

Akova, Y. A., C. Kucukerdonmez, et al. (2006). "Clinical results of phacoemulsification in patients with uveitis." Ophthalmic Surg Lasers Imaging **37**(3): 204-211.

**BACKGROUND AND OBJECTIVE:** To evaluate the results of phacoemulsification and posterior chamber intraocular lens (IOL) implantation in patients with uveitis. **PATIENTS AND METHODS:** Review of records of 37 eyes of 31 patients with uveitis (14 men and 17 women; mean age, 49.8 years; age range, 26 to 71 years) who underwent phacoemulsification with IOL implantation. The data recorded were age, gender, IOL type, treatment modalities, final visual outcome, and complications. **RESULTS:** Panuveitis, anterior uveitis, posterior uveitis, and intermediate uveitis were detected in 16 (51.6%), 9 (29.0%), 5 (16.1%), and 1 (3.3%) of the patients, respectively. At 6 months postoperatively, 32 (86.5%) eyes had achieved a best-corrected visual acuity of 20/40 or better, and 22 (59.5%) eyes had a visual acuity of 20/20. Five (13.5%) eyes showed limited improvement in postoperative visual acuity due to posterior segment problems. Postoperative recurrence of inflammation occurred in 12 eyes (32.4%) of 10 patients and was treated and controlled with medical therapy. **CONCLUSION:** When inflammation in uveitic eyes is under complete control, phacoemulsification and implantation of a foldable acrylic IOL in the posterior chamber is safe, effective, and tolerated well. To minimize vision-limiting complications, these patients must be observed closely after surgery, and must be treated aggressively if the inflammation recurs.

Alio, J. L., E. Chipont, et al. (2002). "Comparative performance of intraocular lenses in eyes with cataract and uveitis." J Cataract Refract Surg **28**(12): 2096-2108.

**PURPOSE:** To evaluate the postoperative outcomes in uveitic eyes after phacoemulsification and posterior chamber intraocular lens (IOL) implantation. **SETTING:** Multicenter (19) international study. **METHODS:** This prospective randomized comparative interventional case series comprised 140 eyes of 140 patients who had phacoemulsification and implantation of IOLs of various materials: hydrophobic acrylic (n = 48), silicone (n = 44), poly(methyl methacrylate) (PMMA) (n = 26), or heparin-surface-modified PMMA (HSM PMMA) (n = 22). Preoperative and postoperative grading and control of intraocular inflammation were performed. Clinically significant observations, visual outcomes, and the incidence of postoperative complications were recorded. **RESULTS:** At the final follow-up, 64 eyes (46.3%) had a best corrected visual acuity of 20/40 or better, an improvement that was highly significant ( $P < .0001$ ). One day after surgery, the acrylic group had the lowest inflammation values and the silicone group the highest ( $P = .02$ ). The acrylic group continued to have the lowest inflammation grade values until the 3-month follow-up. The acrylic and HSM PMMA groups had the lowest incidence of relapses. Posterior capsule opacification developed in 48 eyes (34.2%), with the highest incidence in the silicone group. **CONCLUSIONS:** Phacoemulsification with IOL implantation in selected uveitic eyes was safe and effective. Acrylic IOLs provided a better visual outcome and lower complication rate than IOLs of other materials.

Androudi, S., M. Ahmed, et al. (2005). "Combined pars plana vitrectomy and

phacoemulsification to restore visual acuity in patients with chronic uveitis." J Cataract Refract Surg **31**(3): 472-478.

**PURPOSE:** To report the outcomes of combined phacoemulsification and pars plana vitrectomy (PPV) to restore visual acuity in patients with cataract and posterior segment involvement secondary to chronic uveitis. **SETTING:** Ocular Immunology and Uveitis Service, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, Massachusetts, USA. **METHODS:** This study comprised 34 patients (20 women, 14 men; 36 eyes) with posterior segment involvement secondary to chronic uveitis who had combined phacoemulsification and PPV from 1998 to 2002. The main outcome measures were visual acuity, intraocular pressure, and cystoid macular edema. **RESULTS:** The mean patient age was 45 years  $\pm$  16.09 (SD). The mean duration of uveitis before surgery was 56  $\pm$  44.17 months. In 24 eyes (66.7%), an intraocular lens (IOL) was implanted during surgery; 12 eyes (33.3%) were left aphakic. Five eyes (13.8%) received an intraocular steroid injection intraoperatively. Visual acuity improved in 26 eyes (72.2%), deteriorated in 5 (13.9%), and was unchanged in 5 (13.9%). The main reason for decreased visual acuity was refractory macular edema. During the follow-up, 2 IOLs were explanted secondary to lens intolerance. One IOL was repositioned because of iris capture by the haptics, and 1 dislocated inferiorly, causing monocular diplopia. The mean follow-up was 23.4  $\pm$  16.7 months. **CONCLUSIONS:** Results indicate that combined phacoemulsification and PPV is a feasible technique for the removal of cataract and pathologic vitreous in eyes with chronic uveitis. Although the exact role of vitrectomy in patients with uveitis remains to be determined, the combined surgery successfully restored useful vision in most cases.

Belair, M. L., S. J. Kim, et al. (2009). "Incidence of cystoid macular edema after cataract surgery in patients with and without uveitis using optical coherence tomography." Am J Ophthalmol **148**(1): 128-135 e122.

**PURPOSE:** To determine the incidence of cystoid macular edema (CME) after cataract surgery among eyes with and without uveitis using optical coherence tomography (OCT) and to determine risk factors for postoperative CME among eyes with uveitis. **DESIGN:** Prospective, comparative cohort study. **METHODS:** Single-center, academic practice. Forty-one eyes with uveitis and 52 eyes without uveitis underwent clinical examination and OCT testing within 4 weeks before cataract surgery and at 1-month and 3-month postoperative visits. The main outcome measure was incidence of CME at 1 and 3 months after surgery. **RESULTS:** Both uveitic and control eyes gained approximately 3 lines of vision ( $P = .6$ ). Incidence of CME at 1 month was 12% (5 eyes) for uveitis and 4% (2 eyes) for controls ( $P = .2$ ). Incidence of CME at 3 months was 8% (3 eyes) for uveitis and 0% for eyes without uveitis ( $P = .08$ ). Eyes with uveitis treated with perioperative oral corticosteroids had a 7-fold reduction in postoperative CME (relative risk [RR], 0.14;  $P = .05$ ). In uveitic eyes, active inflammation within 3 months before surgery increased the risk of CME when compared with eyes without inflammation (RR, 6.19;  $P = .04$ ). CME was significantly associated with poorer vision ( $P = .01$ ). **CONCLUSIONS:** Eyes with well-controlled uveitis may

obtain similar outcomes to control eyes after cataract surgery (up to 3 months). Use of perioperative oral corticosteroids and control of uveitis for more than 3 months before surgery seemed to decrease the risk of postoperative CME among uveitic eyes in this study.

BenEzra, D. and E. Cohen (2000). "Cataract surgery in children with chronic uveitis." Ophthalmology **107**(7): 1255-1260.

**OBJECTIVE:** To evaluate the visual outcome of cataract surgery in children's eyes with chronic uveitis and the feasibility of intraocular lens (IOL) implantation in these cases. **DESIGN:** Retrospective noncomparative case series. **PARTICIPANTS:** Seventeen children (20 eyes) with chronic uveitis, dense cataract, and a preoperative visual acuity of 6/120 or less with follow-up of 5 years after the initial cataract surgery. **METHODS:** In 10 eyes of 10 children (five with juvenile rheumatoid arthritis [JRA] and five with non-JRA-associated uveitis) with uniocular or markedly unequal binocular disease, surgery was carried out through the limbus and a posterior chamber IOL was implanted. In seven children (10 eyes), three with JRA and four with non-JRA-associated disease, a pars plana approach was used, and contact lenses or glasses (for the bilateral cases) were prescribed. **RESULTS:** The postoperative course and immediate restored visual acuities were similar whether an IOL was implanted or not. One month after the surgery, visual acuity improved in all operated eyes. After monocular surgery, in the younger children, contact lenses were poorly tolerated and their use discontinued. These aphakic eyes remained with low vision, developing strabismus on longer follow-up. Children with JRA-associated uveitis were younger, demonstrated an active intraocular inflammation for an extended period after surgery, and tended to have secondary membranes develop, necessitating a second surgical intervention. Five years after the initial surgery, only two of nine eyes (22%) in the JRA group (one aphakic of a bilaterally affected child and one pseudophakic in a child undergoing cataract surgery in one eye) retained a visual acuity of 6/9 and 6/6, respectively. In the other seven eyes, the visual acuity was 6/60 in one pseudophakic eye and 6/240 or less in six eyes (three aphakic and three pseudophakic). In children with non-JRA-associated uveitis, 6 (four aphakic in two patients bilaterally affected and two pseudophakic) of 11 eyes (54.5%) retained a vision of 6/12 or better. **CONCLUSIONS:** Cataract surgery in children's eyes with uveitis may be beneficial. IOL implantation seems preferable to correction with contact lenses in young children needing surgery in one eye. In children with JRA-associated uveitis, the final visual results remain guarded because of irreversible amblyopia and a more complicated postoperative course. For these cases, a modified management approach and a better surgical technique are needed.

Bodaghi, B., M. E. Weber, et al. (2005). "Comparison of the efficacy and safety of two formulations of diclofenac sodium 0.1% eyedrops in controlling postoperative inflammation after cataract surgery." Eur J Ophthalmol **15**(6): 702-711.

**PURPOSE:** To compare the efficacy and safety of diclofenac sodium 0.1% eyedrops packaged in an Abak multidose container without preservative

(Dicloabak) with the reference product, sodium merthiolate-preserved diclofenac sodium 0.1% eyedrops, in controlling postoperative inflammation after cataract surgery. **METHODS:** The multicenter, controlled, randomized, single-masked study included 194 patients (Dicloabak 96, preserved diclofenac 98) scheduled to have cataract surgery by phacoemulsification with foldable intraocular lens. All were evaluated preoperatively and postoperatively after 1, 7, and 28 days. Postoperative inflammation was measured by the total score of anterior chamber cells and flare. Ocular pain, conjunctival hyperemia and ciliary flush were also assessed. Postoperative patient assessments also included visual acuity, objective tolerance by slit-lamp, fluorescein test, and subjective evaluation of local tolerance. **RESULTS:** There was no statistically significant difference between the groups in the total score of flare and cells or the degree of conjunctival hyperemia and ciliary flush at any study visit. Dicloabak was demonstrated to be not inferior to preserved diclofenac at all assessment times. The overall assessment of local tolerance was similar for both study medications. **CONCLUSIONS:** Preservative suppression did not alter diclofenac efficacy. Results support the good safety profile of both formulations when dosed three times daily for 4 weeks in absence of concomitant use of drugs potentially toxic for cornea. Preservative-free formulations like Dicloabak should be preferred to generic diclofenac formulations including other ingredients and may improve the safety profile of this topical nonsteroid anti-inflammatory drug.

Bosch-Driessen, L. H., M. B. Plaisier, et al. (2002). "Reactivations of ocular toxoplasmosis after cataract extraction." Ophthalmology **109**(1): 41-45.

