and left brachial artery aneurysm (Figure 3). Propranolol, anticoagulant and Clopidogrel started, Coronary thrombus disappeared.

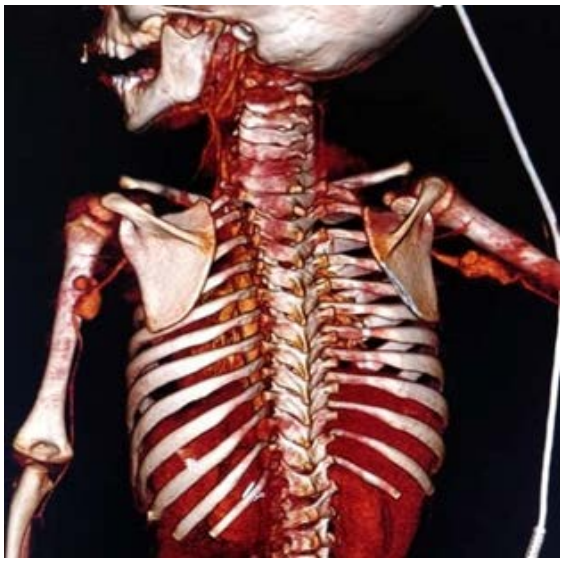

Figure 3: bilateral axillary artery aneurysm

DISCUSSION

MIS-C and KD differ in several clinical features. Gastrointestinal complications, shock and coagulopathy are more common in patients with MIS-C, unusual in classic KD. Classic KD is

common in North East Asian countries, whereas MIS-C in Africans, Hispanic or Latino ethnicity. KD is common below 5 years with male predominance whereas MIS-C common in older children [1-6].

Our patient had overlapping features, Asian male infant without shock like classic Kawasaki. While he presented with gastrointestinal symptoms like MIS-C.

Symptomatic myocarditis reported in 40%–80% of patients with MIS-C in contrast to 5% with KD [1]. MIS-C likely to exhibit cardiac dysfunction and hypotension, as opposed to coronary abnormalities [4].

Our patient was stable with coronary aneurysm like classic KD. Cardiac biomarkers were normal in contrast with MIS-C.

Majority of patients with MIS have lower number of leucocytes, lymphocytes, monocytes and platelets while thrombocytosis is common with classic KD [2].

Our patient had thrombocytosis, raised WBC and monocytes like classic KD And lymphopenia, altered Neutrophil

lymphocyte ratio with markedly raised D-dimer, CRP and COVID IgG antibody like Kawa COVID.

CONCLUSIONS

1) There are overlapping clinical features between MIS-C and Classic KD though there are many differences in demography, symptoms, age of presentation, laboratory markers and extent of coronary involvement.

2) Early 2decho to diagnose coronary involvement and Immunoglobulin therapy plus steroid and anticoagulation can prevent long term complications.

Early cardiac complications should be ruled out by vigorous Investigation in MIS-C irrespective of its type to give proper treatment and prevent long term complications.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

FINANCIAL DISCLOSURE OR FUNDING

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INFORMED CONSENT

Written informed consent from parents taken.

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