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Iris cavernous haemangioma associated with recurrent hyphaema treated by laser photocoagulation

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Editor,

Cavernous haemangioma of the iris is very rare, and only a few cases have been reported in the literature. It can occur either as a solitary vascular iris tumour (Prost 1987; Lam 1993; Shields et al. 2010), or as part of a congenital disorder with multiple systemic haemangiomas (Larson & Oetting 2002; Shields et al. 2010). Iris cavernous haemangioma may cause spontaneous hyphaema and secondary glaucoma, and treatment has previously been sector iridectomy or simple observation (Lam 1993; Shields et al. 2010). Here, we report a case of recurrent hyphaema with secondarily elevated intraocular pressure (IOP) caused by an iris cavernous haemangioma that was successfully treated with laser photocoagulation.

A 43-year-old female had experienced nine episodes of painless and transient loss of vision in her left eye with increasing frequency during the past 4 months. Initial ocular examinations revealed recurrent hyphaemas with increased IOP up to 30 mm Hg and a small tumour located temporally on the left iris. According to the patient, the lesion had previously been stable for almost 30 years, as she first observed it at the age of 15. After referral, slit lamp examination of her left eye showed a red-blue, circumscribed, multilobular tumour with dilated blood vessels located on the iris stroma temporal to the pupil (Fig. 1A, B). On top of the lesion, there was a small blood clot touching the corneal endothelium. Ultrasound biomicroscopy disclosed a round, medium to hyperechoic iris lesion, with a diameter of 2 mm and a height of 2.5 mm. Iris fluorescein angiography demonstrated hypofluorescence in the early phase and some hyperfluorescent spots without leakage in the late phase, indicating slow and incomplete blood flow through the lesion (Fig. 1C). Gonioscopy revealed normal angle structures and a clear lens. Funduscopy showed no abnormalities, and examination of her right eye was unremarkable. The patient's best-corrected visual acuity was 20/25 in both eyes, and her IOP measured 12 mm Hg in both eyes. There was no clinical evidence of extraocular vascular lesions.

A diagnosis of iris cavernous haemangioma was made, and due to the frequent episodes of hyphaema associated with increased intraocular pressure, the patient was offered laser treatment. Following informed consent, laser photocoagulation was performed with a frequency-doubled Nd:YAG (532 nm) laser (Valon TT; Valon Lasers, Vantaa, Finland). Without the use of a contact lens, overlapping 300–400 micron laser burns, with power ranging between 250 and 400 mW at 100–150 ms duration, were applied directly to the haemangioma. These parameters were titrated to produce a grey-white discoloration and slight shrinkage of the tumour. The laser treatment was uneventful and completed in five sessions with a total of 200 laser spots. At a follow-up visit five months after initiation of the photocoagulation, the haemangioma appeared as a light grey nodule measuring approximately 1.7 mm in diameter, with some scattered pigment on the surface and no visible intrinsic blood vessels (Fig. 2A,B). The visual acuity of the left eye was 20/25 and the IOP was 14 mm Hg. No new hyphaemas occurred during a six-month follow-up period.

Based on its clinical and fluorescein angiographic appearance (Prost 1987; Lam 1993; Larson & Oetting 2002;

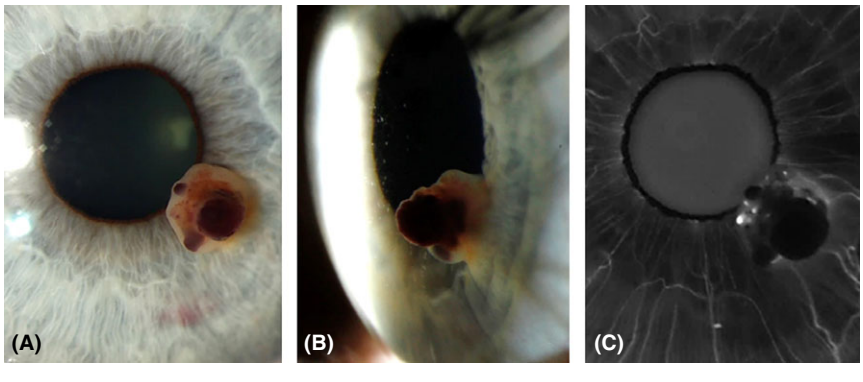

Fig. 1. Slit lamp photographs of the iris cavernous haemangioma located temporally in the patient's left eye, (A) front view, (B) side view. (C) Late-phase fluorescein angiogram of the haemangioma shows a few hyperfluorescent spots with no evidence of leakage.

