

Kawasaki Disease Complicated with Pancreatitis: A Case Report and Literature Review

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Abstract

Kawasaki disease (KD) can be associated with pancreatitis which is unusual. We report a patient diagnosed for pancreatitis before some of common symptoms onset in KD and summarize the main characteristics of the reported 9KD-associated with pancreatitis patients in other's literatures to improve clinical and diagnosis for KD patients with pancreatitis. After treatment with i.v. immunoglobulins (IVIG) at a dose of 2g/kg aspirin 30 mg/kg/d divided to 3 times, fasting with parenteral nutrition therapy and omeprazole for acid suppression, her abdominal pain was remission and body temperature became normal. Abdominal ultrasound showed edematous pancreatitis had been improved. When pediatric pancreatitis patients have over 5 days fever with rash, bulbar conjunctive injection and plate count increase, KD should be included in the differential diagnosis.

Keywords: Kawasaki disease, pancreatitis, fever, rash, bulbar conjunctive

Background

Kawasaki disease is a systematic vasculitis of muscular elastic arteries that can cause coronary injured and is now the most common cause of acquired heart disease in children in development countries. Intravenous immunoglobulin (IVIG) treatment in the acute phase of KD can reduce the prevalence of coronary artery abnormalities [1-3]. So early diagnose and treatment is very important for KD. However diagnosis of KD is not so easy sometimes especially for some uncommon symptoms preceding the common symptoms onset in KD. During the acute febrile phase, KD systemic inflammation can influence tissues including pancreas [4]. Though Amano et al. found a 22% rate of pathological pancreatitis in 37 KD autopsy cases, clinical symptoms of pancreatitis as a complication of KD is uncommon [4,5].

Now we report a patient diagnosed for pancreatitis before some of the common symptoms onset in KD to improve the knowledge of these patients.

Case presentation

An 8-year-old girl presented to our hospital with an 8 days history of fever (40°C) and 7 days history of abdominal pain and rash. 7 days before admission, her left neck lymph node became enlarge and painful. 6 days before admission, she had a general abdominal pain and vomiting. There was maculopapular in her limbs and trunk. She also had knee joint pain in that day, but disappeared spontaneously. 2 days before admission, her abdominal CT scan without contrast showed edematous pancreatitis and serum amylase was 20 IU/L. On physical examination, she had dry and red lips, mildly conjunctival injection without exudate, general abdominal pain especially for the right lower quadrant of the abdomen. Heart sounds were normal.

Laboratory examination in our hospital was as follows: blood white cell count $13 \times 10^9/L$ with 87% neutrophils; hemoglobin 105 g/L; platelet count, $602 \times 10^9/L$; C-reactive protein, 38 mg/L; D-dimer, 2.25 mg/L; Fibrinogen 7.24 g/L; albumin, 31.2 g/L; total bilirubin, 5.2 mg/dL; alanine aminotransferase, 139 U/L; serum amylase, 61 IU/L, serum lipase 3322 IU/L. Ultrasound showed: bilateral cervical lymph node enlargement and edematous pancreatitis. Echocardiogram showed no abnormalities. Chest X-ray showed lung marking huddle.

The patient was diagnosed with KD complicated with pancreatitis on the day presented to our hospital and treated with i.v. immunoglobulins (IVIG) at a dose of 2 g/kg, aspirin 30 mg/kg/d divided to 3 times, fasting with parenteral nutrition therapy, omeprazole for acid suppression. After treatment with IVIG, her abdominal pain remission and body temperature became normal. Abdominal ultrasound showed no abnormalities. Laboratory examination was as follows: blood white cell count, $7.3 \times 10^9/L$ with 55% neutrophils; hemoglobin 114 g/L; platelet count, $679 \times 10^9/L$; C-reactive protein, 21.5 mg/L.

Discussion

Our patient had a fever more than 5 day with bilateral conjunctival injection without exudate, maculopapular in her limbs and trunk, bilateral cervical lymphadenopathy. She also had abdominal pain and edematous pancreatitis. According to the KW diagnostic criteria and the acute pancreatitis diagnostic criteria [6, 7], our patient was diagnosed as KD and pancreatitis. Acute pancreatitis in childhood caused by many factors including: trauma, medicines, bile duct diseases and infections. None of these factors was noted in our patient. And after treatment with IVIG, her abdominal pain remission and edematous pancreatitis had been improved. So we think her pancreatitis is complicated with KD.

