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COVER EDITORIAL

Tomisaku Kawasaki and Kawasaki disease

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Introduction

In 1967 Japanese pediatrician Tomisaku Kawasaki (1925–) published his landmark article titled in English "Acute febrile mucocutaneous syndrome with lymphoid involvement with specific desquamation of the fingers and toes in children: clinical observations of 50 cases" (Fig. 1a) [1, 2]. The title was descriptive in that it included the five main clinical features found in this novel disease (Fig. 1b). A variety of terms have been used to define this condition including Kawasaki fever, mucocutaneous lymph node syndrome (MLNS), and currently Kawasaki disease [3]. It is perhaps more aptly referred to as a disease rather than syndrome since the latter represents a collection of signs and symptoms rather than distinct clinical findings. As he stated in his manuscript [2]:

> However, at this time, I have reported the clinical findings as they are of a syndrome that is only seen in a certain age group and presents with certain specific clinical findings, without trying to decide its affiliation with any of the already known diseases or syndromes.

Kawasaki eponym honors his keen insights in recognizing the clinical pattern and manifestation of a rare life-threatening disease based on an empiric rather than histopathological features.

It was not until 1990 that a reference framework emerged providing a method for classifying this vasculitides, along with polyarteritis disease and cutaneous polyarteritis in children, as diseases involving medium-sized vessel. That same year, the Center for Disease Control issued North American criteria for the diagnosis of Kawasaki disease (Table 1) (Fig. 2 and Cover) [4]. Coronary involvement including coronary thromboarteritis and myocardial infarction and coronary aneurysm, although not described in Kawasaki's original report, is the most serious manifestation of this disease [5, 6]. Patients who fall short of meeting the case definition but who have fever and coronary artery involvement are referred to by the term incomplete Kawasaki disease. An atypical variant has also been suggested in which patients meet the diagnostic criteria but develop unusual findings such as aseptic meningitis, cerebral vasculitis, encephalitis, facial nerve paralysis, acute hemiplegia, or renal impairment not typically seen in this disease [7, 8].

Kawasaki took a cautious, precise, and meticulous approach when describing this novel disease so as to avoid reporting on an already previously described condition. As to a testimony to his modest and humble character [2]:

> But later, after more precise examination of the conventional reports about so-called mucocutaneousocular syndrome (MCOS), I realized that our syndrome is a unique clinical entity, which is not identical with any type of MCOS ever reported. Therefore I present the clinical analysis and laboratory data of 50 cases we experienced as well as a review of the literature, and I hope to hear your opinion.

It is of interest that clinical symptoms described in earlier reports prior to Kawasaki's publication on infantile periarteritis nodosa complicated by coronary aneurysm

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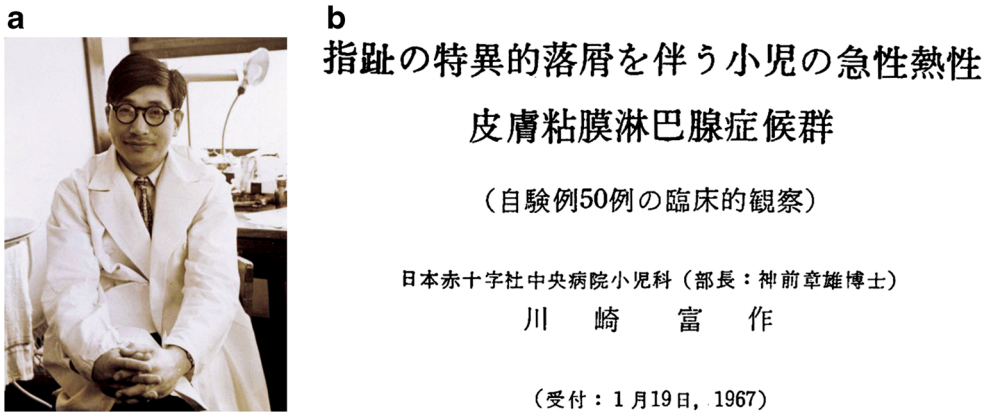

Fig. 1 **a** Tomisaku Kawasaki as a young researcher, source: http://www.kawasaki-disease.org. **b** Title in Japanese of Tomisaku Kawasaki's 1967 paper on clinical review of 50 self-examination cases of the disease to be named after him

Table 1 Criteria for the diagnosis of Kawasaki disease[4]

