

附表【申請眼科專科醫師訓練醫院評鑑 住院醫師 學術論文刊登明細表】

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1	郭又瑋	Taiwan J Ophthalmol	<input type="checkbox"/> 屬 SCI 論文 <input checked="" type="checkbox"/> TJO	2020/10 web publication	Late intraocular lens exchange in dissatisfied patients with multifocal intraocular lens implantation
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# Late intraocular lens exchange in dissatisfied patients with multifocal intraocular lens implantation

Yu-Wei Kuo<sup>1</sup>, Yu-Chih Hou<sup>1,2,3\*</sup>

郭又瑋

## Abstract:

Intraocular lens (IOL) exchange may be required after multifocal IOL implantation due to dissatisfaction. Late IOL exchange is more challenging when it is done with capsulotomy. We presented a retrospective case series study enrolling four consecutive eyes reviewing late IOL exchange due to decreased vision and dysphotopsia. High residual hyperopia, astigmatism, and IOL tilt occurred in 3 eyes, respectively. The mean time to the IOL exchange was  $15.8 \pm 10.63$  months. After separation of the adhesions by visco-dissection assisted with a 27-gauge needle and sinsky hook, IOL was explanted. One-piece IOL was implanted in the bag in two eyes without posterior capsulotomy, whereas three-piece IOL was implanted in the sulcus after viscoelastic tamponade in the other 2 eyes with capsulotomy. No complication occurred and dysphotopsia disappeared. The mean logarithm of the minimum angle of resolution best-corrected visual acuity significantly improved from  $0.33 \pm 0.12$  preoperatively to  $0.11 \pm 0.13$  postoperatively. In conclusion, late IOL exchange could be safely performed with proper technique and achieve good results.

## Keywords:

Capsulotomy, intraocular lens exchange, multifocal intraocular lenses, optic capture

## Introduction

Multifocal intraocular lens (IOL) implantation has become more popular for the correction of presbyopia with cataract recently. However, dissatisfaction owing to decreased visual acuity and dysphotopsia may occur and some still need multifocal IOL explantation eventually.<sup>[1-2]</sup> Nonetheless, late IOL exchange was challenging and more complicated, especially in cases with posterior capsulotomy.<sup>[3]</sup> In this case series study, four consecutive eyes in three patients who received multifocal IOL implantation and subsequent late IOL exchange by a single surgeon (Dr. Hou) were enrolled. The details of the procedures and results of late IOL exchange were presented.

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## Case Reports

### Case 1

A 59-year-old female underwent uneventful cataract surgery with multifocal IOL implantation in both eyes elsewhere. She complained of severe glare, halos, and blurry vision in both eyes and visited our clinic 6 months postoperatively. The best-corrected visual acuity (BCVA) was 0.6 with refraction of  $+1.75 -0.75 \times 22^\circ$  in the right eye and 0.5 with refraction of  $+0.75 -1.25 \times 177^\circ$  in the left eye. Biomicroscopy showed clear cornea and mild decentration of multifocal acrylic IOLs with an intact posterior capsule in both eyes. The posterior segment was unremarkable. Eight months after cataract surgery, IOL exchange was performed in the left eye. IOL calculation of the secondary IOL was performed using the SRK/T-formula. After reopening the side port and the original temporal corneal

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## CASE REPORT

### Ahead of print publication

#### Late intraocular lens exchange in dissatisfied patients with multifocal intraocular lens implantation

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OPEN

# Hyperreflective foci in predicting the treatment outcomes of diabetic macular oedema after anti-vascular endothelial growth factor therapy

黃楚軒

Chu-Hsuan Huang<sup>1</sup>, Chang-Hao Yang<sup>2,3</sup>, Yi-Ting Hsieh<sup>2</sup>, Chung-May Yang<sup>2,3</sup>, Tzyy-Chang Ho<sup>4</sup> & Iso-Ting Lai<sup>2,4,5</sup>

