

LENSECTOMY-VITRECTOMY IN CHRONIC UVEITIS*

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CATARACT EXTRACTION IN THE PRESENCE OF CHRONIC UVEITIS IS KNOWN TO BE hazardous, as the surgical procedure may exacerbate the inflammation in two ways.^{1,2} First, it may activate the underlying inflammatory disease process; second, the surgical procedure itself may result in an unusually severe inflammatory response in eyes with pre-existing uveitis. Recent advances in surgical instrumentation and technique, however, seem to have improved the prognosis in such cases.³⁻⁶ The use of combined lensectomy-vitreotomy for cataract extraction complicated by uveitis has had a favorable influence on the results of surgery and on the subsequent course of the basic inflammatory disease process. In this paper we report on ten uveitis patients (12 eyes) who underwent lensectomy-vitreotomy at Los Angeles County/University of Southern California (LAC/USC) Medical Center and the Estelle Doheny Eye Foundation.

PATIENTS AND METHODS

All charts from the LAC/USC Medical Center and Estelle Doheny Eye Foundation files that indicated a vitrectomy or lensectomy-vitreotomy had been performed for complicated uveitic cataracts were reviewed. Charts on uveitis patients who had undergone aphakic pupillary membranectomy-vitreotomy were also reviewed.

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The study reported here consists of 10 patients who had lensectomy-vitrectomy via pars plana (Tables I & II). Cases complicated by pre-existing retinal detachment requiring combined scleral buckling, or those earlier cases undergoing lensectomy via the anterior approach with only a limited anterior vitrectomy were excluded. All cases had chronic uveitis of at least 1 year's duration. A full workup in the Uveitis Clinic was performed preoperatively in order to classify cases. In most cases, preoperative evaluation included ultrasound to determine the presence of vitreous opacities and/or retinal detachment, as well as to exclude unexpected lesions such as tumors or foreign bodies; when indicated, electroretinography and visually evoked responses with pattern stimulation were utilized to evaluate retinal function.

Inflammation was brought "under control" (1+ cells or less) preoperatively by using topical, periocular, and systemic corticosteroids, as necessary. Intraocular pressures were carefully monitored and brought under control with anti-glaucoma medications preoperatively. The main indication for operation was decreased visual acuity (less than 20/400 due to complicated cataract).

All surgery was performed under general anesthesia. In order to encourage intraoperative pupillary dilatation and avoid extensive iris surgery, posterior synechiae were broken with a Barraquer sweep through a limbal incision, which was then closed. Pars plana lensectomy-vitrectomy was performed using standard techniques and automated vitrectomy instrumentation. Lens fragmentation was employed where necessary. Care was taken to avoid the peripheral vitreous base at the ora serrata and pars plana. This area usually contained significant inflammatory debris with increased risk of retinal tear. Long-acting corticosteroids were injected into the subtenon's region at the close of surgery.

Postoperatively, all patients were closely monitored for signs of inflammation. Systemic and topical corticosteroids begun preoperatively were continued, but gradually tapered as aqueous flare and aqueous cells diminished. Fluorescein angiography was performed when necessary to confirm the presence of cystoid macular edema.

RESULTS

Lensectomy-vitrectomy was performed in 12 eyes with uveitic cataract and a visual acuity of 20/400 or less (Table I). There were seven males and five females; age at surgery ranged from 6 to 65 years (mean, 32 years). The cause of the chronic uveitis was juvenile rheumatoid arthritis (two eyes); toxoplasmosis (one eye); sarcoid and Behçet's disease were pre-

