



## A CASE OF BILATERAL ACUTE ONSET MYOPIA AND ANGLE CLOSURE GLAUCOMA FOLLOWING MIGRAINE THERAPY IN A TEENAGER

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**Abstract :** Topiramate is a well prescribed antiepileptic drug which is also widely used in prophylaxis of migraine. We report a case of bilateral acute onset myopia and acute angle closure glaucoma in a teenager following topiramate therapy for prophylaxis of migraine. The relevance of timely diagnosis and appropriate management is stressed upon in our case report. The occurrence in a child is a rarity in itself.



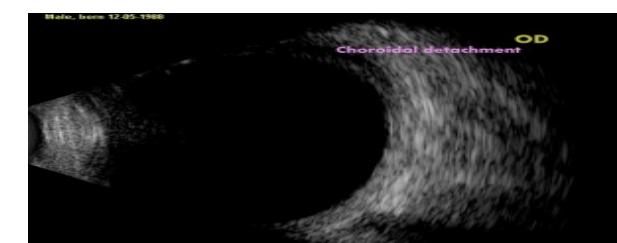
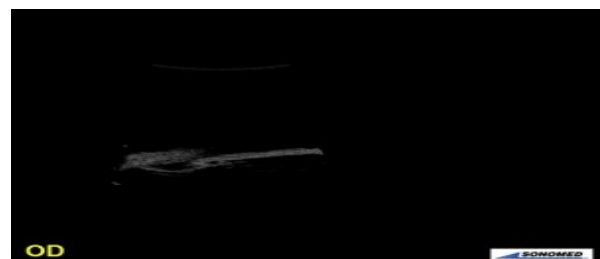
**Keyword :** glaucoma, myopia, topiramate, drug induced  
**B scan of Left eye showing ciliochoroidal effusion**



**B scan of Left eye showing Choroidal detachment**  
**CASE REPORT**

A 14 year old boy presented to our OPD with bilateral blurring of vision associated with eye pain, redness and haloes of 1 day duration. He was a known migraine patient and his neurologist had started him on Topiramate 12.5mg od the previous week. His previous medical records showed him to be emmetropic. His vision was only RE 4/60 and LE 5/60 but was correctable with -9.0DSph glasses to 6/6.

On examination he had circumcorneal congestion and shallow anterior chambers. Tension was 29.0 in both eyes. Gonioscopy revealed closed angles in both eyes. Fundus was within normal limits. Further investigations like B-Scan and UBM revealed bilateral annular choroidal effusion with choroidal detachment. Immediate stoppage of Topiramate was advised and no other treatment was executed. Followup revealed complete disappearance of symptoms and patient regained vision 6/6 in both eyes.



**B scan of Right eye showing ciliochoroidal effusion**  
**B scan of Right eye showing Choroidal detachment**  
**DISCUSSION**

Topiramate is an oral sulfamate medication used primarily for epilepsy and migraine. It is also used for depression and post-herpetic neuropathy and other neurological conditions. Topiramate induced angle closure is an idiosyncratic reaction and can occur in otherwise normal eyes with normal anterior chamber angles.

It is usually seen within 1 month of starting therapy or on increasing the dose. The management of topiramate related acute angle closure glaucoma requires cessation of the drug in concert with the primary physician and use of topical aqueous suppressants. Few reports of such incidents have been reported worldwide though its presentation in pediatric age group is rare.

Presentation is with sudden defective vision, redness and pain of both eyes. Visual acuity is grossly diminished but correctable with concave lenses suggesting myopia. This acute onset myopia is because of ciliochoroidal effusion that results in forward shifting of lens-iris diaphragm. This forward shifting also results in closure of the angle of anterior chamber and patient presents with acute angle closure glaucoma. The fluid movement in choroidal effusion is thought to be related to drug induced changes in membrane potential though it has not been proved satisfactorily.<sup>1,2</sup> Increased lens thickness contributes only minimally (9%-16%) to anterior chamber shallowing.<sup>3</sup>

Differential diagnoses include accommodative spasm, primary angle closure and posterior scleritis. In accommodative spasm, patient may present with acute onset myopia but the angles are not closed and can be confirmed with cycloplegic retinoscopy. Primary angle closure glaucoma is usually seen in older patients and is usually associated with hypermetropia. Posterior scleritis can also give rise to a similar picture but bilaterality is rare and ultrasound is characteristic.

The Casey Eye Institute, in 2004, undertook a world wide study to evaluate spontaneous reports of ocular side effects associated with topiramate use. One hundred and fifteen case reports, primarily of a specific ocular syndrome (acute secondary angle-closure glaucoma), were collected from spontaneous reporting systems and the world literature. Eighty-six cases of acute-onset glaucoma (83 bilateral and 3 unilateral), 17 cases of acute bilateral myopia (up to 8.75 diopters), 9 cases of suprachoroidal effusions, 3 cases of periorbital edema, and 4 cases of scleritis were reported. In those cases for which management was reported, 38% had laser or surgical peripheral iridectomy (21 cases). However these modes of treatment were then concluded as ineffective.<sup>4</sup>

Analysis of safety and tolerability data obtained from over 1,500 patients receiving topiramate for migraine prevention in controlled trials revealed that paresthesia was the most common adverse effect. Most of the adverse effects were of mild to moderate in severity and serious adverse effects were seen in 2% of the study population only.<sup>6</sup> A pooled analysis of efficacy and safety of Topiramate for migraine prevention in 51 adolescents aged 12-17 years was done in Florida, USA and it revealed that treatment was generally well-tolerated, although adverse events were most frequent in the 200 mg/day dose group.<sup>7</sup> Transient myopia with bilateral secondary angle closure glaucoma

is a documented complication of other drugs such as sulfanilamides<sup>8,9</sup>, hydrochlorothiazide<sup>10</sup>, and acetazolamide<sup>11</sup>. Therefore administration of Acetazolamide for reduction of intra ocular pressure has to be avoided in such instances. Mefenamic acid has also been reported to cause such a reaction.<sup>12</sup>

Patients presenting with similar complaints usually seek the ophthalmologist first though they have been prescribed Topiramate by the physician, neurologist or psychiatrist. Careful drug history is thus important or could lead to misdiagnosis. Once diagnosed it can be treated effectively as the main factor is stoppage of the causative drug. Since the mechanism is not pupillary block, there is also no need for an iridotomy.

So ophthalmologists and those who prescribe Topiramate have to be aware of this rare but important side effect. Our case is even more interesting as such a reaction is uncommon in children.

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