



مجله طب العيون پاکستان

PAKISTAN JOURNAL OF OPHTHALMOLOGY

THE OFFICIAL JOURNAL OF THE OPHTHALMOLOGICAL SOCIETY OF PAKISTAN

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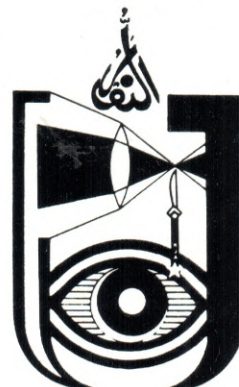
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PAKISTAN JOURNAL OF OPHTHALMOLOGY

THE OFFICIAL JOURNAL OF THE
OPHTHALMOLOGICAL SOCIETY OF PAKISTAN



July, 1993

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PUBLISHED QUARTERLY

Volume 9, Number 3

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Publisher: Khalid J. Awan, M.D., F.P.A.M.S.

Sponsor: Pakistan Academy of Medical Sciences and Ophthalmological Society of Pakistan

Manuscripts: Send manuscripts and all correspondence related to them to Khalid J. Awan, M.D., F.P.A.M.S. Editor, Pakistan Journal of Ophthalmology, 1921 Park Avenue, S.W. Norton, Virginia 24273 U.S.A.

Subscription: Non-members, Pakistan R. 400.00 per year; United States, \$50.00 per year; Elsewhere U.S. \$60.00 per year by surface mail and \$98.00 by air mail. Single copies: Pakistan Rs. 150; Elsewhere U.S. \$15. Send subscription with check or money order to Pakistan Journal of Ophthalmology, 1921 Park Avenue, S.W. Norton, Virginia 24273 U.S.A.

Replacement Issues-Policy: All requests for replacement of copies lost in the mail must be received within ninety (90) days of the last month the issue was published. After this period, a charge of \$10.00 per copy will be made, provided the copies are available.

Address changes: POSTMASTER please send address change to Pakistan Journal of Ophthalmology, 1921 Park Avenue, S.W. Norton, Virginia 24273 U.S.A.

Published quarterly in January, April, July and October.

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ISSN 0886-3067

A New Technique of Trabeculectomy with a Removable Suture*

Khalid J. Awan, F.P.A.M.S.

ABSTRACT: In trabeculectomy, the enhanced safety of the filtering procedure is imparted by its scleral flap. The excessive scarring of or inadequate seepage of the aqueous from under the same scleral flap may lead to failure of the operation. To overcome this situation, I have successfully employed in 10 patients the new technique of removable scleral flap suture. In this method, a scleral flap suture is tied with a half bowknot the fixed arm of which is cut short and the sliding arm long enough to be brought outside the conjunctiva and left there until the suture is removed by pulling on it within first five postoperative days. In one patient the suture could not be removed, probably due to its becoming caught in the local scarring. However, its exteriorized arm was pulled and cut so short as to allow its complete retraction under the conjunctiva. Out of the 18 patients who had this operation, seven formed good filtration blebs without removal of the suture. This removable suture technique is a very helpful alternative where laser photolysis is unavailable or impracticable. (*Pakistan Journal of Ophthalmology* 9: 57-59, July, 1993.)

The lower incidence of postoperative complications as compared with full thickness filtering procedures, such as Scheie's sclerocautery, posterior lip sclerectomy, Elliot's corneoscleral trephination, etc. has made trabeculectomy a highly popular procedure the world over. Nevertheless, some practical and theoretical considerations may still favor one of these total fistulizing procedures in selected cases, e.g. low tension glaucoma.¹

Despite several technical modifications in the procedure of trabeculectomy, the fundamental principle remains the same, a guarded outflow of the aqueous controlled by the lamellar scleral flap. The uncertainty about the ultimate degree of this function of the lamellar scleral flap remains a hurdle in definite predictability of trabeculectomy's success. To prevent failure of filtration laser lysis of the scleral flap sutures,² use of 5-fluorouracil, 3 etc. have been proposed. These techniques may not be easily available in many parts of the world. I have employed the new technique of a removable trabeculectomy suture with good success.