TABLE I: LENSECTOMY-VITRECTOMY FOR COMPLICATED CATARACT IN CHRONIC UVEITIS

PATIENT	DIAGNOSIS	AGE/SEX/ EYE	VISUAL ACUITY		INTRAOCULAR PRESSURE (mm Hg)		HISTORY, INCLUDING DURATION OF SYMPTOMS	PREOPERATIVE MEDICATION
			PREOP	POSTOP	PREOP	POSTOP		
1	? Sarcoid	23/M/OD	20/400	20/100	18	22	Bilateral uveitis 5 years; granulomatous uveitis skin biopsy → granulomatous inflammatory skin; strong family history; sarcoid	Topical corticosteroids; cycloplegics
2	Toxoplasmosis	65/F/OS	LPc proj	20/60	18	11	Toxoplasmic retinitis, long-term systemic steroid therapy	Topical corticosteroids; cycloplegics
3	Juvenile rheumatoid arthritis (JRA)	7/F/OD	HM 6"	20/80	15	11	Eye symptoms for 2 years	Topical corticosteroids; prednisone, 25 mg every other day
4	JRA	6/F/OS	LPc proj	20/50	7	10	Same patient as 3	...
5	Idiopathic	28/M/OD	LPc proj	20/200	20	14	Signs and symptoms 3 years	Prednisone, 50 mg every other day; topical corticosteroids; cycloplegics
6	Idiopathic	27/M/OS	HM 1'	20/200	20	15	Signs and symptoms 3 years	Prednisone, 50 mg every other day; topical corticosteroids; cycloplegics

TABLE I: LENSECTOMY-VITRECTOMY FOR COMPLICATED CATARACT IN CHRONIC UVEITIS (CONTINUED)

PATIENT	DIAGNOSIS	AGE/SEX/ EYE	VISUAL ACUITY		INTRAOCULAR PRESSURE (mm Hg)		HISTORY, INCLUDING DURATION OF SYMPTOMS	PREOPERATIVE MEDICATION
			PREOP	POSTOP	PREOP	POSTOP		
7	? Behçet's disease	42/F/OS	CF 1'	20/100	18	15	Decreased visual acuity 5 years	Topical corticoste- roids; cyclople- tics; timolol
8	Idiopathic	29/M/OD	20/400	20/25	19	28	Signs and symp- toms 17 years; negative work-up for JRA, ankylos- ing spondylitis	Topical corticoste- roids; timolol
9	Idiopathic	29/M/OS	Lp̄c proj	20/25	22	19	Same patient as 8	Timolol
10	Idiopathic	34/M/OD	20/400	20/100	14	13	Signs and symp- toms 10 years; amblyopia OD	Systemic cortico- steroids; topical corticosteroids
11	Idiopathic	59/F/OD	HM	20/200	8	10	Recurrent iridocy- clitis 3 years	Topical corticoste- roids; cycloplegics; prednisone 5 mg every day
12	Idiopathic	38/M/OD	CF 5'	20/70	15	17	Signs and symp- toms 13 years	Topical corticoste- roids

TABLE I: LENSECTOMY-VITRECTOMY FOR COMPLICATED CATARACT IN CHRONIC UVEITIS (CONTINUED)

PREOP EXAMINATIONS ERG & VER	ANTERIOR CHAMBER				FUNDUS		COMPLICATIONS		CAUSE OF ↓ VA
	U/S	PREOP FLARE/CELLS	POSTOP FLARE/CELLS	PREOP PERIPHERAL SCARS	POSTOP	IMMEDIATE (< 2 WEEKS)	LONG-TERM (> 2 WEEKS)		
1 . . .	. . .	1 +	1 +	tr	1 +	CME, flat peripheral scars	Vitreous hemorrhage on postop day 1 which cleared	. . .	CME
2 . . .	Vitreous debris, PVD	tr	Occ	1 +	0	Chorioretinal scarring	Soft eye + low choroidal peripheral detachment for 360°—not progressive	. . .	Mottling of macula
3 . . .	Vitreous opacities	1 +	1 +	3 +	Occ	Hazy view (CME noted at surgery)	CME + crystalline deposits	Traction RD & hypotony	Macular crystalline deposits, CME
4 . . .	Vitreous condensation	tr	0	3 +	Occ	Normal (macular and peripapillary edema noted at surgery)	CME	. . .	Amblyopia, CME
5 Normal VER (no ERG)	. . .	tr	0	tr	0	Hazy view	Macular striae and exudates pre-retinal fibrosis inactive scars	. . .	Macular striae and exudates 5 mo postop
6 Extinguished VER (no ERG)	. . .	0	0	tr	0	Vascular sheathing subretinal traction band	Macular mottling, exudates and striae optic pallor	. . .	Macular striae and exudates optic pallor

