





Introduction



Introduction

Military pilot selection

- Visual Acuity
- Color vision
- Maddox
- Diseases
- Cover test
- Field of vision
- Fundus photo
- Pentacam
- Night vision
- Fundus examination
- Refraction



Case Presentation



Case Presentation

- Male patient aged 32 years, military pilot.
- Presented to Hospital complaining of diminution of vision.



Case Presentation

Aeromedical Waiver

Fit for double seated aircraft.



Examination



Ocular Examination

- **V/A:** 4/60 Bilateral
- Conjunctival hyperemia
- Bilateral corneal edema.
- Very shallow anterior chamber.
- **IOP:** 48 OD , 54 OS
- Regular rounded sluggish reactive pupil.
- High myopia -6 D.



History

Past history of severe migraine
in last 10 days.



WAVELIGHT - ALLEGRO OCULYZER

Refractive

Last Name: ABDELHAMMAM
 First Name: MOHAMED
 ID:
 Date of Birth: 01.12.1962 Eye: Right
 Exam Date: 15.03.2018 Time: 12:02:35
 Exam Info:
 Cornea Front:
 Cornea Back:
 IOP:
 IOP(Sun):

Sagittal Curvature (Front)
 OD

Elevation (Front)
 BPS=8.67 Flat, D=0.00
 OD

Elevation (Back)
 BPS=7.17 Flat, D=0.00
 OD

	Pachy:	x[mm]	y[mm]
Pupil Center:	+ 622 μm	-0.33	-0.78
Pachy Apex:	620 μm	0.00	0.00
Thinnest Locat.:	614 μm	-0.93	-0.07
K Max. (Front):	41.7 D	+0.43	-1.71

Cornea Volume:	63.5 mm ³	KPD:	+0.9 D
Chamber Volume:	124 mm ³	Angle:	14.9°
A. C. Depth (Int.):	1.88 mm	Pupil Dia:	7.30 mm
Enter IOP IOP(Sun):	5.3 mmHg	Lens Th.:	4.09 mm



-----8354-----

NAME M/F
 MAR/15/2018 17:05
 VD=12.00mm

<R>	S	C	A	
-	5.50	- 1.50	178	5
-	5.50	- 1.75	180	5
-	5.75	- 6.00	175	5
Err	- 6.75	- 2.75	24	E
-	5.50	- 0.25	179	9
<-	5.50	- 1.50	179	>

	S	C	A	
-	4.50	- 2.00	4	5
-	4.50	- 2.00	7	5
-	4.75	- 1.75	8	7
<-	4.50	- 2.00	7	>

PD 67

NIDEK AR-310A



Ultrasound biomicroscopy

- Ultrasound biomicroscopy of the right eye showing appositional closure of nasal angle with supraciliary effusion
- Ultrasound biomicroscopy of left eye showing occluded angle with supraciliary effusion of nasal angle



History of severe migraine, the patient started to take Topiramate (Topamax) 10 days before presentation.

He began with 50mg per day for 5 days then 100mg per day for 5 days.

The diminution of vision started gradually from the 2nd day of Topamax intake



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Topiramate (Topamax), a stimulant-related fructose succinate, is an oral medication prescribed as an antiepileptic and as the pressure-lowering agent in some patients. Taking this medication, a syndrome characterized by acute myopia (1 to 6 D) and acute bilateral angle-closure glaucoma can occur. Patients presenting with this syndrome experience bilateral, sudden loss of vision with acute myopia, bilateral ocular pain, and headache, usually within 1 month of initiating topiramate. Ocular findings of this syndrome include high myopia, a uniformly shallow anterior chamber with anterior iris and lens displacement, microcystic corneal edema, elevated IOP (40–70 mm Hg), a closed anterior chamber angle, and a ciliochoroidal effusion (see Figure 5-30). The underlying mechanism of this syndrome is the ciliochoroidal effusion, which causes the relaxation of zonules and the posterior anterior displacement of the lens-iris complex, causing the secondary angle-closure glaucoma and high myopia. The bilateral nature of this form of angle closure is a useful clue to the clinician to the possibility of an idiosyncratic response to topiramate. Treatment of this syndrome involves early recognition of the causal system to medication and immediate discontinuation of the topiramate. In addition to discontinuation of the medication, medical treatment for the elevated IOP is indicated, generally in the form of aqueous suppressants. Systemic agents such as acetazolamide may also be administered orally or intravenously. Aggressive cycloplegic may help deepen the anterior chamber and relieve the attack. The secondary angle-closure glaucoma usually resolves within 24–48 hours with medical treatment, and the myopia resolves within 1 to 2 weeks of discontinuing the topiramate. Because pupillary block is not an underlying mechanism of this syndrome, a peripheral iridectomy is not indicated. Other substances, such as acetazolamide, have been reported to cause a similar clinical syndrome.