**PURPOSE:** To determine the risk of reactivation of ocular toxoplasmosis following cataract extraction. **DESIGN:** Retrospective case-control study. **PARTICIPANTS:** Out of 154 patients with ocular toxoplasmosis, 14 patients (15 eyes) who had undergone a cataract extraction and 45 age- and sex- matched controls without cataract were selected. **INTERVENTION:** A review of the medical records of 14 patients with ocular toxoplasmosis and cataract and 45 control patients with ocular toxoplasmosis but without cataract. The clinical records of the controls and patients were assessed for an identical 4-month period following the date of the cataract extraction in the index patients. **MAIN OUTCOME MEASURES:** Development of a new active retinal lesion within 4 months after cataract surgery in patients and age -and sex matched-controls. The presence of risk factors such as sex, congenital or postnatal acquisition of ocular toxoplasmosis, age at first clinical manifestation of ocular toxoplasmosis, total number of attacks per affected eye, type of cataract, age at the time of cataract surgery and the intervals between surgery and first clinical manifestation of ocular toxoplasmosis and between surgery and the last recurrence of ocular toxoplasmosis, as well as the use of antiparasitic medication during surgery, type and complications of surgery and optimal visual acuity before and after cataract surgery. **RESULTS:** Reactivations of ocular toxoplasmosis following cataract extraction occurred in 5/14 patients (5/15 eyes), which was higher than the incidence of recurrences in age -and sex-matched controls ( $p < 0.001$ ). No additional risk factors for the development of recurrences of ocular toxoplasmosis

after cataract surgery were found. Incidence of recurrences preceding surgery did not differ between patients and controls. **CONCLUSION:** We identified an increased risk of reactivation of ocular toxoplasmosis following cataract extraction which implies that prophylactic treatment with antiparasitic drugs during and after the cataract surgery might be worthwhile for patients at risk of visual loss.

Caronia, R. M., H. D. Perry, et al. (2002). "Antiinflammatory effect of preoperative ketorolac in phacoemulsification." J Cataract Refract Surg **28**(10): 1880-1881.

We report the antiinflammatory effect and efficacy of preoperative treatment with ketorolac in a patient with rheumatoid arthritis having phacoemulsification. This 70-year-old woman was on a maintenance dose of systemic methylprednisolone at the time of uneventful phacoemulsification in the left eye. She developed a sterile hypopyon on the first postoperative day and was treated aggressively with topical and systemic therapy, resulting in a gradual resolution of the inflammatory response. The patient subsequently had phacoemulsification in the right eye. The only significant difference in the preoperative management this time was that the patient received topical ofloxacin and ketorolac 4 days before surgery. The postoperative inflammatory response was much more controlled. The patient was continued on ketorolac and prednisolone acetate, resulting in the usual postoperative inflammatory response.

Dada, T., M. Dhawan, et al. (2007). "Safety and efficacy of intraoperative intravitreal injection of triamcinolone acetonide injection after phacoemulsification in cases of uveitic cataract." J Cataract Refract Surg **33**(9): 1613-1618.

**PURPOSE:** To evaluate the safety and efficacy of a single intraoperative intravitreal injection of triamcinolone acetonide after phacoemulsification in patients with chronic idiopathic anterior uveitis or intermediate uveitis. **SETTING:** Dr. R.P. Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi, India. **METHODS:** This prospective randomized controlled study included 40 eyes (40 patients) with chronic idiopathic anterior uveitis or intermediate uveitis that had phacoemulsification with intraocular lens implantation. Twenty eyes received an intravitreal injection of triamcinolone acetonide (4 mg/0.1 mL) intraoperatively (triamcinolone acetonide group), and 20 received oral steroids (steroid group) postoperatively. Outcome measures were Early Treatment Diabetic Retinopathy Study best corrected visual acuity (BCVA), anterior chamber reaction, intraocular pressure (IOP) by applanation tonometry, and central macular thickness by optical coherence tomography. **RESULTS:** The mean BCVA (decimal) improved from a baseline of 0.13 +/- 0.14 to 0.64 +/- 0.32 in the triamcinolone acetonide group and from 0.05 +/- 0.06 to 0.61 +/- 0.36 in the steroid group ( $P = .74$ ). There were no statistically significant differences between the 2 groups in postoperative anterior chamber reaction, IOP, or central macular thickness. Four patients in the triamcinolone acetonide group and 5 in the steroid group had recurrence of uveitis; 5 patients in the triamcinolone acetonide group had ocular hypertension. One patient in the triamcinolone acetonide group and 3 in the steroid group had cystoid macular edema

postoperatively. **CONCLUSION:** A single intraoperative intravitreal injection of triamcinolone acetonide seemed to be a safe and efficacious route of steroid delivery during phacoemulsification in patients with chronic idiopathic anterior uveitis or intermediate uveitis and is recommended as a substitute for postoperative oral steroid administration.

Dick, H. B., O. Schwenn, et al. (2000). "Inflammation after sclerocorneal versus clear corneal tunnel phacoemulsification." Ophthalmology **107**(2): 241-247.

**OBJECTIVE:** To compare the postoperative inflammation after phacoemulsification followed by intraocular lens (IOL) implantation by means of sclerocorneal versus clear corneal tunnel incision. **DESIGN:** Randomized controlled clinical trial. **PARTICIPANTS:** One hundred eyes of 100 patients were examined at a German University eye hospital. **INTERVENTION:** One hundred eyes with cataract necessitating phacoemulsification with posterior chamber IOL implantation were randomly assigned to receive a temporal sclerocorneal or clear corneal tunnel incision by a single surgeon. **MAIN OUTCOME MEASURES:** Preoperative and postoperative inflammation was evaluated by measurement of flare using laser flare photometry. Statistical inference was mainly based on nonparametric group comparisons by use of two sample Wilcoxon tests. **RESULTS:** Mean anterior chamber flare in the group with sclerocorneal tunnel increased from 7.5 photon counts/ms preoperatively to 19.6 at 6 hours postoperatively and decreased to 11.1 (day 1), 11.7 (day 2), 11.6 (day 3), and 9.2 (5 months) during the postoperative course. The mean flare in the clear corneal tunnel incision group increased from 7.7 preoperatively to 12.9 at 6 hours postoperatively and then decreased to 9.2 (day 1), 9.8 (day 2), 9.1 (day 3), and 9.2 (5 months). Individual postoperative flare changes were significantly lower in the clear corneal tunnel group at the day of surgery ( $P < 0.0001$ ), as well as at day 1 ( $P = 0.0011$ ), day 2 ( $P = 0.0079$ ), and day 3 ( $P = 0.0020$ ). After 5 months, no statistically significant difference was found. **CONCLUSIONS:** After phacoemulsification and foldable IOL implantation, postoperative alteration in the blood-aqueous barrier was statistically significantly lower with the clear corneal tunnel incision group compared with the sclerocorneal incision group, in the first 3 days postoperatively.

Donnenfeld, E. D., E. J. Holland, et al. (2007). "Bromfenac ophthalmic solution 0.09% (Xibrom) for postoperative ocular pain and inflammation." Ophthalmology **114**(9): 1653-1662.

**OBJECTIVE:** To evaluate the efficacy and ocular safety of bromfenac ophthalmic solution 0.09% (Xibrom) for the treatment of postoperative inflammation and reduction of ocular pain in subjects who have undergone cataract extraction (CE). **DESIGN:** Two phase III, multicenter, randomized, double-masked, parallel, placebo-controlled clinical trials were conducted under a common protocol. Data were pooled for analyses. **PARTICIPANTS:** Five hundred twenty-seven subjects were sequentially assigned, according to a computer-generated randomization list (2:1), to bromfenac ( $n = 356$ ) or a placebo ( $n = 171$ ). **INTERVENTION:** Subjects who underwent cataract surgery without prior antiinflammatory

treatment with a postsurgical Summed Ocular Inflammation Score (SOIS) of  $\geq 3$  were treated with either bromfenac or the placebo, instilled twice daily for 14 days in the study eye, and observed for an additional 14 days for safety evaluation. MAIN OUTCOME MEASURE: Cleared ocular inflammation with a SOIS of 0 (cells  $\leq 5$  and absence of flare after 14 days of treatment). Secondary outcomes included time to resolution of ocular inflammation, time to resolution of ocular pain, proportion of subjects with photophobia, and ocular adverse events. RESULTS: Baseline characteristics were comparable between groups for age, gender, and race. The baseline mean SOIS was 3.7 in both groups. A greater proportion of bromfenac (64.0%) than placebo subjects (43.3%) achieved complete clearance of ocular inflammation at study day 15 ( $P < 0.0001$ ). The effect of bromfenac on clearance of ocular inflammation was as early as study day 3 after initiation of treatment, compared with the placebo (8.4% vs. 1.2%,  $P = 0.0012$ ). The median time to resolution of ocular pain was 2 days (bromfenac) versus 5 days (placebo) ( $P < 0.0001$ ). Numbers of most ocular adverse events were lower for the bromfenac group than for the placebo group. Eye irritation was reported in a lower percentage of subjects for bromfenac (2.5%) versus placebo (4.7%), as were burning and stinging (1.4% vs. 2.5%), and photophobia (2.0% vs. 11.1%). CONCLUSIONS: Bromfenac ophthalmic solution 0.09% effectively and rapidly cleared ocular inflammation and reduced ocular pain after CE. There were no serious ocular adverse events, and fewer adverse events were reported for the bromfenac group.

El-Harazi, S. M., R. S. Ruiz, et al. (2000). "Efficacy of preoperative versus postoperative ketorolac tromethamine 0.5% in reducing inflammation after cataract surgery." J Cataract Refract Surg **26**(11): 1626-1630.

PURPOSE: To compare the efficacy of 30 minute preoperative versus 1 day postoperative administration of ketorolac tromethamine 0.5% ophthalmic solution (Acular) in reducing anterior chamber inflammation after cataract surgery. SETTING: The Hermann Eye Center, The University of Texas Health Science Center-Houston, Texas, USA. METHODS: Fifty eyes of 48 consecutive patients scheduled for phacoemulsification with intraocular lens implantation were included. Before surgery, patients were randomly assigned to start the study drug 30 minutes preoperatively or 1 day postoperatively. No other antiinflammatory agents were used intraoperatively or postoperatively. Main outcome measures were flare and cell counts. RESULTS: Preoperative and postoperative flare and cell counts did not differ significantly between the 2 treatment groups at any time. Both groups showed significant increases in flare ( $P = .0001$ ) and cells ( $P = .0001$ ) 1 day postoperatively. Flare and cells returned to baseline levels by day 28 in both groups. There was no significant difference at any time between the 2 groups in the change from the preoperative level of inflammation. CONCLUSIONS: There was no difference between administering ketorolac 30 minutes preoperatively versus 1 day postoperatively in reducing inflammation.

Endo, N., S. Kato, et al. (2010). "Efficacy of bromfenac sodium ophthalmic solution in preventing cystoid macular oedema after cataract surgery in patients with diabetes."

Acta Ophthalmol **88**(8): 896-900.

**PURPOSE:** To compare the efficacy of bromfenac sodium ophthalmic solution (BF) and a steroidal solution (ST) administered prophylactically against cystoid macular oedema and anterior-chamber inflammation after phacoemulsification and intraocular lens implantation and to assess macular thickness changes using optical coherence tomography (OCT). **METHODS:** In this prospective study, 62 eyes of 62 patients were randomized to either the BF group (n=31) or the ST group (n=31). The average perifoveal thickness (AFT) was measured by OCT preoperatively, and 1 day and 1, 2, 4 and 6 weeks postoperatively. The best-corrected visual acuity, intraocular pressure and flare in the anterior chamber were recorded at each visit. The same method was used to compare patients with non-proliferative diabetic retinopathy (NPDR) in the BF (n=16) and ST (n=11) groups. **RESULTS:** In the analysis of all patients, flare in the anterior chamber was significantly ( $p = 0.007$ ) lower in the BF group 2 weeks postoperatively. In patients with NPDR, the anterior chamber flare values were significantly lower in the BF group at 4 weeks ( $p = 0.0009$ ) and 6 weeks ( $p = 0.005$ ). The AFT values were significantly lower in the BF group at 4 weeks ( $p < 0.0001$ ) and 6 weeks ( $p < 0.0001$ ). No adverse events occurred in either group. **CONCLUSION:** BF suppressed anterior chamber inflammation and increasing retinal thickening after cataract surgery in patients with NPDR.

