

Photophobia as a Presenting Feature in Adie's Tonic Pupil

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ABSTRACT

A 34 years old female presented with complains of photophobia since 6-7 months. On examination, she had anisocoria of 4 mm in room light which increased in bright light. The left pupil was dilated and unresponsive to direct and indirect light stimuli. It did however, constrict slowly on near fixation followed by slow re-dilatation on distance fixation. A diagnosis of Adie's tonic pupil was made since left pupil constricted with instillation of dilute pilocarpine 0.1%. Her symptoms of photophobia and blurred vision immediately resolved. Photochromatic glasses and dilute pilocarpine 0.1% three times a day were prescribed. Prompt symptomatic relief of photophobia and blurred vision was observed.

KEY WORDS

Adie's, Anisocoria, Dilated pupil

INTRODUCTION

Tonic pupil refers to a pupil that has absent reaction to light with a tonic constriction in near fixation (light-near dissociation) followed by slow tonic re-dilatation. There is parasympathetic denervation of the afflicted pupil. The prevalence of Adie tonic pupil is 2 per 1000 population and occurs 2.6 times more commonly in female in the 3rd decade.¹ In about 80% of cases, there's upregulation of denervated sphincter muscles receptors, leading to increased sensitivity to dilute pilocarpine (0.125%). Treatment usually is not required for this benign condition.² This case report is a rarity where patient with adies pupil actually presented with photophobia and warranted treatment with pilocarpine. Also we intend to emphasize the use of pilocarpine (0.1%) as a treatment modality for photophobia in Adie's pupil.

CASE REPORT

A 34 years old female presented with complains of photophobia since 6-7 months along with occasional blurring of vision. She noticed left pupil to be more dilated than the right eye. There was no history of double vision, ocular pain, trauma, drooping of lids or headache. There was no known systemic disease. On examination visual acuity was 6/6 with Snellen's chart, extraocular motility, visual field were normal. She had anisocoria of 4 mm in room light. Anisocoria increased in bright light. The left pupil was dilated and unresponsive to direct and indirect light stimuli. The left pupil did constrict slowly on near fixation and slowly re-dilated on distance fixation again. For diagnosis dilute pilocarpine 0.1% was instilled in both the eyes. This, after 30 minutes, resulted in constriction of the left pupil but no change in the right pupil. Her symptoms



Figure 1. Anisocoria in room light, left pupil larger than the right pupil

of photophobia and blurred vision immediately resolved. Patient was advised for neurological evaluation which was normal with normal deep tendon reflexes. Diagnosis of Adie's pupil was made and the patient was advised for use of photochromatic glasses and topical diluted pilocarpine 0.1% was prescribed thrice daily. Photophobia and blurring of vision resolved promptly. Side effects of pilocarpine like brow-ache, blurring of distant vision was not reported.

DISCUSSION

Adie's tonic pupil results from the damage to the ciliary ganglion.³ Ciliary ganglion innervates the ciliary muscle much more than the iris sphincter. So in Adie's pupil, with damage to the ciliary ganglion, there is an increased probability of survival of the fibers to the ciliary muscle. This results in pupillary constriction with accommodation (light-near dissociation).¹ Adie's pupil present with anisocoria. The main differential diagnosis to consider are 3rd nerve



Figure 2. After 30 minutes of instillation of pilocarpine 0.1% on both eyes and resolution of anisocoria

palsy, pharmacological mydriasis, and iris sphincter tears from trauma. A third nerve palsy essentially always has associated limitation of eye movements or ptosis.⁴ If these are not present, the differential diagnosis is narrowed down to tonic pupil or pharmacological mydriasis. Response to a near target and pharmacologic testing can help distinguish the differentials. Adie tonic pupil is a benign condition and treatment is not required. However, patients may experience photophobia and blurry vision. Accommodative paresis may resolve with time, ranging from months to years. However, patients may experience increased light-near dissociation over time since the pupil's reaction to light does not typically recover.¹ Patients with symptoms such as photophobia and blurring of vision can be treated with dilute pilocarpine topically.²

Adie's pupil, a benign condition, can present with problematic photophobia or blurred vision. Short course with diluted pilocarpine 0.1% and photochromatic glasses can alleviate the symptoms.

REFERENCES

1. Thompson HS. Adie's syndrome: some new observations. *Trans Am Ophthalmol Soc.* 1977; 75:587-626.
2. Batawi H, Micieli JA. *BMJ Case Rep.* 2020; 13:e233136. Doi: 10.1136/bcr-2019-233136
3. Moeller JJ, Maxner CE. The dilated pupil: an update. *Curr Neurol Neurosci Rep.* 2007; 7:417-22.
4. Biouesse V, Newman NJ. Third nerve palsies. *Semin Neurol.* 2000; 20:55-74.