Epstein DL, Alligian PR, Schuman JS, eds. *Glaucoma and Glaucoma Surgery*. 4th ed. Baltimore: Williams & Wilkins; 1997.
Sarks JB, Sarks MB, Krupin T, eds. *The Glaucomas*. 2nd ed. St Louis: Mosby; 1996. Sarks MB. *Textbook of Glaucoma*. 4th ed. Philadelphia: Williams & Wilkins; 2000. Stamer RL, Liebman MF, Drake MV, eds. *Recher-Starr's Diagnosis and Therapy of the Glaucomas*. 7th ed. St Louis: Mosby; 1999.



Topamax



What is Topamax?

Topamax is a sulfamate-substituted monosaccharide originally developed and used as an anti-convulsant medication to prevent epileptic seizures.

. Topamax is occasionally used as an antidepressant. In children, it is indicated for the treatment of Lennox-Gastaut syndrome, a disorder that causes seizures and developmental delay.



What is Topamax?

Topamax is also used off-label for the treatment of bipolar disorder, as well as bulimia, autism-spectrum disorder, psychological addiction in alcoholism, weight loss, post-traumatic stress disorder, obsessive-compulsive disorder, smoking cessation, idiopathic intracranial hypertension, neuropathic pain and cocaine dependence.



What is Topamax?

Topamax can cause numerous adverse effects, including paresthesia (the most common side effect), fatigue, renal stone development, taste change (and weight loss (leading to its use in treating obesity)). There may also be difficulty with concentration, attention span and memory



Topamax and Angle Closure

The most concerning adverse effect of Topamax is the possibility of acute angle-closure glaucoma. Patients need not be at risk of angle closure prior to the use of Topamax for it to occur. In fact, angle closure from Topamax use can occur in younger patients and even children who otherwise would not be at risk.



Topamax and Angle Closure

When angle closure occurs from Topamax use, it usually seen relatively soon after starting the medication—often within the first month, and sometimes even after the first dose.



Topamax and Angle Closure

Also, the angle closure is typically bilateral, compared to the unilateral presentation of angle closure resulting from primary pupil block. Accompanying Topamax-induced angle closure is the acute onset of a myopic refractive shift, which, with angle closure, is an important diagnostic indication of this drug effect. It is not uncommon to see abrupt myopic shifts of four to five diopters or more, and the resultant change in acuity may be more symptomatic to the patient than the IOP effects from angle closure.



Topamax and Angle Closure

The glaucomatous and angle closure mechanism occurring from Topamax use is not relative pupil block, but seems to be a sulfa-allergic response with resultant swelling and congestion, as well as effusion, detachment or forward rotation of the ciliary body

Topiramate-induced ciliochoroidal effusion with forward displacement of the lens-iris diaphragm causes extreme anterior chamber shallowing, resulting in angle-closure glaucoma.



Topamax and Angle Closure

In contrast to relative pupil block, there will be no iris bombé in Topamax-induced angle closure; rather, the chamber will be flat. Congestion of the ciliary body allows the lens zonules to become lax, and the resultant thickening of the lens as well as the forward rotation of the lens-iris diaphragm induces the myopic shift. Increased lens thickness contributes only minimally to anterior chamber shallowing and does not participate in the angle closure.



Management

Typically, cessation of Topamax results in resolution of the myopia and angle closure. Visual outcome is usually good and the episode resolves within days to weeks with little, if any, permanent damage. Beyond cessation of Topamax, the acute IOP rise can also be addressed with anti-glaucoma medications. Pilocarpine should be avoided, but virtually any other topical IOP-lowering medication is acceptable.