The technique involves closure of the scleral flap with 9-O nylon suture that is tied in half bowknot the long end of which is left hanging out of one end of the conjunctival incision. The suture is pulled out within first five postoperative days, depending on the rate of filtration.

Surgical Steps

1. Standard local or general anesthesia.
2. Subconjunctival injection of an appropriate amount of antibiotics in the inferior temporal quadrant.
3. Superior rectus bridle suture of 4-O silk.
4. A paracentesis in the clear limbal cornea at 3 o'clock or 9 o'clock position.
5. Formation of standard conjunctival and the Tenon's capsule flap at 11 o'clock or 1 o'clock with incision 9 mm or more behind the limbus.
6. Standard scleral lamellar flap dissection to create a 4 x 5 mm flap hinged at the clear corneal limbus.
7. Marking of the trabeculectomy area and relaxing the bridle superior rectus suture.
8. Removal of 1 x 3 mm limbal block that has the highest probability of containing trabeculum in it.
9. Irrigation of bleeding spots till the oozing stops.
10. Iridectomy by grasping the iris with a non-toothed forcep.
11. Irrigation until the oozing from the iris stops. (Irrigation should be done so that the stream of solution runs across and not into the iridectomy.)

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*Presented at the Ophthalmology '92, Ophthalmological Society of Pakistan, December 18, 1992, Lahore.

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Figure 1 (Awan): The exteriorized long end of the half bowknot 9-0 nylon scleral flap suture hanging out of the end of trabeculectomy conjunctival incision that has been closed with 7-0 polyglactin (Vicryl).

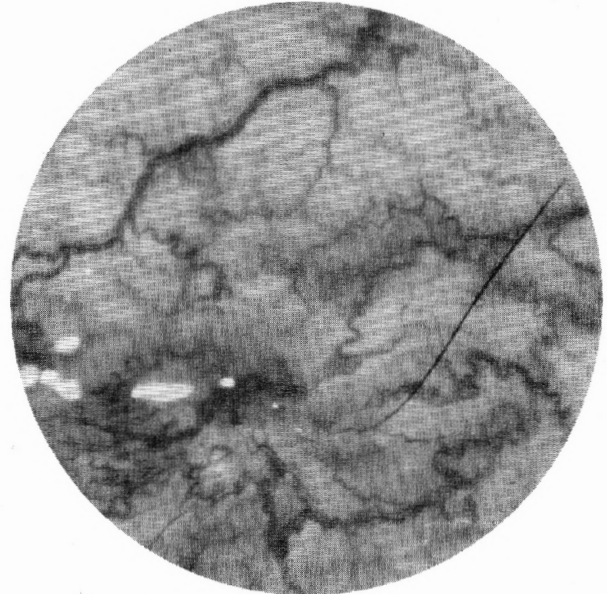


Figure 2 (Awan): Case 1, right eye. Notice the closure of the conjunctival incision with polyglactin (Vicryl) suture and the externalized end of the half bowknot 9-0 nylon suture's long arm at its nasal end.

11. Suturing of the lamellar scleral flap in position with a 9-0 nylon suture with a half bowknot, the fixed end of which is cut short and the long end cut to such a length that about 9 to 10 mm of it hangs out of the conjunctival incision.

12. Injection of the fluorescein colored solution into the anterior chamber through the paracentesis to gauge the tightness of the closure that allows just the right amount of leakage of aqueous from under the scleral flap while the anterior chamber remains formed on gentle taping.

13. Combined closure of conjunctiva and the Tenon's capsule with a mattress running suture of 7-0 polyglactin (Vicryl). The long end of the half bowknot scleral flap 9-0 nylon suture is left hanging out of one end of the closed conjunctival incision (Figure 1).