TABLE I: LENSECTOMY-VITRECTOMY FOR COMPLICATED CATARACT IN CHRONIC UVEITIS (CONTINUED)

PREOP EXAMINATIONS	ANTERIOR CHAMBER			FUNDUS			COMPLICATIONS		CAUSE OF ↓ VA
	U/S	PREOP FLARE/CELLS	POSTOP FLARE/CELLS	PREOP	POSTOP	IMMEDIATE (< 2 WEEKS)	LONG-TERM (> 2 WEEKS)		
7 Abnormal ERG, well developed VER c stimulation	...	tr Occ	1+ 1+	CME, glaucomatous cupping, old choroidoretinitic scar	CME, old choroidoretinal scars glaucomatous cup	HypHEMA which re-bleed, vitreous hemorrhage, choroid detachment postop day 1 (re-op successful)	...	CME, optic pal-lor	
8 Normal ERG and VER	Normal	0 0	2+ 1+	CME, marked vascular sheathing	Flat retina	...	...	...
9 Normal ERG and VER	Normal	tr 0	tr Occ	Normal	Flat retina	360° choroidal effusions, postop day 1, eventually resolved	...	...
10 ...	Vitreous opacities, PVD, retinochoroid layer thickening	1+ 1+	1+ Occ	Marked CME	Residual CME	Moderate corneal edema, small hypHEMA, hypotony, all resolved	...	CME, amblyopia	
11 ...	Scattered vitreous opacities	0 0	2+ 2+	Marked edema nerve head; macula edema 3 small retinal heme	Residual	...	...	CME
12 ...	Vitreous opacities	tr Occ	tr Occ	Photocoagulated choroid retinal scars, CME	Scar from previous photocoagulation	Glaucoma (45 mm Hg) 8 days postop → controlled	...	Photocoagulated scars, CME	

TABLE II:

PATIENT	DURATION OF FOLLOW-UP (MO)	MEDICATION AT LAST EXAMINATION
1	13	Topical corticosteroids, three times daily
2	21	Topical corticosteroids, every day
3	7	Topical corticosteroids, twice daily
4	15	None
5	28	Prednisone, 30 mg every other day; topical corticosteroids, twice daily
6	35	Prednisone, 30 mg every other day; topical corticosteroids, twice daily
7	16	Topical corticosteroids, four times daily; ad-sorbonac, twice daily
8	1	Topical corticosteroids, twice daily; timoptic, twice daily
9	6	Timoptic, every day; topical corticosteroids, every day
10	7	Topical corticosteroids, twice daily
11	4	Topical corticosteroids, twice daily; prednisone, 5 mg every other day
12	3	Topical corticosteroids, every day

sumed in one case each; seven cases were classified as idiopathic uveitis. The duration of postoperative follow-up ranged from 1 to 35 months (mean, 13 months).

Vision improved in all eyes operated on (Fig 1), with visual acuities of 20/25 in two eyes, 20/50 to 20/80 in four eyes, and 20/100 to 20/200 in six eyes (Fig 1). Postoperative visual acuity of less than 20/40 was often due to cystoid macular edema (seven eyes) but was also caused by macular striae, exudates, crystalline deposits or mottling (four eyes) (Table III). Amblyopia was present in two cases. All of the eyes with postoperative cystoid macular edema had such changes at the time of surgery. In two of these eyes, marked macular edema improved slightly during the follow-up period; in two cases, cystoid macular edema present at the time of surgery