Ganesh, S. K., K. Babu, et al. (2004). "Phacoemulsification with intraocular lens implantation in cases of pars planitis." J Cataract Refract Surg **30**(10): 2072-2076.

**PURPOSE:** To analyze the results of phacoemulsification cataract surgery with implantation of posterior chamber intraocular lenses (IOLs) of different biomaterials in eyes with pars planitis. **SETTING:** Medical and Vision Research Foundations, Sankara Nethralaya, Chennai, India. **METHODS:** The records of 86 patients (100 eyes) with pars planitis who had phacoemulsification with IOL implantation between January 1997 and April 2003 were retrospectively analyzed. The eyes were divided into 3 groups depending on IOL biomaterial: poly(methyl methacrylate) (PMMA) (n=32), heparin-surface-modified PMMA (n=39), or acrylic (n=29). The postoperative visual outcome and complications in each group were analyzed. **RESULTS:** Forty-seven patients were men and 39, women. The mean age was 38 years (range 10 to 65 years) and the mean follow-up, 19.67 months (range 3.00 to 54.53 months). At the final follow-up, 91 eyes (91%) had better visual acuity than preoperatively; 79 had an improvement of 2 or more Snellen lines, 12 had an improvement of 1 Snellen line, 4 had no change, and 5 had a decrease as a result of reactivation of the pars planitis and progression of cystoid macular edema (CME). Significant posterior capsule opacification occurred in 10 eyes (10%), CME in 50 eyes (50%), reactivation of pars planitis in 51 eyes (51%), IOL deposits in 29 eyes (29%), IOL decentration in 1 eye (1%), and anterior capsule fibrosis in 14 eyes (14%). The most frequent cause of poor visual recovery was CME, submacular fibrosis, and epiretinal membrane. There was no statistically significant difference in these complications between the 3 groups. **CONCLUSIONS:** Phacoemulsification with

IOL implantation in eyes with pars planitis was safe and led to good visual outcomes in most cases. The factors in surgical success were control of inflammation, meticulous surgery, in-the-bag IOL implantation, and vigilant postoperative care.

Ganesh, S. K., Padmaja, et al. (2004). "Cataract surgery in patients with Vogt-Koyanagi-Harada syndrome." J Cataract Refract Surg **30**(1): 95-100.

PURPOSE: To evaluate the outcomes of cataract surgery in patients with Vogt-Koyanagi-Harada's (VKH) syndrome. SETTING: Medical Research Foundation, Sankara Nethralaya, Chennai, India. Methods: Fifty-nine eyes of 39 patients with VKH syndrome who had cataract surgery between May 1985 and June 2001 were retrospectively analyzed. RESULTS: Extracapsular cataract extraction (ECCE) with intraocular lens (IOL) implantation was performed in 15 eyes and without IOL implantation in 31 eyes. Phacoemulsification with IOL implantation was performed in 13 eyes. Twenty-three eyes (38.9%) had mixed cataract (posterior subcapsular and posterior polar). Small pupils were managed by synechiolysis with an iris spatula (43 eyes) or iris hooks (8 eyes). Nine eyes were lost to follow-up and not included in the postoperative analysis. The mean postoperative follow-up was 39.4 months (range 9 to 120 months). Visual acuity improved by 1 or more lines in 40 eyes (80.0%). Subretinal gliosis and optic atrophy, sequelae of the syndrome, restricted improvement in vision in the remaining eyes. Posterior capsule opacification developed in 38 eyes (76.0%), of which 21 (42.0%) required a neodymium:YAG laser posterior capsulotomy. There were no significant differences in postoperative inflammation or syndrome reactivation between the types of surgery. CONCLUSIONS: The results show that cataract extraction in patients with VKH syndrome can be safely and successfully performed if there are good preoperative and postoperative control of inflammation, careful surgical planning, and meticulous surgical technique. The final visual outcome depends on the posterior segment complications of the syndrome.

Ganesh, S. K., P. M. Sundaram, et al. (2004). "Cataract surgery in sympathetic ophthalmia." J Cataract Refract Surg **30**(11): 2371-2376.

PURPOSE: To analyze the results of cataract surgery in patients with sympathetic ophthalmia. SETTING: Sankara Nethralaya, Medical Research Foundation, Chennai, India. METHODS: This study comprised 66 patients (132 eyes) with sympathetic ophthalmia seen at the uveitis referral clinic between January 1990 and July 2001; 42 eyes (31.8%) had cataract. Cataract surgery was performed in 17 sympathizing eyes and 1 exciting eye (17 patients). The records of these 18 eyes were retrospectively analyzed. Three eyes had extracapsular cataract extraction (ECCE) with intraocular lens (IOL) implantation, 6 eyes had ECCE without IOL implantation, and 9 eyes had phacoemulsification with IOL implantation. The mean follow-up was 28.7 months (range 3 to 60 months). RESULTS: The causes of sympathetic ophthalmia were penetrating trauma (n = 8 eyes), ocular surgery (n = 6), perforated corneal ulcer (n = 2), and cyclocryotherapy (n = 1). The most common cataract type, present in 7 eyes

(38.8%), was mixed (posterior subcapsular and posterior polar). Visual acuity improved after surgery in 13 eyes (72.2%). The main factors impairing visual recovery were submacular scar and optic atrophy, which were sequelae of the sympathetic ophthalmia. Posterior capsule opacification was noted in 14 eyes (77.7%); it was visually significant in 6 eyes. There was no significant difference in postoperative inflammation or disease reactivation between the 3 types of surgery. **CONCLUSIONS:** Cataract extraction in cases of sympathetic ophthalmia can be safely and successfully performed with vigilant preoperative and postoperative control of inflammation, careful surgical planning, and meticulous surgical technique. The final visual outcome, however, depends on the posterior segment complications of the disease.

Gonzalez-Martin, J. A., P. Hiscott, et al. (2003). "Chronic postoperative uveitis--a clinicopathological case report." Eye (Lond) **17**(5): 675-677.

Hazari, A. and V. S. Sangwan (2002). "Cataract surgery in uveitis." Indian J Ophthalmol **50**(2): 103-107.

**PURPOSE:** To study the visual outcome of cataract surgery in eyes with uveitis. **METHODS:** A retrospective analysis of patients with uveitis operated for cataract. **RESULTS:** 106 eyes of 89 patients with uveitis were operated for cataract. In 62.3% eyes (66/106), post-operative follow-up was at least 6 months. There was significant improvement ( $P < 0.001$ ) in visual acuity after cataract surgery. Provided the uveitis was well controlled for three months pre-operatively, additional pre-operative anti-inflammatory medications did not significantly affect ( $P = 0.842$ ) post-operative inflammation. Patients who received extracapsular cataract extraction (ECCE) or phacoemulsification with posterior chamber IOL (PCIOL) obtained better visual acuity at 6 weeks ( $P = 0.009$  and  $P = 0.032$  respectively) than those with only ECCE without IOL. In 37 eyes vision did not improve due to persistent uveitis (23.9%, 16/67), cystoid macular oedema (20.9%, 14/67), and posterior capsule opacification (14.9%, 10/67). **CONCLUSION:** Cataract extraction and PCIOL implantation is safe in eyes with uveitis. Additional preoperative medications may not alleviate post-operative inflammation if uveitis is well controlled for at least three months before surgery.

Ikeda, N., S. Hayasaka, et al. (2001). "Effects of traditional Sino-Japanese herbal medicines on aqueous flare elevation after small-incision cataract surgery." J Ocul Pharmacol Ther **17**(1): 59-65.

We evaluated prospectively the effects of traditional Sino-Japanese herbal medicines on elevation of aqueous flare. Fifty-four patients with age-related cataract undergoing phacoemulsification with intraocular lens implantation were studied. In the control group, 20 patients received no herbal medicine. In the treated groups, 14 patients were given Orenge-doku-to (Huanglian-Jie-Du-Tang in Chinese) granules (7.5 g daily), 10 patients were given Kakkon-to (Ge-Gen-Tang in Chinese) granules (7.5 g daily), and 10 patients were given Sairei-to (Cai-Ling-Tang in Chinese) granules (9.0 g daily), for 3 days before surgery, the day of surgery, and for 7 days after surgery. Aqueous flare was

measured before and after surgery. The differences in preoperative flare intensities among the four groups were not significant. In the control group, the flare was 29.4 photon counts/msec on day 1, and then gradually decreased. The flare intensities on days 1, 3, and 5 in the Orengedoku-to and Kakkon-to groups were significantly lower than in the control group. The flare intensities in the Sairei-to group were the same as those of the controls. Oral administration of Orengedoku-to and Kakkon-to decreased aqueous flare elevation after small-incision cataract surgery. Sairei-to had no effect on the elevation.

Jancevski, M. and C. S. Foster (2010). "Cataracts and uveitis." Curr Opin Ophthalmol **21**(1): 10-14.

**PURPOSE OF REVIEW:** To describe recent evidence from the literature regarding cataract surgery and lens implantation in patients with uveitis.

**RECENT FINDINGS:** Most uveitic patients enjoy good vision despite potentially sight-threatening complications, including cataract development. In those patients who develop cataracts, successful surgery stems from educated patient selection, careful surgical technique, and aggressive preoperative and postoperative control of inflammation. Although commonly accepted in the adult patient population, recent investigations reflect the increased tolerance for primary intraocular lens placement in the pediatric cohort. The role of absolute control of inflammation continues with greater focus on immunomodulatory therapies. However, these agents bear their own side effect and complication profiles, including recent evidence of increased mortality. As a result, localized treatment with not only these agents but also with corticosteroids offers a potential balance. **SUMMARY:** Cataract extraction with intraocular lens implantation in the setting of meticulous control of inflammation can optimize visual outcome in adults and children with uveitis.

Kotaniemi, K. and H. Penttila (2006). "Intraocular lens implantation in patients with juvenile idiopathic arthritis-associated uveitis." Ophthalmic Res **38**(6): 318-323.

**OBJECTIVE:** To evaluate the development of cataract and the results of cataract surgery with intraocular lens (IOL) implantation in patients with chronic uveitis associated with juvenile idiopathic arthritis (JIA). **PATIENTS AND METHODS:** A hospital-based retrospective case series consisted of 25 patients with JIA-associated uveitis. The mean age of the patients was 5.8 years at the onset of arthritis and 6.8 years at the onset of uveitis. During the 15-year study period cataract surgery with implantation of an IOL was performed in 36 eyes. In 17 eyes phacoemulsification and initial posterior capsulectomy with anterior core vitrectomy were performed. The treatment of JIA and uveitis was carefully adjusted with systemic immunosuppressive drugs and topical corticosteroids perioperatively. The mean postoperative follow-up period was 3.3 years.

