

CHOROIDAL NEOVASCULAR MEMBRANE ASSOCIATED WITH SILDENAFİL

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ABSTRACT

Erectile dysfunction (ED) is a serious problem among men aged 40 years and older. Sildenafil is used in the treatment of ED. Here, we report a case of choroidal neovascular membrane (CNVM) associated with sildenafil use. A 53 year old male patient presented with bilateral CNVM first in the right eye and then in the left after sildenafil intake. A detailed ocular examination was performed, including dilated biomicroscopic

examination of the retina and additional evaluation included color fundus photography with fluorescein angiography. This is the first reported case of CNVM in a patient after sildenafil intake. Although a cause-and-effect relationship is difficult to prove, patients should be warned about the side-effects and against misuse of this agent.

Key Words: Choroidal neovascularization, sildenafil, erectile dysfunction

SILDENAFİL İLE İLİŞKİLİ KOROIDAL NEOVASKÜLER MEMBRAN

ÖZET

Erektile disfonksiyon (ED) 40 yaş ve üzeri erkeklerde önemli bir sorundur. Sildenafil, ED tedavisinde kullanılan bir ilaçtır. Bu yazıda sildenafil kullanımına bağlı olarak koroidal neovasküler membran (KNVM) gelişmiş bir olgu sunulmaktadır. 53 yaşındaki erkek hastada sildenafil aldıktan sonra önce sağ gözde, sonra sol gözde KNVM meydana gelmiştir. KNVM'nin

bilinen nedenleri ayırt etmek ve katkıda bulunan faktörleri belirlemek için hastanın dilate gözdibi muayenesi, flöresein anjiyografi ile beraber renkli fundus fotografisi çekilmiştir. Bu vaka sildenafil alımına bağlı KNVM gelişen literatürdeki ilk vakadır. Neden-sonuç ilişkisini belirtmek zor olsa da hastalar yan etki konusunda uyarılmalı ve yan etki meydana geldiğinde ise ilaç tekrardan kullanılmamalıdır.

Anahtar Kelimeler: Koroidal neovaskülerizasyon, sildenafil, erektil disfonksiyon

INTRODUCTION

Erectile dysfunction (ED) is a major issue for men who are over 40 years old. Almost one out of every two men over 40 suffers from ED to some degree. So, orally available sildenafil presents a strong therapeutic advantage.¹

Choroidal neovascular membrane (CNVM) is characterized by abnormal new vessels due to retinal pigment epithelium, Bruch's membrane and choriocapillaris focal or diffuse pathology.²

This report describes a case of CNVM after initial sildenafil intake. The patient later resumed sildenafil use, and experienced CNVM in the other eye.

The patient was subjected to intense historical questioning to subtract known causes of CNVM and to establish the contributing factors. A complete ophthalmologic examination was performed, including dilated fundus examination as well as color fundus photography and fluorescein angiography (FA).

CASE REPORT

The patient was a 53-year old male who presented with blurred vision and loss of vision in the right eye. His physical examination did not reveal any significant signs. The patient had a healthy appearance and no history of ocular or systemic disease. Visual acuity was 4/10 in the right eye and 10/10 in the left. Anterior segment examination was normal. Fundus examination of the right eye revealed a hemorrhage and an elevated area in the upper temporal quadrant of the macula (Figure 1A), while the left eye revealed an atrophic area outside the macula. The FA of the patient revealed an area of bright hyperfluorescence in the early phase and leakage in the late phase (Figure 1B). A diagnosis of CNVM was made. Argon laser photocoagulation was applied to the right eye. It was learned from his medical history, he had taken 50 mg sildenafil once a week for a month after which his complaints began.



Figure 1A: Fundus examination of the right eye revealed a hemorrhage and an elevated area in the upper temporal quadrant of the macula



Figure 1B: The fluorescein angiography of the right eye of the patient revealed an area of bright hyperfluorescence in the early phase and leakage in the late phase

He had not used sildenafil earlier. The patient did not suffer any ill effects until six months after the laser application while the visual acuity in the right eye had increased to 9/10. However, six months after the laser application, the patient noted loss of vision in the right eye. Argon laser photocoagulation was re-applied. The control FA of the patient did not reveal leakage of the scar in the right eye (Figure 2). The visual acuity of the patient was 10/10 bilaterally and he revealed no complaints.

