CASE REPORT

Efficacy of Subtenonal Administration of Triamcinolone Acetate in a Patient with Malignant Hypertension–a Case Report

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ABSTRACT

Background: Malignant hypertension is a condition characterized by severe hypertension and multiorganic ischemic complications. The underlying cause of malignant hypertension can be primary or secondary hypertension, and identification of the cause is mandatory to select the correct treatment to control blood pressure and reduce end-organ damage. Hypertensive retinopathy is a disease that has short-term and long-term consequences for the overall health and mortality of patients. **Objective:** The aim of this article is to present a case of malignant hypertension and hypertnive maculopathy detected in a female patient as well as the positive response that occurs after administration of only one ampoule of triamcinolone subtenonially in two doses in monthly intervals. **Case report:** A 50-year-old patient comes to our clinic for an ophthalmological consultation after noticing impaired vision back a few months, especially noticeable on her left eye. Examination of the fundus visualizes PNO of unclear boundaries, especially in the inferior quadrants, mottled hemorrhages localized around the neuroretinal rim, edematous macula with hard deposits in the form of stelatae primarily on the left eye, and cotton wool exudates on the retina on both sides, nevus chorioidee of the right eye. Blood vessels hypertonically altered. On the OCT images of the macula, neurosensory retinal ablations are observed on both sides, intraretinal fluid with intraretinal hard deposits is present, more pronounced on the left. The seriousness of the condition is explained to the patient, as well as that in this state it requires urgent hospitalization, therapy is prescribed in the form of carbonic anhydrase inhibitors to preserve the macula, and a treatment algorithm is arranged in the form of subtenonial application of triamcinolone after dehospitalization. At check-ups, there is a subjective and objective positive shift in the patient's condition. **Conclusion**: The presence of hypertensive retinopathy may help to stratify the patient when assessing the future risk of stroke, coronary artery disease, and heart and kidney failure, even if the hypertension is well controlled.There is also a need to emphasize the obligatory symbiosis of internal medicine and ophthalmological disciplines, as well as to point out the fact that triamcinolone, as one of the very available and more affordable drugs, very effectively helps in the algorithm of treatment of these patients.

Keywords: malignant hypertension, hypertensive maculopathy, triamcinolone acetate.

1. BACKGROUND

Malignant hypertension is a condition characterized by severe hypertension and multiorganic ischemic complications. The incidence of malignant hypertension has remained unchanged over the years, although fatal and maintenance-dependent renal function has improved with the introduction of antihypertensive therapy. However, regardless of therapy, progressive renal failure remains a significant cause of morbidity and mortality in patients (1). The underlying cause of malignant hypertension can be primary or secondary hypertension, and identification of the cause is mandatory to select the correct treatment to control blood pressure and reduce end-organ damage. Hypertensive retinopathy is a disease that has short-term and long-term consequences for the overall health and mortality

Figure 1. Fundus of the patient on the day of the first examination in our clinic

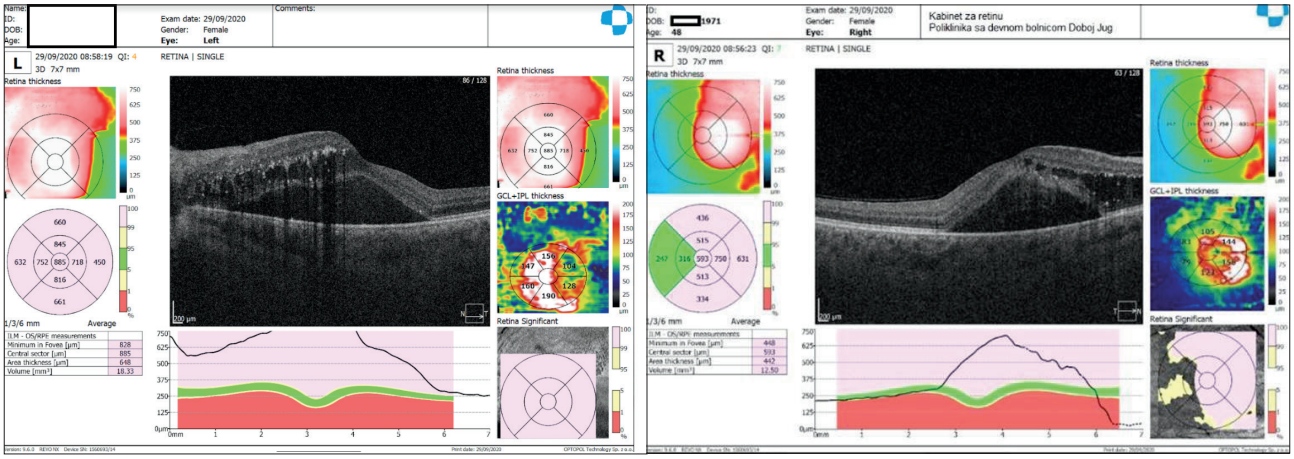

Figure. 2. OCT views of the patient's macula at the first examination in our clinic: intraretinal fluid with hard deposits on both eyes more pronounced on the left

