

## Case Report

# A Case of IgG4-Related Bilateral Palpebral Conjunctivitis

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## Keywords

IgG4-related ocular disease · Hypertrophic ectropion · Palpebral conjunctivitis

## Abstract

The most common sites of IgG4-related ocular disease are the lacrimal glands, infraorbital nerve, and extraocular muscles. Other ocular adnexal sites are relatively rare. We report a rare case of an 83-year-old man who developed palpebral conjunctivitis following bilateral hypertrophic ectropion of the eyelid. Tissue immunostaining revealed many IgG4-positive plasma cells (67 IgG4/74 IgG cells/high-power field). The serum IgG4 level was 76.9 mg/dL, which was within the normal range. The diagnosis was probable IgG4-related disease. The possibility of IgG4-related disease should be considered in a patient presenting with refractory conjunctivitis and hyperemia or hypertrophy of the lower eyelid.

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## Introduction

IgG4-related disease (IgG4-RD) is a lymphoproliferative disorder, the hallmark of which is an elevated level of IgG4-positive plasma cells. IgG4-RD lesions occur in various organs, including the salivary glands, lymph nodes, retroperitoneum, lungs, and pancreas [1–3]. In ophthalmology, commonly reported sites are the lacrimal glands, extraocular muscles, trigeminal nerve, and orbital soft tissue [4, 5]. There have also been occasional reports of IgG4-RD developing at various sites around the eyes, including the eyelid [5, 6], conjunctiva [7, 8], and

lacrimal sac [9]. In this report, we describe a case of IgG4-RD with palpebral conjunctivitis following bilateral hypertrophic ectropion of the lower eyelid.

## Case Report

The patient is an 83-year-old Japanese man who presented with persistent conjunctival hyperemia in both eyes. He had been treated with a topical steroid for 1 month and followed up at a local ophthalmology clinic. When there was no improvement, he was referred to our hospital. On examination, his best-corrected decimal visual acuity was 1.2 in both eyes. Slit-lamp microscopy revealed hyperemia of the palpebral conjunctiva and hypertrophic ectropion of the eyelid (Fig. 1). Anterior and posterior chamber were normal except of mild cataract. No abnormality was detected on fundoscopy. We performed a biopsy of the palpebral conjunctiva bilaterally to exclude malignant neoplastic disease. Microscopic examination showed a dense infiltration of plasma cells under the conjunctival epithelium on both sides (Fig. 2a, b). No fibrosis was detected. There was no difference in the numbers of kappa-positive or lambda-positive cells and no findings on in situ hybridization suggestive of malignant lymphoma. Many IgG4-positive plasma cells were observed on tissue immunostaining (67 IgG4/74 IgG cells per high-power field; Fig. 2c). The patient's IgG4 serum level was 76.9 mg/dL, which was within the normal range. Magnetic resonance imaging showed no enlargement of the lacrimal glands, infraorbital nerve, or extraocular muscles or any significant swelling of the cervical lymph nodes. A full-body computed tomography scan found no signs of other organ involvement.

The patient refused systemic steroid therapy and was followed up without treatment. A biopsy after 6 months of follow-up showed no deterioration of the palpebral conjunctiva (Fig. 3).

## Discussion

The diagnostic criteria for IgG4-RD are including the following: (1) clinical examination shows characteristic diffuse/localized swelling or masses in single or multiple organs; (2) hematologic examination shows an elevated serum IgG4 concentration ( $\geq 135$  mg/dL); and (3) histopathologic examination shows marked lymphocyte and plasmacyte infiltration and fibrosis with infiltration of IgG4-positive plasma cells (an IgG4-positive/IgG-positive cell ratio  $>40\%$  and  $>10$  IgG4-positive plasma cells per high-power field) [10]. Meeting of criteria 1, 2, and 3 indicates definite IgG4-RD, 1 and 3 probable IgG4-RD, and 1 and 2 possible IgG4-RD [10]. Our patient had hypertrophic enlargement of the palpebral conjunctiva bilaterally, and pathologic examination revealed proliferation of IgG4-positive plasma cells (an IgG4-positive/IgG-positive cell ratio of 90.5% and 67 IgG4-positive plasma cells per high-power field). Therefore, criteria 1 and 3 were met, indicating a diagnosis of probable IgG4-RD. However, the patient did not have the fibrosis often seen in IgG4-RD or an elevated serum IgG4 level, so will be followed up closely.

There have been occasional reports of IgG4-related ocular disease in the conjunctiva, eyelids, and lacrimal sac [5–9] but none on IgG4-related palpebral conjunctivitis with bilateral hypertrophic ectropion of the eyelid. It is thought that IgG4-RD presenting such condition is very rare. In addition, serum IgG4 was normal in this case. There are past reports that serum IgG4 was normal in atypical presentation of IgG4-RD [6, 7]. It seems that we should consider

any other inflammatory conditions that can mimic atypical condition of IgG4-RD, such as palpebral conjunctivitis.

