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Case Report
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Kawasaki Disease: Does It Affect Children in Lagos, Nigeria?

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Abstract

Kawasaki disease is a rare vasculitis of unknown aetiology that occurs in childhood. It can have a fatal outcome when there is involvement of the heart. Only few cases have been reported in Nigeria with none reported from Lagos despite the high turnout of children presenting in the various private, general and teaching hospitals in Lagos. We therefore report the current case in a 23 month old boy who presented with persistent fever, non exudative bilateral conjunctivitis, erythema and fissuring of the lips, perinanal excoriation and swelling of the hands and feet. At the referral hospital, he was being managed as a case of sepsis. Echocardiography done in LASUTH was essentially normal and he had IVIG and oral aspirin. A remarkable recovery was made and he is currently stable.

Conclusion: Kawasaki disease exists among children in Lagos. Diagnosis however requires a high index of suspicion. Early identification, evaluation and treatment are important determinants of the likely outcome.

Keywords: Kawasaki Disease; Children; Lagos; Nigeria

Case Report

Kawasaki disease is an acute febrile illness of childhood. It is the leading cause of acquired heart disease in children in most developed countries, including the USA and Japan [1]. The highest annual incidence is observed in children in Japan with 210 cases per 100.000 under-five children compared to 13 per 100,000 in white children [2]. Kawasaki disease is a vasculitis of medium-sized arteries with a striking predilection for coronary arteries, [3] resulting in coronary arterial abnormalities in 20 - 25% of untreated patients [4]. The aetiologic factors involved in development of the disease are largely unknown, however certain epidemiologic and clinical features point to an infectious origin. The features suggestive of an infectious origin are affectation of young age group, occurrence in epidemics with wave-like geographic spread, the clinical manifestations of fever, enathem, non suppurative conjuctivitis and cervical lymphadenopathy among others [5,6].

The higher incidence of Kawasaki disease in Asian children irrespective of country of residence and in siblings and children of individuals with a history of Kawasaki disease is also strongly suggestive of a genetic role in the pathogenesis of the disease [7]. The incidence of Kawasaki disease in developing countries (including Nigeria) is largely undefined. Kawasaki disease was unreported in the West African country Ghana until 2011 [8]. A 5-year descriptive study in Northwestern Nigeria showed Kawasaki disease accounting for only 1.8% of 110 patients diagnosed as having acquired heart disease over the study period [9]. Bode Thomas et al. [10] in a 10-year retrospective study at a center in central Nigeria identified Kawasaki disease as accounting for 0.6% (a single subject) of cases of acquired heart disease. In all, there has no case reported among children in Lagos.

The limited data available highlights the apparent rarity of Kawasaki disease in the Nigerian populace. It is however not known whether this rarity represents a true reflection of the low incidence and prevalence of Kawasaki disease in Nigeria for diverse reasons, for instance, Kawasaki disease demonstrates striking clinical similarities to measles [11] which is not uncommon in Nigeria, highlighting the possibility of missed diagnoses of Kawasaki disease. A low index of suspicion among Physicians and other healthcare workers has also been reported as being responsible for the apparent rarity of the diagnosis in this environment [9].

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23 months old boy who presented with nine-day history of persistent high grade fever. Other complaints by the caregiver were bilateral redness of the eyes, redness and cracking of the

lips, rash around the groin region and swelling of both hands and feet all of three to four days' duration prior to presentation. The high grade fever did not subside despite use of anti-malarial and antibiotics with minimal and short response to antipyretic given at the referral center. There was associated irritability as the child cried inconsolably. Bilateral redness of eyes was not associated with purulent discharge and no contact with anyone with red eyes. Ulceration of the lips was preceded with redness; later cracking of the lips with minimal bleeding was noticed prior to admission. No bleeding from other parts of the body. An erythematous rash limited to the groin was noticed and it was not itching.

