

Galilei Anterior Chamber Tomography for Diagnosis and Follow-Up of Topiramate Induced Acute Angle-Closure

Topiramatin Sebep Olduđu Akut Açı Kapanmasının Galilei Topografi Aleti ile Tanı ve Takibi*

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ABSTRACT

This paper presents topiramate induced anterior chamber changes with the Galilei Scheimpflug imaging system. A woman is presented with clinical findings and Galilei Anterior Chamber Tomography before and after stopping topiramate. The patient presented with bilateral abnormal vision, acute secondary angle closure glaucoma, and acute myopia due to topiramate therapy, which has a wide range of fields of use. After cessation of therapy, all clinical findings improved and the Galilei Scheimpflug imaging system revealed backward displacement of the lens iris diaphragm and deepening of the anterior chamber. Ciliochoroidal effusion syndrome induced by drugs should be kept in mind in patients with bilateral abnormal vision, acute secondary angle closure glaucoma, and acute myopia. Galilei is noninvasive and will help to detect and quantify topiramate induced narrow iridocorneal angle at an early stage.

Key Words: Acute angle closure, Galilei, Topiramate.

ÖZ

Bu çalışmada bir bayan hasta topiramate kullanırken ve ilacı kullanmayı bıraktıktan sonra klinik bulguları ve Galilei Ön Segment Tomografi görüntüleri ile sunuldu. Geniş kullanım alanı olan topiramate kullanımına bağlı bilateral bulanık görme, akut sekonder açı kapanması glokomu ve akut miyopi ile gelen bir hasta sunuldu. Tedavinin bırakılmasından sonra, bütün klinik bulgular düzeldi ve Galilei Scheimpflug görüntüleme sisteminde lens iris diyaframının geriye doğru hareket ettiği ve ön kamaramın derinleştiği görüldü. Bilateral anormal görme, akut sekonder açı kapanması glokomu ve akut miyopi ile gelen hastada ilaçların sebep olduğu siliokoroidal efüzyon sendromu düşünülmelidir. Galilei topografi aleti invaziv olmayan bir şekilde topiramatin sebep olduğu dar iridokorneal açının erken dönemde tayin edilmesi ve derecelendirilmesinde yardımcıdır.

Anahtar Kelimeler: Akut açı kapanması, Galilei, Topiramate.

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INTRODUCTION

Topiramate, a sulfamate derivative is primarily used in the management of epilepsy. However it has also demonstrated efficacy in the treatment of bipolar disease, migraine, cluster headache and pseudotumor cerebri.¹ This medication is associated with acute myopia and angle closure glaucoma as a result of ciliochoroidal effusions with forward rotation of the ciliary body and displacement of the lens-iris diaphragm and anterior chamber shallowing.²

We present a case of topiramate induced bilateral acute transient myopia with angle closure glaucoma and imaging of the patient with the Galilei dual Scheimpflug analyzer.

CASE REPORT

A 33-year-old woman with migraine presented with blurred distance vision and pain around both eyes early in the morning. The patient described a history of acupuncture therapy 1 day prior to the onset of her symptoms and oral topiramate treatment 3 days prior to the onset of her symptoms. Topiramate dose was 25 mg once daily. Her other medication was zolmitriptan as needed. Her ocular history was unremarkable; she had not needed glasses before. At presentation her best corrected visual acuity was 20/30 in the right eye and 20/50 in the left eye.

Refraction was -5.75/-1.25x10 right eye, -6.25/-0.50x5 left eye. In both eyes a slit-lamp examination revealed a markedly shallow anterior chamber. Intraocular pressure was 44 mm Hg OD and 47 mm Hg OS. Her baseline anterior chamber images and angle measurements were obtained with the Galilei Scheimpflug imaging system (Figure 1, Table).

Topiramate was discontinued and intravenous mannitol topical travaprost, timolol maleate + dorzolamide and cycloplegic were started. On follow up 3 hours later, intraocular pressure had improved to 27 mm Hg and 31 mm Hg respectively. On day 3, refraction was -0.50/-1.25x180 in the right eye and -0.75/-0.75x180 in the left eye.

