

Bilateral extraocular muscles enlargement from Kimura's disease of the orbit

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Kimura's disease (KD) is a rare chronic inflammatory disease of unclear etiology, characterized by subcutaneous nodules, mainly in the head and neck region, frequently associated with regional lymphadenopathy. Orbital involvement is infrequent and when it occurs, usually affects the eyelid or the lacrimal gland. We report a case of a 44-year-old man that presented with bilateral slowly progressive proptosis that was initially misdiagnosed as Graves' Ophthalmopathy. 15 months of worsening proptosis and the development of facial and temporal swelling led to further investigation. Computed tomography and magnetic resonance imaging showed enlargement of all *recti* muscles and diffuse orbital infiltration. An orbital biopsy was performed and was consistent with the diagnosis of KD. Long term oral corticosteroid showed marked improvement of proptosis and facial swelling. This case serves to emphasize that KD should be included in the differential diagnosis of inflammatory diseases of the orbit, even when characterized by predominant involvement of the extraocular muscles.

Key words: Angiolymphoid hyperplasia with eosinophilia, extraocular muscles enlargement, Kimura's disease

Kimura's disease (KD) is a rare, chronic inflammatory disorder, which occurs predominantly in Asians. It usually presents as a deep subcutaneous mass in the head and neck region and is frequently associated with regional lymphadenopathy or salivary gland involvement. KD is often accompanied by raised serum eosinophils count and markedly elevated serum immunoglobulin E (IgE) levels.^[1] Histologically, the lesions are characterized by proliferating blood vessels and eosinophilic infiltration. The etiology is unknown, but histopathologic and laboratory findings suggest an inflammatory response associated with a self-limited allergic or an autoimmune reaction to an antigenic stimulus.

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Since early reports, KD has been closely related with angiolymphoid hyperplasia with eosinophilia (ALHE) and were even included as part of its spectrum.^[2] However, there are many clinical and pathological differences between these 2 entities that strongly suggest KD is an independent disorder.^[3]

The lacrimal glands or the eyelids are usually affected in the orbital involvement of KD.^[4,5] Extraocular muscle enlargement has been described previously but not involving both orbits.^[6] The purpose of this paper is to document a patient with KD that presented with bilateral severe involvement of the orbits, review the differential diagnosis and treatment of this condition.

Case Report

A 44-year-old man had bilateral proptosis with gradual onset for 15 months. At that time, a diagnosis of Graves' Orbitopathy was established elsewhere, and moderate improvement was obtained with corticosteroid treatment. 3 weeks prior to our examination, he developed worsening proptosis and bilateral painless swelling of the face and temporal area as well as eyelid edema and chemosis [Fig. 1] and was admitted to the hospital. He had no history of allergies or atopy, neoplasias or others systemic diseases.

His best corrected visual acuity was 20/40 in the right eye (OD) and 20/25 in the left eye (OS). Hertel exophthalmometry showed 30 mm OD and 28 mm in OS. There was a right relative afferent pupillary reflex and mild extraocular movements restriction in all gaze directions. Slit lamp examination, intraocular pressure measurements and funduscopy were unremarkable.



Figure 1: (a) Initial presentation (b) 6 months after corticosteroids treatment

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General physical examination revealed bilateral palpable but not well-defined, non-fluctuating, firm and immobile mass, involving an area from chin to the zygomatic and pre-auricular region. Right and left palpable cervical and submandibular lymphadenopathies were present. Blood tests revealed hyper eosinophilia and hyperproteinemia. Biochemical profile, serum urea and creatinine levels and thyroid function tests were normal or negative.

Orbital computed tomography scan revealed enlargement of all extraocular muscles with sparing of tendons, diffuse apical orbital mass in both orbits, temporalis muscle and eyelid edema [Fig. 2]. Magnetic resonance imaging (MRI) on T1-weighted images revealed a diffuse thickened subcutaneous hypointense mass, bilateral enlargement of the temporalis muscles and enlargement of all extraocular muscles. The mass was slightly hyperintense on T2-weighted images and showed intense and slightly heterogenous enhancement on post gadolinium injection T1-weighted images [Fig. 3].

Biopsy specimens from the orbital fat, the inferior rectus and the temporal subcutaneous region were performed as well of the cervical lymph nodes. The histopathologic finding of the periorbital tissue were replacement of subcutaneous adipose tissue by fibrous stroma containing increased blood vessels, lined by plumped endothelial cells, dense inflammatory infiltrate rich in lymphocytes, eosinophils, plasma cells and several reactive lymphoid follicles [Fig. 4]. The lymph node showed follicular hyperplasia with eosinophil precipitate in

the germinal center; in the interfollicular zone, there was an increase of eosinophils among the lymphoid cells and the diagnosis of KD was established [Fig. 5].