Examination findings at presentation in Children Emergency Unit of Lagos State University Teaching Hospital, Ikeja, Nigeria (LASUTH) were thus: A conscious but irritable child, febrile with temperature of 39 degrees Celsius, mildly pale, had bilateral non-purulent conjunctivitis, hyperemic ulceration of the lips with minimal bleeding but no redness of the tongue (Figure 1a), significant cervical and submental lymphadenopathy and bilateral pitting oedema of both hands and feet of which tenderness could not be ascertained due to irritability. Perianal maculopapular skin eruption with subsequent desquamation was noticed (Figure 1b). Periungual desquamation of both hands and feet were noticed while on admission (Figure 1c & 1d).

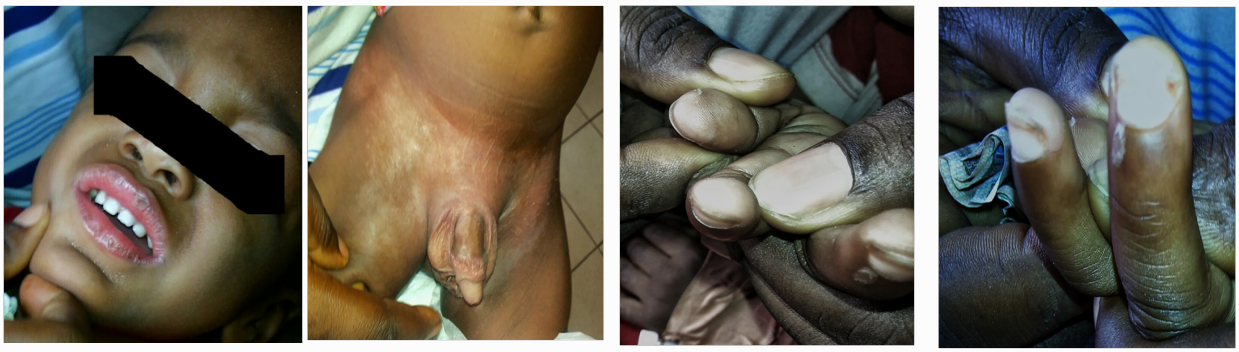

Figure 1: Pictorial Manifestations of the Case Study.

Table1: Some Laboratory findings in Subject with Kawasaki Disease.

	9/5/2016	10/5/2016	12/5/2016	13/5/2016	17/5/2016
Haematocrit (%)	24	22.4	19.2	26.5	23.8
WBC Count, 10^9/L	22.4	17.3	15.6	13.0	10.0
Platelet Count, 10^9/L	333	377	433		519
ESR, mm/hr		90			

Abbreviations: WBC: White Blood Cell; ESR: Erythrocyte Sedimentation Rate

No significant tachypnoea or tachycardia on admission with respiratory rate and heart rate of 32 cycles/minute and 140 beats/minute respectively. Other systemic examination was normal. Subsequently, haematocrit dropped further, respiratory rate and heart rate increased to 42 cycles/minute and 160 beats/minute respectively which necessitated blood transfusion. Investigation results showed moderate anaemia, leukocytosis with relative neutrophilia and linearly elevated platelet counts as shown on the (Table 1) below. Erythrocyte sedimentation rate was as high as 90mm/hr. There was mild hypoalbuminaemia with serum albumin of 3.3g/dl. Renal function test results were essentially normal and there was no bacterial growth on blood culture investigation. Electrocardiography with color Doppler revealed a structurally normal heart.

Medications given in LASUTH were high dose oral aspirin and intravenous immunoglobulin. The patient was continued on low dose aspirin after the resolution of the fever. Clinical condition improved within two weeks of admission in LASUTH with resolution of fever, clearance of bilateral conjunctivitis and cracks on the lips and minimal residual desquamation of the digits at discharge. Patient is currently on follow up at the outpatient clinic and is clinically stable.

Discussion

Kawasaki disease has only been limitedly reported in Nigerian children and there exist only a few documented cases in the region [12-16]. Literature review indicates that it is a rare disease with diagnostic criteria provided by the American Heart Association requiring the presence of fever that has lasted for more than five days as a constant criterium [12]. In the case described, the subject had fever for 9 days which was not responsive to anti-malarial and antibiotics, even before referral to our centre. Other principal clinical criteria described by the AHA criteria for diagnosis of Kawasaki disease (at least four of which must be present in addition to the fever to make a diagnosis of Classic Kawasaki disease) that were all met in the case described were non exudative bilateral conjunctivitis, fissuring of the lips, swelling of hands and feet, perianal erythema and subsequent desquamation and cervical lymphadenopathy of at least 1.5cm [12].

