

Anterior uveitis and severe keratoconjunctivitis sicca in a patient with steroid-induced ocular hypertension - Case Report

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ABSTRACT

Severe dry eye syndrome and anterior uveitis are known as adverse effects of different intraocular pressure (IOP) lowering drops. We report a case of acute anterior uveitis and severe keratoconjunctivitis sicca associated with combined IOP-lowering therapy including GANFORT® and SIMBRINZA® in a patient with steroid-induced ocular hypertension. 360-degree selective laser trabeculoplasty (SLT) was performed in both eyes as an IOP-lowering treatment. The transition from combined IOP-lowering therapy to monotherapy and significant reduction of ocular side effects combined with improved ocular surface as well as patient's quality of life. The appropriate treatment regimen to reduce elevated IOP should be individualized, considering multiple topical adverse effects related to glaucoma treatment. SLT is a proven clinically effective procedure and a valuable potential alternative as primary or adjunct treatment that should be definitely considered in patients with ocular hypertension and severe intolerance to topical medications.

Keywords: *dry eye, intraocular pressure, keratoconjunctivitis sicca, ocular hypertension, uveitis*

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	https://ophthalmolcases.com/index.php/hat
	DOI:10.30546/2788-516X.2024.019.0657
	

INTRODUCTION

Elevated intraocular pressure (IOP) still remains the main risk factor for the development of glaucoma [1]. Thus, lowering IOP is the sole currently available prevention and treatment of glaucoma, and could be achieved through medications, laser treatment or surgery [2]. Available topical preserved and preservative-free IOP-lowering drops have several ocular and periocular adverse effects, including ocular surface disease/dry eye symptoms with superficial punctate keratitis, corneal erosion, conjunctival allergy, and conjunctival injection; contact dermatitis, skin/eyelash/iris hyperpigmentation, eyelash bristling/lengthening, prostaglandin analog periorbitopathy with upper eyelid deepening, mucous membrane pemphigoid, skin hypertrichosis and, skin depigmentation; corneal thinning; anterior uveitis, etc. [3-11]. Another alternative clinically and cost-effective treatment option to reduce and avoid the above mentioned adverse effects and to improve patients' compliance and quality of life is selective laser trabeculoplasty (SLT) [12]. According to the updated glaucoma management for glaucoma treatment of the American Academy of Ophthalmology, the European Glaucoma Society, and National Institute for Health and Care Excellence after

publication of the 3-year results of the LIGHT trial SLT can be considered as initial or as first-line treatment for ocular hypertension (OHT) and open angle glaucoma [13]. The aim of this report is to present a case of acute anterior uveitis and severe keratoconjunctivitis sicca associated with combined IOP-lowering therapy in a patient with steroid induced OHT and uncontrolled high IOP.

CASE REPORT

A 82-year old woman was admitted to our clinic with a severe redness, itching, burning, photophobia, tearing, and pain in both eyes. Her medical history showed arterial hypertension and significant trauma by car accident with post-traumatic stress disorder 4 years prior and initial administration of intensive steroid therapy with switch to oral steroids (prednisolone 5 mg qd). Other used systemic medications included benzodiazepine tranquilizer Alprazolam, and antihypertensive drugs Valsartan and Amlodipin; ocular medications – combined IOP-lowering therapy of GANFORT® (AbbVie LTD) and SIMBRINZA® (Alcon); multiple tear substitutes: Vitavision, Hylo Gel and Cationorm eye drops. The blood laboratory testing did not reveal any abnormal findings.

We performed a detailed ophthalmic examination including visual acuity testing, refractometry, tonometry (Goldmann applanation tonometry), pachymetry, automated visual field examination using the Medmont M700 Automated Perimeter (MAP, Australia), funduscopy, and analysis of the optic disc using optical coherence tomography (Optopol, Copernicus REVO OCT). Her distance corrected visual acuity by logMAR was 0,50 for right eye and 0,50 for left eye; IOP was 28 mmHg and 26 mmHg; central corneal thickness amounted to 521 µm and 530 µm, in the right and left eye, respectively. Biomicroscopy revealed severely red eyes with swollen eyelids, mixed (conjunctival + pericorneal) hyperaemia, congestion, chemosis, mucous secretion, subtarsal giant papillae, corneal fluorescein staining Grade 1 (CFS, Oxford Grade Scale) [14], keratic endothelial precipitates mostly in the lower part of the cornea, a few anterior chamber cells, flare/Tyndal +1 and pseudophakic lens status of the eyes (Fig. 1, Fig. 2).



Figure 1. Baseline binocular eye status.