of patients.

The World Health Organization defines hypertension with systolic blood pressure as high as 140 mmHg and / or diastolic blood pressure greater than 90 mmHg, with an estimated 1.13 billion people worldwide. Hypertension further affects the development of retinopathy, choroidopathy, and optic neuropathy. It is also a risk factor for other vision-impaired eye conditions, including central or branch artery occlusion (BRAO / CRAO), central or branch vein occlusion (CRVO / BRVO), retinal microaneurysms, non-arterial anterior ischemic optic neuropathy (NAION). Hypertension increases the risk for the development and progression of diabetic retinopathy, glaucoma and age-related macular degeneration (2). Hypertension is also a risk factor for the development of suprachoroidal bleeding that may occur during ophthalmic interventions (3).

2. OBJECTIVE

The aim of this article is to present a case of malignant hypertension and hypertensive maculopathy detected in a female patient during a standard ophthalmologic exam in our clinic that includes fundoscopy, tonometry and OCT exams. The next aim is to show a positive response that occurs after administration of only one ampoule of triamcinolone subtenonially in two doses in monthly intervals.

3. METHODS

All medical reports are shown in this article. Every diagnostic tool as well as report is a part from our archived history of the patient and has been thoroughly analysed. Ophthalmological exam was done using spectral domain OCT, Optopol Revo NX30. We also reviewed available literature using the key words malignant hypertension, hypertensive maculopathy, triamcinolone.

4. CASE REPORT

A 50-year-old patient comes to our clinic for an ophthalmological consultation after noticing impaired vision back a few months, especially noticeable on her left eye. Systemic, hereditary patients, surgical procedures as well as drug allergies are denied. She is an occasional smoker.

During the ophthalmological examination, the following was found: VOD 0.1 sc, VOS 0.08 sc, tonometry: 14/14 mmHg, neat finding on the anterior segment. Examination of the fundus visualizes PNO of unclear boundaries, especially in the inferior quadrants, mottled hemorrhages localized around the neuroretinal rim, edematous macula with hard deposits in the form of stelatae primarily on the left eye, and cotton wool exudates on the retina on both sides, nevus chorioidee of the right eye. Blood vessels hypertonically altered (Figure 1).

Figure 1 shows fundus of the patient on the day of the first examination in our clinic: PNO of unclear boundaries, hemorrhages around the neuroretinal rim, edematous macula with stelatea deposits, cotton wool exudates, blood vessels hypertonically altered

On the OCT images of the macula, neurosensory retinal ablations are observed on both sides, intraretinal fluid with intraretinal hard deposits is present, more pronounced on the left (Figure 2 and 3).

The seriousness of the condition is explained to the patient, as well as that in this state it requires urgent hospitalization, therapy is prescribed in the form of carbonic anhydrase inhibitors to preserve the macula, and a treatment algorithm is arranged in the form of subtenonial application of triamcinolone after dehospitalization.

A patient with a discharge list of the corresponding tertiary level, and established terminal renal failure of IV degree, normocytic anemia and hyperlipoproteinemia, comes for a follow-up examination. On the same day, subtenonial administration of the drug (½ ampoules of tri-