**RESULTS:** The first signs of cataract were observed 2.3 years (mean) after the diagnosis of uveitis and the cataract operation of the first eye was performed 4.5 years (mean) after the diagnosis of uveitis. After IOL surgery the visual result was good ( $\geq 0.5$ ) in 64%, moderate (0.3 to  $< 0.5$ ) in 11% and impaired ( $< 0.3$ ) in 25% of eyes. Secondary cataract developed in 16 eyes but in none of the

eyes with initial posterior capsulectomy and core vitrectomy. Secondary glaucoma developed in 18 eyes, retinal detachment in 2, cystoid macular edema in 16 and band keratopathy in 12 eyes. **CONCLUSION:** Cataract is an early complication of JIA-associated uveitis. Under strict control of uveitis, IOL implantation is an important alternative in visual rehabilitation for this type of patient.

Krause, L., A. Altenburg, et al. (2007). "Intraocular surgery under systemic interferon-alpha therapy in ocular Adamantiades-Behcet's disease." Graefes Arch Clin Exp Ophthalmol **245**(11): 1617-1621.

**BACKGROUND:** Adamantiades-Behcet's disease (ABD) is a multi-system disorder with recurrent oral and/or genital ulcerations, skin lesions and ocular involvement. Eye involvement is a common manifestation that affects the patients' quality of life more than any other. Left untreated, it leads to blindness and often to loss of the eye through secondary complications like phthisis or painful glaucoma. In some cases, such as tractional retinal detachment, secondary glaucoma or secondary cataract formation, intraocular surgery is required. **METHODS:** A prospective study of patients with ocular ABD who underwent intraocular surgery under systemic treatment with interferon-alpha was conducted. From 1999 to 2005, we treated eight eyes from five patients with pars plana vitrectomy (n = 1), phacoemulsification (n = 6) and trabeculectomy (n = 1). The mean follow-up was 49 months (range 5-94 months). **RESULTS:** Seven out of eight eyes had better visual acuity following surgery. One eye did not benefit from cataract surgery because of optic nerve atrophy. Only one eye showed prolonged inflammation following phacoemulsification. None of the patients showed a recurrence during follow-up. The failure of conservative glaucoma treatment necessitated trabeculectomy in one eye; the patient has had no further recurrence for 6 years under monotherapy with interferon-alpha. **CONCLUSION:** Interferon-alpha is a potent therapy for Adamantiades-Behcet's disease with ocular involvement. It also provides a basis for safe and reliable surgical interventions. In seven of eight eyes, there was no intra- or peri-operative recurrence of inflammation, which is a common complication after these procedures. Only one eye showed acute and prolonged inflammation following cataract surgery.

Kruger, A. J., M. Amon, et al. (2001). "Postoperative inflammation after lens epithelial cell removal: 2 year results." J Cataract Refract Surg **27**(9): 1380-1385.

**PURPOSE:** To evaluate the influence on postoperative inflammation of lens epithelial cell (LEC) removal after phacoemulsification. **SETTING:** Department of Ophthalmology, University of Vienna, Vienna, Austria. **METHODS:** This randomized prospective single-surgeon study comprised 60 patients with senile cataract only. After a temporal clear corneal incision was made and phacoemulsification performed, no LECs were removed in Group A, LECs in the nasal half were removed in Group B, and LECs were removed from the entire anterior capsule in Group C. The LECs were removed with a Rentsch capsule curette (Geuder). In all eyes, a foldable hydrogel intraocular lens (Hydroview,

Bausch & Lomb) was implanted. Anterior chamber flare was evaluated through dilated pupils in a double-masked fashion using a Kowa FC-1000 laser flare-cell meter (LFCM). Measurements were done preoperatively as well as 1, 3, 7, 14, and 28 days and 3, 6, 12, and 24 months postoperatively. RESULTS: In all 3 groups, the flare and cell values increased on the first postoperative day followed by a successive decrease thereafter. One month after surgery, the blood-aqueous barrier (BAB) was nearly restored in all groups. Between the first and fourth week, the flare values in Groups B and C were slightly lower than in Group A; however, mean flare and cell values among groups were not statistically significantly different at any measurement. CONCLUSION: The removal of LECs from the anterior capsule with a Rentsch curette did not influence postoperative BAB changes detected using an LFCM.

Lam, L. A., C. Y. Lowder, et al. (2003). "Surgical management of cataracts in children with juvenile rheumatoid arthritis-associated uveitis." Am J Ophthalmol **135**(6): 772-778.

PURPOSE: To evaluate outcomes of cataract surgery with posterior chamber intraocular lens (IOL) implantation with or without trabeculectomy in children with juvenile rheumatoid arthritis (JRA)-associated uveitis. DESIGN: Interventional case series. METHOD: Retrospective chart review of five patients aged 12 years or younger with JRA-associated uveitis who underwent cataract surgery with posterior chamber IOL with or without trabeculectomy at the Cleveland Clinic Foundation from December 1995 to October 2001. RESULTS: Four female patients and one male patient ranging from age 7 to 12 years were identified. One patient had bilateral involvement; six eyes were included in the study. Three eyes underwent cataract extraction with posterior chamber IOL, and three underwent combined cataract surgery with posterior chamber IOL and trabeculectomy. Median age at surgery was 8.5 years, with a median follow-up of 43.5 months. Four of five children (five eyes) were on systemic methotrexate immunosuppressive therapy for a median length of 1.25 years before surgery. Two of five patients (three eyes) were also on additional systemic immunosuppressive or anti-inflammatory treatments. All eyes received frequent topical corticosteroid therapy for a median of 2 weeks preoperatively and 8.5 weeks postoperatively. A final postoperative Snellen visual acuity of 20/40 or better was achieved in all children. A median final visual acuity improvement of 7 Snellen lines was observed after cataract surgery. CONCLUSIONS: With adequate long-term preoperative and postoperative control of intraocular inflammation with systemic immunosuppressive therapy in addition to intensive topical corticosteroid treatment, children with JRA-associated uveitis can demonstrate favorable surgical outcomes after cataract surgery with posterior chamber IOL.

Li, J., C. Heinz, et al. (2006). "Intraoperative intraocular triamcinolone injection prophylaxis for post-cataract surgery fibrin formation in uveitis associated with juvenile idiopathic arthritis." J Cataract Refract Surg **32**(9): 1535-1539.

PURPOSE: To assess the efficacy of a single intraoperative intraocular injection of triamcinolone acetonide during cataract surgery to prevent postoperative fibrin

formation in patients with iridocyclitis associated with juvenile idiopathic arthritis. SETTING: Department of Ophthalmology, St. Franziskus Hospital, Muenster, Germany. METHODS: The charts of 22 patients (16 girls and 6 boys) with juvenile idiopathic arthritis and chronic iridocyclitis having lensectomy and anterior vitrectomy were retrospectively reviewed. In 12 patients (14 eyes), triamcinolone acetonide 4 mg was injected into the anterior chamber at the end of the surgery (triamcinolone group). Another 10 patients (13 eyes) received an intraoperative intravenous injection of methylprednisolone and postoperative oral prednisolone (systemic treatment group). No intraocular lenses were implanted. Postoperatively, prednisolone acetate 1% eyedrops were given. The main problems included intraocular inflammation, the need for additional systemic corticosteroids, and intraocular pressure (IOP) elevation. RESULTS: The mean patient age was 10.6 years  $\pm$  3.1 (SD) in the triamcinolone group and 7.4  $\pm$  2.7 years in the systemic treatment group. The mean follow-up was 9.9  $\pm$  3.6 months and 10.9  $\pm$  1.2 months, respectively. All patients were taking systemic immunosuppression before surgery, and the medication was continued postoperatively. Fibrin formation was not seen after surgery in the triamcinolone group but occurred in 5 patients in the systemic treatment group ( $P = .02$ ). Additional systemic corticosteroids were not required in the triamcinolone group. All patients had visual acuity improvement. No increase in IOP was noted after the triamcinolone acetate injections. CONCLUSIONS: Intraoperative intraocular injection of 4 mg of triamcinolone acetonide may be more effective than intraoperative intravenous methylprednisolone and additional postoperative short-term oral prednisolone in preventing postoperative fibrin formation after cataract surgery in patients with juvenile idiopathic arthritis and iridocyclitis.

Meacock, W. R., D. J. Spalton, et al. (2004). "Steroid prophylaxis in eyes with uveitis undergoing phacoemulsification." *Br J Ophthalmol* **88**(9): 1122-1124.

AIM: To compare the efficacy of two preoperative steroid regimens for cataract surgery in patients with uveitis. METHODS: 40 uveitis patients with cataract underwent phacoemulsification and intraocular lens (IOL) implantation. Preoperatively they were randomised into two groups: group 1 (20 patients) received a single dose of intravenous methylprednisolone (15 mg/kg) half an hour before surgery, and group 2 (20 patients) received a 2 week course of oral prednisolone (0.5 mg/kg) which was tapered postoperatively. Preoperatively patients had aqueous flare and cells measured with the Kowa laser flare meter. On days 1, 7, 28, and 90 aqueous flare and cells were measured, and on days 7 and 90 fluorescein angiography was performed to determine the incidence of cystoid macular oedema (CMO). RESULTS: At all postoperative visits the mean increase in flare was greater for group 1 (intravenous steroid). Patients with posterior synechiae had greater blood-aqueous barrier damage (BAB) postoperatively. There were no statistically significant differences in logMAR visual acuity and incidences of CMO between the two groups at 7 and 90 days. CONCLUSION: A 2 week course of oral prednisolone, tapered postoperatively, produced a better recovery of the BAB than a single dose of intravenous methylprednisolone and is thus the recommended preoperative regimen.

Nguyen, N. X., M. Kuchle, et al. (2005). "Quantification of blood-aqueous barrier breakdown after phacoemulsification in Fuchs' heterochromic uveitis." Ophthalmologica **219**(1): 21-25.

**PURPOSE:** To quantify the breakdown of the blood-aqueous barrier (BAB) following phacoemulsification with posterior chamber lens implantation in eyes with Fuchs' heterochromic uveitis (FHU). **PATIENTS AND METHODS:** In this retrospective study, 19 eyes of 19 patients with FHU (mean age 38 +/- 14 years) and 35 eyes of 35 patients with senile cataracts (mean age 63 +/- 9 years) underwent phacoemulsification with one-piece PMMA posterior chamber lens implantation. Aqueous flare was quantified using the laser flare-cell meter (LFCM, Kowa FC-1000) following medical pupillary dilation preoperatively and 1, 3, and 5 days, then 1 and 6 weeks and 6 months postoperatively. **RESULTS:** Mean preoperative aqueous flare (in photon counts per millisecond) in FHU vs. controls was 11.7 +/- 3.5 vs. 5.8 +/- 1.7. Following cataract surgery, mean aqueous flare increased to 27.8 +/- 4.4 vs. 16.0 +/- 4.5 on day 1, decreased to 23.6 +/- 4.0 vs. 11.8 +/- 3.5 on day 3, and to 18.0 +/- 3.0 vs. 9.5 +/- 1.7 on day 5. In FHU eyes, it was 13.9 +/- 2.7 after 1 week, and had returned to preoperative levels after 6 weeks (10.9 +/- 2.5) and remained stable for up to 6 months (mean 10.3 +/- 2.2). Pre- and postoperatively, aqueous flare values were 2-3 times higher in FHU eyes than in control eyes with senile cataract ( $p = 0.01$ ). No postoperative complications such as fibrin formation, synechiae, macrophages on the intraocular lens optic or endophthalmitis were observed in any of the patients. **CONCLUSIONS:** BAB breakdown following phacoemulsification with posterior chamber lens implantation is relatively mild in eyes with FHU and the BAB appears to be fully reestablished to preoperative levels 6 weeks postoperatively, explaining the usually good outcome of cataract surgery in this condition.

Paikos, P., M. Fotopoulou, et al. (2001). "Cataract surgery in children with uveitis." J Pediatr Ophthalmol Strabismus **38**(1): 16-20.