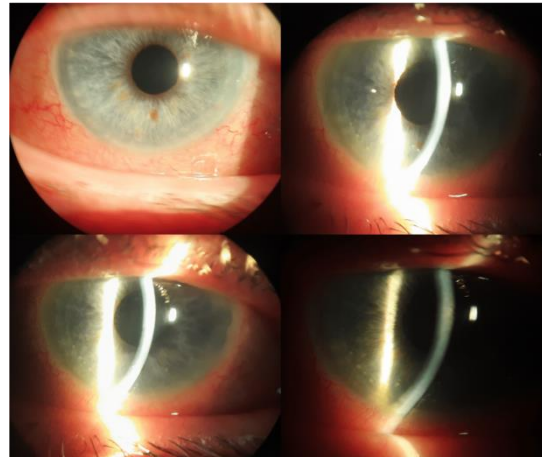


Figure 2. Biomicroscopy at the baseline.

Perimetry showed several visual field defects in both eyes that could be explained by loss of fixation, false negative replies and known myopia (Fig. 3).

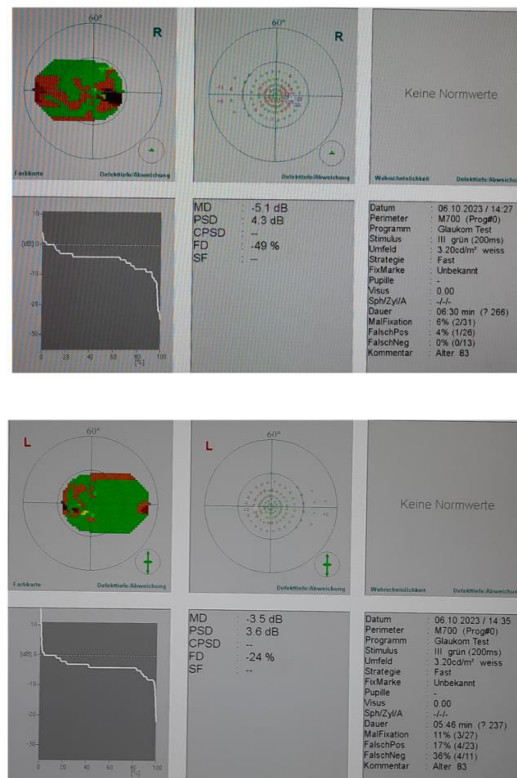


Figure 3. Perimetry of the both eyes.

Funduscopy identified myopic fundus with oblique small optic discs and dry macular degeneration with drusen (Fig. 4, Fig. 5).

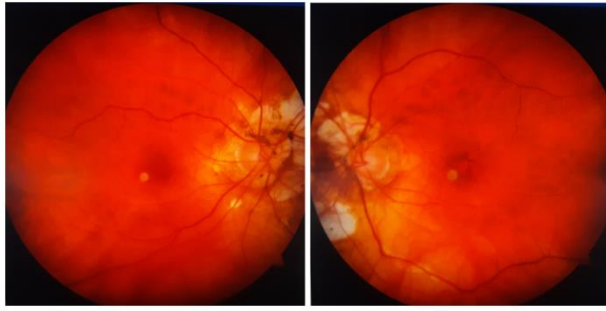


Figure 4. Fundus of the both eyes.

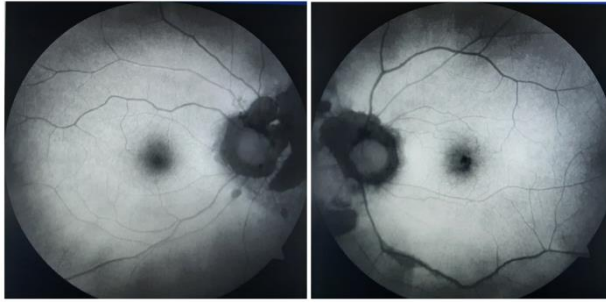


Figure 5. Fundus Autofluorescence of the both eyes.

Optic disc OCT findings were typical for myopic discs (Fig. 6).

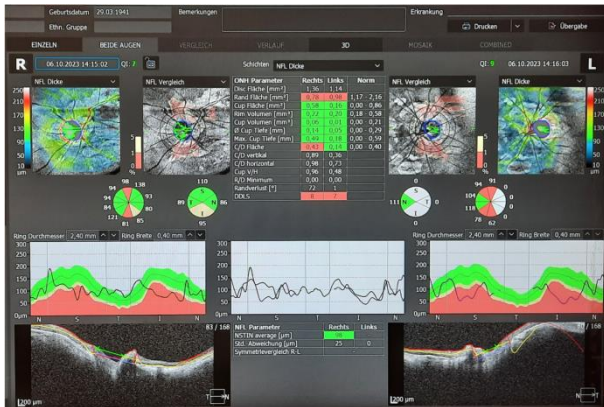


Figure 6. Optic nerve head OCT of the both eyes.

