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Research Article

A ATYPICAL KAWASAKI DISEASE MISDIAGNOSED AS SEPSIS: A CASE REPORT AND LITERATURE REVIEW

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ABSTRACT

Objective: To investigate the causes of misdiagnosis and preventive measures of atypical Kawasaki disease as sepsis.

Methods: A retrospective analysis was performed on the clinical data of 1 patient with atypical Kawasaki disease as sepsis.

Results: The child was diagnosed as sepsis. After anti-infection treatment, C-reactive protein (CRP) and body temperature returned to normal, but desquamation of the fingertips occurred on the 11th day of the course of disease. Combined with clinical manifestations and guidelines, the diagnosis was corrected as atypical Kawasaki disease.

Conclusion: Atypical Kawasaki disease is characterized by multiple clinical manifestations and extremely confusing. It is often inaccurate to distinguish Kawasaki disease from infectious disease by CRP alone. It is necessary to pay close attention to whether there are new symptoms in the course of disease, so as to reduce misdiagnosis and missed diagnosis.

Keywords: Atypical Kawasaki disease; Sepsis; Children; Misdiagnosis.

INTRODUCTION

Kawasaki disease (KD), also known as cutaneous mucosal lymph node syndrome, is one of the common systemic vasculitis in children. The disease mainly involves the medium blood vessels of the whole body, especially the coronary artery, which can occur in any period of the course of the disease. The clinical characteristics, causes and preventive measures of a misdiagnosed case are summarized and analyzed as follows, so as to improve clinicians' understanding of the two diseases and reduce misdiagnosis and mistreatment.

CASE REPORT

The patient, a 2-year-old male, was admitted to the hospital because of "fever for 5 days and rash for 1 day". The child had no obvious cause of fever 5 days before admission, with a peak value of 39.0 ℃. Bilateral bulbar conjunctival congestion occurred 4 days before admission, and rash occurred 1 day before admission. There were a few red spots and papules on the skin of trunk and trunk, some of which could be fused into pieces with pruritus. He was treated with amoxicillin clavulanate potassium intravenously for 3 days after onset, The body temperature is still repeated frequently. Physical examination at admission: a few red spots and papules can be seen on the skin of the trunk, some of them are fused into pieces, and no obvious scratches are found. There was no redness, swelling or ulceration on the skin where BCG was inoculated. The neck can touch several swollen lymph nodes the size of soybeans, which are soft and movable, without tenderness, adhesion and clear boundary. Eyelids slightly swollen, bilateral bulbar conjunctival congestion, no secretion, lips congested, slightly dry, no chapped, no red bayberry tongue, pharyngeal congestion, no obvious secretion, thick respiratory sound of both lungs, no dry and wet rales, no redness and swelling at the finger end, no molting at the finger toe end. No obvious abnormality was found on plain CT scan of chest. The results of echocardiography are shown in Table 1; the results of routine blood test, C-reactive protein (CRP), procalcitonin (PCT) and erythrocyte sedimentation rate (ESR) are shown in Table 2.

Admission (d)	**Ejection fraction（%）**	**Left ventricular systolic function**	**Right main coronary artery diameter (mm) and Z value**	**Left main coronary artery diameter (mm) and Z value**
4	63	Normal	2.2/1.3	2.3/0.9
7	65	Normal	2.2/1.3	2.5/0.61

Table 1: Echocardiographic changes

Admission (d)	Hemoglobin （g/L）	Leucocyte (×10^9)	Platelets (×10^9)	CRP(mg/L)	PCT（ng/ml ）	ESR(mm/h)
1	99	15.59	354	68.5	0.8	36
2	101	16.32	398	108.8	0.37	-
3	98	11.34	362	44.9	0.26	-
5	108	11.06	519	23.69	-	57
8	105	9.15	469	4.5	-	-