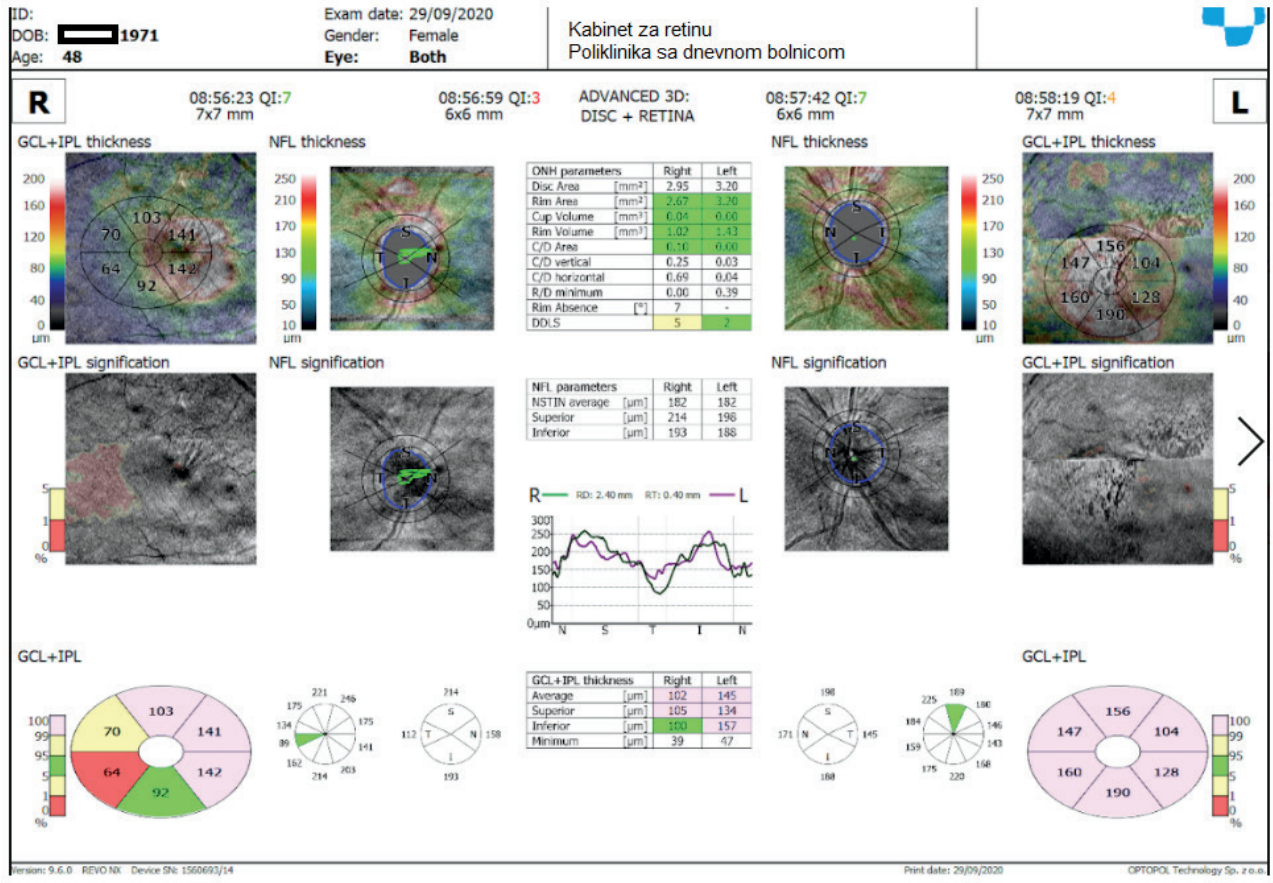

Figure 3. OCT view of the patient's optic nerves: topogram as well as the finding of RNFL as well as GCL + IPL speaks in favor of papillary edema

