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Post COVID-19 Kawasaki Like Syndrome – A rare case presentation

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Abstract

Corona virus disease 2019 (COVID – 19) pandemic has shed new light on emergence of new disease like Mucor mycosis as well as Kawasaki Like Disease which is a multisystem inflammatory syndrome in children.

Once exposed to corona virus, some children mount an exaggerated inflammatory response which clinically mimics Kawasaki disease. We report a case of Kawasaki like disease after COVID 19 infection in a two-year-old male child.

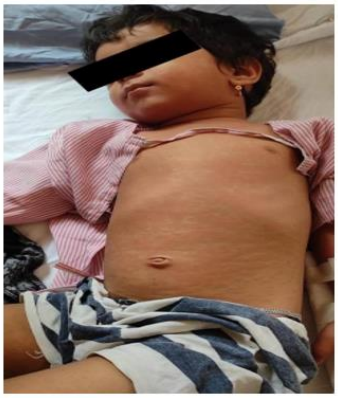
Keywords: COVID 19, cytokine storm, Kawasaki like disease, management.

Introduction

Kawasaki disease (KD) is a vasculitis of a medium sized vessels affecting children less than five years of age. It is an acute febrile illness characterized by increased levels of cytokines. Different studies have revealed the role of autoimmunity, genetic background and viral infection in pathogenesis of KD. Similar manifestations have been observed in children having COVID 19 infection hence termed as Kawasaki Like Inflammatory Disease (KLD) [(1)].

Case report

A two-year-old male child presented with sudden onset high grade fever, redness of eyes, decreased appetite and activities since 4 days. Patient had COVID 19 infection 40 days back. Local and systemic examination revealed erythematous rash over chest, back, legs, face, neck and thigh (fig 1,2). There was facial puffiness, non- exudative conjunctivitis and palmar erythema. There was no history of recent immunization, family history was not significant. Per-abdominal examination revealed moderate hepatosplenomegaly. Cardiovascular, respiratory and central nervous system examination revealed no significant finding.



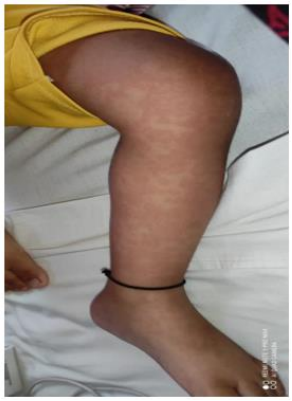


Fig 1 and 2: Erythematous rash over chest, face, neck and legs.

Table 1: Laboratory investigations.

	Result	Normal range
Hemoglobin	10.2g/dl	11 – 13.7 g/dl
WBC count	24000/cumm	6000 – 17000/cumm
Neutrophil count	86%	
Lymphocyte count	14%	
Platelet count	1.3lakhs	2 – 4.5 lakhs
ESR	50mm/hr	≤10 -20 mm/hr
Covid 19 IgG antibody	Positive	
Prolactin	3.69ng/ml	<0.5ng/ml
Interleukin 6	>100pg/ml	0-5.9 pg/ml
Serum ferritin	647 ng/ml	8-39ng/ml
Serum LDH	1171 U/L	230 to 460 U/l
Serum CPKMB	14 IU/L	Upto 25 IU/L
Troponin I	0.25 ng/ml	<1 ng/ml
Plasma D-dimer	4.7Mg/ml	0 - 0.5 mg/ml
SGOT	76 U/L	10 - 35 U/L
SGPT	7 U/L	9 – 43 U/L
Serum ALP	241 U/L	<115 U/L
Serum Bilirubin	1.02 mg/dl	Upto 1 mg/dl
Serum HBSAg	NEGATIVE	
Prothrombin time	13 seconds	12.1 – 14.1 seconds
INR	1.08 seconds	0.92 – 1.1 seconds
Activated Partial Thromboplastin Time	35 seconds	33.6 – 46.3 seconds

Blood culture was negative. Urine examination and chest X ray were within normal limits.

Treatment

Patient was given supportive treatment along with intravenous immunoglobulin, steroids and Acetyl Salicylic acid. Patient improved progressively, fever and rash disappeared after 5 days of admission. There was no organomegaly at the time of discharge. One month follow up was uneventful (fig 3).