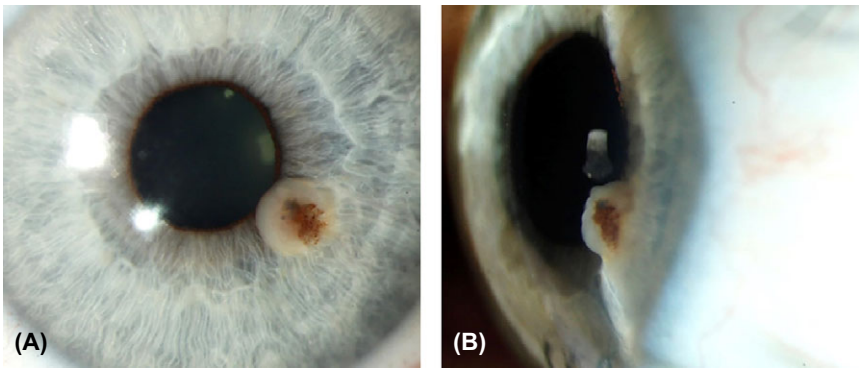

Fig. 2. Slit lamp photographs of the iris cavernous haemangioma shown in Fig. 1, 5 months after initiation of photocoagulation, (A) front view, (B) side view. The haemangioma has regressed to a light grey, slightly pigmented nodule without visible intrinsic blood vessels.

Shields et al. 2010), the lesion was diagnosed as an iris cavernous haemangioma. Laser photocoagulation is a simple and effective method to prevent leakage and bleeding from vascular anomalies. The most common iris vascular tumour is microhaemangioma (iris vascular tufts) (Shields et al. 2010), which can also cause spontaneous hyphaema and has previously been treated with laser (Goyal et al. 2010). However, iris cavernous haemangiomas are larger in size, and to the best of our knowledge, this is the first published case successfully treated with photocoagulation. As a sector iridectomy may lead to adverse effects like iris defects and pupillary dysfunction, laser photocoagulation should be considered as an alternative treatment modality for cavernous haemangioma of the iris associated with recurrent hyphaema.

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The short-term effect of yoga ocular exercise on intra-ocular pressure

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Editor,

Yoga is a traditional Indian system of exercises that is used for disease prevention and rehabilitation (Kuntsevich et al. 2010; Qu et al. 2013). However, some yoga postures induce increase of intra-ocular pressure (IOP) and may affect patients with glaucoma (Baskaran et al. 2006). Yoga ocular exercise is recommended by yoga practitioners for maintaining eye health. In this pilot study, we report the effect of yoga ocular exercise on IOP.

This study is a controlled and masked within-participant comparison of healthy subjects. The study was approved by the ethics committee of our hospital and was undertaken in accordance with the tenets of the Declaration of Helsinki. All participants signed informed consent. We recruited 26 subjects. Subjects with diabetes, uncontrolled hypertension, ametropia >6 D and any ocular pathology, ocular surgery and those with IOP measurements >21 mmHg were excluded from the study. Three participants were excluded for having diabetes, uncontrolled hypertension and glaucoma. The rest of the participants ($n = 23$) were assigned to group A (subjects performing yoga ocular exercise, $n = 12$) and group B (subjects that did not perform yoga ocular exercise, $n = 11$). One (right) eye per patient was included in the study. The examiner (G.D.) who was masked for the subject's participation in group A or group B did all the measurements using Goldmann applanation tonometry. After reading and signing informed consent, the subjects had their blood pressure taken by an automated sphygmomanometer (Sanitas). The IOP was measured initially and immediately after yoga ocular exercises in subjects from group A and in subjects from group B measurements were taken after an equal time interval.

One experienced yoga instructor guided the yoga ocular exercises. The procedure lasted 5 min and consisted of a short relaxation technique, ocular exercise and 'palming' or warming one's eyes by previously rubbing the palms without applying any pressure to eyeballs. The ocular exercise included slow and continuous movements and stretching of the bulbomotor muscles in maximal horizontal, vertical, right-side and left-side circular movements of the eyeballs.

The data followed a normal distribution, and we used unpaired t-test to analyse the differences in subjects' clinical characteristics between group A and group B. Paired t-test was used to analyse the differences between first and second IOP measurement in each participant group. P values less than 0.05 were considered as statistically significant.

There were no significant differences between group A and group B in subjects' clinical characteristics and baseline IOP (Table 1). Participants in group A had a significant decrease of IOP during second measurement (mean 14.50 mmHg; SD 2.58) compared to first measurement (mean 16.25 mmHg; SD 2.48; $p = 0.005$). Participants in group B did not have a significant difference in IOP between first measurement (mean 15.91 mmHg; SD 2.20) and second measurement (mean 15.46 mmHg; SD 3.13; $p = 0.56$).

Results from this study indicate a significant decrease of IOP after yoga ocular exercise. The mechanism of IOP reduction of these exercises may by complex. Eyes are in constant movement during day and partly during night; however, these movements usually involve small deviations from primary position. During yoga ocular exercise, bulbomotor muscles are maximally and continuously stretched in all directions that may increase intra-orbital blood circulation and may also act as a pump for a more efficient intra-orbital venous outflow. 'Palming' may have a vasodilatatory effect to episcleral veins and thus ameliorate ocular aqueous outflow.

To the best of our knowledge, this is the first report concerning the effect of yoga ocular exercise on IOP. Further studies evaluating long-term effects of yoga ocular exercise and involving