This retrospective study evaluated the association of hyperreflective foci (HRF) with treatment response in diabetic macular oedema (DME) after anti-vascular endothelial growth factor (VEGF) therapy. The medical records, including of ophthalmologic examinations and optical coherence tomography (OCT) images, of 106 patients with DME treated with either intravitreal ranibizumab or aflibercept were reviewed. The correlations between best-corrected visual acuity (BCVA) changes and HRF along with other OCT biomarkers were analysed. The mean logMAR BCVA improved from 0.696 to 0.461 after an average of 6.2 injections in 1 year under real-world conditions. Greater visual-acuity gain was noted in patients with a greater number of HRF in the outer retina at baseline ( $p = 0.037$ ), along with other factors such as poor baseline vision ( $p < 0.001$ ), absence of epiretinal membrane ( $p = 0.048$ ), and presence of subretinal fluid at baseline ( $p = 0.001$ ). The number of HRF after treatment was correlated with the presence of hard exudate ( $p < 0.001$ ) and baseline haemoglobin A1C ( $p = 0.001$ ). Patients with proliferative diabetic retinopathy had greater HRF reduction after treatment ( $p = 0.018$ ). The number of HRF in the outer retina, in addition to other baseline OCT biomarkers, could be used to predict the treatment response in DME after anti-VEGF treatment.

Diabetic macular oedema (DME), occurring in 3–9% of patients with diabetes, is a sight-threatening condition arising in cases of diabetic retinopathy<sup>1–4</sup>. Among the different treatments for DME, anti-vascular endothelial growth factor (anti-VEGF) therapy, compared with laser photocoagulation and steroid treatment, has been shown to lead to superior visual outcomes<sup>5</sup>. Furthermore, intravitreal injection (IVI) of anti-VEGF agents such as ranibizumab and aflibercept has been shown to significantly improve the vision and macular anatomy of patients with DME in clinical trials, especially when injections were administered under strict loading and re-treatment protocols<sup>6–8</sup>. However, the frequency of re-treatment in the real world was often lower than that recommended, therefore resulting in relatively inferior outcomes compared with those of the clinical trials<sup>9,10</sup>.

The treatment response of DME after anti-VEGF injection differs between clinical trial and real-world studies and varies among patients. To better understand the prognosis of DME after anti-VEGF therapy, several clinical biomarkers have been correlated with treatment outcomes, including central foveal thickness (CFT), external limiting membrane disruption, ellipsoid zone disruption, subretinal fluid (SRF), and presence of hyperreflective foci (HRF)<sup>11–13</sup>. Bolz et al. firstly reported the presence of HRF and their characteristics on optical coherence tomography (OCT) in patients with DME<sup>14</sup>, but their nature remained unclear despite several possible origins having been proposed, including lipid extravasation from a compromised vasculature, microglia proliferation, or retinal pigmented epithelium (RPE) migration<sup>14,15</sup>. In addition, previous studies have also reported controversial results regarding the correlation between HRF and visual acuity, especially that the presence of HRF in different retinal layers at baseline might impact visual improvement after anti-VEGF therapy differently<sup>16–20</sup>. Therefore, unlike other OCT biomarkers such as SRF, which have been determined to predict the treatment response of DME<sup>12,21</sup>, the role of HRF as a predicting factor for DME has not been determined.

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the study by Zur et al.<sup>30</sup>, including inner (from the internal limiting membrane to the inner nuclear layer), outer (from the outer plexiform layer to the ellipsoid zone), and SRF (within the SRF) layers. The amounts of HRF within the central 3 mm of the macula were manually counted by two retinal specialists (TTL and CHH), and the central 3 mm of the macula was defined as 1500 µm on both sides from the foveal centre using the built-in software calliper.

**Literature review.** To better understand the role of HRF in predicting the treatment outcomes of DME, we conducted a systematic search using the PubMed database for studies written in any language and published before June 28, 2020. We used the following keywords: (hyperreflective foci) AND (diabetic macular edema). In addition, we reviewed the reference lists of all selected articles to identify other potentially relevant studies. The eligibility criteria were: (1) recruited patients with DME who received any type of treatment; (2) evaluated the presence of HRF, either qualitatively or quantitatively, using OCT; (3) reported on the association of HRF with treatment response of DME, as either final BCVA or BCVA improvement. Two retinal specialists (TTL and CHH) independently reviewed the titles and abstracts of all identified studies and extracted the data from all eligible studies.