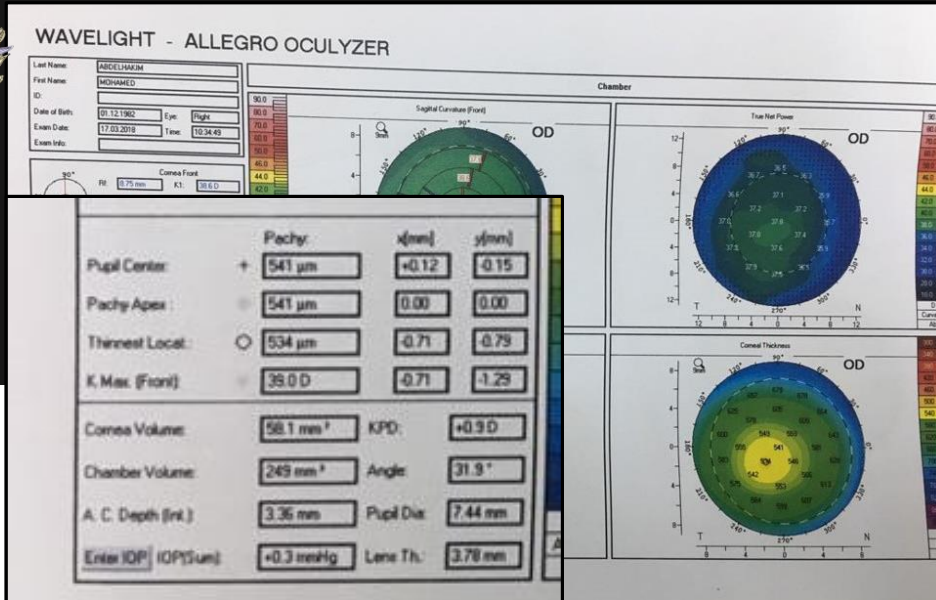
Management

More important, however, is the use of a strong cycloplegic, such as atropine, and an anti-inflammatory, such as prednisolone acetate 1%. These stabilize leaking vascular membranes, leading to reduced choroidal swelling, relaxation of the ciliary body and lens-iris diaphragm, deepening of the chamber with cessation of angle closure, and reversal of the myopic shift.



Management

Because there is no relative pupil block, laser peripheral iridotomy and miotics do not have any effect in Topamax-induced angle closure. But, argon laser iridoplasty, an iridoretraction procedure, has been helpful in managing refractory Topamax-induced angle closure, as it physically pulls the iris away from the trabecular meshwork.





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 - 2.50 - 0.50 74 9
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 - 3.50 - 1.00 169 9
 - 3.75 - 1.00 169 9
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NAME M/F
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 + 0.25 + 0.50 105 9
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 + 0.00 - 0.50 175 9
 + 0.00 - 0.50 175 9
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 D 66

ID: 000776

Name: abdelhakim mohamed



Ethnicity: Caucasian
Gender: Male
DOB: 1982/12/01 Age: 36

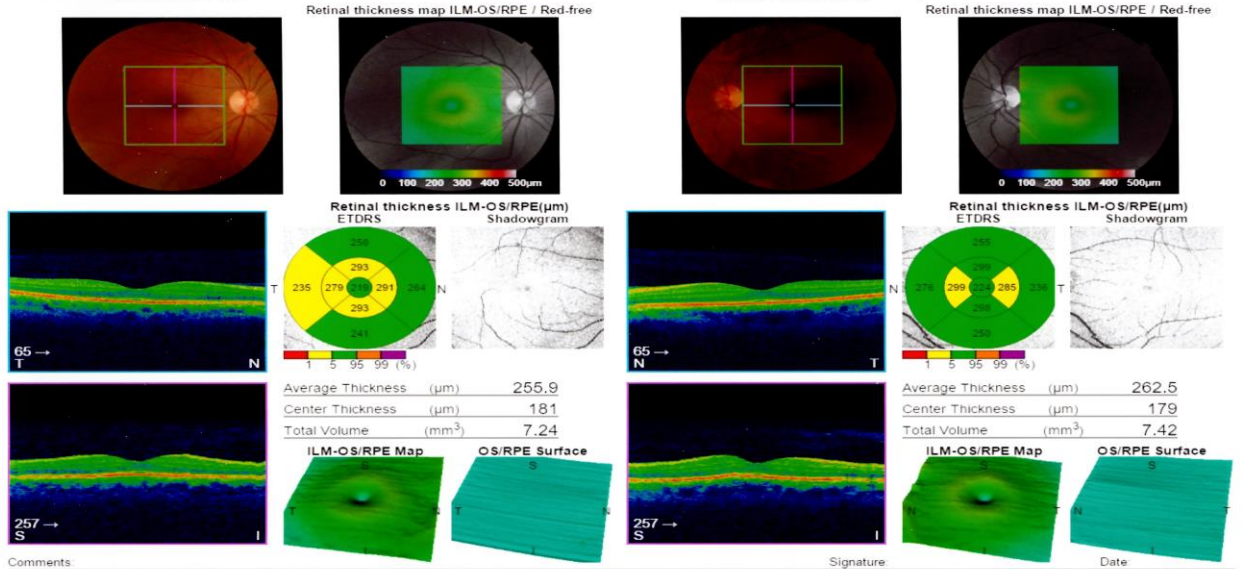
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Capture Date 2019/10/28

OS(L)