Three years later, the patient was referred to our clinic with blurred vision and loss of vision in the left eye. His visual acuity was 10/10 in the right eye and 4/10 in the left. The FA revealed CNVM and photodynamic therapy and an intravitreal anti-VEGF injection were applied to his left eye (Figure 3). He used sildenafil again after three years and his complaints started in fellow eye.

DISCUSSION

In this study, we present a patient with CNVM associated with sildenafil use.² In CNVM patients at an early stage, distorted or blurred vision due to fluid or blood leakage may occur. In the latter stages patients may encounter macular scarring and loss of central vision. CNVM can accompany numerous diseases. Most common conditions are; age-related macular degeneration (AMD), presumed inflammatory and infectious diseases, myopic degenerative fundus, laser therapy, trauma and angiod streaks. Yet, the majority of cases remain idiopathic.²

Defined risk factors up-to-date associated with CNVM are; Drusen, photic injury, antioxidant and vitamin/mineral deficiency.² Neovascular type of AMD characterized by CNVM is seen in the older population in which non-specific cardiovascular co-morbidities are more common. Hypertension and smoking both cause neovascular AMD and exacerbation of CNVM after laser photocoagulation.² Our patient had neither HT nor smoking habit. He had not had laser photocoagulation before his complaints were started.

Sildenafil is a potent and selective inhibitor of cyclic guanosine monophosphate (cGMP)-specific phosphodiesterase type 5 (PDE5), an enzyme secreted by the smooth muscle of the vascular tissues.^{1,3} With this effect, sildenafil stimulates corpus cavernosum smooth muscle relaxation over nitric oxide (NO)-cGMP pathway and consequently remarkably improves penile blood flow. Basic scientific and clinical data have shown the effects of sildenafil on the retinal and choroidal vasculature.⁴ Sildenafil →

also partially inhibits PDE6, which acts on the rod and cone photoreceptors. Mild, transient visual symptoms, increased brightness of light and blurry vision may be encountered during sildenafil use, especially in higher doses. Recent studies show that sildenafil is not associated with significant alterations in ocular hemodynamics, intraocular pressure, color vision or visual acuity. PDE5 inhibitors transiently change retinal function on electroretinogram testing but do not seem to be retinotoxic. Based on the current data, PDE5 inhibitors have a fine ocular safety profile.^{5,6}

The risk of having neovascular maculopathy in the fellow eye is between 12% and %34 according to literature.² Strahlman et al. reported that there seems to be a cumulative risk of 4%, 10% and 17% at 12, 24 and 36 months respectively according to Kaplan-Meier life table analysis.⁷ Our patient's right eye was first affected due to sildenafil intake. After three years he took sildenafil again and then his fellow eye was affected.

Nonarteritic anterior ischemic neuropathy, central serous chorioretinopathy, serous macular

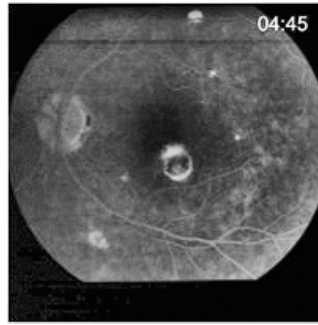


Figure 2: The control fluorescein angiography of the patient did not reveal leakage of the scar in the right eye after laser photocoagulation was applied

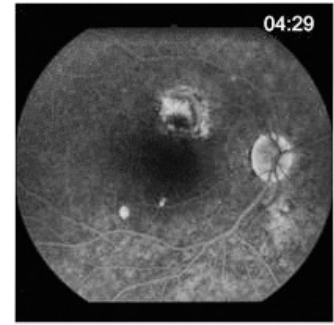


Figure 3: The fluorescein angiography on the left eye of the patient revealed an area of bright hyperfluorescence in the early phase and leakage in the late phase.

detachment and third nerve paralysis have been reported due to sildenafil use.⁸⁻¹¹ We were not able to find any cases of CNVM associated with sildenafil use in the literature. However, angiogenic reaction stimulated by sildenafil has been shown in the human coronary artery.¹² The same mechanism may be true for the retina and sildenafil may increase the levels of VEGF. It would be hard to explain the relationship of sildenafil and CNVM with a single case. This issue requires further studies and patients with CNVM should be questioned about their use of sildenafil.



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