**Statistical analysis.** For the analysis of BCVA, CFT, and the amount of HRF, the comparisons of measurements between baseline and follow-up visits were performed with paired Student's t-tests. Linear regression analyses were performed to evaluate the predictive factors for visual outcome and CFT at the 12-month follow-up. The candidate predictive factors included demographic data, OCT biomarkers, drug type, interaction between drug type and HRF, and injection numbers. Age, sex, and pre-treatment logMAR BCVA (for visual improvement) or CFT (for CFT reduction) were adjusted in all models. Linear regression analyses were also performed to evaluate the factors associated with the number of HRF. The candidate predictive factors included age, sex, HbA1c, presence of HTN, treatment history, and presence of PDR or hard exudate. The statistical analysis was performed using SPSS (V.21; IBM Corp., Armonk, NY, USA). A P value lower than 0.05 was considered statistically significant.

### Data availability

The database of current study will be available on request after the evaluation and approval of the request by the Institutional Review Board of National Taiwan University Hospital.

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### References

1. Wong, T. Y. et al. Diabetic retinopathy in a multi-ethnic cohort in the United States. *Am. J. Ophthalmol.* **141**, 446–455. <https://doi.org/10.1016/j.ajo.2005.08.063> (2006).
2. Wong, T. Y. et al. Guidelines on diabetic eye care: The international council of ophthalmology recommendations for screening, follow-up, referral, and treatment based on resource settings. *Ophthalmology* **125**, 1608–1622. <https://doi.org/10.1016/j.ophtha.2018.04.007> (2018).
3. Yau, J. W. et al. Global prevalence and major risk factors of diabetic retinopathy. *Diabetes Care* **35**, 556–564. <https://doi.org/10.2337/dc11-1909> (2012).
4. Zhang, X. et al. Prevalence of diabetic retinopathy in the United States, 2005–2008. *JAMA* **304**, 649–656. <https://doi.org/10.1001/jama.2010.1111> (2010).
5. Kim, E. J. et al. Treatment of diabetic macular edema. *Curr. Diab. Rep.* **19**, 68. <https://doi.org/10.1007/s11892-019-1188-4> (2019).
6. Brown, D. M. et al. Intravitreal aflibercept for diabetic macular edema: 100-week results from the VISTA and VIVID Studies. *Ophthalmology* **122**, 2044–2052. <https://doi.org/10.1016/j.ophtha.2015.06.017> (2015).
7. Fouda, S. M. & Bahgat, A. M. Intravitreal aflibercept versus intravitreal ranibizumab for the treatment of diabetic macular edema. *Clin. Ophthalmol.* **11**, 567–571. <https://doi.org/10.2147/OPTHS.131381> (2017).
8. Nguyen, Q. D. et al. Ranibizumab for diabetic macular edema: results from 2 phase III randomized trials: RISE and RIDE. *Ophthalmology* **119**, 789–801. <https://doi.org/10.1016/j.ophtha.2011.12.039> (2012).
9. Holekamp, N. M. et al. Vision outcomes following anti-vascular endothelial growth factor treatment of diabetic macular edema in clinical practice. *Am. J. Ophthalmol.* **191**, 83–91. <https://doi.org/10.1016/j.ajo.2018.04.010> (2018).
10. Patrao, N. V. et al. Real-world outcomes of ranibizumab treatment for diabetic macular edema in a United Kingdom National Health Service Setting. *Am. J. Ophthalmol.* **172**, 51–57. <https://doi.org/10.1016/j.ajo.2016.09.002> (2016).
11. Choi, M. Y., Jee, D. & Kwon, J. W. Characteristics of diabetic macular edema patients refractory to anti-VEGF treatments and a dexamethasone implant. *PLoS ONE* **14**, e0222364. <https://doi.org/10.1371/journal.pone.0222364> (2019).
12. Lai, T. T., Yang, C. M., Yang, C. H., Ho, T. C. & Hsieh, Y. T. Treatment outcomes and predicting factors for diabetic macular edema treated with ranibizumab: One-year real-life results in Taiwan. *J. Formos. Med. Assoc.* **118**, 194–202. <https://doi.org/10.1016/j.jfma.2018.03.009> (2019).
13. Kwan, C. C. & Fawzi, A. A. Imaging and biomarkers in diabetic macular edema and diabetic retinopathy. *Curr. Diab. Rep.* **19**, 95. <https://doi.org/10.1007/s11892-019-1226-2> (2019).
14. Bolz, M. et al. Optical coherence tomographic hyperreflective foci: A morphologic sign of lipid extravasation in diabetic macular edema. *Ophthalmology* **116**, 914–920. <https://doi.org/10.1016/j.ophtha.2008.12.039> (2009).
15. Framme, C., Wolf, S. & Wolf-Schnurrbusch, U. Small dense particles in the retina observable by spectral-domain optical coherence tomography in age-related macular degeneration. *Invest. Ophthalmol. Vis. Sci.* **51**, 5965–5969. <https://doi.org/10.1167/iov.10-5779> (2010).
16. Framme, C., Schweizer, P., Imesch, M., Wolf, S. & Wolf-Schnurrbusch, U. Behavior of SD-OCT-detected hyperreflective foci in the retina of anti-VEGF-treated patients with diabetic macular edema. *Invest. Ophthalmol. Vis. Sci.* **53**, 5814–5818. <https://doi.org/10.1167/iov.12-9950> (2012).
17. Kang, J. W., Chung, H. & Chan Kim, H. Correlation of optical coherence tomographic hyperreflective foci with visual outcomes in different patterns of diabetic macular edema. *Retina* **36**, 1630–1639. <https://doi.org/10.1097/IAE.0000000000000995> (2016).
18. Liu, S., Wang, D., Chen, F. & Zhang, X. Hyperreflective foci in OCT image as a biomarker of poor prognosis in diabetic macular edema patients treating with Conbercept in China. *BMC Ophthalmol.* **19**, 157. <https://doi.org/10.1186/s12886-019-1168-0> (2019).