Kawasaki disease occurs more commonly in children less than five years of age commonly between 18 and 24 months and is one

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and a half times commoner in boys than girls [17], parameters which are demographically consistent with the subject described. The few cases that have been reported in Nigeria were also less than five years old except a case of a 14 year old boy in Sokoto [15]. The presentation of the disease can be non-specific with evolution of clinical manifestations over time [7]. In this current case however, most likely due to late presentation at our facility, most of the physical manifestations were seen at presentation. However, periungal desquamation of the fingers and toes only developed five days into admission, which is consistent with the course of disease in which periungual desquamation if present is expected to develop 1-3 weeks after onset of illness [7].

No laboratory test is specific for Kawasaki disease but leukocytosis is a common finding in the acute phase of the illness which was seen in the index case [12]. A linear increase in platelet count was recorded in this index case. This pattern of increasing platelet count has been documented as the outstanding laboratory marker of Kawasaki disease [7]. Severe anaemia requiring transfusion has been linked to IVIG [18] but this level of anaemia occurred before transfusion in this reported case. Other characteristic findings like elevation of acute phase reactants like erythrocyte sedimentation rate (ESR) was also noticed in the index case which is almost a universal finding in Kawasaki disease [12].

Coronary artery aneurysm is the gravest and most important complication of Kawasaki disease [19]. Numerous predictive parameters of cardiac affectation in Kawasaki disease have been documented [19-21]. Some of these parameters that were present in this subject are male gender, persistent fever, high White Blood Cell count, low haemoglobin, elevated ESR and low albumin. Despite the presence of these parameters however, the index patient did not have echocardiography diagnosis of heart involvement. Echocardiography was done at the acute and sub-acute stages of the illness but was normal. Since coronary aneurysm and risk of sudden death is highest at the sub-acute stage of the illness [22,23].

Although echocardiography findings Independent predictors of coronary artery disease identified by McCrindle and co-researchers [19] are age less than one year, low albumin over a five-week period, low IgM at presentation and duration of days from onset of disease to treatment with IVIG. In this present case, a single albumin measurement was done and it was marginally low (3.3mg/dl). Also, the duration from onset of disease till time of administration of IVIG in the index case was over 10 days which is a positive predictive factor for development of heart disease, warranting repeat echocardiography at six weeks' post-onset of illness and if no abnormalities are found, one year later [12]. Treatment of subjects with intravenous immunoglobulin was not done in the few cases of Kawasaki disease reported in Nigeria [13,14]. The reasons given for this were inaccessibility and financial constraint. The index patient had IVIG at 2g/kg with remarkable improvement in the clinical condition.

Conclusion

Kawasaki disease exists in among children in Lagos. There is need for high index of suspicion. Early diagnosis and treatment of cases will reduce morbidity that can occur from the disease.

Acknowledgement

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Ethical Disclosures

Informed and written consent were obtained from the parent of this reported case. The necessary institutional protocols on the publication of the data were duly followed. No experiments were performed on the patients for this article.