**PURPOSE:** To report the technique and postoperative results of cataract surgery in children with uveitis. **METHOD:** Between 1988 and 1998, nine children (age range: 2.5-11 years) who developed secondary uveitic cataract and underwent cataract extraction were studied retrospectively. Seven children had juvenile rheumatoid arthritis and two had chronic anterior uveitis of unknown etiology. The surgical technique was lensectomy and wide anterior vitrectomy with limbal approach, lysis of anterior synechiae and in some cases, peripheral iridectomy. Postoperative aphakia was corrected with soft contact lenses in all patients. Follow-up ranged from 6 months to 6 years. **RESULTS:** Postoperatively, visual acuity in all patients improved and final visual acuity ranged from 20/70 to 20/25. Significant intraoperative complications did not occur in any patient. One boy with juvenile rheumatoid arthritis developed cystoid macular edema 1 month postoperatively, which was successfully managed. He also developed hypertonia 1 year later, which was also successfully managed. Seven of the nine children had fewer and milder relapses of uveitis after surgery. **CONCLUSION:** Cataract

surgery, using the lensectomy-vitreectomy technique in children with uveitis, is a safe technique with a relatively small percentage of postoperative complications and good functional results.

Papaliadis, G. N., Q. D. Nguyen, et al. (2002). "Intraocular lens tolerance in surgery for cataract complicata: assessment of four implant materials." Semin Ophthalmol **17**(3-4): 120-123.

PURPOSE: To evaluate various available intraocular lenses (IOL) (PMMA, acrylic, heparin coated PMMA, and silicone) in patients with cataract complicata and evaluate IOL tolerance, post-operative inflammation, cystoid macular edema, and posterior capsular opacification(PCO) requiring Nd:YAG capsulotomy.DESIGN: randomized, double masked clinical trial.PARTICIPANTS: Patients evaluated in the Ocular Immunology and Uveitis Service of the Massachusetts Eye and Ear Infirmary and deemed to need cataract surgery by standard criteria were asked to participate in the clinical trial. Patients had to have a diagnosis of chronic uveitis, which was inactive for 3 months prior to cataract surgery.RESULTS: Acrylic lenses appeared to provide the best overall results when evaluated for post-operative inflammation, PCO rates, visual acuity, and cystoid macular edema (CME) (compared to PMMA, silicone, and heparin coated PMMA).

Park, U. C., J. K. Ahn, et al. (2006). "Phacotrabeculectomy with mitomycin C in patients with uveitis." Am J Ophthalmol **142**(6): 1005-1012.

PURPOSE: To evaluate the safety and efficacy of combined phacoemulsification, intraocular lens implantation, and trabeculectomy with mitomycin C for the management of uveitic complications. DESIGN: Retrospective case-control study. METHODS: We conducted a retrospective review of the records of 23 consecutive eyes with chronic noninfectious uveitis (uveitic group) and 43 nonuveitic eyes (control group) that had received primary phacotrabeculectomy. Mitomycin C was used in all the uveitic eyes. Considering the high preoperative intraocular pressure (IOP) of the uveitic group, nonuveitic eyes that had a preoperative IOP of  $\geq 20$  mm Hg or that had been given two or more medications were included in the control group. All patients were followed for at least one year. The main outcome measures were postoperative vision, IOP control, complications, and acute uveitis relapse rates. RESULTS: Visual outcome of the uveitic group was similar to the control group. In the uveitic group, the success rate of IOP control (91.3% at one year, 84.8% at two years) was favorable but was significantly lower than in the control group ( $P = .0423$ ). Complications were comparable between the groups. Primary surgical failure in the uveitic group was associated with the postoperative acute uveitis attack. In the uveitic group, the acute uveitis attack rate showed no change after surgery ( $P = .283$ ). CONCLUSION: With adequate inflammation suppression, phacotrabeculectomy with mitomycin C is an effective and safe therapeutic option for the management of secondary cataract and glaucoma in uveitic eyes. A lower surgical success rate of the uveitic group might be attributable to the postoperative inflammation recurrence.

Petric, I., V. L. Loncar, et al. (2005). "Cataract surgery and intraocular lens implantation in children with juvenile rheumatoid arthritis associated uveitis." Coll Antropol **29 Suppl 1**: 59-62.

Clinical records of 6 children (7 eyes) with juvenile rheumatoid arthritis (JRA) who underwent cataract surgery with IOL implantation between January 1998 and December 2002 were reviewed. The median age at the time of cataract surgery was 8 years (range 5-14 years). The median follow up was 48 months (range 26 to 60 months). Five of six children (6 eyes) were on systemic immunosuppressive or anti-inflammatory therapy. Glaucoma was present in three eyes before surgery, and all three eyes underwent combined cataract surgery and trabeculectomy with mitomycin C. A final best corrected visual acuity of 0.5 or better was achieved in all eyes. Postoperative complications included posterior capsule opacification (n = 5), glaucoma (n = 1), and cystoid macular edema (n = 1). Intraocular lens implantation in children with control of preoperative and postoperative ocular inflammation could lead to favorable visual results.

Petternel, V., O. Findl, et al. (2000). "Effect of tropicamide on aqueous flare before and after cataract surgery." J Cataract Refract Surg **26**(3): 382-385.

PURPOSE: To examine the effect of tropicamide on flare intensity under phakic and pseudophakic conditions and to differentiate between the possible mechanisms of action of tropicamide on aqueous flare. SETTING: Department of Ophthalmology, Vienna General Hospital, University of Vienna, Vienna, Austria. METHODS: In this prospective study, aqueous flare was measured with the laser flare-cell meter in 20 eyes of 20 patients with age-related cataract enrolled for cataract surgery. Measurements were performed before and 30, 90, and 180 minutes after pupil dilation with tropicamide 0.5%. This measurement was performed in the phakic eye on the day before surgery and in the pseudophakic eye on postoperative days 1, 3, 7, and 28. RESULTS: After tropicamide instillation, aqueous flare decreased preoperatively and on all postoperative days. There was a continuous flare decrease until 3 hours after instillation, reaching a maximum decrease of about 30%. Pupil diameter reached its maximum after 30 minutes. CONCLUSION: Tropicamide significantly decreased aqueous flare, seemingly by pharmacological means, not volumetric changes. The time between drug application and measurement should be kept constant.

Quek, D. T., A. Jap, et al. (2011). "Risk factors for poor visual outcome following cataract surgery in Vogt-Koyanagi-Harada disease." Br J Ophthalmol **95**(11): 1542-1546.

AIM: To determine risk factors for poor visual outcome following cataract surgery in Vogt-Koyanagi-Harada (VKH) disease. METHODS: Retrospective review of all VKH patients who underwent cataract surgery, for demographics, initial corticosteroid dose, treatment outcome, quiescence at time of cataract surgery, perioperative corticosteroid prophylaxis, preoperative best-corrected visual acuity (BCVA), cataract surgery technique, intraocular lens implanted, additional

surgical procedures, complications and BCVA at 6 and 12 months postsurgery. RESULTS: 28 of 105 VKH patients (50 eyes) had cataract surgery. The mean age at surgery was 55 +/- 13 years. The mean duration of postoperative follow-up was 89.8 months (range 8-252 months). At 12 months postsurgery, no patients lost more than two lines of their preoperative acuity. Forty-one eyes (82%) improved by two or more Snellen lines. Thirty-four eyes (68%) had a BCVA of 20/40 or better. Sixteen eyes (32%) had a poor visual acuity, nine (18%) from pre-existing macular lesions, two from cystoid macular oedema, one from posterior capsule opacification and four from disease recurrence. Recurrent inflammation was the only significant risk factor for poor visual outcome ( $p=0.004$ , chi(2) test). CONCLUSION: Recurrent inflammation is a critical poor prognostic factor for cataract surgery in VKH, but with appropriate management, good visual outcomes can be achieved.

Quinones, K., R. A. Cervantes-Castaneda, et al. (2009). "Outcomes of cataract surgery in children with chronic uveitis." J Cataract Refract Surg **35**(4): 725-731.

PURPOSE: To evaluate the outcomes of cataract surgery in children with chronic uveitis. SETTING: Massachusetts Eye Research and Surgery Institution, Boston, Massachusetts, USA. METHODS: This retrospective chart review was of patients younger than 17 years with a history of uveitis who had cataract surgery before June 2004. RESULTS: Thirty-four children (41 eyes) were identified. The mean age of the 10 boys and 24 girls was 9.8 years (range 4 to 17 years) and the mean total follow-up, 4.1 years (range 0.3 to 15.7 years). Twenty-one children had juvenile idiopathic arthritis-associated uveitis, 7 had pars planitis, and 6 had other conditions. Sixteen patients had concomitant posterior segment pathology, 25 received perioperative immunomodulatory therapy, and 13 had intraocular lens (IOL) implantation. The postoperative best corrected visual acuity improved in 35 of 41 eyes; 31 eyes had an improvement of 3.6 lines at 1 year. Most patients (92%) improved after IOL implantation. Most patients (88%) who received immunomodulatory therapy attained better vision, but this was not statistically significant compared with those who did not ( $P = .47$ ). Similarly, there was no statistically significant difference between those with posterior pathology and those without. At the end of the analysis (1 year), the cumulative probability of improvement in visual acuity in 41 eyes reached 0.91. CONCLUSION: In most cases, and with optimum control of intraocular inflammation, cataract surgery improved the visual outcome in children with chronic uveitis. Intraocular lens implantation was well tolerated in most cases, which may result in optimal vision.

Rahman, I. and N. P. Jones (2005). "Long-term results of cataract extraction with intraocular lens implantation in patients with uveitis." Eye (Lond) **19**(2): 191-197.

OBJECTIVE: To investigate the long-term visual results after cataract extraction in patients with uveitis, and to demonstrate the long-term viability of intraocular lenses. DESIGN: In all, 61 patients (72 eyes), with update clinical examination, were retrospectively evaluated. Comparison of preoperative, postoperative, and latest visual function including best-corrected Snellen visual acuity, progression of uveitis and its complications, need for postoperative medical or surgical

interventions. **RESULTS:** After a minimum follow-up of 5 years (mean 7 years 7 months), 82% of eyes maintained a visual improvement of two Snellen lines, 74% maintained 6/9 or better, and 14% had 6/18 or worse. The mode acuity was better than 6/6. The prevalence of macular oedema or scarring was 24%, of posterior capsule opacification 96%, and of glaucoma drainage, 15%.

**CONCLUSIONS:** We report the long-term follow-up of cataract extraction and intraocular lens (IOL) implantation performed by a single surgeon on patients with uveitis attending a regional tertiary referral uveitis clinic. Using stringent perioperative and postoperative control of inflammation, patients with uveitis usually maintain high visual acuity over long-term follow-up. The incidence of sight-threatening postoperative complications is low and no ongoing complication has been attributed to IOL implantation.

Ram, J., A. Gupta, et al. (2010). "Phacoemulsification with intraocular lens implantation in patients with uveitis." J Cataract Refract Surg **36**(8): 1283-1288.