From 1987 to now, only 9 cases of KD-associated with pancreatitis has been reported previously [5, 8-13]. According to these reported cases, 3 patients had been treated with medicines which can induce acute pancreatitis (Table 1). According to the class of risk by Trivedi and Pitchumoni, steroids belong to the Class I medication associated with acute pancreatitis, while aspirin belongs to the Class III [14]. These 3 patients could not be excluded in drug induced acute pancreatitis [5,10]. Excepting these 3 patients, all of common associational or causative factors for pancreatitis were not noted in the KD-associated with pancreatitis patients and our patient.

Table 1: Main characteristics of the Kawasaki disease-associated with pancreatitis patients

Reference	Age (years)	Gender	Medical history	Abdominal pain	clinical findings						laboratory finding					IVIG
					A	B	C	D	E	F	Serum Total Amylase (IU/L)	Serum Lipase (IU/L)	Plate count*	Image Show Pancreas involved	Cardiac involvement	
Stoler et al.[8]	5	M	no	Yes	Yes	Yes	Yes	Yes	No	Yes	197	U	Yes	Yes	Yes	ND
Stoler et al.[8]	16	M	NO	Yes	Yes	Yes	Yes	Yes	Yes	NO	356	U	NO	Yes	NO	ND
Lanting et al.[9]	5	M	NO	Yes	Yes	Yes	Yes	Yes	NO	NO	1143	633	Yes	Yes	NO	Yes
Asano et al.[10]	1	M	NO	NO	Yes	U	U	U	U	U	407	89	U	Yes	NO	Yes
Prokic et al.[11]	6	M	NO	Yes	Yes	Yes	Yes	Yes	NO	NO	168	95	Yes	Yes	NO	Yes
Cherry et al.[5]	6	M	aspirin	Yes	Yes	Yes	Yes	Yes	NO	NO	193	420	U	Yes	Yes	Yes
Cherry et al.[5]	3	M	Methylprednisolone	Yes	Yes	Yes	Yes	Yes	Yes	Yes	465	6224	U	Yes	Yes	Yes
Jimenez-Fernandez et al.[13]	9	F	NO	Yes	Yes	Yes	NO	Yes	Yes	NO	49	1000	Yes	NO	NO	Yes
Botti et al.[12]	3	M	Beamethasone	Yes	Yes	NO	NO	Yes	NO	Yes	1369	1330	Yes	NO	NO	Yes
present case	8	F	NO	Yes	Yes	Yes	Yes	Yes	NO	Yes	61	3322	Yes	Yes	NO	Yes

* plate count of $\geq 450,000$ after the 7th day of fever

aNeeded of second doses of IV breccurrent Kawasaki disease cNeeded of second doses of IVIG

A, fever over 5 days, B erythema and cracking of lips, strawberry tongue ,and/or erythema of oral and pharyngeal mucosa, C, bilateral bulbar conjunctival injection without exudate, D, rash: maculopapular, diffuse erythroderma, or erythema multiforme-like, E, erythema and edema of the hands and feet in acute phase and/or periungual desquamation, F, cervical lymphadenopathy, U, unknown; ND, not done; IVIG, intravenous immunoglobulins.

We summarize the main characteristics of the reported 9 KD-associated with pancreatitis patients and our patient in Table 1. Though 76% of KD patients are <5 years of age, 70% of KD-associated with pancreatitis patients are greater or equal 5 years of age. And male gender is more predominance. All patients had abdominal pain, but for only one patient were asymptomatic presenting a lipasemia and edematous pancreas with small effusion. All patients have at least fever more than 5 days and erythema of lips or erythema of oral and pharyngeal mucosa, rash and bulbar conjunctive injection are most common clinical findings of classic KD in these patients. Rash and bulbar conjunctive injection were not common in acute pancreatitis. In the laboratory findings, more than half of these patients have increase plate count which is also not common in acute pancreatitis. So when pancreatitis patients with rash, bulbar conjunctive injection and increase plate count, we should take KD into consideration.

Approximately 10% to 20% of patients with KD are IVIG resistant [6]. In the 10 KD-associated with pancreatitis patients (9 patients came from literature review and 1 patient from us), 8 patients are treated with IVIG. After treatment with IVIG, 5 patients have no fever and pancreatitis. While 3 patients are IVIG resistant. 2 of the 3 patients are treated with second dose of IVIG and another one is treated with infliximab. Infliximab as a rescue therapy in IVIG is safe [6]. And infliximab can significantly improve in biochemical and histopathological alterations in acute necrotizing pancreatitis [15]. Corticosteroids have also been used to treat patients who have failed to respond to initial therapy for KD. Corticosteroids belong to Class I medication associated with acute pancreatitis. Infliximab maybe an appropriate choice for treatment for KD-associated with pancreatitis patients who are IVIG resistant.