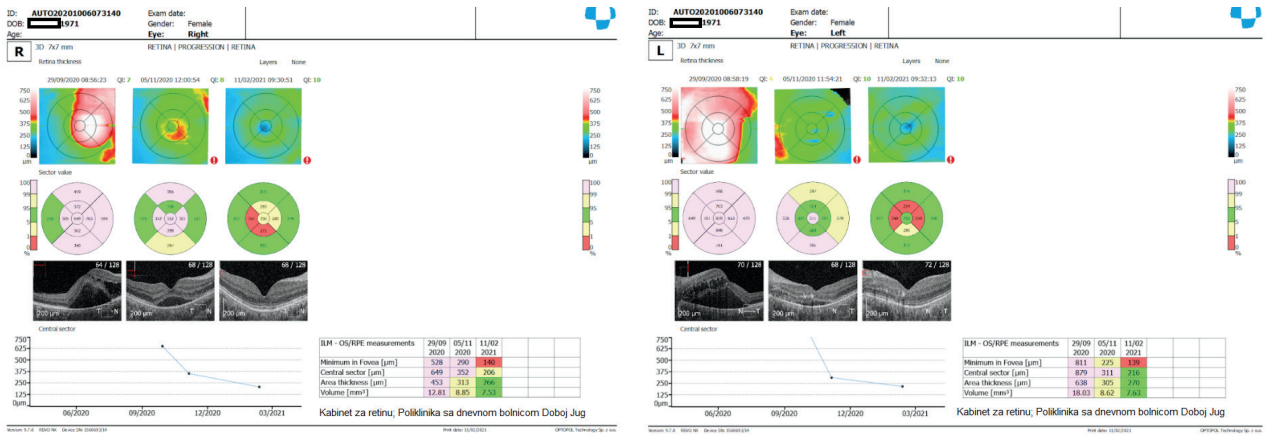

Figure 4. OCT represents the macula of the right and left eye after the application of prescribed therapy (Triamcinolone subten amp ½ NO II ou)– significant regression of intraretinal fluid as well as intraretinal deposits is observed, macular contour comparatively with initial contour disruption takes on a physiological appearance

amcinolone) is executed in both eyes, in two doses with monthly intervals.

At check-ups, there is a subjective and objective positive shift in the patient's condition. Visual acuity after the second application improves from 0.1 / 0.08 sc to 0.4 / 0.2 sc, previously described changes in the fundus and OCT findings are in obvious regression (Figures 4, 5, and 6).

We explain to the patient that the therapy of diagnosed hypertensive neuroretinopathy as well as stellate hypertensive maculopathy is a long-term and most likely lifelong process, and that it certainly depends on its comorbidities.

5. DISCUSSION

Hypertension is a disease that affects more than 1 billion individuals throughout the world and is one of the leading causes of death. Up to 1% of all patients present hypertensive crises, which can be divided into hypertensive urgency if the condition is characterized only by increase of tensional levels, or hypertensive emergency, the latter being a situation that requires immediate reduction of blood pressure because of acute or progressive end-organ damage (1).

Hypertension results in retinal microvascular changes called hypertensive retinopathy, which may be catego-

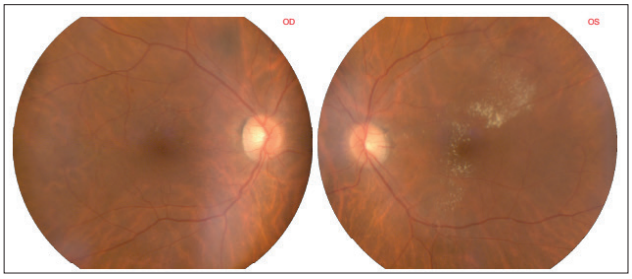

Figure 5. Photo funds of the patient after the application of prescribed therapy (Triamcinolone amp ½ NO II ou)–previously described papillary edema in regression, in the macula remnants of hard deposits, more pronounced on the left. Blood vessels hypertonically altered gr III / IV

eases (3). In view of markedly decreased visual acuity, the patient was treated with two subtenon injections of triamcinolone after informed consent. This led to prompt and dramatic resolution of retinal changes, disc edema along with improvement in visual acuity.

Recent study done on 106 eyes (100 patients) shows that during 2mg subtentorial application of triamcinolone , intraocular pressure only rose in 13,2% cases and that this drug seems to have greater benefits that other corticosteroids (4). However long term recovery is only visible with multi systematic approach and management of comorbidities. Early screening and regular ophthalmologic visits can lower overall morbidity and mortality (5). The pres-