**PURPOSE:** To evaluate the outcomes of phacoemulsification with intraocular lens (IOL) implantation in eyes with uveitis. **SETTING:** Tertiary care center, Chandigarh, India. **METHODS:** Consecutive patients with uveitis and visually significant cataract were retrospectively studied for outcomes after phacoemulsification and implantation of a poly(methyl methacrylate) (PMMA) or a hydrophobic acrylic IOL. **RESULTS:** The study comprised 108 eyes of 81 patients (50 women, 31 men) with a mean age of 42.3 years  $\pm$  13.98 (SD) (range 18 to 75 years) and a mean follow-up of 21.95 months (range 12 to 66 months). Etiology of uveitis was presumed tuberculosis (n = 24), Vogt-Koyanagi-Harada syndrome (n = 9), Behcet disease (n = 8), sarcoidosis (n = 5), ankylosing spondylitis (n = 4), serpiginous choroiditis (n = 2), and idiopathic (n = 29). The mean corrected distance visual acuity (CDVA) was 1.08  $\pm$  0.85 logMAR preoperatively and 0.42  $\pm$  0.78 D logMAR postoperatively; the improvement was statistically significant ( $P < .001$ , paired t test); Seventy-seven eyes (71.30%) achieved a CDVA between 0.00 logMAR and 0.30 logMAR (20/20 to 20/40 Snellen). Posterior capsule opacification (PCO) requiring neodymium:YAG capsulotomy occurred in 31 eyes (28.70%); posterior synechias in 27 eyes (25.00%); cystoid macular edema (CME) in 23 eyes (21.30%); recurrent uveitis in 6 eyes (5.55%); and epiretinal membrane formation, glaucoma, and iris bombe in 5 eyes (4.63%) each. **CONCLUSIONS:** Phacoemulsification with IOL implantation improved vision in most patients with coexisting cataract and uveitis. The main complications affecting visual outcomes were macular involvement, CME, PCO, and glaucoma. **FINANCIAL DISCLOSURE:** No author has a financial or proprietary interest in any material or method mentioned.

Rauz, S., P. Stavrou, et al. (2000). "Evaluation of foldable intraocular lenses in patients with uveitis." Ophthalmology **107**(5): 909-919.

**OBJECTIVE:** To evaluate various foldable posterior chamber intraocular lenses (IOLs) after phacoemulsification in patients with uveitis. **DESIGN:** A prospective, noncomparative, interventional case series. **PARTICIPANTS:** Forty-nine

consecutive patients (60 eyes) with various types of uveitis (anterior, n = 20; posterior, n = 1; panuveitis, n = 37, intermediate, n = 2). INTERVENTION: All patients underwent phacoemulsification with foldable posterior chamber IOL implantation. All eyes were free of active inflammation at the time of surgery. A variety of IOL biomaterials were implanted: acrylic (n = 30), silicone (n = 17), and hydrogel (n = 13). MAIN OUTCOME MEASURES: Detailed examination was performed by one masked observer. Several parameters were compared for each implant biomaterial, including level of best corrected Snellen visual acuity at final follow-up, presence of posterior synechiae, anterior capsular phimosis, posterior capsule opacification, and the degree of cellular deposits on the IOL optic. RESULTS: There were 26 males and 23 females, aged 9 to 83 years (mean, 48 years). Follow-up ranged from 1 to 33 months (mean, 17.03 months). At final follow-up, 56 eyes (93.3%) had an improvement in visual acuity compared with preoperative levels as follows: 34 eyes (56.6%) achieved an improvement of four or more Snellen lines, and 44 eyes (73.3%) achieved 20/30 or better. Giant cells, observed on the IOL optic in 19 eyes (31.7%), were most often seen on the acrylic biomaterial at the 1-month follow-up, although this was not found to be statistically significant. Scratch marks produced by the lens-introducing forceps were seen in 24 eyes (40.0%), mainly on the acrylic and hydrogel optics. Posterior capsule opacification (PCO) occurred in 49 eyes (81.7%), with only 5 eyes requiring laser capsulotomy. There was no association between PCO and the various lens biomaterials. Other causes for reduced visual acuity included glaucomatous optic neuropathy (n = 5) and cystoid macular edema (n = 8). CONCLUSIONS: The use of foldable IOLs in eyes with uveitis is safe, but the optimal biomaterial has yet to be found.

Riedl, M., S. Maca, et al. (2003). "Intraocular ointment after small-incision cataract surgery causing chronic uveitis and secondary glaucoma." J Cataract Refract Surg **29**(5): 1022-1025.

Anterior uveitis and secondary glaucoma resulting from intraocular ointment has not been reported. The advent of small-incision surgery has likely reduced the incidence of this complication to low levels. We report a case of anterior uveitis after small-incision cataract surgery due to an intraocular ointment base. The course of this rare case is described and the literature reviewed.

Roesel, M., C. Heinz, et al. (2010). "Comparison of orbital floor triamcinolone acetonide and oral prednisolone for cataract surgery management in patients with non-infectious uveitis." Graefes Arch Clin Exp Ophthalmol **248**(5): 715-720.

PURPOSE: To compare orbital floor triamcinolone acetonide and oral prednisolone in cataract surgery in patients with chronic non-infectious uveitis with regard to visual outcome, postoperative inflammation and macular edema. METHODS: Monocentric prospective randomized clinical trial with 40 eyes included. Patients underwent phacoemulsification with intraocular acrylic foldable lens (IOL) implantation. Patients were randomized either to intraoperative orbital floor triamcinolone acetonide (TA) (1 ml = 40 mg) (group 1, n = 20), or to 4-week postoperative oral prednisolone (group 2, n = 20). Laser flare photometry (LFM),

cells in the anterior chamber (AC), best-corrected visual acuity (BCVA), IOL cell deposits, cystoid macular edema (CME) by means of fluorescein angiography, and central foveal thickness (OCT), posterior capsule opacification (PCO), and intraocular pressure (IOP) were analysed during a 6-months period. RESULTS: Mean BCVA postoperatively improved ( $p < 0.01$ ) from logMAR 0.74 and 0.86 to 0.23 and 0.35 in groups 1 and 2 respectively. The number of AC cells, LFM and IOL cell deposits did not differ. Macular edema stayed unchanged in most cases in both groups, and mean foveal thickness (OCT) initially increased postoperatively, but after 6 months it nearly returned to baseline thickness. Differences between the groups were not significant. Up to 12% in group 1 and 28% of group 2 developed IOP elevation over 21 mmHg. CONCLUSIONS: A single intraoperative orbital floor injection of triamcinolone acetonide is as effective on postoperative inflammation, macular edema, and visual outcome as a 4-week course of postoperative oral prednisolone in cataract surgery with IOL implantation in uveitis patients.

Roesel, M., C. Tappeiner, et al. (2009). "Comparison between intravitreal and orbital floor triamcinolone acetonide after phacoemulsification in patients with endogenous uveitis." Am J Ophthalmol **147**(3): 406-412.

PURPOSE: To compare the effect of intravitreal and orbital floor triamcinolone acetonide (TA) on macular edema, visual outcome, and course of postoperative inflammation after cataract surgery in uveitis patients. DESIGN: Prospective, randomized clinical trial. METHODS: Monocenter study (40 patients) with chronic endogenous uveitis who underwent phacoemulsification with intraocular lens implantation with either 4 mg intravitreal TA ( $n = 20$ ) or 40 mg orbital floor TA ( $n = 20$ ). The primary outcome was influence on cystoid macular edema (CME). Secondary outcome measures were best-corrected visual acuity (BCVA), anterior chamber cell grade, laser flare photometry, giant cell deposition, posterior capsule opacification (PCO), and intraocular pressure. RESULTS: Mean central foveal thickness decreased in the intravitreal TA group and increased in the orbital floor TA group ( $P < .001$  at one and three months). CME improved in 50% of patients after intravitreal TA, whereas it was unchanged after orbital floor TA (difference between the groups at three months,  $P = .049$ ). Mean BCVA (logarithm of the minimal angle of resolution) improved postoperatively ( $P < .001$ ) from 0.76 and 0.74 to 0.22 and 0.23 in the intravitreal TA and orbital floor TA group, respectively. Anterior chamber cell count at one month was lower in the intravitreal TA than in the orbital floor TA group ( $P = .02$ ). Laser flare photometry values and giant cell numbers were slightly higher after orbital floor TA than after intravitreal TA. The groups did not differ with respect to PCO rate and ocular hypertension. CONCLUSIONS: The CME improvement and anti-inflammatory effect after intravitreal TA was better than after orbital floor TA injection in cataract surgery in uveitis patients.

Russo, P., V. Papa, et al. (2005). "Topical nonsteroidal anti-inflammatory drugs in uncomplicated cataract surgery: effect of sodium naproxen." Eur J Ophthalmol **15**(5): 598-606.

**PURPOSE:** To investigate whether topical nonsteroidal antiinflammatory drugs (NSAIDs) are useful, in the absence of concomitant corticosteroid therapy, in limiting postoperative inflammation after uncomplicated cataract surgery. **METHODS:** A total of 328 patients were enrolled in a prospective, randomized, double-masked, parallel-group, active-controlled study. Anterior chamber inflammation (ACI) was evaluated as the primary efficacy parameter. Only patients with moderate inflammation (ACI score of  $\leq 4$ ) the day after surgery were randomized and treated with NSAIDs. A novel topical formulation containing 0.2% sodium naproxen was compared with 0.1% diclofenac. Both were administered three times a day for 14 consecutive days. Ocular inflammation was measured after 7 and 14 days by using slit-lamp biomicroscopy. Safety parameters were also evaluated at the same time. **RESULTS:** Both treatments were equally effective in controlling postsurgical inflammation. No statistically significant differences between treatment groups were observed for the safety variables. No serious adverse events (AEs) occurred during the course of the study. The most frequent AE reported with naproxen was eye redness. **CONCLUSIONS:** NSAIDs can effectively be used without concurrent administration of corticosteroids to control postoperative inflammation after uncomplicated cataract surgery. In addition, naproxen ophthalmic solution may be considered a suitable alternative to the currently available NSAIDs.

Saari, K. M., L. Nelimarkka, et al. (2006). "Comparison of topical 0.7% dexamethasone-cyclodextrin with 0.1% dexamethasone sodium phosphate for postcataract inflammation." Graefes Arch Clin Exp Ophthalmol **244**(5): 620-626.

**BACKGROUND:** To compare 0.7% dexamethasone-cyclodextrin aqueous eye drop solution applied once daily with 0.1% dexamethasone sodium phosphate eye drops applied three times a day for the control of postoperative inflammation after cataract surgery. **METHODS:** Twenty cataract patients who underwent phacoemulsification and intraocular lens implantation were randomly divided into two postoperative treatment groups. Postoperative medication in group I included 0.1% dexamethasone sodium phosphate eye drops three times daily and in group II 0.7% dexamethasone-cyclodextrin eye drop solution once daily. Testing of visual acuity, biomicroscopic examination, applanation tonometry and laser flare cell meter (LFCM) examination were carried out before operation and days 1, 3, 7 and 21 after surgery. **RESULTS:** Preoperative and postoperative visual acuity, aqueous flare and cells in biomicroscopic examination, and the mean intraocular pressure did not show any statistically significant differences between the treatment groups. LFCM examination showed that the mean postoperative photon count values ( $P=0.032$ ) and the median cell count values on the 1st ( $P=0.014$ ), 3rd ( $P=0.031$ ), 7th ( $P=0.034$ ), and 21st ( $P=0.0097$ ) postoperative days in group I were more elevated than in group II. **CONCLUSIONS:** 0.7% dexamethasone-cyclodextrin eye drops applied once daily is a more effective postoperative anti-inflammatory medication than 0.1% dexamethasone sodium phosphate applied three times a day. In both groups, 3 weeks after the operation the mean visual acuity was normal and intraocular pressure significantly lower

than before operation. The use of 0.7% dexamethasone-cyclodextrin eye drops may be useful especially in elderly people who cannot apply themselves the eye drops onto the eye.