Treatment starting with 80 mg of oral prednisone per day followed by slow tapering led to a significant improvement after 6 months [Fig. 1]. After 2 years of treatment when the corticosteroid was discontinued, the patient had mild recurrences of eyelid edema and had to be maintained with low dose oral corticosteroid treatment. His final visual acuity presented slight improvement to 20/30 in OD and no change of the 20/25 in OS.

Discussion

Kimura's disease is chronic inflammatory disorder of unknown etiology, which presents with tumor-like swellings, mainly in the head and neck region. It is considered much more prevalent in young males of Asian lineage. Although infectious etiologies have been postulated, KD is now believed to be related to an autoimmune or a delayed hypersensitivity reaction. An aberrant allergic response is further supported by the association with asthma, allergic rhinitis and conjunctivitis, atopic dermatitis, and peripheral hyper eosinophilia as well as raised serum IgE levels.^[4]

Most cases have been reported in the dermatology, oral surgery and pathology literature.^[6] It was first described in the Chinese literature as "eosinophilic hyperplastic lymphogranuloma",^[1] but became widely known as KD after

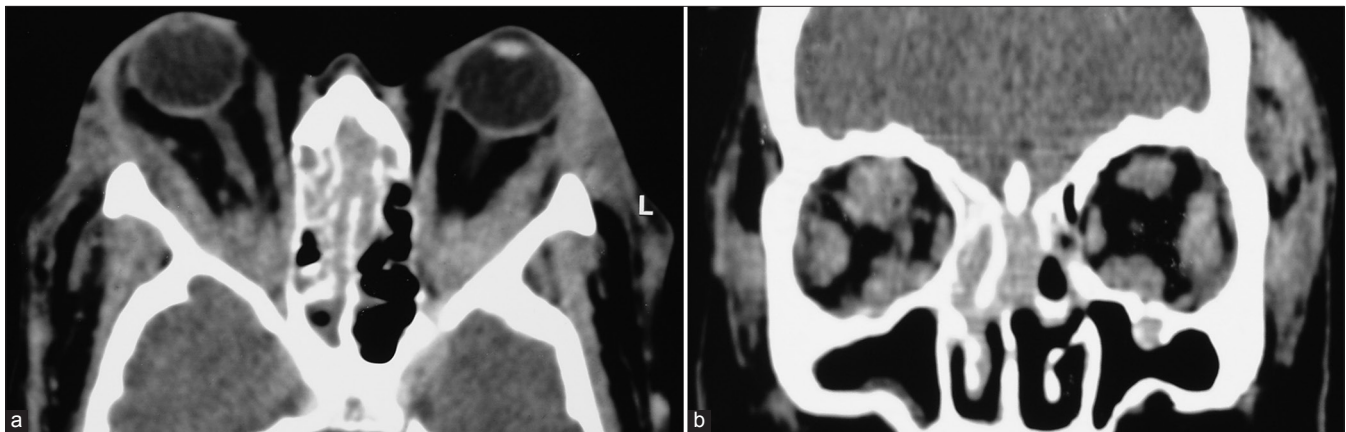


Figure 2: (a) axial CT scan (b) Coronal CT scan

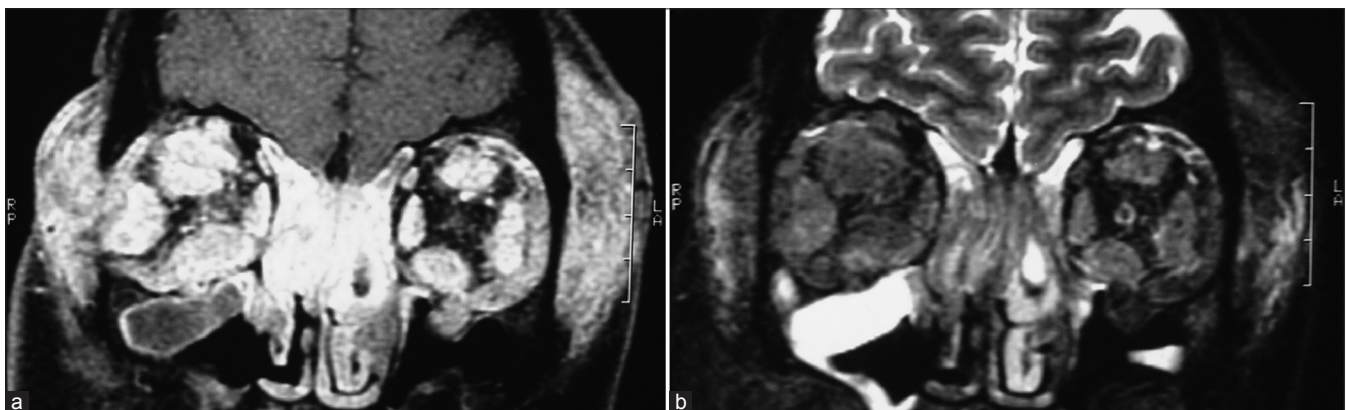


Figure 3: (a) MR T1 weighted with contrast (b) MR T2 weighted

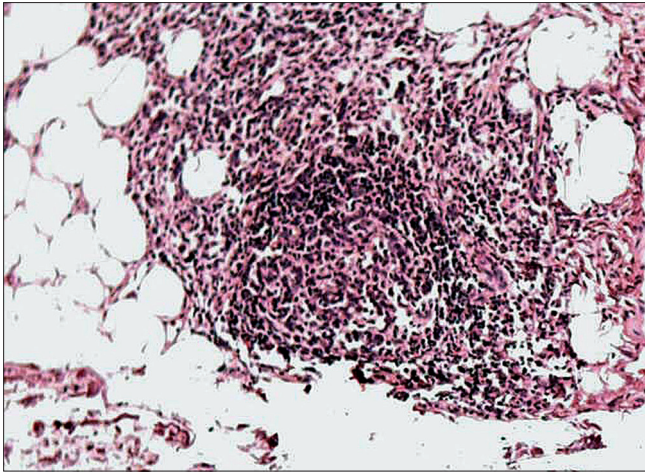


Figure 4: A reactive lymphoid follicle in the periorbital subcutaneous adipose tissue

Kimura *et al.*^[7] reported similar cases. It is usually a localized process without systemic manifestations, but associated conditions have been described including allergic diseases and nephrotic syndrome. Regional lymph node involvement occurs in up to 75% of cases.^[3]