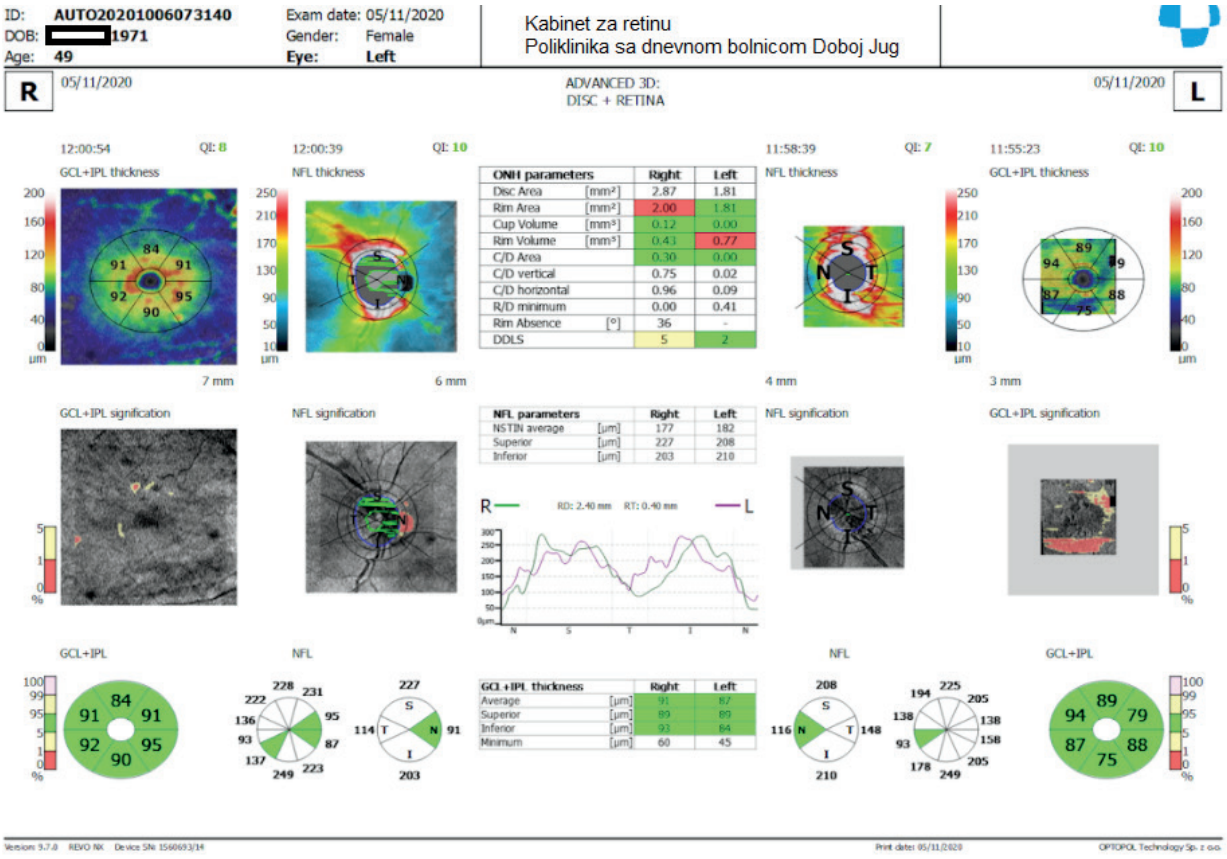

Figure 6. OCT View of the patient's optic nerves after the application of prescribed therapy: topogram, RNFL finding as well as GCL + IPL finding speaks in favor of regression of previously described papillary edema

rized as mild, moderate, or severe. The mild form is characterized by retinal arteriolar narrowing, the moderate form is characterized by hemorrhages and exudates, and the severe form is characterized by optic disc edema. Patients with malignant hypertensive retinopathy may present with blurry vision, decreased visual acuity, eye pain, and headaches. The dilated fundoscopic exam and coexisting hypertension is paramount in establishing the correct diagnosis and classification of the disease. In some cases, the visual decline may be marked because of disc edema, macular edema, and/or neurosensory detachment at the macula (presentented in our case). This is because of breakdown of the inner blood retinal barrier leading to exudation of blood and lipids. The use of injections of corticosteroid (triamcinolone acetonide) appears to be a promising treatment for a variety of ocular disease of hypertensive retinopathy may help to stratify the patient when assessing the future risk of stroke, coronary artery disease, and heart and kidney failure, even if the hypertension is well controlled (6).

The comprehensive management of patients with suggestive ophthalmic findings is important because many of them can represent initial manifestations of systemic diseases and besides causing loss of vision may threaten the patient's life; this case highlights the importance of a correlation of the ophthalmologic manifestations with systemic abnormalities as well as to make appropriate and multidisciplinary approaches.

6. CONCLUSION

We presented a case of hypertensive neuroretinopathy and stellate hypertensive maculopathy resulting from ter-

minal renal failure gr IV, normocytic anemia, hyperlipoproteinemia. We emphasize that funduscopy is a fundamental part of the assessment of hypertensive patients and offers a unique opportunity to visualize the microvasculature affected by hypertension (7).

The aim of the review was to emphasize the obligatory symbiosis of internal medicine and ophthalmological disciplines, as well as to point out the fact that triamcinolone, as one of the very available and more affordable drugs, very effectively helps in the algorithm of treatment of these patients.

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- **Conflict of interest:** Non declared.
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