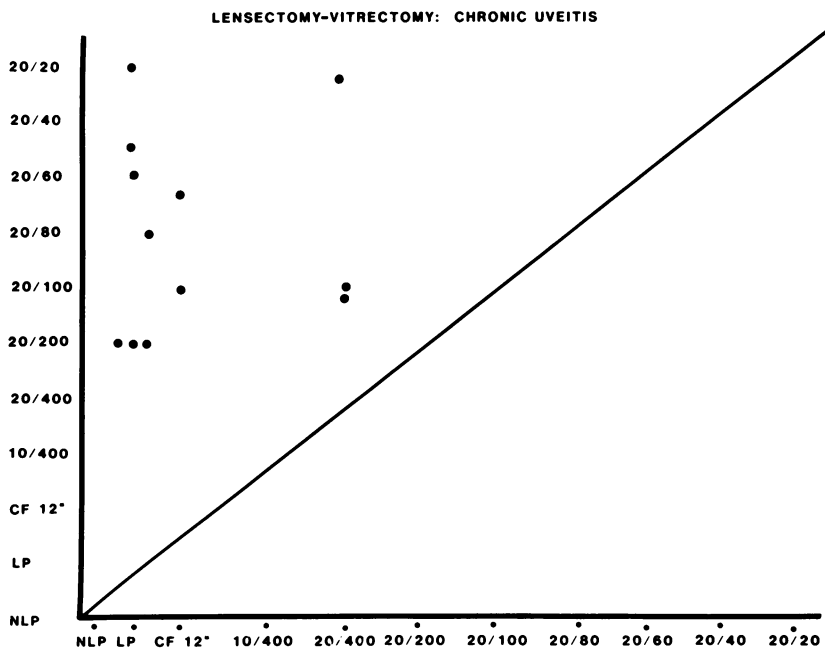


FIGURE 1

Preoperative visual acuity vs postoperative visual acuity in cases of lensectomy-vitrectomy for complicated cataracts in cases of chronic uveitis.

resolved. Two to 3+ flare and cells were noted in the immediate postoperative period. At the time of the last ocular examination, 4 eyes had 2 to 3+ flare and 8 eyes had 0 to 1+ flare, while 1 eye had 2+ cells and 11 eyes had 0 to 1+ cells.

A mild to moderate recurrence of iritis occurred in seven eyes during follow-up; this was managed successfully with topical corticosteroids. Preoperative applanation tonometry ranged from 7 to 22 mm Hg (mean, 16 mm Hg) while postoperative intraocular pressure ranged from 10 to 28 mm Hg (mean, 15 mm Hg). Two eyes required anti-glaucoma medications following surgery.

Immediate postoperative complications (occurring within 2 weeks postoperatively) included choroidal detachment/effusion (three eyes), hyphema (two eyes), vitreous hemorrhage (two eyes), glaucoma (two eyes), hypotony, and moderate corneal edema (Table IV). Patient 7 developed a hyphema (which re-bled), vitreous hemorrhage, and choroidal detachment. Because of persistent re-bleeding and elevated pressure, surgery was recommended after 10 days. Vitreous washout was performed on this

TABLE III: DECREASED VISUAL ACUITY (< 20/40)
(10 EYES)

CAUSE	NO OF CASES*
Cystoid macular edema	7
Other macular changes (exudates, crystalline deposits, mottling)	4
Amblyopia	2
Optic nerve atrophy/pallor	2

*More than one cause in some cases.

woman with draining of choroidal hemorrhage. Although no retinal detachment was found, cryoretinopexy was applied to suspicious areas of retinal thinning; SF₆ gas was injected to tamponade the choroidal hemorrhage. Reoperation resulted in final visual acuity of 20/100.

Long-term complications included macular folds, striae or preretinal membrane (three eyes), or retinal detachment and hypotony (one eye). In case 3, traction retinal detachment with hypotony, macular folds, and preretinal membranes occurred 5 months after surgery. Successful reoperation utilizing pars plana vitrectomy, membrane peeling, scleral buckling, and cryoretinopexy resulted in visual acuity of 20/80.

DISCUSSION

Lensectomy-vitrectomy for uveitic cataracts has been described by Diamond and Kaplan^{5,6}; our experience with such patients confirms the favorable results they noted.