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1	王凱	International Journal of Environmental Research and Public Health	<input checked="" type="checkbox"/> 屬 SCI 論文 <input type="checkbox"/> TJO	2021/1	Medical Compliance of Fibrate and the Decreased Risk of Age-Related Macular Degeneration in Dyslipidemia-Related Diseases: A Population-Based Cohort Study
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Article

# Medical Compliance of Fibrate and the Decreased Risk of Age-Related Macular Degeneration in Dyslipidemia-Related Diseases: A Population-Based Cohort Study

王凱

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**Abstract** The purpose of the current study is to evaluate the incidence of age-related macular degeneration (AMD) in dyslipidemia-related diseases with or without the use of fibrate. Patients were defined as dyslipidemia-related diseases according to the diagnostic code and lab exam arrangement, then the population was divided into those with fibrate application and those without via 1:2 ratios of propensity-score matching. The primary outcome is the development of AMD after dyslipidemia-related diseases by the Cox proportional hazard regression. Besides, the relationship between the medical compliance of fibrate, presented as medical possession ratio (MPR), and the AMD development was also analyzed. A total of 22,917 patients and 45,834 individuals were enrolled in the study and control groups. There were 572 and 1181 events of any AMD development in the study and control groups which showed identical risk of AMD (aHR: 0.94, 95% CI: 0.85–1.04). However, a reduced risk of any AMD was found in those patients reached a baseline MPR more than 20% (aHR: 0.729, 95% CI: 0.599–0.887,  $p = 0.0016$ ) and overall MPR more than 5% three years after the diagnosis of dyslipidemia-related diseases (aHR: 0.712, 95% CI: 0.557–0.909,  $p = 0.0065$ ). Besides, a lower risk of dry-AMD was also found in those patients with the above conditions (aHR: 0.736, 95% CI: 0.599–0.906,  $p = 0.0038$  and aHR: 0.721, 95% CI: 0.557–0.934,  $p = 0.0133$ , respectively). In conclusion, the use of fibrate with fair initial medical compliance will decrease the incidence of AMD in patients with dyslipidemia-related diseases, especially for the development of dry-AMD.