Samanta, T. K. (2004). "Late recurrent uveitis after phacoemulsification." Indian J Ophthalmol **52**(4): 347; author reply 347.

Sandoval, H. P., L. E. De Castro, et al. (2006). "Evaluation of 0.4% ketorolac tromethamine ophthalmic solution versus 0.5% ketorolac tromethamine ophthalmic solution after phacoemulsification and intraocular lens implantation." J Ocul Pharmacol Ther **22**(4): 251-257.

**PURPOSE:** The aim of this study was to compare the effectiveness and patient tolerance of 0.4% ketorolac tromethamine ophthalmic solution and 0.5% ketorolac tromethamine ophthalmic solution after routine phacoemulsification and lens implantation. **Setting:** The setting for this study was the Storm Eye Institute and Magill Research Center for Vision Correction, Medical University of South Carolina (Charleston, SC). **METHODS:** This work was a prospective, double-masked study that included 40 eyes of 40 patients randomly assigned to receive topical treatment with 0.4% ketorolac or 0.5% ketorolac, starting 15 min prior to routine phacoemulsification and foldable posterior chamber intraocular lens implantation. Following the procedure, patients were instructed to use the assigned treatment agent 4 times a day after surgery for 1 week and twice a day for 3 weeks, when drops were discontinued. Slit-lamp examination, intraocular pressure (IOP), laser cell and flare measurements, and subjective patient tolerance were evaluated postoperatively at 1, 7, and 30 d. Comparisons between the 2 groups were made at each visit, as well as comparisons to baseline. A P-value less than .05 was considered statistically significant. **RESULTS:** At day 1, a higher percentage of patients (70% vs. 40%) reported symptoms (mainly foreign body sensation and stinging/burning) in the 0.5% ketorolac group, compared to the 0.4% ketorolac group. No significant differences were found between the 2 groups over time regarding best-corrected visual acuity (BCVA), IOP, slit-lamp assessment of cells, and cell and flare measured using the laser cell/flame meter. **CONCLUSIONS:** Treatment with 0.4% ketorolac tromethamine ophthalmic solution is as effective as 0.5% ketorolac tromethamine ophthalmic solution in reducing inflammation after routine cataract surgery. Patients reported less discomfort using 0.4% ketorolac.

Saraf, P. K. (2004). "Late recurrent uveitis after phacoemulsification." Indian J Ophthalmol **52**(2): 158-159.

It is now assumed that recurrent late onset uveitis after phacoemulsification with intraocular lens (IOL) is due to indolent infection. Fifteen such cases were observed after uncomplicated phacoemulsification with-in-the-bag IOL implant. These cases were considered noninfective and treated medically with good visual recovery.

Shingleton, B. J., C. A. Campbell, et al. (2006). "Effects of pupil stretch technique during

phacoemulsification on postoperative vision, intraocular pressure, and inflammation." J Cataract Refract Surg **32**(7): 1142-1145.

**PURPOSE:** To determine whether pupil stretch during phacoemulsification affects postoperative best corrected visual acuity (BCVA), intraocular pressure (IOP), and inflammation compared with results in patients without pupil stretch. **METHODS:** A retrospective analysis of 115 eyes that had pupil stretch during phacoemulsification (study group) and 125 eyes without pupil stretch (control group) was performed with a minimum of 12 months follow-up. Single-factor analysis of variance and 2-tailed homoscedastic t tests were used for statistical analysis. **RESULTS:** The mean preoperative logMAR equivalent BCVA was 0.5 +/- 0.3 (SD) in the study group and 0.6 +/- 0.4 in the control group. The mean preoperative IOP was 16.2 +/- 4.1 mm Hg in the study group and 16.0 +/- 3.5 mm Hg (control group). There was no statistically significant difference at postoperative follow-up of 1 year in BCVA or IOP between the 2 groups (1 year BCVA 0.2 +/- 0.2 [study group], 0.2 +/- 0.2 [control group] [ $P < .1$ ]; IOP 14.5 +/- 3.5 mm Hg and 14.7 +/- 3.3 mm Hg, respectively [ $P < .7$ ]). There was no significant difference in the number of glaucoma medications required for glaucoma patients preoperatively and postoperatively between the 2 groups ( $P < .5$ ). Complications were rare, and there was no significant difference in the complications (ie, iritis, hyphema, cystoid macular edema, epiretinal membrane formation) between the 2 groups at 1 year. **CONCLUSION:** Pupil stretch during phacoemulsification was not associated with a statistically significant difference in BCVA, IOP, inflammation, or other complications postoperatively compared with results in the control group without pupil stretch.

Sijssens, K. M., A. Rothova, et al. (2007). "Risk factors for the development of cataract requiring surgery in uveitis associated with juvenile idiopathic arthritis." Am J Ophthalmol **144**(4): 574-579.

**PURPOSE:** To identify the possible risk factors for the development of cataract requiring surgery in children with juvenile idiopathic arthritis (JIA)-associated uveitis. **DESIGN:** Retrospective cohort study. **METHODS:** Data of 53 children with JIA-associated uveitis, of whom 27 had undergone cataract extraction (CE), were obtained. The main outcome measure, the interval between the onset of uveitis and the first CE (U-CE interval), was examined in relation to clinical and ophthalmologic characteristics and treatment strategies before CE. **RESULTS:** A shorter U-CE interval was found for children with posterior synechia vs those without posterior synechia (hazard ratio [HR], 3.57; 95% confidence interval [CI], 1.33 to 10.00). No significant difference was found for children in whom the uveitis was the first manifestation of JIA vs those in whom arthritis was the first manifestation of JIA (HR, 1.59; 95% CI, 0.63 to 4.00) and children treated with periocular corticosteroid injections vs those not treated with periocular corticosteroid injections (HR, 3.23; 95% CI, 0.95 to 11.11). Children treated with methotrexate (MTX) had a longer U-CE interval than children not treated with MTX (HR, 0.29; 95% CI, 0.10 to 0.87). **CONCLUSIONS:** The risk factor for development of early cataract requiring surgery in children with JIA-associated uveitis is the presence of posterior synechia at the time of diagnosis of uveitis.

However, early treatment with MTX is associated with a mean delay in the development of cataract requiring surgery of 3.5 years.

Soheilian, M., S. A. Mirdehghan, et al. (2008). "Sutureless combined 25-gauge vitrectomy, phacoemulsification, and posterior chamber intraocular lens implantation for management of uveitic cataract associated with posterior segment disease." Retina **28**(7): 941-946.

**PURPOSE:** To report visual outcomes and complication rates associated with one-stage surgery for the management of uveitic cataract associated with posterior segment disease. **METHODS:** In this interventional case series, 19 eyes (19 patients) with posterior segment involvement due to chronic uveitis underwent sutureless scleral tunnel incision phacoemulsification combined with total vitrectomy using 25-gauge instruments and posterior chamber intraocular lens (PC-IOL) implantation. Membrane peeling and endolaser photocoagulation were performed when indicated. Outcome measures were visual acuity, inflammatory activity, macular edema, and complications of surgery. **RESULTS:** After a minimum 12-month follow-up, visual acuity was  $\geq 20/100$  in 12 eyes (63.2%); 6 eyes (31.6%) had visual acuity of  $\geq 20/40$ . A decrease in postoperative inflammatory activity of 1 grade was observed in 8 eyes (42.1%). Sixteen eyes had cystoid macular edema before surgery; and 12 eyes had cystoid macular edema after surgery. Early postoperative complications included the following: transient corneal edema, 10 eyes (50.3%); fibrin reaction, 3 eyes (15.8%), and posterior synechiae, 9 eyes (47.3%). Glaucoma was the most common late postoperative complication (3 eyes [18.8%]). Nine eyes (47.4%) needed YAG laser capsulotomy during the first year. **CONCLUSION:** Sutureless combined 25-gauge total vitrectomy, phacoemulsification, and PC-IOL implantation may be well tolerated with an acceptable complication rate for selected uveitic eyes with significant cataract and coexisting posterior segment disease for restoring useful vision.

Solomon, K. D., D. T. Vroman, et al. (2001). "Comparison of ketorolac tromethamine 0.5% and rimexolone 1% to control inflammation after cataract extraction. Prospective randomized double-masked study." J Cataract Refract Surg **27**(8): 1232-1237.

**PURPOSE:** To compare the efficacy of a topical nonsteroidal anti-inflammatory agent (ketorolac tromethamine 0.5%) with that of a topical steroid (rimexolone 1%) to control inflammation after cataract surgery. **SETTING:** Storm Eye Institute, Department of Ophthalmology, Medical University of South Carolina, Charleston, South Carolina, USA. **METHODS:** Thirty-six patients were prospectively and randomly assigned to receive topical treatment with either ketorolac tromethamine 0.5% or rimexolone 1% starting the day after routine cataract extraction. Treatment was masked to both patient and investigator. Each patient had uneventful small incision phacoemulsification with placement of a foldable posterior chamber intraocular lens. Patients used 1 of the 2 antiinflammatory agents 4 times each day starting 24 hours after surgery. No antiinflammatory medications were used preoperatively, intraoperatively, or for 24 hours postoperatively. Signs and symptoms of inflammation, intraocular

pressure (IOP), and Kowa cell and flare measurements were evaluated 1, 4, 7, and 30 days postoperatively. RESULTS: There was no statistically significant difference in any measurement of postoperative inflammation between the 2 groups. There was no difference in objective or subjective cell and flare measurements. In addition, there was no difference in IOP measurements between groups. CONCLUSIONS: Ketorolac tromethamine 0.5% was as effective as rimexolone 1% in reducing inflammation after cataract surgery. These results suggest that ketorolac tromethamine 0.5% is a safe and effective antiinflammatory alternative to steroids after cataract extraction.

Stangos, A. N., C. J. Pournaras, et al. (2005). "Occult anterior-chamber metallic fragment post-phacoemulsification masquerading as chronic recalcitrant postoperative inflammation." Am J Ophthalmol **139**(3): 541-542.

PURPOSE: To report a case of an occult, metallic, anterior-chamber intraocular foreign body after uneventful phacoemulsification that was masquerading as chronic recalcitrant postoperative inflammation. DESIGN: Interventional case report. METHODS: A 73-year-old patient was referred to us for recalcitrant anterior-chamber inflammation after uneventful phacoemulsification; the patient presented with visual disturbances, anterior-chamber inflammation, and macular epiretinal membrane with concomitant cystoid macular edema. RESULTS: After meticulous evaluations and repeated clinical examinations, a metallic intraocular foreign body was discovered on the iris, which was surgically removed and analyzed. Chemical analysis revealed copper, aluminum, and zinc. Pars plana vitrectomy with epiretinal membrane and indocyanine-green-assisted internal limiting membrane peeling followed, with subsequent improvement of visual acuity. CONCLUSIONS: Intraocular foreign bodies should always be considered in the differential diagnosis of recalcitrant inflammation post-phacoemulsification. However, in the absence of intraocular inflammation, surgical removal of such particles is questionable.

Stifter, E., R. Menapace, et al. (2009). "Effect of primary posterior continuous curvilinear capsulorhexis with and without posterior optic buttonholing on postoperative anterior chamber flare." J Cataract Refract Surg **35**(3): 480-484.