TABLE IV: COMPLICATIONS OF LENSECTOMY-VITRECTOMY IN UVEITIS CATARACTS

COMPLICATIONS	NO CASES
Immediate (2 weeks)	
Choroidal detachment/effusion	3
Hyphema	2
Vitreous hemorrhage	2
Glaucoma	2
Hypotony	1
Moderate corneal edema	1
Long-term (> 2 weeks)	
Macular fold, striae, or pre-retinal membrane	3
Retinal detachment	1
Hypotony	1

Preoperatively, it is essential to render the eye as "quiet" as possible by means of topical, periocular, or systemic corticosteroids. Surgery was not performed on eyes with active (2+ cells) inflammation. Diamond and Kaplan⁵ attribute much of their success to the minimal degree of inflammation present in the eyes at the time of surgery. Preoperative ultrasound is also helpful in determining the degree of vitreous opacification; thickening of the choroid and the presence of a cyclitic membrane, which can create significant technical problems at surgery, can also be detected by ultrasound.

The major objective of surgery in these complicated uveitic cataract patients is to improve vision. In our cases, visual acuity improved significantly in all 12 eyes during the average 13 month follow-up period, comparing favorably to the visual results of Diamond and Kaplan,^{5,6} Kanski,⁷ and Fitzgerald.⁸

Surgery, however, does not "remove" the basic disease process. Thus, each patient must understand that the operation does not "cure" the uveitis and that remissions and exacerbations of inflammation may occur at any time in the postoperative period.

Vitreotomy may, however, favorably modify the dynamics of the uveitis process. Although lensectomy-vitreotomy does not reduce the inflammatory reaction in all cases, Diamond and Kaplan⁵ state that their patients noted a subjective decrease in the severity of recurrent episodes in the operated eye. Kanski⁷ presented a series of 77 cases of juvenile rheumatoid arthritis with uveitis and cataract treated with lensectomy and partial anterior vitrectomy. In Kanski's patients, who probably represent a very poor risk category, there was improvement in vision but no marked improvement in the course of the uveitis.

Our earlier management of such patients included an anterior (limbal) approach, lensectomy, and a limited anterior vitrectomy. Of four such operated patients, two had a postoperative course complicated by severe exacerbation of the uveitis; in another patient, vision was limited by significant increase in vitreous debris. We now feel that a more complete vitrectomy is important in such cases and recommend a pars plana approach. Lensectomy alone, however, in the presence of low-grade uveitis, has been reported in two studies to be moderately successful in juvenile rheumatoid arthritis patients.^{7,9} We feel that the benefits of vitrectomy outweigh the small additional risk of the pars plana approach.

The role of vitrectomy alone (in the absence of cataract or pre-existing aphakia) in the management of uveitis is not clear. Heinman (oral communication, February 1981) performed vitrectomies on 32 patients, 16 of whom had a lensectomy; 5 were already aphakic and 11 had clear lenses,

which were not removed at the time of the vitrectomy. Vision improved in 30 of 32 eyes; decreased visual acuity in the 2 eyes was related to cystoid macular edema and postoperative inflammation continued in many patients. Although these results are promising, we do not at this time recommend therapeutic vitrectomy in uveitis patients who have a clear lens.

Pupillary membranectomy and vitrectomy in aphakic eyes with uveitis has been reported in three patients.¹⁰ In our experience with four patients (not reported in this series), visual acuity improved in two, remained the same in one, and decreased in one, with the decrease in visual acuity due to cystoid macular edema in three eyes. In the one patient with decreased vision, visual acuity had improved to 20/300 postoperatively (preoperative vision of counting fingers) when, several months after surgery and off all medication, he suffered a severe recurrence of retinal vasculitis that resulted in no-light-perception vision, vitreous hemorrhage, retinal detachment, hyphema, and a phthisical eye.

Three cases of lensectomy-vitrectomy for uveitis cataract were excluded from our series because a scleral buckling procedure and SF₆ gas injection were performed concomitantly for pre-existing retinal detachment. These poor risk patients had postoperative visual acuities of 20/400, light perception, and counting fingers. One of these patients had pre-existing glaucoma that had been controlled medically and persisted after surgery. On the second postoperative day, another patient developed a hyphema complicated by corneal blood staining; he then developed fibrovascular proliferation, a traction band to the macula, and hypotony.

Cystoid macular edema was the major cause of decreased visual acuity postoperatively, although this is a frequent and serious complication of chronic uveitis even without surgery.¹¹⁻¹³ In our series, most eyes with postoperative cystoid macular edema had this complication at the time of surgery, as observed with the operating microscope. One case of cystoid macular edema resolved spontaneously several months after surgery.