Fever (5 days or more) and the presence of 4 of the following 5 findings	
1	Rash (primarily truncal and polymorphic)
2	Cervical lymphadenopathy that is typically anterior, unilateral, and > 1.5 cm)
3	Bilateral conjunctival injection (non-exudative)
4	Oral mucosal changes (injected or cracked lips, strawberry tongue, non-exudative pharyngitis)
5	Peripheral extremity changes (acute phase-acral edema and erythema and convalescent phase periungual desquamation)

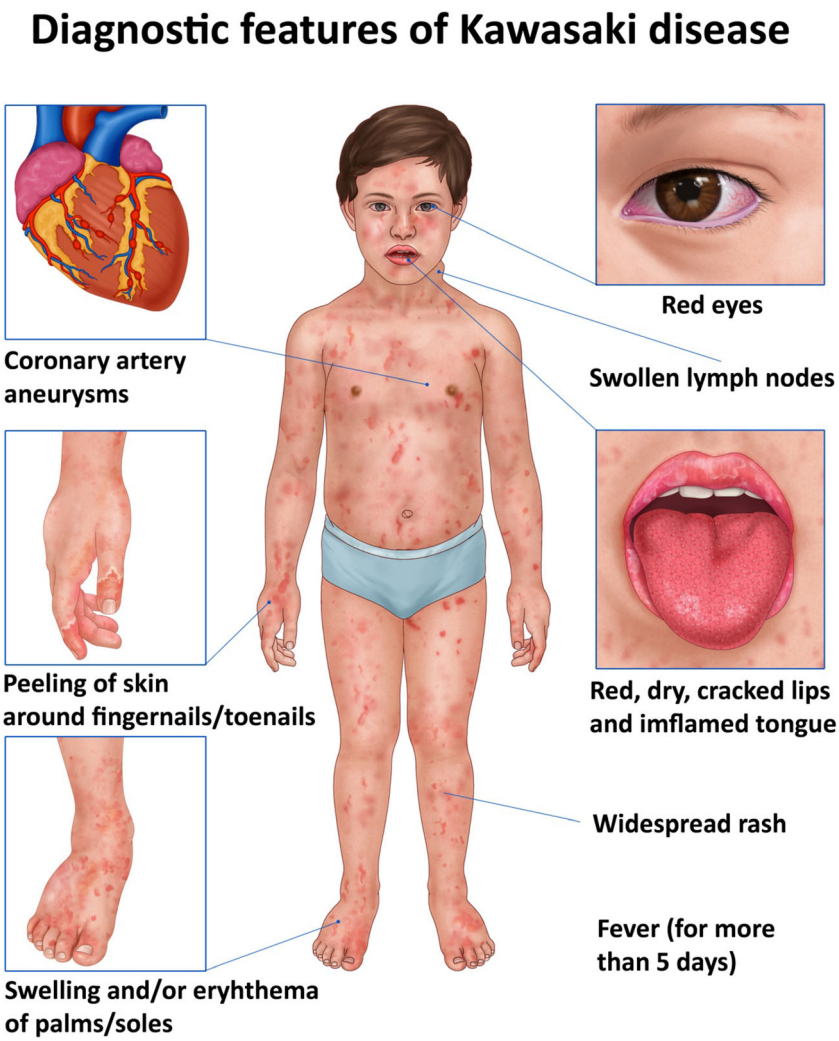

Fig. 2 and Cover Diagnostic features of Kawasaki disease (Illustration: P. Patil-Topaz & H. Tekiner, 2020)

may have in retrospect been masquerading as Kawasaki disease [9].

Person

Kawasaki was born in Tokyo, Japan, in 1925, and graduated from Chiba University Medical School completing his residency at the same institution. He served throughout his career in the Department of Pediatrics at the Red Cross Medical Center (formerly, Red Cross Central Hospital) in Hiroo, Shibuya City, Tokyo, and was chair of what was later named Kawasaki Disease Research Committee, sponsored by the Japanese government in 1970. He is the recipient of a number of honors including the first Japanese Pediatric Society Prize [10].

Conclusion

Kawasaki disease is a systemic medium-sized vessel vasculitis which although originally described in Japan has since been identified worldwide. Despite extensive investigations, the etiopathogenesis, unique pattern of organ system involvement, and confinement to infants and children remain elusive despite a variety of triggers having been reported. Both pathogen and host response have been implicated in modulating the disease course.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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