**Keywords:** age-related macular degeneration; epidemiology; fibrate; dyslipidemia; compliance

## 1. Introduction

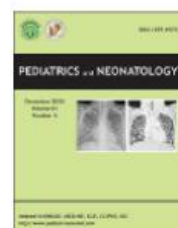
Dyslipidemia refers to the dysregulation of blood lipid level which features elevated low density lipoprotein and very low density lipoprotein or triglyceride in different subtypes [1]. Recently, the prevalence of dyslipidemia has been estimated to be above 20% in the European population and the age-standardized prevalence of treatment-need dyslipidemia in Japan is more than 30% [1,2]. Dyslipidemia is related to a numbers of atherosclerotic cardiovascular co-morbidities, including the coronary heart disease, peripheral arterial



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1	洪志恒	Pediatrics and Neonatology	<input checked="" type="checkbox"/> 屬 SCI 論文 <input type="checkbox"/> TJO	2020/7	Late complications of congenital nasolacrimal duct obstruction in a Taiwanese family
2			<input type="checkbox"/> 屬 SCI 論文 <input type="checkbox"/> TJO		
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Letter to the Editor

## Late complications of congenital nasolacrimal duct obstruction in a Taiwanese family



Dear Editor:

We report two cases of preseptal cellulitis secondary to pediatric acute dacryocystitis (PAD) caused by congenital nasolacrimal duct obstruction (CNLDO).

Case 1 was a 6.5-year-old girl without systemic diseases. She suffered from bilateral epiphora and mucoid discharge since birth. She had a history of PAD-related preseptal cellulitis twice and was admitted to another hospital twice for systemic antibiotic administration. Microbiological culture showed *Haemophilus influenzae* and *Streptococcus pyogenes* on different hospital admissions, respectively. Computed tomography outlined the abscess cavity in the lacrimal sac with increased density over the periocular area (Fig. 1).

One week after discharge, she was brought to our outpatient department. Visual acuity and ocular movements were unaffected. Ocular examination showed positive die disappearance test (DDT) on both eyes. Right upper punctal occlusion was found under slit-lamp microscopy, and irrigation through the lower punctum demonstrated total obstruction with mucopurulent backflow. Probing

under topical anesthesia revealed resistance at the Hasner valve. After penetrating the Hasner valve, reirrigation displayed the patency of the lacrimal drainage system. During the 4-month follow-up, there were no more symptoms of tearing and discharge.

Case 2 was a 33-year-old female sharing the same history of CNLDO with Case 1 (her daughter). This lady encountered constant tearing since birth without any surgical intervention. She mentioned an episode of cellulitis at 14 years old and was hospitalized once for systemic antibiotic treatment only. At presentation, ocular examination showed positive DDT on both eyes, and irrigation demonstrated total obstruction with mucopurulent backflow. Probing through the right lower punctum showed "soft stop," indicating lower canalicular stenosis. Further probing through the upper punctum was attempted but failed because of chronic resistance along the nasolacrimal duct. Thus, dacryocystorhinostomy was suggested.

Preseptal cellulitis caused by PAD is rare in pediatric patients, and this late subsequent event is a severe complication of CNLDO.<sup>1</sup> Recent cohort studies showed no



**Figure 1** (Left) Bilateral tearing, mucous discharge, and right-eye preseptal cellulitis complicated with erythema, edema, and tenderness in a 6.5-year-old girl. (Right). Ring enhancement on the right lacrimal sac (arrow) and increased density over right periocular area with contrast enhancement on the axial view of orbital computed tomography.