Diamond and Kaplan⁵ suggested that vitrectomy may reduce cystoid macular edema and reported gradual resolution over the course of 1 year with considerable improvement in vision in some cases. Federman and colleagues¹⁴ reported complete resolution of cystoid macular edema in 20 of 22 patients who underwent vitrectomy for vitreous adhesions to the wound with persistent Irvine-Gass syndrome associated with mild vitreous inflammation. However, vitrectomy itself is a rare "cause" of cystoid macular edema.¹⁵ Other complications observed in our study were similar to complications known to be associated with cataract surgery, lensectomy, and vitrectomy.¹⁵⁻¹⁸

Although the long-term effects of lensectomy-vitreotomy on the course of the underlying uveitis syndrome are not known, the short-term results, including improvement in visual acuity, are encouraging, and it is anticipated that lensectomy-vitreotomy will become important in the management of patients with cataract and chronic uveitis.

SUMMARY

Cataract extraction in patients with chronic uveitis may be hazardous, although recent studies have indicated an improvement in prognosis using lensectomy-vitreotomy techniques in selected cases of uveitic cataracts. The results of lensectomy-vitreotomy in 12 eyes with uveitic cataract are reported. All patients had improvement in vision. No significant "flare-up" of the underlying uveitis occurred. The importance of extensive preoperative evaluation is emphasized. The major cause of decreased acuity postoperatively was persistent cystoid macular edema, a complication of chronic inflammation.

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DISCUSSION

DR G. RICHARD O'CONNOR. I was happy to have had the opportunity to review this excellent paper well in advance of this meeting, and I want to congratulate the authors on the work that they have done in a very difficult field.

The authors have shown that lensectomy-vitrectomy improved the visual acuity in 12 eyes operated on of 10 patients suffering from various types of uveitis. The major cause of decreased visual acuity postoperatively was persistent cystoid macular edema, and in all such cases cystoid edema had been present at the time of surgery (as observed through the operating microscope). The major complications of the surgery included choroidal detachment, hyphema, and vitreous hemorrhage. It would be of interest to know whether any of the patients who suffered from hemorrhagic complications postoperatively had had evidence of neovascularization preoperatively, for new-formed vessels are notoriously fragile. Thus, the filiform hemorrhage that occurs in patients with Fuchs' heterochromic iridocyclitis following keratocentesis can be traced to new vessels in the chamber angle.

The procedure performed by the authors appears to have altered the permeability of the retinal or uveal vessels in some cases. For example, patients 3, 4, and 8 developed a remarkable increase in flare postoperatively without a concomitant increase in cells, and this was in the absence of severe hypotony. This has also been observed by our group at the University of California in San Francisco.

While no patient in this series developed a serious exacerbation of uveitis postoperatively, seven eyes developed recurrences of mild to moderate iritis that was relatively easy to control with topical steroids. The one patient with ocular toxoplasmosis did not develop an exacerbation of her retinochoroiditis, whereas Fitzgerald has reported significant problems with the recurrence of inflammation in healed retinal lesions when she performed vitrectomy in cases of chronic ocular toxoplasmosis.

Perhaps the most disappointing aspect of the authors' study is that their operative interventions did not produce any appreciable long-term improvement in their patients' uveitis. The earlier studies of Diamond and Kaplan had indicated that an improvement in the uveitis might be expected, and indeed, there are some theoretical reasons for an anticipated improvement. The vitreous is a permeable gel that acts like a sponge for various antigens including Toxoplasma antigens and certain autoantigens. Thus, Fernando in 1960 was able to demonstrate the retention of ^{131}I -labeled albumin in the vitreous of rabbits for as long as

1 month after inoculation. It would seem that the removal of formed vitreous might get rid of a matrix containing suspended inflammatory cells, lymphokines, retained antigens, and other substances that might contribute to the perpetuation of a chronic uveitis. This did not seem to be the case in the present study.