Visual acuity was 20/20 bilaterally, IOP was 12 mm Hg OU, and a slit-lamp examination showed a deep anterior chamber. The Galilei Scheimpflug imaging system revealed backward displacement of the lens iris diaphragm (Figure 2) and deepening of the anterior chamber (Table).

DISCUSSION

Topiramate has multiple mechanisms of action. The pathophysiology of topiramate induced myopia is unclear and it is suggested that weak carbonic anhydrase inhibitor activity of topiramate or a prostaglandin mediated effect may be related to its side effects.

Table: Galilei Scheimpflug imaging system measurements at presentation and 2 months after cessation of topiramate.

Eye	Anterior chamber depth, mm	Chamber volume, mm ³	Iridokorneal angle (inferior), °	Central corneal thickness, µm
Presentation				
Right	2.05	71.0	40.1	577
Left	1.96	63.8	38.8	577
2 months later				
Right	2.89	108.7	51.1	559
Left	2.88	103.6	52.5	560

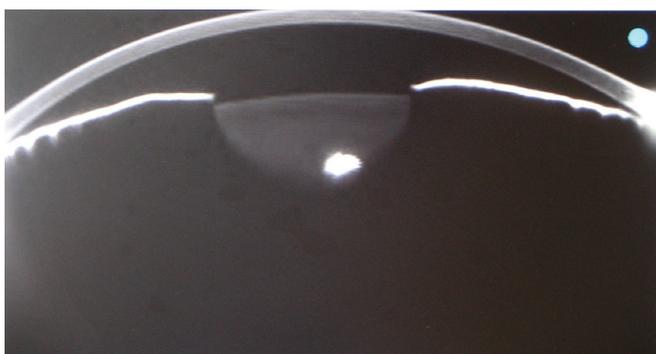


Figure 1: Galilei Scheimpflug images of the right eye at presentation.

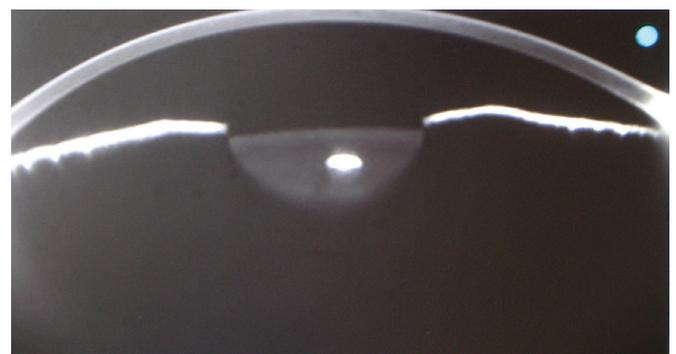


Figure 2: Galilei Scheimpflug images of the right eye at second-month visit.

Supraciliary effusion with ciliary body swelling causes forward rotation of the iris-lens diaphragm, causing myopia and angle closure glaucoma.³

Ciliochoroidal effusion syndrome induced by drugs should be kept in mind in patients with bilateral abnormal vision, acute secondary angle closure glaucoma, and acute myopia.² These side effects usually occurred within the first 3 weeks of the start of normal therapeutic topiramate therapy.⁴ Therefore, it is important to alert patients about ocular side effects and the need to seek immediate ophthalmologic examination if they suffer blurred vision and eye pain.

Over the past few years, several instruments to image the anterior segment of the eye have been developed. Among the new technologies, optical coherence tomography, slit-scanning tomography, and rotating Scheimpflug tomography currently play a major role. Galilei, a relatively new dual Scheimpflug camera combined with a Placido disk, is a useful and practical method for measurement of anterior chamber parameters.

Galilei is noninvasive and identified the narrow iridocorneal angle quickly and precisely in our case. Galilei will help to detect and quantify topiramate induced narrow iridocorneal angle at an early stage and to document changes over time.

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