Glaucoma caused by isolated microspherophakia: A long story

Dear Sir,

We read with great interest the original article by Senthil et al. regarding trabeculectomy in patients with microspherophakia. We have followed-up a patient who underwent a trabeculectomy diagnosed with a microspherophakia and glaucoma in the glaucoma clinic of Yuzuncu Yil University in for 17 years.

A 16-year-old girl with microspherophakia was examined in our clinic for uncontrolled glaucoma in July 1997. The intraocular pressure (IOP) was 40 mm Hg in the right eye and 44 mm Hg in the left eye. We performed lensectomies (March 1997) in both eyes with a 1-week interval. Postoperatively, no treatment was required until the 6-month follow-up after the surgery. During this time, the IOP started to rise again (September 1997) and was controlled with a topical β-blocker and carbonic anhydrase inhibitors. Two years after lensectomies, a trabeculectomy (June 1999) was found in the right eye. The condition led the eye to an uncontrolled glaucoma despite medical treatment. The IOP remained <20 mm Hg with no medication in right eye and with topical eyedrops in the left eye until the 4-year follow-up visit. Then, the IOP was increased to 26 mm Hg with a progression of the c/d ratio in both eyes. A second trabeculectomy (July 2003) with mitomycin-C was performed in the right eye, and a first trabeculectomy (March 2003) with mitomycin-C was performed in the left eye. The IOP was fairly regulated without a topical treatment until March 2008 (approximately 8.5 years later). Subsequently, bilateral topical β-blocker 2 times a day was prescribed because of the increased IOP in both eyes, which always remained higher than 20 mm Hg. The treatment was continued. On the last examination (Jun 2014), IOP found 18 mm Hg and 16 mm Hg and the c/d ratio was 0.85 and 0.75 respectively in the right and left eye.

Willoughby and Wishart described a case of spherophakia with glaucoma where, following a lensectomy, it was possible to control the IOP successfully without additional medication. In contrast, our letter in reply to Willoughby’s study showed that lensectomy could control the IOP in the short-term period, but subsequently trabeculectomy was required in both eyes. Lensectomy provided by a temporary reduction in the IOP and 6 months later medical glaucoma treatment and trabeculectomy were required. Trabeculectomy had caused a long period of regression in the IOP. Topical treatment was used intermittently for a low tens IOP. Furthermore, one of the affected eyes needed a secondary surgery. There was no visible evidence of progression had been observed in our patient during 17 years. Trabeculectomy in glaucoma associated with microspherophakia can be an effective treatment option over a long period. Trabeculectomy should be used in a progression case.

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Comment on choroidal thickness in high-altitude sickness

Dear Sir,

We read with interest the article by Hirukawa-Nakayama et al. describing an interesting case of high-altitude retinopathy in a young healthy male. The authors concluded that this patient’s subfoveal choroidal thickness of 530 μm OD and 490 μm OS was thicker than normal by comparing these values with the mean subfoveal choroidal thickness of approximately 300 μm that has been described in healthy individuals. The authors suggested that this may be due to an increase in choroidal blood flow from hypoxia.

While it is possible that this patient’s choroidal thicknesses were thickened bilaterally, we would like to advise caution in
the interpretation of choroidal thickness data in light of recent articles published in the literature. In a study on the topographic variation of choroidal thickness at the macula of 124 healthy Chinese adults,\(^2\) the mean central subfield choroidal thickness was 322.2 µm. This paper, however, demonstrated a wide range of values for choroidal thickness (both central subfield as well as other sectors of the Early Treatment Diabetic Retinopathy Study grid) which varied according to the refractive status of the subject. The mean central subfield choroidal thickness for high myopes was 253.8 µm (standard deviation [SD] ±71.0), while the mean thickness was 457.4 µm (SD ±64.1) for emmetropes. Therefore, choroidal thickness in the patient (36 year old healthy emmetrope) presented by Hirukawa-Nakayama et al. may not be significantly thickened, considering the refractive status of that patient.

Besides the effect of age and refractive status on choroidal thickness,\(^3,4\) diurnal variation is also an important factor to consider when studying choroidal thickness.\(^5\) The mean amplitude of diurnal variation has been reported to be 33.7 µm (range: 10.5–43.1 µm).\(^5\) Therefore, it is important to consider the time of the day when the optical coherence tomography scans were taken.

Like the authors, we believe that the choroid, having an integral role in the normal physiology of the eye, is important in the pathogenesis of diseases. Studying the choroid may give us better understanding of disease processes. However, there are many factors that affect choroidal thickness, and we need to be wary of these factors when interpreting choroidal thickness data. There is also a paucity of population normative choroidal thickness database accounting for these factors in the current literature for us to compare perceived pathologic values against.

In conclusion, we would like to congratulate the authors for their thought invoking article describing choroidal thickness relationship with high-altitude sickness, and we hope further studies on the choroid add to our understanding of disease pathogenesis.

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