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Case report

Pigmented lesion in the anterior chamber angle following multiple trans-scleral diode laser photocoagulation for congenital glaucoma

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ABSTRACT

Purpose: To describe a child with primary congenital glaucoma found to have pigment tissue proliferation in the angle following multiple applications of trans-scleral cyclophotocoagulation.
Observations: During examination under anaesthesia, a 4-year-old girl was found to have pigmented tissue overlying the trabecular meshwork. Anterior segment ocular coherence tomography confirmed mounds of abnormal tissue in the angle.
Conclusion: Trans-scleral cyclodiode may cause iris root damage, and predispose to proliferation of pigmented tissue which covers the angle structures.

1. Introduction

Cyclodestructive procedures are indicated in refractory cases of glaucoma which are deemed unresponsive to other modalities of treatment. Side effects of have been reported including hypotony, inflammation, hyphema, scleral thinning, visual loss and phthisis.[1–3] Here, we describe a child with congenital glaucoma who was incidentally found to have pigmented tissue proliferation that covered the anterior chamber angle structures.

2. Case report

A 4-year-old girl with bilateral congenital glaucoma underwent examination under anaesthesia. She had previously undergone trabeculotomy and trabeculectomy in both eyes 3 years ago and suffered a retinal detachment in the right eye 2 years previously. She had 3 previous transcleral cylophotocoagulation (TSCPC) laser ablations in the left eye. There was no history of prior intraocular inflammation. Topical treatment included 0.5% timolol/2% dorzolamide preparation (Cosopt, Merck Inc. NJ, USA) twice a day, 0.5% apracolonidine three times a day and 0.005% latanoprost (Xalatan, Pfizer Ophthalmics, Pfizer, NY) once at night all to the left eye. The child had poor vision in the right eye (count fingers) and was blind in the left eye (no light perception). Examination of right eye showed a white and quiet eye with a horizontal corneal diameter of 11.5 mm, a quiet and deep anterior chamber, cataractous lens, corectopia and long-standing retinal detachment. Examination of left eye showed a quiet eye with white conjunctiva, corneal diameter 12.5 mm with a diffuse mild corneal faint scar, quiet and deep anterior chamber, clear lens, healthy disc (cup-disc-ratio 0.5). Gonioscopy of the left eye revealed mounds of hyperpigmented tissue within the trabecular meshwork in several quadrants. These appeared to be raised, rather than flat and the pigmentation was dense and dark brown in color, similar to iris tissue (Fig. 1). The view to the anterior chamber angle was somewhat obscured from the corneal scar. There was no retrocorneal pigment deposition noted, nor any iris transillumination defects noted. An anterior segment OCT showed a deep anterior chamber, with an open angle recess and slightly posteriorly bowed iris and confirmed the presence of elevated tissue within the angle (Fig. 2). No ciliary body or iris masses were identified. The intraocular pressure was 11 mmHg (pneumotonometry) in the left eye and axial length by A-scan (24.70 mm) found to be stable from previous visits. The child was kept on the same treatment and an examination 6 months later showed no change in the appearance of the angle structures.

3. Discussion

Classically, the anterior chamber angle in children with congenital glaucoma demonstrates retrodisplacement and partial absence of Schlemm canal, hypoplasia of the trabecular meshwork and iris with an anterior iris insertion.[4] Pigmentary abnormalities of the angle in such children have not, to our knowledge, been previously documented

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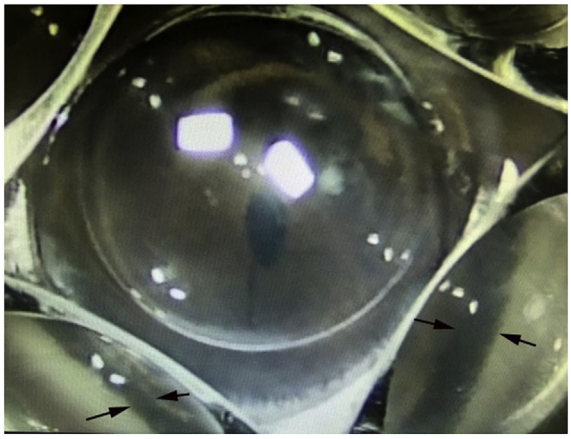

Fig. 1. Intraoperative gonioscopy photograph of left eye (Volk, Zeiss 4-mirror) showing mounds of hyperpigmentation within the anterior chamber angle (black arrows).

