Risk of reactivation of toxoplasmic retinitis following intraocular procedures without the use of prophylactic therapy

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ABSTRACT

Background/aims Toxoplasmic retinochoroiditis is the commonest known cause of posterior uveitis worldwide and reactivation is unpredictable. Based on results from one study, the authors proposed that antitoxoplasmic therapy should be initiated as prophylaxis for intraocular surgery in patients with toxoplasmic scars. The aim of this study is to analyse the risk of toxoplasmic retinochoroiditis reactivation following intraocular procedures.

Methods Retrospective analysis of the medical records of a total of 69 patients who underwent intraocular surgery and presented with toxoplasmic retinochoroiditis scars.

Results No patient received prophylactic antitoxoplasmic therapy. Reactivation following the surgical procedure occurred in four cases, with one at 3 months and the others respectively at 13, 14 and 17 months.

Conclusions Our study shows that intraocular surgery did not result in a significant reactivation rate of toxoplasmic retinochoroiditis in the absence of preoperative prophylactic antitoxoplasmic therapy.

INTRODUCTION

Toxoplasmic retinochoroiditis (TR) is the commonest known cause of posterior uveitis worldwide. The natural course of the disease is typically characterised by recurrent episodes of necrotising retinochoroiditis, most likely caused by the release of organisms from ruptured tissue cysts within the retina and associated inflammatory reaction. Recurrences are unpredictable and may result in significant visual deficit. The mechanism for these recurrences is still not well understood. Several hypotheses have been postulated regarding recurrences, including genetic factors of the host, differences in host immune response, age of host and different parasite strains, but there is no conclusive evidence for the exact mechanism and a reactivation could possibly be related to a combination of all or part of them.

One retrospective case control study has reported an increased risk of reactivation of ocular toxoplasmosis in patients who underwent cataract extraction without receiving antitoxoplasmic prophylactic therapy. Based on this result, the authors proposed that antitoxoplasmic therapy should be initiated as prophylaxis for cataract surgery in every patient with toxoplasmic scars undergoing cataract surgery.

In our experience, reactivations following cataract surgery do not represent a problem in clinical practice, a view shared by other uveitis specialists who were asked about their own experience (unpublished data). Based on this, we decided to conduct a retrospective study involving two institutions, Moorfields Eye Hospital, UK (MEH) and Universidade Federal de Minas Gerais, Brazil (UFMG), to establish if there is a real risk of reactivation of toxoplasmic retinitis following intraocular surgery. We decided to look into the risk of reactivation following pars plana vitrectomy (PPV), and also included patients who had undergone cataract surgery. The use of vitrectomy in the management of uveitis has been largely published in literature since 1981, but no data are available on the course of TR following this procedure.

METHODS

This study is a retrospective analysis of the medical records of a total of 69 patients who underwent surgery mainly PPV, but also cataract surgery, in two study centres MEH and UFMG. The original diagnosis of TR for these patients had been based on the criteria of Holland and collaborators, which stipulated the presence of an active white-creamy coloured focal retinal lesion eventually combined with hyperpigmented retinochoroidal scars in either eye. Patients who had consulted in one of the two above-mentioned departments showing clinical signs of TR, and who later underwent cataract surgery or PPV in the eye with healed TR were included in the study. All patients had inactive lesions at the time of the procedure. Patients with AIDS or with other known debilitating illnesses, or patients chronically treated with immunosuppressive or antibiotic drugs for other diseases were excluded from the study.

Overall, 65 patients underwent PPV and six patients underwent cataract surgery; among these, two had a PPV at different times. Of 65 PPV patients, eight patients underwent PPV combined with phacoemulsification. In total, three of the 14 patients underwent cataract surgery without intraocular lens implantation. These procedures were performed under local or general anaesthesia. All vitrectomies were performed by the same surgeon (GCH) while cataract surgery was performed by different surgeons. None of the patients received any antitoxoplasmic prophylactic treatment or oral steroids before the operation.

All patients enrolled in the study submitted to PPV were from Brazil and those who underwent cataract surgery were from England.
Data from baseline and follow-up visits included visual acuity, applanation tonometry, biomicroscopy and fundus examination through a dilated pupil with a 90D and 20D lenses. Retinal lesions size, location and number were reviewed. History of previous reactivations was also documented, especially number, duration and date of last event prior to surgery. Medical therapy given during active recurrences (drug used, duration of treatment) was also recorded. The criterion for a recurrent TR was the formation of a new active lesion adjacent to a scar or distant to a scar involving a healthy retinal area. For this study, a reactivation to be considered related to the surgical procedure would have to happen within 4 months from the operation.