Nevertheless, the dynamics of the uveitis might be improved, as the authors state in their paper. For example, lensectomy-vitreectomy has undoubtedly improved the prognosis of cataract operations in patients with the chronic iridocyclitis of juvenile rheumatoid arthritis, because the cyclitic membrane, which often formed years after the surgery and ultimately contributed to the detachment of the ciliary body, no longer appeared. These and other expected improvements should encourage the authors to continue their work on lensectomy-vitreectomy in patients with various forms of uveitis. They have certainly benefited some of their patients by this procedure.

DR DANIEL M. TAYLOR. I would like to congratulate Doctor Smith, who has demonstrated an excellent alternative form of surgical management for the problem of chronic uveitis and cataract. One of the main advantages of his surgical approach that was not brought out in his discussion pertains to the corneal endothelium. In general, when you have chronic uveitis, it will reduce the endothelial cell count because white blood cells tend to destroy endothelium. Cataract surgery superimposes perhaps a 10% additional cell loss that could result in corneal decompensation of a pre-existing compromised endothelium. With the closed technique and working from the posterior chamber, the damage to the endothelium should be considerably reduced.

However, I cannot refrain from offering an additional comment. Over the years, I have operated on a fair number of patients with chronic active uveitis and cataract. In general, I have found that these patients are not adversely affected by an intracapsular cataract extraction. I have usually found that posterior synechiae can easily be broken with a spatula, pupillary membranes can be excised and that the zonular attachments are weak, thus lending to a simple uneventful cataract extraction. Following surgery, these eyes tend to quiet down rather quickly. We, of course, carry these patients on a short-term course of systemic steroids both pre- and postoperatively and more prolonged utilization of local corticosteroid drops. I have not seen any disasters similar to those suggested by Doctor Smith that, in turn, caused him to utilize the lensectomy-vitreectomy approach.

DR STEVEN KRAMER. I want to ask a brief question. In this group of patients, one is walking a tightrope between wishing to use corticosteroids on one side and the resultant complications on the other. You mentioned glaucoma as a complication. I wonder if you had any sense in your patients that any of the glaucoma produced was steroid-induced and whether that further complicated that tightrope-walking process.

DR GEORGE L. SPAETH. I have had the same experience Doctor Taylor has had. These patients seem to do better than has been thought in the past. Even when the eyes are severely hypotonous, the results are often good.

The question relates to your comment that improved inflow accounted for a higher pressure following surgery; I wonder if this is speculation or if you have some way of documenting this. It is my experience that frequently the pressure does come up with a much healthier appearing eye following surgery. I would like to know your thoughts on this.

DR RONALD SMITH. I would like to thank Doctors O'Connor, Taylor, Kramer, and Spaeth for their comments. In terms of Doctor O'Connor's remarks about neovascularization, cyclitic membranes may well have a neovascular component and I would suspect that they may be one of the sources of bleeding in these cases. We also had hoped that the uveitis itself would be improved. It is difficult to measure that, but most of the patients have required the use of corticosteroids postoperatively. Doctor Taylor, I think one of the major problems we face is identifying the patient with uveitis who will, in fact, have no problems with cataract extraction. Each syndrome needs to be studied. The Fuchs' heterochromic cyclitis patients seem to do well with cataract extraction. We have also reviewed histories of 22 patients with pars planitis who underwent standard intracapsular cataract extraction. The large majority of these cases did very well, as you have pointed out. However, patients with chronic active inflammation do poorly. The problem remains, however, that we do not have good reports of large groups of patients with each of the syndromes who have undergone cataract extractions, so I think that the problem remains as to which group will do well with the operation. I fully agree with Doctor Kramer that steroid-induced glaucoma is a major problem in these patients, and I can't differentiate between these patients and those having glaucoma on the basis of inflammation. However, in patients with hypotony and iris bombé preoperatively, a closed angle is present and late glaucoma a reality. Doctor Spaeth, my comment is speculative, but I think that there may well be partial effusion of the ciliary body which may decrease aqueous production preoperatively. It is hoped, and this is also speculation, that if we can amputate the cyclitic membrane, the effusion would decrease and the eye improve in its appearance and in its ability to produce aqueous. I really don't have the answer to the question. Perhaps if we study more of these eyes in the laboratory, we may get an answer.