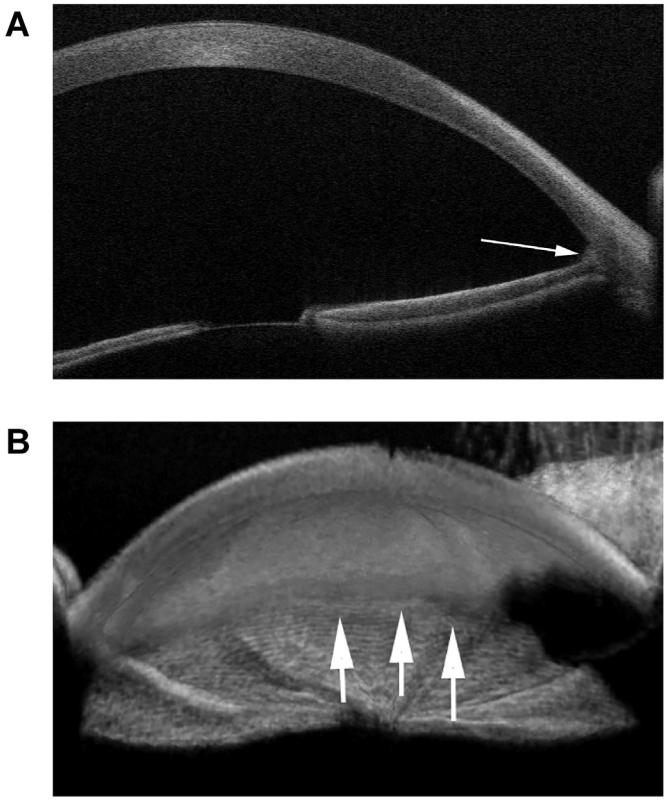

Fig. 2. Anterior segment ocular coherence tomography (OCT) showing areas corresponding to mounds of hyperpigmentation in the angle. **A.** Superonasal angle; **B.** Three dimensional OCT reconstruction image. The abnormal tissue appears to be raised rather than flat.

following TSCPC.

Increased hyperpigmentation of trabecular meshwork can occur in a number of conditions: pseudoexfoliation syndrome (Sampaolesi line), pigment dispersion syndrome, uveitis, melanoma, trauma, surgery, hyphema, darkly pigmented individuals, increasing age and inflammation.[5] One case of pigment dispersion in a 3-month old child with congenital glaucoma and high myopia has previously been reported.[6] Pigment dispersion can also occur as a result of atropine therapy since infancy in adults with congenital cataracts.[7] However, in our child, there was no iris atrophy or corneal endothelial pigment to suggest a pigmentary type of glaucoma. In addition, the lesions in the angle were raised and mound-like rather than flat, suggesting a proliferative lesion rather than purely collection of pigment.

We postulate that the angle hyperpigmentation might have resulted from more anterior application of TSCPC because of the distorted limbus, resulting in damage to tissue in the iris root and secondary iris stromal proliferation anteriorly that covered the angle structures. The functional consequences of this tissue are, as yet, uncertain. The abnormal tissue in the angle likely represents proliferation of iris stroma/pigment epithelium based on the solid appearing lesion on the swept source OCT. Peripheral anterior synechiae resulting from contractile scar tissue was considered in the differential diagnosis; however the sharp tenting of iris to the trabecular meshwork was not seen clinically or in the swept source OCT images.

4. Conclusions and importance

This case illustrates the importance of recognizing angle tissue proliferation as a possible side effect of TSCPC.

Patient consent

Consent to publish this case report has been obtained from the patient's parent in writing.

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Conflicts of interest

The following authors have no financial disclosures: M Al-Tamimi; R Malik; D Edward.

Authorship

All authors attest that they meet the current ICMJE criteria for Authorship.

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