Table 2: Changes of routine blood test, CRP, PCT and ESR results

Diagnosis after admission: sepsis, acute pharyngitis, infectious dermatitis, mild anemia and mycoplasma infection. Ceftazidime was given anti-infective treatment, but the symptoms of the children were not relieved. The blood CRP was rechecked at 108.8mg/L on the second day of admission. Considering the poor effect of anti-infective treatment, meropenem and azithromycin were given anti-infective treatment. CRP was rechecked at 44.9mg/L on the third day of admission, and the fever time was gradually prolonged. The body temperature returned to normal on the fifth day of admission. It was considered that the treatment of sepsis was effective, However, on the 6th day after admission, there was membranous molting at the fingertips of both hands. Combined with the clinical manifestations and guidelines: the child was male, 2 years old; Hospitalized for "fever for 5 days and rash for 1 day"; There is a transient rash on the skin of the trunk, bilateral bulbar conjunctival congestion, membranous peeling at the finger end (appearing on the 11th day of the course of disease). Admission auxiliary examination: recheck crp108.8mg/L (≥ 30mg/L) on August 2, 2021, recheck ESR 57mm / h (≥ 40mm/h) on August 5, 2021, urine routine examination shows that the number of WBC per high power field of view is 23.14/high power (≥ 10/high power), mild anemia (hemoglobin 99.00g/L), The total number of leukocytes is 16.32*10^9/L (≥15*10^9/L), so it is diagnosed as atypical Kawasaki disease [1]. On the 6th day of admission (the 11th day of the course of disease), the child's body temperature has returned to normal, the inflammatory indexes are basically normal, and there is no coronary artery widening. Therefore, he did not use gamma globulin shock therapy, and was given oral anticoagulant therapy such as aspirin and dipyridamole. On the 8th day of admission, he was discharged from the hospital and ordered regular outpatient follow-up (physical examination, blood routine, ECG, cardiac color Doppler ultrasound, etc.).

DISCUSSION

CRP is an acute phase reactive protein and a sensitive inflammatory index. It often increases at 6 ~ 8h after the initial onset of the disease and reaches the peak at 24 ~ 48h. The increase range is positively correlated with the severity of infection or inflammation. CRP detection is fast and convenient, not affected by age, gender, anemia and other factors, and is more specific than the change of leukocyte count. Serum CRP

increased moderately to highly in bacterial infection. CRP exceeded 100mg/L in 80% of patients and 50mg/L in 88% ~ 94% of patients. During anti infective treatment, dynamic monitoring of the change of CRP level can assist in judging the efficacy of antibiotics, and the reduction of CRP to normal can be used as one of the indicators of drug withdrawal [1]. However, the specificity of CRP is not high, and it can also increase significantly in many non-infectious diseases such as trauma, surgery, myocardial infarction, malignant tumors, especially autoimmune diseases. The dynamic change of serum CRP level can be used to predict the prognosis and relapse of infectious diseases to a certain extent, and can be used to evaluate the response of anti-infective treatment[1].

Kawasaki disease is a self-limiting disease with fever lasting for 1-3 weeks [2]. Its diagnosis is mainly based on clinical symptoms and cardiac color Doppler ultrasound. At present, there is no specific laboratory diagnosis method for Kawasaki disease. After anti-infective treatment, the inflammatory index CRP decreased gradually, and with the return of body temperature to normal, it is easy to consider that the treatment of sepsis is effective, so the diagnosis of Kawasaki disease is ignored. Considering that the cause of misdiagnosis of this child is that the rising period of CRP in children with Kawasaki disease is often within 1 week of onset [3], and the blood CRP 108.8mg/l on the second day of admission is close to 1 week after fever. Since then, the overlapping of the falling period of CRP and the use of antibiotics in children with Kawasaki disease can mislead the judgment of the condition. Combined with previous literature, it is not very accurate to distinguish Kawasaki disease from infectious diseases by CRP alone. Especially after 1 weeks of fever, [3], inflammatory markers such as CRP have a certain effect on the disease in the early stage of onset.

Clinicians should strengthen the study of books and guidelines, establish correct clinical thinking, enrich their own clinical experience, and fully understand the clinical characteristics of Kawasaki disease and sepsis. The first doctor should ask the medical history in detail, and the physical examination should be careful, without letting go of any trace of the disease. On the 11th day of the course of the disease, the child developed membranous molting at the fingertips of both hands. Combined with the clinical manifestations and diagnosis and treatment guidelines, he was diagnosed as atypical Kawasaki disease. This case report suggests that when the anti-infective treatment is effective, children with fever still need to pay close attention to whether there are new symptoms and adjust the treatment plan at any time, so as to reduce misdiagnosis and better improve the prognosis of the disease. Coronary artery disease caused by Kawasaki disease is the most important factor affecting the prognosis of children and the main cause of ischemic heart disease in children. Coronary artery disease often occurs in the second to fourth weeks of the course of disease. Strict follow-up management is needed for children, which is very important to improve the prognosis.

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