IgG4-RD is a systemic disease that is reportedly associated with a high risk of malignancy [11–13]. Therefore, definitive diagnosis and systemic examination are important. The possibility of IgG4-RD should be considered in a patient who presents with refractory conjunctivitis and hyperemia or hypertrophy of the eyelid.

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### Statement of Ethics

The patient provided informed consent for his case to be published.

### Disclosure Statement

The authors declare that they have no conflicts of interest.

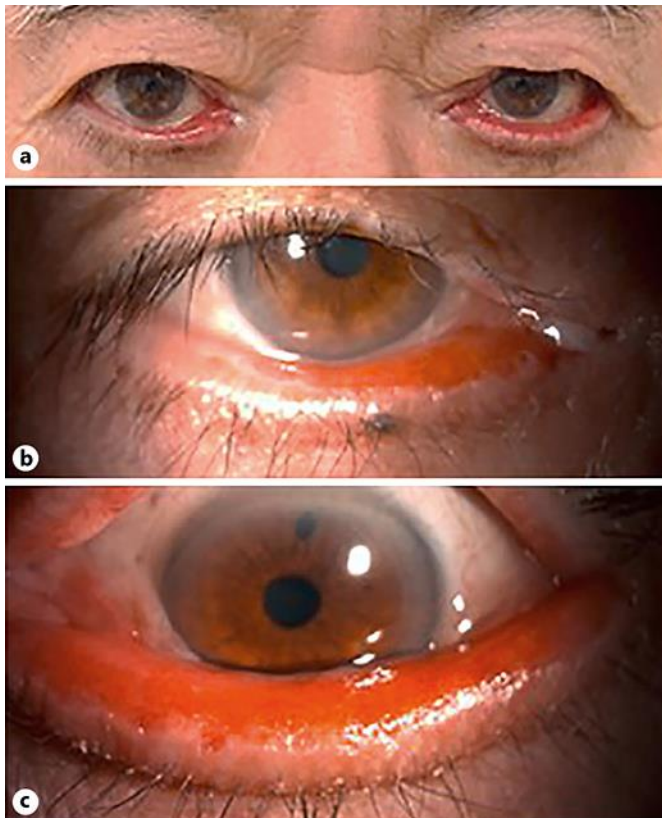
### Author Contributions

T.Y. and T.N. drafted the manuscript and collected the data. T.Y. and A.H. reviewed the final version of the manuscript. All authors have read and approved the final manuscript.

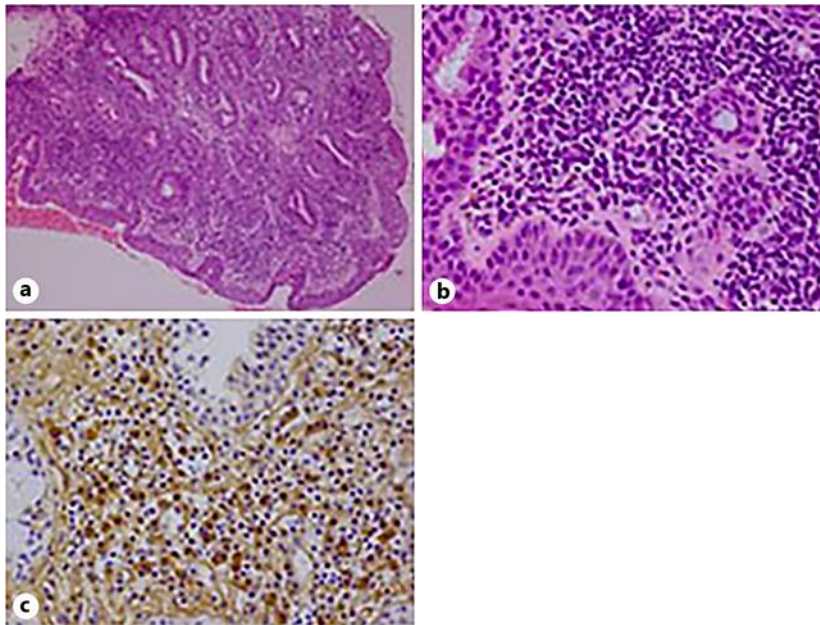
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**Fig. 1.** Palpebral conjunctivitis with bilateral hypertrophic ectropion of the eyelid. **a** A photograph of the face. **b** A slit-lamp photograph showing the conjunctival findings in the right eye. **c** A slit-lamp photograph showing the conjunctival findings in the left eye.



**Fig. 2.** Histopathological analysis showing a dense infiltration of plasma cells (**a**, original magnification  $\times 40$ ; **b**, original magnification  $\times 400$ ). **c** Tissue immunostaining of the conjunctival biopsy showing many IgG4-positive plasma cells (original magnification  $\times 400$ ).



**Fig. 3.** A photograph after 6 months of follow-up.