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case presenting with preseptal cellulitis secondary to PAD.<sup>2,3</sup> Our previous research on 564 eyes of 477 patients under the age of 5 years diagnosed with CNLDO also found no case of preseptal cellulitis.<sup>4</sup>

Treatment options for CNLDO can be medical or surgical interventions. However, CNLDO-related PAD with peri-orbital cellulitis should be treated with a combined medical and surgical strategy.<sup>5</sup> Very few articles have specifically studied the efficacy of probing in PAD with periorbital cellulitis. Campolattaro et al. reported a high success rate (100%) after initial probing in five cases of PAD with preseptal cellulitis (age range: 2 months to 2 years; average: 8.2 months), who underwent probing after systemic antibiotics for a mean duration of 2.2 days.<sup>5</sup> In their study, there is only one case aged over 12 months.

In summary, this report presents preseptal cellulitis secondary to CNLDO in a family with punctal occlusion found in the child and canalicular obstruction noted in the adult.

### Declaration of Competing Interest

The authors declare that there are no conflicts of interest.

### References

1. Ali MJ. Pediatric acute dacryocystitis. *Ophthalmic Plast Reconstr Surg* 2015;31:341–7.
2. Şen ZS, Kara TT, Keskin S, Özen G, Örnek F, Alioğlu B. Preseptal and orbital cellulitis in childhood: the experience of ankara training and research hospital. *J Pediatr Res* 2019;6:64–9.
3. Daoudi A, Ajdakr S, Rada N, Draiss G, Hajji I, Bouskraoui M. Orbital and periorbital cellulitis in children. Epidemiological, clinical, therapeutic aspects and course. *J Fr Ophthalmol* 2016; 39:609–14. [Article in French].
4. Hung CH, Chen YC, Lin SL, Chen WL. Nasolacrimal duct probing under topical anesthesia for congenital nasolacrimal duct obstruction in Taiwan. *Pediatr Neonatol* 2015;56:402–7.
5. Campolattaro BN, Lueder GT, Tychsen L. Spectrum of pediatric dacryocystitis: medical and surgical management of 54 cases. *J Pediatr Ophthalmol Strabismus* 1997;34:143–53. quiz 186–7.

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附表【申請眼科專科醫師訓練醫院評鑑 住院醫師 學術論文刊登明細表】

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2			<input type="checkbox"/> 屬 SCI 論文 <input type="checkbox"/> TJO		
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4			<input type="checkbox"/> 屬 SCI 論文 <input type="checkbox"/> TJO		
5			<input type="checkbox"/> 屬 SCI 論文 <input type="checkbox"/> TJO		



CASE REPORT

# Immunoglobulin G4-Related Orbital Disease with Bilateral Optic Perineuritis and Maxillary Nerves Involvement: A Case Report

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## ABSTRACT

Immunoglobulin G4-related optic neuropathy caused by optic perineuritis is a rare complication of immunoglobulin G4-related disease (IgG4-RD). Herein, we report a 38-year-old Asian man with history of sinusitis who presented with painless blurred vision and proptosis for over 6 months. Examination with the Hertel exophthalmometer revealed 21.5 mm on both eyes. Magnetic resonance imaging revealed a doughnut sign encircling the right optic nerve, bilateral tram-track signs on both optic nerves, enlarged bilateral maxillary nerves with perineural spreading to the infraorbital nerves, hypertrophy of extraocular muscles, and pansinusitis. Visual evoked potentials displayed bilateral delayed P100 latency, indicating bilateral optic neuropathy. Biopsy with functional

endoscopic sinus surgery demonstrated diffuse dense lymphoplasmacytic infiltrate and fibrosis. IgG4-positive plasma cells exceeded 50 cells per high-power field while the overall IgG4/IgG ratio was above 40%. Serological studies unveiled extremely high serum concentrations of IgG4 (2650 mg/dL), and the calculated serum IgG4/IgG ratio was 100%. These comprehensive features supported the diagnosis of IgG4-RD with bilateral optic perineuritis, branches of trigeminal nerve involvement, and pansinusitis. The visual acuity improved slightly following the initiation of treatment with corticosteroids, but it became worse again during the tapering course. Following another course of corticosteroids followed by subsequent immunosuppressant treatment with azathioprine, vision in both eyes ultimately improved during the 2-year follow-up period.

**Keywords:** IgG4-related disease; Maxillary nerve; Optic perineuritis; Orbital disease

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