PURPOSE: To evaluate the effect of primary posterior continuous curvilinear capsulorhexis (PCCC) with and without posterior optic buttonholing (POBH) on the anterior chamber reaction after small-incision cataract surgery. SETTING: Department of Ophthalmology, Medical University of Vienna, Vienna, Austria. METHODS: Consecutive patients with age-related cataract having cataract surgery in both eyes under topical anesthesia were prospectively enrolled in a randomized clinical trial. In randomized order, cataract surgery with combined primary PCCC and POBH was performed in 1 eye; in the other eye, cataract surgery was performed with primary PCCC and in-the-bag implantation of an intraocular lens. Intraocular flare was measured with an FC-1000 laser flare-cell meter preoperatively and postoperatively at 1, 4 to 6, and 24 hours, 1 week, and 1 month. RESULTS: Thirty patients (60 eyes) were evaluated. The peak of intraocular flare was 1 hour postoperatively in all study eyes. In both groups, the

response steadily decreased thereafter. Anterior chamber flare was statistically significantly higher in eyes with primary PCCC without POBH than in eyes with combined primary PCCC-POBH at all postoperative testing points ( $P < .001$ ), including at 1 month ( $P = .01$ ). CONCLUSIONS: Cataract surgery with combined primary PCCC-POBH led to significantly lower postoperative anterior chamber reaction than conventional in-the-bag implantation during a 4-week follow-up. The tight capsule-optic diaphragm effectively prevented the ophthalmic viscosurgical device captured behind the optic from entering the anterior chamber postoperatively.

Struck, H. G. and A. Bariszlovich (2001). "Comparison of 0.1% dexamethasone phosphate eye gel (Dexagel) and 1% prednisolone acetate eye suspension in the treatment of post-operative inflammation after cataract surgery." Graefes Arch Clin Exp Ophthalmol **239**(10): 737-742.

A prospective, multi-centre, clinical parallel group study was conducted to assess the efficacy and safety of a new 0.1% dexamethasone phosphate eye gel (Group 1,  $n = 117$ ) compared to 1% prednisolone acetate eye suspension (Group 2,  $n = 119$ ) in a total of 236 patients (safety population), aged 39-92 years, following cataract surgery. Both drugs were given four times a day for 14 days starting 24 $\pm$ 4 h after surgery. Criteria for evaluation were the reduction in anterior chamber flare and inflammation severity score (primary efficacy criteria) as well as different secondary efficacy and safety evaluation criteria. Laser photometry (LFM-500, Kowa), slit lamp assessment and the examination of other objective and subjective symptoms of ocular discomfort were performed between the last preoperative and 14th post-operative day. There were no statistically significant differences between the treatment groups concerning primary and secondary efficacy criteria. The mean reduction in anterior chamber flare from day 1 to day 14 post-operatively was 8.34 $\pm$ 20.80 photons/ms with 0.1% dexamethasone eye gel and 5.72 $\pm$ 16.70 photons/ms with 1% prednisolone eye suspension. The mean reduction of inflammation severity score was 1.8 $\pm$ 1.3 points in Group 1 and 2.0 $\pm$ 1.1 points in Group 2. Intra-ocular pressure did not increase after treatment with 0.1% dexamethasone phosphate eye gel. CONCLUSION: the results of the study underline the protective effect of topically applied 0.1% dexamethasone phosphate eye gel on the blood-aqueous barrier. This drug is an effective and safe steroidal antiinflammatory agent for topical use following cataract surgery and intraocular lens implantation.

Sullu, Y., I. Oge, et al. (2000). "The results of cataract extraction and intraocular lens implantation in patients with Behcet's disease." Acta Ophthalmol Scand **78**(6): 680-683.

PURPOSE: To evaluate the results of extracapsular cataract extraction (ECCE) and intraocular lens (IOL) implantation in patients with Behcet's disease.

METHODS: Retrospective study was based on 19 uveitic eyes of 12 patients with Behcet's disease who underwent classic ECCE with IOL implantation in 5 eyes and phacoemulsification with IOL implantation in 14 eyes between 1993-1999. RESULTS: In eyes with Behcet's uveitis 0.5 or better postoperative visual acuity was found in 21% at the end of mean 34.2-4.6 (range 5 to 66)

months follow-up. The most frequent postoperative complications were posterior capsule opacification in 9 (47%), posterior synechiae in 5 (26%), anterior synechiae in 3 (16%). Anterior and posterior synechiae in the phacoemulsification group were less than those in the ECCE group (respectively  $p<0.05$  and  $p<0.01$ ). CONCLUSIONS: In eyes with chronic Behcet's uveitis, cataract extraction and IOL implantation by phacoemulsification had fewer postoperative complication than ECCE, but most of the patients had low visual acuity due to preoperatively existing optic atrophy and/or inflammatory degeneration or edema of macula.

Teo, L. and S. P. Chee (2010). "Retained lens fragment in the anterior segment as a cause of recurrent anterioruveitis." Int Ophthalmol **30**(1): 89-91.

A 61-year-old male developed recurrent anterior uveitis over a period of 8 months after an uncomplicated phacoemulsification and posterior chamber intraocular lens implantation surgery. This was subsequently found to be due to a retained lens fragment in the anterior segment, with complete resolution following surgical extraction of the fragment. To our knowledge, this is the first report of recurrent anterior uveitis attributable to a retained lens fragment following uncomplicated cataract surgery, and the diagnosis should be considered in a pseudophakic patient presenting with recurrent episodes of anterior uveitis.

Till, J. S. (2003). "Collamer intraocular lens implantation with active uveitis." J Cataract Refract Surg **29**(12): 2439-2443.

Two patients with active iritis developed cataracts and had successful cataract surgery with implantation of a Collamer (Staar Surgical, AG) intraocular lens (IOL). Both patients developed severe bilateral uveitis, which in 1 patient was refractory to control. Different IOL materials have been used in iritis patients with varying degrees of success. The IOLs used in these patients remained free of cellular and noncellular deposits, such as those that frequently develop on the anterior surface of IOLs in uveitis patients. Two of the 3 eyes developed a secondary membrane that was successfully treated by a neodymium:YAG laser posterior capsulotomy.

Urban, B. and A. Bakunowicz-Lazarczyk (2010). "Cataract surgery with primary intraocular lens implantation in children suffering from chronic uveitis." Klin Oczna **112**(4-6): 111-114.

PURPOSE: To evaluate the visual outcome of cataract surgery with intraocular lens (IOL) implantation in children with chronic uveitis. MATERIAL AND METHODS: The records of seven children (9 eyes), with chronic uveitis who had cataract extraction with IOL implantation between 2001 and 2007, were retrospectively examined. The mean follow-up was 47.9 months, respectively. The postoperative visual outcome and complications were analyzed. RESULTS: The mean age of 2 girls and 5 boys was 17.4 years (range from 12 to 21 years). 5 patients had unilateral cataract. 6 patients underwent cataract extraction with IOL implantation, one patient underwent combined cataract surgery with IOL implantation and trabeculectomy. Median age at surgery was 17.7 years. At the

final follow-up examination 8 eyes (88.9%), had improved visual acuity. The visual acuity was 20/20 in one eye, 20/40 or better in 5 eyes and 20/50 in 3 eyes. Posterior capsule opacification was observed in 5 eyes, high intraocular pressure in 2 eyes and cystoid macular edema in 1 eye. CONCLUSIONS: The outcomes of cataract extraction with IOL implantation in children's eyes with chronic uveitis may be satisfactory. Correct time of surgery, adequate long-term preoperative and postoperative anti-inflammatory therapy may promote good results.

Van Gelder, R. N. and T. K. Leveque (2009). "Cataract surgery in the setting of uveitis." Curr Opin Ophthalmol **20**(1): 42-45.

PURPOSE OF REVIEW: To describe recent evidence from the literature concerning optimal treatment of cataract in patients with concomitant uveitis. RECENT FINDINGS: Optimal treatment of cataract in the setting of uveitis requires optimal management of uveitis, including appropriate diagnostic workup and scrupulous attention to preoperative preparation, intraoperative technique, and postoperative management. Recent literature suggests high rates of recurrence of certain forms of uveitis (such as ocular toxoplasmosis) after surgery, suggesting that perioperative prophylaxis may be warranted. Placement of intraocular lenses in the setting of certain forms of uveitis, such as juvenile idiopathic arthritis-associated uveitis, remains controversial. Although excellent outcomes can be achieved with many types of intraocular lenses, several recent studies have suggested that the incidence of postoperative complications may be lower in patients receiving acrylic intraocular lenses compared with other materials. Recent long-term outcome studies in cohorts of uveitis patients undergoing cataract surgery suggest very good outcomes in the majority of patients. SUMMARY: Provided the unique challenges of cataract surgery in the setting of uveitis are recognized and appropriately addressed, excellent visual outcomes can be achieved in most patients.

Williams, G. A., J. A. Haller, et al. (2009). "Dexamethasone posterior-segment drug delivery system in the treatment of macular edema resulting from uveitis or Irvine-Gass syndrome." Am J Ophthalmol **147**(6): 1048-1054, 1054 e1041-1042.

PURPOSE: To evaluate the effects of a dexamethasone intravitreal drug delivery system (dexamethasone DDS) in patients with persistent macular edema (ME) resulting from uveitis or Irvine-Gass syndrome. DESIGN: Randomized, prospective, single-masked, controlled trial. METHODS: Three hundred and fifteen patients with persistent ( $\geq 90$  days) ME were randomized in a multicenter study to surgical placement of 350 or 700 microg dexamethasone DDS or observation. This study evaluated the subset of patients with uveitis or Irvine-Gass syndrome ( $n = 41$ ). The primary outcome measure was the proportion of patients achieving a 10-letter or more improvement in best-corrected visual acuity (BCVA) at day 90. Change in fluorescein angiographic leakage and safety also were evaluated. RESULTS: At day 90, a 10-letter or more BCVA improvement was seen in 41.7% (5/12) of patients in the 350-microg group, in 53.8% (7/13) of patients in the 700-microg group, and in 14.3% (2/14) of patients in the observation group ( $P = .029$  vs the 700-microg

group). Improvement in visual acuity persisted to day 180. A 15-letter or more improvement was achieved in 53.8% (7/13) of 700-microg patients vs 7.1% (1/14) of observed patients ( $P = .008$ ). There were significantly greater reductions in fluorescein leakage in treated patients than in observed patients.

Dexamethasone DDS was well tolerated. Throughout the study, an increase in intraocular pressure of 10 mm Hg or more was seen in 5 of 13 patients in the 700-microg group, in 1 of 12 patients in the 350-microg group, and in no patients in the observation group. There were no reports of endophthalmitis.

**CONCLUSIONS:** In patients with persistent ME resulting from uveitis or Irvine-Gass syndrome, 700-microg dexamethasone DDS was well tolerated and produced statistically significant improvements in visual acuity and fluorescein leakage.

Yeung, S. N., J. A. Blicher, et al. (2008). "Postoperative inflammation as the presenting sign of latent syphilis." Ocul Immunol Inflamm **16**(3): 119-120.

**PURPOSE:** To describe an unusual case of latent syphilis that presented with postoperative inflammation. **METHODS:** Case report. **RESULTS:** A 62-year-old African American woman developed persistent postoperative inflammation following cataract surgery. Despite a regimen of topical corticosteroid, the inflammation did not settle. A uveitic workup indicated that the patient had latent syphilis. She was referred to Infectious Disease and the inflammation resolved with intravenous penicillin. **CONCLUSIONS:** Postoperative inflammation has not previously been reported as the first sign of latent syphilis. This report underscores the importance of considering syphilis in the differential diagnosis of chronic inflammation, including the postoperative period.

Zaborowski, A. G., A. G. Quinn, et al. (2008). "Cataract surgery with primary intraocular lens implantation in children with chronic uveitis." Arch Ophthalmol **126**(4): 583-584.