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ORIGINAL ARTICLE

Cataract extraction surgery in patients with uveitis in Taiwan: Risk factors and outcomes

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uveitis;
visual prognosis

Background/Purpose: To analyze the preoperative conditions and postoperative outcomes of phacoemulsification and intraocular lens implantation in Taiwanese patients with uveitis.
Methods: This retrospective, consecutive case series study included 121 eyes of 84 patients with uveitis who underwent phacoemulsification and intraocular lens implantation from July 1996 to May 2006. The demographic data, postoperative outcomes, complications, and risk factors with regard to visual prognosis were analyzed. Visual acuity was converted from the Snellen equivalent to logMAR values.
Results: This study included 51 men and 70 women with a mean ± SD age of 44.6 ± 18.4 years. The three most common diseases were idiopathic uveitis, Behcet's disease, and Vogt–Koyanagi–Harada disease. The best-corrected visual acuity improved from 1.52 ± 0.83 logMAR units preoperatively to 0.37 ± 0.59 logMAR units postoperative ($p < 0.001$). The most frequent postoperative complications were posterior capsular opacity (24 eyes) and cystoid macular edema (10 eyes). Anterior uveitis related to HLA-B27 had the best visual prognosis, whereas Behcet's disease had the poorest visual outcome ($p = 0.029$). Logistic regression analysis indicated that disease etiology ($p = 0.011$) and preoperative visual acuity ($p = 0.020$) were related to the postoperative visual prognosis.
Conclusion: Cataract extraction can improve visual function for most patients with uveitis. Postoperative complications were not uncommon and Behcet's disease had the poorest postoperative visual prognosis.

Conflicts of interest: The authors have no conflicts of interest relevant to this article.

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Introduction

Cataracts are common in patients with uveitis due to frequent intraocular inflammation and the long-term use of steroids.[1,2] Cataracts may result in severe visual dysfunction, prompting the consideration of cataract surgery. Conventional extracapsular cataract extraction with posterior capsular intraocular lens (IOL) implantation in patients with uveitis has been associated with various complications.[3] Intraocular lens selection, the preoperative and postoperative management of inflammation, and consequent complications such as band keratopathy, miotic pupil, iris atrophy, pupillary membrane formation, and IOL capture are all challenging problems.[4] However, the outcomes of cataract surgery in patients with uveitis have become more favorable with modern techniques of phacoemulsification and new designs of IOL.[5–7]

Most studies investigating cataracts in patients with uveitis have been reported from western countries, which have different patterns of uveitis from countries in Asia. A literature review showed only one related East Asian study, reported from Japan.[8] Because the rate of cataract formation varies for different types of uveitis and the predominant types of uveitis are not usually the same among different races,[9] data from various parts of the world may show large differences. The purpose of this study was to analyze the preoperative conditions and postoperative outcomes of cataracts associated with uveitis in Taiwan and to explore the possible risk factors for a poor prognosis.

Methods

From July 1996 to May 2006, the medical records of consecutive patients with uveitis who underwent cataract surgery by a single surgeon (C.-P. Lin) in the National Taiwan University Hospital, a tertiary care referral center, were reviewed. All the patients had confirmed uveitis, were undergoing treatment and follow-up at the same hospital, and underwent phacoemulsification because a cataract disabled their vision. All patients were followed up postoperatively for more than 6 months. Patients with a history of eye trauma, those with diabetes mellitus, and patients with cataracts related to previous ocular surgery were excluded. Each patient underwent small incision phacoemulsification cataract extraction and IOL implantation under either topical or local anesthesia. A complete work up of the patient's medical history relating to uveitis and ophthalmic examinations were routinely performed in all patients before cataract surgery. The surgery was performed only after intraocular inflammation had been brought to a quiescent stage for at least 3 months based on physical examinations, unless complications or impending complications prompted an early operation. Patient profiles, including sex, age at onset, uveitis etiology, age, preoperative findings, quiescent periods of intraocular inflammation before surgery, length of follow-up, and the presence of surgical complications, postoperative complications, and associated management were recorded.

The following changes were regarded as postoperative complications: a relapse of inflammation within 6 months after surgery, posterior synechiae, pupillary capture of IOL, an increase in intraocular pressure (over 25 mmHg) that required treatment within 6 months after surgery, posterior capsule opacification (PCO) that required neodymium:YAG laser capsulotomy, and postoperative cystoid macular edema (CME) confirmed by optical coherence tomography. The best-corrected visual acuity (BCVA) was recorded at the last preoperative visit and at every postoperative follow-up visit. The Institutional Review Board Committee of National Taiwan University Hospital approved the study.

Preoperative drug treatments

All patients maintained their drug doses preoperatively and added topical 1% prednisolone acetate four times each day for 1 week and 40 mg prednisolone (5 mg/tablet) by mouth each day for 3 days. An steroid given by mouth was prescribed until the day of surgery.

Surgical techniques

Each patient underwent clear corneal incision with a 2.5 mm diamond knife. Synechiolysis was performed using an iris hook or iris retractors and small sphincterotomies were performed if judged necessary. In patients with white cataract, continuous curvilinear capsulorhexis assisted by indocyanine green (0.5%) was performed. After completing continuous curvilinear capsulorhexis, the lens nucleus was removed by phacoemulsification, with phaco chop as the main technique. The cortical material was subsequently removed by the irrigation/aspiration method. With the aid of an ophthalmic viscosurgical device, an IOL was implanted in the capsular bag (except in 3 patients with juvenile uveitis who remained aphakic, to prevent IOL capture) and the incision was sealed by corneal hydration (one-stitch corneal suture with 10-0 nylon, as required). A subconjunctival injection of 0.5 mL dexamethasone (1 mg/mL) and 0.5 mL gentamicin (2 mg/mL) was administered at the end of surgery.

Postoperative care

All patients with Behcet's disease (27 patients) receiving systemic immunosuppressants before cataract surgery maintained their original doses during the preoperative and postoperative course. Patients were followed up on the 1st postoperative day and 1 week, 1 month, and every 3 months thereafter. The postoperative drugs included topical 0.1% dexamethasone applied once every 2 hours for 2—3 weeks; however, this drug was sometimes tapered in patients who had a history of uveitis, but who had maintained a quiescent status for a long time. Prednisolone (5 mg/tablet) by mouth was prescribed at 30 mg/day for the first 3 days, followed by 20 mg/day for 2 days, and then 10 mg/day for 2 days. If severe inflammation occurred, a higher dose of topical steroid and steroid by mouth was given (a 2 mg betamethasone subconjunctival injection or 40 mg triamcinolone subtenon injection), as required. For intractable cases, systemic nonsteroidal anti-inflammatory drugs (e.g. indomethacin or diclofenac), immune