References

1. Nakamura Y, Yanagawa H (2004) The Worldwide Epidemiology of Kawasaki Disease. Progress in Pediatric Cardiology 19(2): 99-108.
2. Nakamura Y, Yashiro M, Uehara R, Sadakane A, Tsuboi S, et al. (2012) Epidemiologic features of Kawasaki disease in Japan: results of the 2009-2010 nationwide survey. J Epidemiol 22(3): 210-221.
3. Burgner D, Harnden A (2005) Kawasaki disease: what is the epidemiology telling us about the etiology? Int J Infect Dis 9(4): 185-194.
4. Suzuki A, Kamiya T, Kuwahara N, Ono Y, Kohata T, et al. (1986) Coronary arterial lesions of Kawasaki disease: cardiac catheterization findings of 1100 cases. Paediatr Cardiol 7(1): 3-9.
5. Burns JC, Cayan DR, Tong G, Bainto EV, Turner CL, et al. (2005) Seasonality and temporal clustering of Kawasaki syndrome. Epidemiology 16(2): 220-225.
6. Yanagawa H, Nakamura Y, Yashiro M, Fujita Y, Nagai M, et al. (1988) Nationwide incidence survey of Kawasaki disease in 1985 - 1986 in Japan. J Infect Dis 158(6): 1296-1301.
7. Dong Soo Kim (2006) Kawasaki Disease. Yonsei Med J 47(6): 759-722.
8. Badoe EV, Neequaye J, Oliver-Commey JO, Amoah J, Osafo A, et al. (2011) Kawasaki disease in Ghana: case reports from Korle Bu teaching Hospital. Ghana Med J 45(1): 38-42.
9. Sani UM, Ahmed H, Jiya NM (2015) Pattern of acquired heart diseases among children seen in Sokoto, Northwestern Nigeria. Niger J Clin Pract 18(6): 718-725.
10. Bode-Thomas F, Ige OO, Yilgwan C (2013) Childhood acquired heart diseases in Jos, north central Nigeria. Niger Med J 54(1): 51-58.
11. Anne H Rowley, Stanford T Shulman (1998) Kawasaki Syndrome. Clin Microbiology Rev 11(3): 405 – 414.
12. Newburger JW, Takahashi M, Gerber MA, Gewitz MH, Tani LY, et al. (2004) Diagnosis, treatment, and long-term management of Kawasaki disease: A statement for Health Professionals from the Committee on Rheumatic Fever, Endocarditis, and Kawasaki Disease, Council on Cardiovascular Disease in the Young, American Heart Association. Circulation 110(17): 2747-4771.
13. Ikpatt NW, Ibia EO (1989) Mucocutaneous lymph node syndrome in Calabar- a case report. East Afr Med J 66(11): 776-781.
14. Sotimehin SA, Ogunlesi TA, Adekanmbi AF, Fetuga MB, Odumuyiwa EA, et al. (2010) Kawasaki Disease in a Nigerian child- a case report. Nigerian Medical Practitioner 57(4).
15. Sani UM, Ahmed H (2013) Kawasaki disease: an unusual presentataion in a 14-year old boy in Sokoto, north western Nigeria. Nigerian Journal of Paediatrics 40(4): 422-425.

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16. Eno-Obong EU, Mkpouto UA (2014) Kawasaki Disease in a two year old Nigerian child; full recovery with supportive treatment. Ibom Medical Journal 7(2): 40-44.

17. Moore A, Harnden A, Mayon-White R (2014) Recognising Kawasaki disease in UK primary case: a descriptive study using the clinical practice Research Datalink. Br J Gen Pract 64(625): 477-483.

18. Shulman ST (1991) Haemolysis in Kawasaki disease. Transfusion 31(6): 572.

19. McCrindle BN, Li JS, Minich LL, Colan SD, Atz AM, et al. (2007) Coronary Artery Involvement in Children with Kawasaki Disease. Risk Factors from Analysis of Serial Normalized Measurements. Circulation 116(2): 174-179.

20. Koren G, Lavi S, Rose V, Rowe R (1980) Kawasaki disease: review of risk factors for coronary aneurysms. J Paediatr 108(3): 388-392.

21. Lu CP,Lee WJ, Ho MM, Hwang KC (1993) Risk factors for coronary arterial aneurysm in Kawasaki disease. Zhonghus Min Guo Xiao Er Ke Yi Xue Hui Za Zhi 34(3): 173-180.

22. Rowley AH, Shulman ST (1998) Kawasaki Syndrome. *Clinical Microbiology Reviews* 11(3): 405-414.

23. Hirose O, Misawa H, Kijima Y, Yamada O, Arakaki Y, et al. (1981) Two-dimensional echocardiography of coronary artery in Kawasaki disease (MCLS): detection, changes in acute phase, and follow-up observation of the aneurysm (author's transl). Journal of Cardiography (in Japanese) 11(1): 89-104.

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