Kimura's disease is rarely an ocular condition. It appears to be situated usually in the superior orbit and is largely asymptomatic apart from its mass effect.^[5] The condition may mimic specific and non-specific inflammations of the orbit, neoplasias and Graves' orbitopathy as exemplified in our case.

Histopathological findings in the orbit or elsewhere in the body are proliferation of lymphoid follicles and germinal centers, showing interfollicular infiltration by eosinophils. Computed tomography scan findings are non-specific and consist of homogeneously enhancing lymphadenopathy and enlarged salivary glands, with an ill-defined subcutaneous mass extending from the salivary gland.^[8] Orbital lesions are also non-specific. On MRI studies, KD usually presents hypointensity on T1-weighted images, but may have different patterns of signal intensity on T2-weighted, depending on the variability of fibrosis and vascularity. The degree of post-contrast enhancement can also be variable and is not related to the degree of hyperintensity on T2-weighted images.^[9]

The treatment modalities for KD include surgical excision, oral corticosteroid, cytotoxic drugs and radiation therapy.^[10] In the present case, an oral corticosteroid greatly reduced the swelling of the eyelids and rectus muscles with mild recurrence after discontinuity of corticosteroid hormone.

In conclusion, this paper documents the occurrence of severe bilateral involvement of all *recti* muscles caused by KD and serves to emphasize the need to include KD in the differential diagnosis of diffuse extraocular muscle enlargement. Our

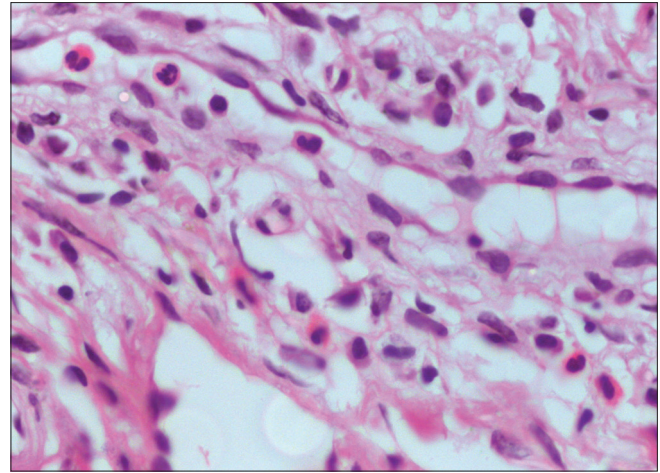


Figure 5: High-power view of the inflammatory infiltrate rich in eosinophils

case also supports the use of systemic steroids as a valuable treatment modality of such condition.

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