Title : Benign Episodic Pupillary Mydriasis: A silent migraine accomplice

Authors:

1. Dr Trisha Sharma, Specialty Doctor in Ophthalmology, Glangwili General Hospital, Hywel Dda, Carmarthen, Wales

2. Mr Napolean Devarajan, Locum Consultant in Ophthalmology, Glangwili General Hospital, Hywel Dda, Carmarthen, Wales

Introduction : Pupil asymmetry is often cited as an ominous sign and meticulous work up must be carried out to rule out both common and dangerous causes like topical medications, pupil involving third nerve palsy, trauma , orbital cellulitis and acute angle closure. [1,2] Although a less common cause of anisocoria, intermittent pupillary dilatation must also be considered, especially in the context of migraine.

Aims: To highlight an interesting case of Benign Episodic Pupillary Mydriasis associated with migraine

Methods: A forty eight year old lady was referred to the eye department with a one day history of right pupil being bigger than the left . She also complained of headache and blurred vision in the right eye since one day. The headache was diffuse, with radiation to the right periorbital region and was relieved with painkillers. There was no associated nausea or vomiting. There was no history of trauma or possibility of pharmacological dilation . Her past ocular history revealed a similar episode two years ago, when the pupil of her right eye dilated , was fixed for a few days and resolved spontaneously. She also correlated the incident to a particularly bad migraine headache around the same time. She was seen in the eye casualty at that time ,no apparent cause was found and all diagnostic tests were within normal limits. Her past medical history included asthma , for which she was on steroid inhalers, and migraine for which she took painkillers as needed.

On examination, Visual acuity was 6/4 in both eyes. There was an anisocoria of 2mm with no relative afferent pupillary defect. The right pupil was 5mm , round and

sluggishly reactive to direct and consensual light. The left pupil was 3mm round, regular and reactive to both direct and consensual light. Anisocoria was more marked in the light. There was no ptosis and extra ocular movements were normal and full with no pain or restriction . Anterior segment examination was unremarkable with open angles, no evidence of vermiform movements or trauma to the iris. Intraocular pressure was 16 mmHg in both eyes . Optic discs were healthy with a cup disc ratio of 0.2 . There was no filling of cup, edema, blurred disc margins ,hyperemia or obscuration of vessels. It was observed that 0.125% Pilocarpine did not constrict the pupil, whereas 1% Pilocarpine constricted both pupils well. Rest of the physical and neurologic examination was unremarkable.

Result:

Visual fields were within normal limits. She also underwent an MRI brain and orbits which was reported as being within normal limits. She was reviewed in the eye clinic after six months and there was no anisocoria at this visit. She informed us that the anisocoria had spontaneously disappeared 3 days after her last visit , similar to the episode two years ago.

Conclusion: : Migraine with benign episodic unilateral mydriasis is an unusual cause of anisocoria and is hypothesized to be secondary to hyperactivity of the sympathetic nervous system.[3] After systematic elimination of common culprits, we must keep this diagnosis in mind ,especially in females with a background of migraine.[4]

CONFLICT OF INTEREST: The authors have no conflict of interest

References

1. Alkhalil M, Lewis S, Hawker M, Dick D. Persistent unilateral mydriasis and headache. *BMJ Case Rep*. 2009;2009:bcr11.2008.1260.

2. Caglayan HZ, Colpak IA, Kansu T. A diagnostic challenge: dilated pupil. *Curr Opin Ophthalmol*. 2013;24(6):550-557.

3. Caty JT, Kogan M, Reidy JJ, Siddiqui AH, Farooq O ,Li P. A Case of Recurrent Benign Episodic Unilateral Mydriasis and Decreased Visual Acuity and Review of the Literature. N. Am. J. Med. Sci.2015; 88:139-142.

4. Jacobson DM. Benign episodic unilateral mydriasis. Clinical characteristics. *Ophthalmology*. 1995;102(11):1623-1627. doi:10.1016/s0161-6420(95)30818-4