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Case Report

A Rare Case of Adie's Pupil

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Abstract

We report a case of an adult female presenting with sudden onset unilateral dilated pupil. She was unresponsive to light reflex and had poor response to near reflex. Rest of her ophthalmological examination and systemic examination was normal except for diminished lower deep reflex tendon reflexes. Her serum vitamin B12 levels was also very low. A diagnosis of Adie's syndrome was made and the patient was reassured.

Keywords: Adie's Pupil; Vitamin B12

Introduction

Young adults (more women than men) may incidentally discover that one pupil is larger than the other or they have difficulty in focussing with one eye. Anisocoria (pupillary inequality) is caused by several conditions and a diagnosis can be easily made by simple clinical examination and pharmacological testing. Adie's tonic pupil is one rare cause of isolated dilated pupil [1].

Case Report

A 43-year-old female from Himachal pradesh presented to us with photophobia from her left eye for past 2 months. She used to have mild generalised headache for the past few years which used to subside on its own without medications. There was no associated nausea or vomiting. She also complained of difficulty in doing near work using her left eye. There was no associated retro-orbital pain, redness, swelling, watering, diplopia, flashes of light or altered colour vision. The other eye was apparently normal. Her symptoms remained constant without any diurnal variation or progression. She did not have any relevant medical illness or symptoms. She denied any history of prior trauma or fever. She had no history of regular medication or any addiction.

Best corrected visual acuity was 6/6 in both the eyes. Colour vision was normal in both the eyes. Right eye pupils were round (3mm) and reactive (Figure 1) and left eye pupil was dilated (6 mm) and non reactive to light (Figure 2). Slow and poor contraction was seen in the left eye for near target. Rest of the anterior segment and intraocular pressure was normal. Fundus and ocular movements were also normal bilaterally. General physical and systemic examination was normal. Neurological consultation was sought which revealed diminished lower deep tendon reflexes. Pilocarpine test was done which showed a remarkable reduction in the size of the left pupil within half an hour of local administration of 0.1% pilocarpine (Figure 3).

Detailed laboratory work up (complete blood count, sedimentation rate, blood biochemistry, venereal disease research laboratory, ANA) and magnetic resonance imaging of brain and orbit disclosed no underlying detectable abnormalities. Her vitamin B12 levels were markedly low for which she was given appropriate medications. She was prescribed near glasses in the left eye and was reassured about the benign nature of the disease.

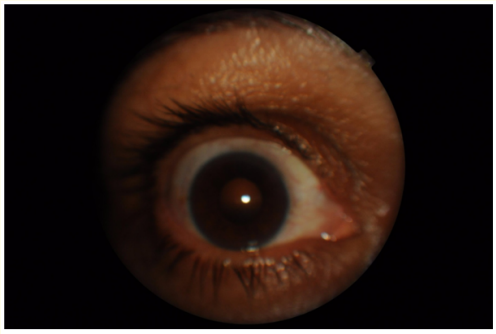

Figure 1: Right eye- Normal sized pupil.

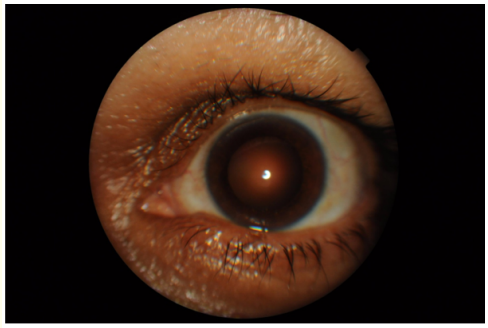

Figure 2: Left eye- Dilated pupil.

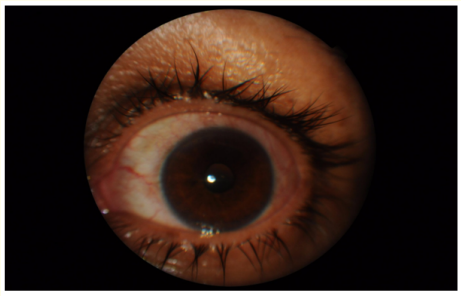

Figure 3: Left eye- Pupil size after 0.1% pilocarpine.

Discussion

Adie syndrome is also called the Holmes-Adie Syndrome (HAS). It is named after William John Adie, the British neurologist of Australian descent, and Sir Gordon Morgan Holmes, an Irish neurologist. They reported it in 1931.

Adie syndrome is a rare neurological disorder of unknown etiology comprising unilateral or bilateral tonically dilated pupils with near light dissociation and tendon areflexia. It has a female preponderance.

Tonic pupils are unilateral in 80% of cases, although the second pupil may later become involved (4% per year). Adie syndrome presents with at least one mydriatic pupil with poor or absent pupillary light reaction, tonic pupillary near response with light-near dissociation, decreased or loss of deep tendon reflexes, and abnormalities of sweating (Ross variant). Other signs may include difficulty reading due to hyperopia (accommodative paresis), segmental palsy of the sphincter, photophobia, cholinergic supersensitivity of the denervated muscles, and cardiovascular abnormalities (orthostatic hypotension).

Systemic conditions associated with tonic pupils can rarely include varicella-zoster, giant cell arteritis, syphilis, and orbital trauma. Bilateral tonic pupils may be seen in patients with diabetes, alcoholism, syphilis, cancer-associated dysautonomia, and amyloidosis.

Most patients with an idiopathic Adie syndrome do not require any treatment. The treatment for impairment of the eyes (due to accommodative paresis) is to prescribe reading glasses. Topical low-dose pilocarpine drops may be administered as a treatment. It is not a life- threatening condition and does not cause disabilities. The pupil light reaction becomes weaker over time with an increasing light-near dissociation, and the pupil becomes smaller with time ("little old Adie") [2,3].

Our patient did not have any systemic disease or any ophthalmological abnormality other than unilateral dilated pupil, diminished lower deep tendon reflexes and severe vitamin B12 deficiency. There is no relevant literature available regarding any correlation between serum vitamin B12 levels and Adie's pupil. Further case studies will be required to diagnose vitamin B12 deficiency as a predisposing factor to develop Adie's pupil.

Bibliography

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