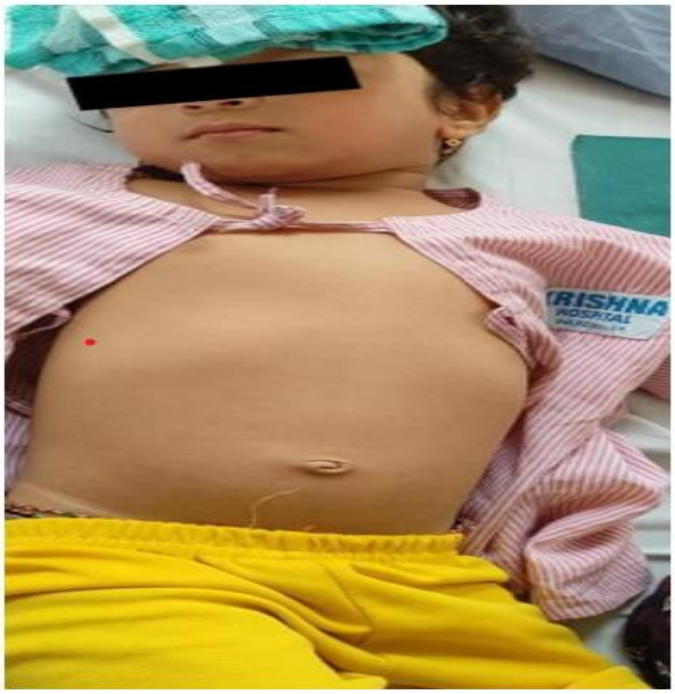


Fig 3: Post treatment recovery phase

Discussion

Kawasaki disease is a rare disease reported as 5 – 15 per one lakh children under five years in Europe. The Incidence is 10 – 30 times higher in North-East Asian countries (2). Genetic predisposition has been linked with the pathogenesis [3]. Although the etiology of KD is unknown current literature suggests viral upper respiratory tract infection as a trigger for onset of the disease [4]. KLD has affected children in several countries in COVID 19 pandemic. Its presentation is like Kawasaki disease, also known as multisystem inflammatory syndrome in children and was reported first time in the UK in April 2020[5].

KLD presents in children as a post infection immune disregulation and presents after few weeks of SARS COVID infection[6]. Although clinical findings of KD are similar to KLD syndrome, the later presents in older

children. This may be linked to high exposure of school aged children to the virus compared to infants and toddlers. Also gastrointestinal symptoms, lymphopenia, thrombocytopenia are more common in KLD. Serum ferritin are highly elevated in KLD.

KLD patients are at high risk of cardiac complications like ventricular dysfunction, coronary artery changes, artrio-ventricular valve regurgitation and pericardial effusion. Common presentation in KD and KLD syndrome are prolonged fever, non- exudative conjunctivitis, fissured lips, neutrophilia and increased CRP levels. Similar presentation was seen in our case. KD has better prognosis, while KLD syndrome has poor prognosis [7,8,9].

WHO criteria for case definition of KLD syndrome [10] :

All 6 criteria must meet:

1. Age 0 to 19 years
2. Fever for >3 days
3. Clinical signs of multisystem involvement (at least 2 of the following)

- Rash, bilateral non purulent conjunctivitis or mucocutaneous inflammation signs (oral, hands or feet)
- Hypotension or shock
- Cardiac dysfunction, pericarditis, valvulitis or coronary abnormalities(including echocardiographic findings or elevated troponin)
- Evidence of coagulopathy (prolonged PT or PTT ; eleveated D- dimer)
- Acute gastrointestinal symptoms (diarrhea, vomiting or abdominal pain)

4. Elevated markers of inflammation(example; ESR,CRP or procalcitonon)
5. No other obvious microbial cause of inflammation, including bacterial sepsis and staphylococcal/ streptococcal toxic shock syndromes
6. Evidence of SARS-CoV-2 infection

- Any of the following positive SARS-CoV-2 RT-PCR
- Positive serology
- Positive antigen test
- Contact with an individual with COVID-19

Treatment: Interleukin 6 (IL6) plays a major role in the disease progression hence IL6 inhibitors may prove to be effective in treating the disease and better outcome.

Conclusion

COVID 19 infection is considered in the etiopathogenesis of KLD syndrome in children which triggers cytokine cascade and leads to higher rate of ICU admissions with cardiac problems. KLD leads to serious sequel in young children. It affects children with COVID 19 infection having certain genetic background. Early diagnosis and treatment help to prevent disease related morbidity.

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