A cyclodialysis cleft results from the disinsertion of the longitudinal ciliary muscle fibres from the scleral spur [1]. This allows a direct communication between the anterior chamber and the suprachoroidal space. The sequelae of cyclodialysis include chronic ocular hypotony, anterior chamber shallowing, cataract, choroidal effusions, choroidal folds, hypotony maculopathy and loss of vision [2,3].

Cyclodialysis cleft formation occurs as a result of blunt ocular trauma or anterior segment surgery. Gonioscopy remains the gold standard for the their identification. In cases where direct visualisation is difficult, high frequency ultrasound biomicroscopy can be used to visualise the irido-corneal angle configuration [4]. Small clefts may close either spontaneously or with the use of topical cycloplegics. In larger clefts various techniques have been described for repair, including direct surgical cycloplexy, scleral buckling, vitrectomy with gas tamponade, argon cyclophotocoagulation and cyclocryotherapy.

Cyclocryotherapy

Cyclocryotherapy using a double freeze-thaw technique was applied, with a standard retinal cryoprobe, placed 1.5 mm behind the limbus. Overlapping applications, each with a duration of 2 to 3 seconds at a temperature -80°C, were applied over the extent of the cyclodialyses.

Direct Cycloplexy

Direct cycloplexy was undertaken in all cases where initial management was unsuccessful. A double-lamellar limbal-based scleral flap technique was performed for cleft closure under general anaesthesia. All patients were admitted on the eye ward.

A localised conjunctival peritomy over the cleft site was performed followed by the construction of a double limbal-based lamellar scleral flap, over the cleft site, extending 4 mm posterior to the limbus. At this point, the cyclodialysis cleft was directly visualised and the wound leaked aqueous humour. The ciliary muscle was reattached to the scleral spur under direct visual control by interrupted nylon 10-0 loop sutures. Cyclocryotherapy was applied in order to excite an inflammatory reaction an aid cleft closure. Postoperative treatment included cycloplegics and, if necessary, systemic (acetazolamide and mannitol) and/or local antiglaucoma medication were administered to control transient acute IOP spikes.

Seventeen eyes of 17 patients underwent cyclodialysis repair (16 men, 1 woman; mean age, 42 ± 14 years; age range, 16-62 years). Cyclocryotherapy, which was successful in cleft closure in 5 patients; direct cycloplexy was required in 12 patients (71%). The mean follow-up time following cycloplexy was 42.5 ± 25.6 months (range, 12-110 months). The mean number of cyclodialysis clefts per eye was 1.5 (range, 1-3) with a mean extent of 2.1 clock-hours (range, 0.5-6 clock-hours). The mean cleft size between the cyclergencytheraphy and direct cycloplexy groups was 0.7 clock-hours and 2.6 clock-hours, respectively.

Objectives

There is limited data on the long-term visual prognosis and intraocular pressure (IOP) control after surgical cyclodialysis cleft repair. We describe the long-term outcomes of direct and indirect surgical cycloplexy in a large single-centre, single-surgeon, consecutive case series of patients with hypotensive cyclodialysis clefts.

Methods

Clinical data of 17 eyes of 17 patients who underwent indirect and/or direct surgical cycloplexy were analysed retrospectively. Preoperative gonioscopic evaluation of the angle was performed. If the view of the drainage angle was compromised then further evaluation was undertaken in the operating theatre using an intracameral ophthalmic viscosurgical device (OVD) and on-table gonioscopy. Surgery was performed in all cases of persistent hypotony.

Cyclocryotherapy

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Introduction

Long-term outcomes following the surgical repair of traumatic cyclodialysis clefts

Results

Seventeen eyes of 17 patients underwent cyclodialysis repair (16 men, 1 woman; mean age, 42 ± 14 years; age range, 16-62 years). Cyclocryotherapy, which was successful in cleft closure in 5 patients; direct cycloplexy was required in 12 patients (71%). The mean follow-up time following cycloplexy was 42.5 ± 25.6 months (range, 12-110 months). The mean number of cyclodialysis clefts per eye was 1.5 (range, 1-3) with a mean extent of 2.1 clock-hours (range, 0.5-6 clock-hours). The mean cleft size between the cyclergencytheraphy and direct cycloplexy groups was 0.7 clock-hours and 2.6 clock-hours, respectively.

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Conclusions

Cyclodialysis cleft repair represents one of the most challenging forms of intraocular surgery. Even in the most chronic cases of ocular hypotony, successful repair can result in the optimization of IOP and improvement in BCVA.

References