RESULTS
Of 69 eyes with TR operated on, six underwent cataract surgery by phacoemulsification technique and five of them received intraocular lens implants; among them two had PPV before the cataract operation. Postoperatively, every patient had a course of topical dexamethasone and chloramphenicol, with the addition of mydriatic drops for vitrectomised patients only.

In all, 66.6% were female patients and the mean age at the time of the operation was 56.5 years, range 39–77 years. Following cataract surgery, no recurrences were observed during a follow-up ranging from 12 to 62 months, with a median of 34 months.

In all, 65 eyes underwent PPV; among them two had cataract surgery at a different time, as described above. In all, 43.08% were female patients and the mean age at the time of the operation was 52.43 years, range 13–72 years.

Follow-up after PPV ranged from 2 to 75 months with a median of 21.6 months. Reactivation following the surgical procedure occurred in four cases, with one at 3 months and the others respectively at 13, 14 and 17 months.

All patients who presented reactivation of TR underwent PPV after at least 6 months of the last episode of active TR.

In the absence of a control group, a 95% CI was calculated on the 1/69 event (0.0008 to 0.0889; Wilson Technique).

DISCUSSION
Intraocular surgery in eyes with uveitis represents a special concern due to the possible complications during and after surgery, especially reactivation of inflammatory activity and macular oedema. Special precautions are necessary, mainly regarding preoperative control of the inflammation, and the use of prophylactic topical and systemic therapy with steroids or non-steroidal agents. Very little information is available regarding postoperative complications associated with TR. One retrospective case series of 14 eyes of 15 patients with inactive TR who underwent either extracapsular cataract extraction (six patients) or phacoemulsification (six patients) looked into the risk of TR reactivation following surgery. This study reported a recurrence rate of about 36% (four on 14 patients recurred) within 4 months following cataract surgery, which was significantly higher than the one observed for age-matched and sex-matched control group patients who also had a history of toxoplasmic retinitis but did not undergo cataract surgery. Based on their results, the authors suggested that prophylactic treatment with antitoxoplasmic drugs was necessary for all patients with inactive toxoplasmic scars undergoing cataract surgery in order to reduce the risk of reactivation of the disease following surgery.

Our small retrospective case series of six patients who underwent phacoemulsification and lens implantation and who were not treated with prophylactic antitoxoplasmic treatment or with steroids showed a very favourable outcome, with absence of disease recurrence. This is certainly a very small number, but we also looked into the risk of reactivation following PPV and also PPV combined with cataract surgery. Vitrectomy has been widely used in patients with ocular inflammatory disease mainly because it may have an immediate effect on vision by clearing vitreous opacities, or by eliminating vitreo-macular traction, and also by allowing the diagnosis in some cases due to either better visualisation of the fundus or by providing samples of ocular fluids for analysis. In the literature, experience with vitrectomy in TR is limited to repair of complications. Bovey and Herbert reported vitrectomy in 30 cases of posterior uveitis, including three cases of toxoplasmic chorioretinitis. The patients did not receive antitoxoplasmic treatment prior to surgery and the outcome was described as favourable without any exacerbation of inflammatory activity. According to Fitzgerald, the use of PPV/lensectomy appeared to be effective in patients with presumed ocular toxoplasmosis, with no recurrence on a short follow-up time.

In our study, PPV was performed in the absence of prophylactic antitoxoplasmic therapy prior to surgery and resulted in a non-significant reactivation rate of 1.5% (1/65) of the patients, considering that any reactivations to be related to the surgical procedure had to occur within 4 months of the procedure. The other three cases of recurrence seen happened many months after surgery and were unlikely related to it. The criteria to consider reactivation secondary to the procedure were the same as those used by Bosch-Driessen et al (4 months). In our study apart from one, patients presented reactivation in 13, 14 and 17 months.

Although the lack of a control group can be considered as a limitation of our study, this would be of more relevance if a large number of reactivations had been found.

In conclusion, our study shows that intraocular surgery did not result in a significant reactivation rate of TR in the absence of preoperative prophylactic antitoxoplasmic therapy. Our results suggest that specific prophylaxis for toxoplasmosis is not necessary for intraocular surgery in patients presenting with toxoplasmic scars since the risk of reactivation is negligible. In such cases, unnecessary exposure to systemic therapy and their potential complications can be avoided.

Contributors Design of the study: CEP and ALLC. Conduct of the study: GCH, RDO and EO. Collection of data: GCH, RDO and EO. Management, analysis, interpretation of the data: GCH and EO. Preparation of the manuscript: EO. Review of the manuscript: ALLC, FO and ECP. Approval of the manuscript: CEP.

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Competing interests None.

Patient consent Obtained.

Ethics approval This study was approved by the IRB at both Moorfields Eye Hospital in London, UK, and Universidade Federal de Minas Gerais in Belo Horizonte, Brazil.

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