In conclusions, for pancreatitis patients having over 5 days fever and rash and bulbar conjunctive injection and increase plate count, KD should be included in the differential diagnosis.

Abbreviations: IVIG Intravenous immunoglobulin; KD Kawasaki disease, KD

Declaration

Ethics approval and consent to participate

This article does not contain any studies with human participants or animals performed by any of the authors. Parental approval for publication was obtained.

Consent for publication

Verbal consent from parents of participants was obtained for this study, which included consent for publication without any identifying participant information.

Availability of data and material

Data generated or analysed during this study are included in this published article. For additional clinical information can be provided by the authors upon request.

Competing interest

All authors declare that they have no conflict of interest.

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Author's contribution

WWL and LZ studied concept and acquisition of data and write the manuscript. XJL studied concept and acquisition of data. PH studied concept, critical revision of manuscript for intellectual content. All authors have agreed to be accountable for all aspects of the work, ensuring that the accuracy or integrity of any part of the work are appropriately investigated and resolved.

References

1. Newburger JW, Takahashi M, Beiser AS, Burns JC, et al. (1991) A single intravenous infusion of gamma globulin as compared with four infusions in the treatment of acute Kawasaki syndrome. *N Engl J Med* 324:1633-1639.
2. Newburger JW, Takahashi M, Burns JC, Beiser AS, Chung KJ, Duffy CE, et al. (1986) The treatment of Kawasaki syndrome with intravenous gamma globulin. *N Engl J Med* 315:341-347.
3. Furusho K, Kamiya T, Nakano H, Kiyosawa N, Shinomiya K, et al. (1984) High-dose intravenous gamma globulin for Kawasaki disease. *Lancet* 2:1055-1058.
4. Amano S, Hazama F, Kubagawa H, Tasaka K, Haebara H, Hamashima Y (1980) General pathology of Kawasaki disease. On the morphological alterations corresponding to the clinical manifestations. *Acta Pathol Jpn* 30:681-694.
5. Cherry R, Naon H, Cohen H, Takahashi M, Kaminsky C, Mason W (2010) Common bile duct stenosis and pancreatitis in Kawasaki disease: two cases and a review of the literature. *Pediatr Infect Dis J* 29:571-573.
6. McCrindle BW, Rowley AH, Newburger JW, et al. (2017) Diagnosis, Treatment, and Long-Term Management of Kawasaki Disease: A Scientific Statement for Health Professionals From the American Heart Association. *Circulation* 135:927-999.
7. Abu-El-Haija M, Kumar S, Szabo F, Werlin S, Conwell D, et al. (2017) Committee NP: Classification of Acute Pancreatitis in the Pediatric Population: Clinical Report From the NASPGHAN Pancreas Committee. *J Pediatr Gastroenterol Nutr* 64:984-990.
8. Stoler J, Biller JA, Grand RJ (1987) Pancreatitis in Kawasaki disease. *Am J Dis Child* 141:306-308.
9. Lanting WA, Muinos WI, Kamani NR (1992) Pancreatitis heralding Kawasaki disease. *J Pediatr* 121:743-744.
10. Asano T, Sasaki N, Yashiro K, Hatori T, et al. (2005) Acute pancreatitis with Kawasaki disease: analysis of cases with elevated serum amylase levels. *Eur J Pediatr* 164:180-181.
11. Prokic D, Ristic G, Paunovic Z, Pasic S (2010) Pancreatitis and a typical Kawasaki disease. *Pediatr Rheumatol Online J* 8:8.
12. Botti M, Costagliola G, Consolini R (2018) Typical Kawasaki Disease Presenting With Pancreatitis and Bilateral Parotid Gland Involvement: A Case Report and Literature Review. *Front Pediatr* 6:90.
13. Jimenez-Fernandez SG, Tremoulet AH (2012) Infliximab treatment of pancreatitis complicating acute Kawasaki disease. *Pediatr Infect Dis J* 31:1087-1089.
14. Trivedi CD, Pitchumoni CS (2005) Drug-induced pancreatitis: an update. *J Clin Gastroenterol* 39:709-716.
15. Tekin SO, Teksoz S, Terzioglu D, Arikan AE, Ozcevik H, et al. (2015) Use of infliximab in treatment of acute pancreatitis. *Bratisl Lek Listy* 116:167-172.

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