We diagnosed a steroid-induced ocular hypertension in the absence of glaucomatous optic disc damage [15] with a severe dry eye syndrome and acute anterior uveitis induced by IOP-lowering drops in a myopic pseudophakic patient and decided to reduce the topical antihypertensive therapy by performing SLT with a 360° modality. First of all, we decided to discontinue SIMBRINZA® eye drops. SLT was performed in both eyes by using topical anaesthetic drops and a gonioscopic lens with coupling medium. Laser treatment was delivered at 360° of the trabecular meshwork with 130 nonoverlapping spots (spot size 400 microns, 25 per quadrant; energy 1.5 mJ) and with a just visible tissue reaction or small microbubbles. The follow-up was 12 months. IOP measurements were performed on the first day, 1 week, 2 weeks, and every 3 months after laser procedure. IOP was reduced to 20 mmHg and 19 mmHg on the first day, and to 18

mmHg and 16 mmHg at 1 and 2 weeks after SLT, no visible keratic precipitates were documented. At 2 weeks IOP-lowering therapy was reduced from GANFORT® to MONOPROST® (Thea Pharmaceuticals Ltd), Thealoz Duo preservative free dry eye drops were prescribed as a tear substitute. IOP still remained under control and amounted to be 17 mmHg and 18 mmHg, 18 mmHg and 15 mmHg; 17 mmHg and 19 mmHg; 16 mmHg and 18 mmHg at 3-, 6-, 9- and 12 months follow-up, respectively. Biomicroscopy of both eyes with clinically significant reduction of all above mentioned ocular symptoms' severity, improvement of ocular surface and CFS Grade 0 at the last follow-up is presented in Fig. 7, Fig. 8.



Figure 7. Binocular eye status at the last follow-up.

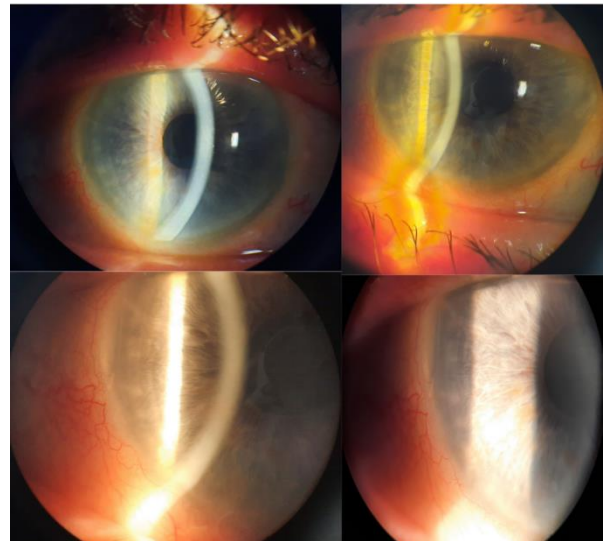


Figure 8. Biomicroscopy at the last follow-up.

DISCUSSION

An acute anterior uveitis and severe keratoconjunctivitis diagnosed by our patient were adverse effects of previously prescribed combined IOP-lowering therapy including 4 different agents. Despite of almost maximal topical antihypertensive therapy the IOP in both eyes was uncontrolled, which could be explained with development of severe dry eye symptoms and following patient's non-compliance. Anterior uveitis secondary to brimonidine containing eye drops administration was reported by several authors [9-11, 16-18]. A large retrospective descriptive case series of brimonidine-associated uveitis included 16 patients (26 eyes) with a median

follow-up time 15 months and was published in BMC Ophthalmology in 2020 [18]. This phenomenon should not be misinterpreted in such patients and differentiated from primary anterior uveitis, especially in our case with steroid-induced OHT. If not recognized correctly over-treatment with topical steroids could lead to aggravated steroid response and further IOP elevation and complicate the already challenging case. Keratoconjunctivitis sicca is a very common side effect of most preserved and even preservative-free antihypertensive eye drops [4,5,7], and thus, could be associated with both medications in our case. Therefore, we decided to stop SIMBRINZA® eye drops, as a first step of therapeutic modification after performing the SLT procedure, which resulted in the disappearance of keratic precipitates 2 weeks after discontinuation of use. Further stable bilateral control of IOP after SLT motivated us to switch combined therapy with GANFORT® to monotherapy with MONOPROST® and the pressure was well controlled during the 12 months follow-up.

Each patient with elevated IOP must be treated individually and closely monitored. Multiple treatment related adverse effects should be considered and ameliorated by prescription of different IOP-lowering drops. SLT is a proven clinically effective procedure and a valuable potential alternative primary or an adjunct treatment in patients with ocular hypertension and severe intolerance to topical medications.

Conflict of interests

The author declares that there is no conflict of interests.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Funding

None.

Study association

This study is not associated with any thesis or dissertation work.

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