Image Quality **63** Analysis mode Fine (2.0.7)
Capture Date 2019/10/28



ID: 000776

Name: abdelhakim mohamed



Ethnicity: Caucasian
Gender: Male
DOB: 1982/12/01 Age: 36

Technician:
Fixation: Disc / Disc
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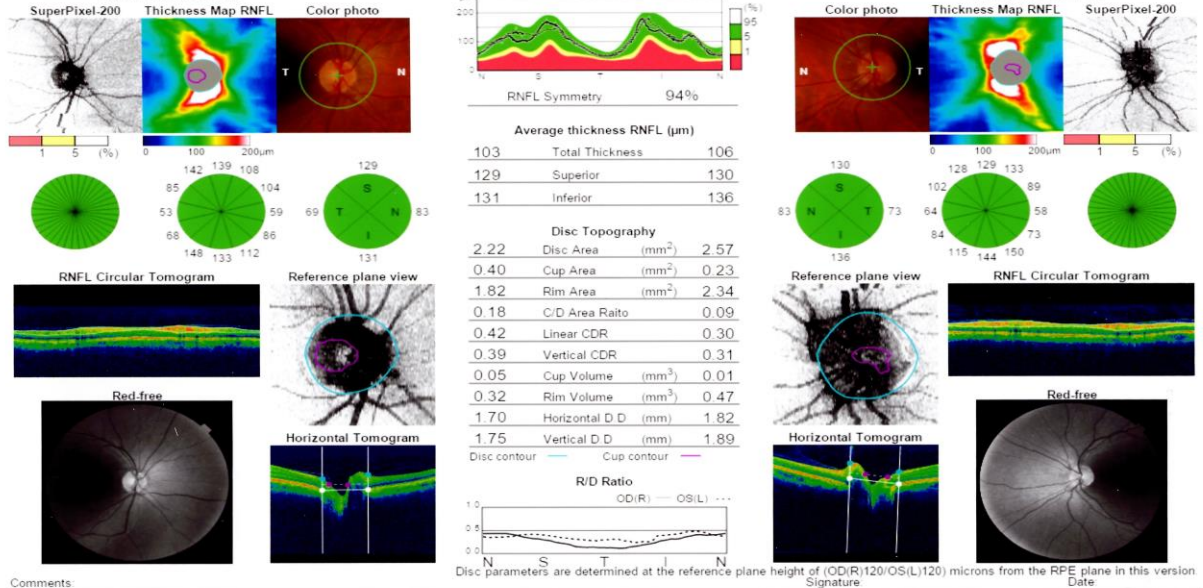
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Capture Date 2019/10/28

RNFL Circular Thickness Dia3.4mm

Analysis mode Fine (2.0.7) Image Quality **59**
Capture Date 2019/10/28

OS(L)



ID: 000776

Name: abdelhakim mohamed

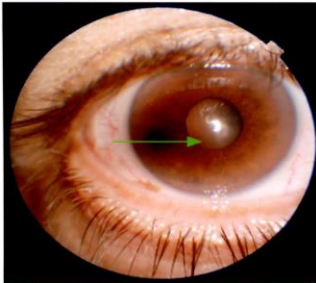


Ethnicity: Caucasian
 Gender: Male
 DOB: 1982/12/01 Age: 36

Technician:
 Fixation: External / External
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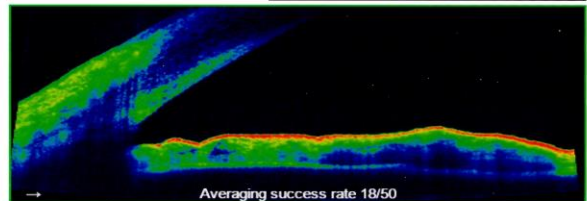
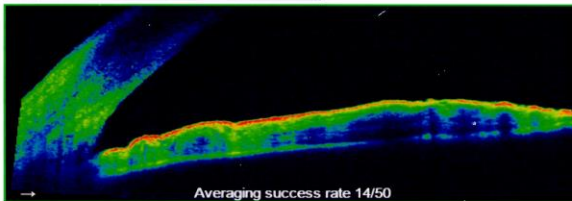
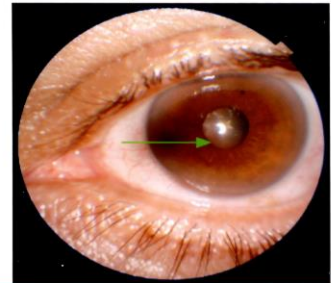
OD(R)

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OS(L)

Signal Strength: 84
 Capture Date: 2019/10/28



Comments:

Signature:

Date:



Take Home Message

Topamax is widely used nowadays as routine treatment of migraine and obesity

Ophthalmologists need to be aware of the potential ocular side effects of Topamax . Although relatively rare but prompt recognition is key for appropriate management .