14. Ballooning of the conjunctival flap with sterile saline solution to check its watertight closure.

15. Removal of the superior rectus bridle suture and the lid speculum.

16. Instillation of antibiotic drops and patching of the eye.

Materials and Method

A total of 18 selected glaucoma patients, 11 men and seven women, ranging in age from 67 to 78, underwent this modification of trabeculectomy. All of the patients received full explanation of the procedure and each of them gave a properly informed consent in writing. All had been on extended medical therapy, mostly miotics and beta-blocker combinations.

If no filtering bleb was present on the third postoperative day, the nylon suture was given a gentle jerk and pulled out on the fourth or fifth postoperative day. This was followed by globe massage with a sterile cotton-tipped applicator under the slit lamp to create a bleb without losing the anterior chamber. The patient was instructed to perform finger massage daily from then on until the bleb became stable with satisfactory intraocular pressure. In patients who had spontaneously formed good filtering bleb, the nylon suture was left undisturbed for at least three weeks and then removed. All patients were placed on a combination of antibiotics and corticosteroid combination drops q.i.d.

Results

Out of a total of 18 patients who underwent filtering procedure employing removable suture trabeculectomy technique, seven formed a satisfactory bleb without the removal of the scleral flap suture. Ten patients, six men and four women, needed the removal of the scleral suture to form a good bleb. One patient, a woman of 74, did not form a bleb. She unfortunately could not return for follow-up visit till two weeks after the surgery. An attempt to remove the suture at that time failed, and suture was pulled and cut to allow its retraction under the conjunctiva. This patient required beta-blocker drops for control of intraocular pressure.

A Representative Case Report

CASE 1: A 71-year-old man underwent trabeculectomy with removable suture on his right eye (Figure 2). On the first postoperative day, he had an adequate bleb, but



Figure 3 (Awan): Case 1, right eye. Note that after the removal of scleral flap suture on fifth postoperative day, the bleb formation after gentle pressure on the globe under the slit lamp has not disrupted the healing conjunctival wound, confirmed by pooling but not flowing of fluorescein in the conjunctival wound.

on the second postoperative day it disappeared. When it did not reappear for the next three days, the removable suture was pulled out and the eye massaged under the slit lamp with a sterile cotton-tipped applicator. This produced a nice bleb without the loss of anterior chamber. The absence of leakage on fluorescein test confirmed that the massage had not disrupted the conjunctival wound (Figure 3). The patient was instructed to daily massage the eye, which was continued for three weeks. After a 16-month follow-up, a very satisfactory bleb has resulted (Figure 4), providing a good intraocular pressure control (intraocular pressure varying from 15 mm Hg to 18 mm Hg).

Comments

When I initially began performing this procedure, I did it in an attempt to find a way to improve filtration in the immediate postoperative period following trabeculectomy without resorting to the use of laser or chemical agents like 5-fluorouracil. After having performed this procedure on several patients, I became convinced of its value and of its being a good practical alternative for the developing countries. I have recently learned that Shin⁴ had described an only slightly different trabeculectomy technique with a removable suture. Because the major steps of the technique reported by Shin are very similar to the one I have outlined here, his earlier contribution deserves full recognition. Aside from who deserves the credit, the fact remains that the technique of trabeculectomy with removable suture is an excellent and useful innovation,



Figure 4 (Awan): Case 1, right eye. Notice an excellent filtering bleb one year after the trabeculectomy with removable suture. The intraocular pressure is under control without any medical therapy.

particularly for the developing regions of the world. It is important to realize that neither in Shin's series of 50, nor in my own 18 patients there was any infection, or other serious postoperative complication. A few of my patients had minor postoperative hyphema that required no management.

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Ophthalmic "Pastpourri"

Keller's First Letter

After only three and a half months tutoring by the determined Miss Anne M. Sullivan, Helen Keller, a deaf-blind, wrote to her cousin Anna Turner:

"helen write anna george will give helen apple simpson will shoot bird jack will give helen stick of candy doctor will give mildred medicine mother will make mildred new dress"

-June 17, 1887

Signet Classic Helen Keller's *The Story of my Life*

Camera Clinicals

In this section of THE JOURNAL, photographic documentation of interesting and challenging observations are presented to the reader. He should make the diagnosis from the information given here, and compare his conclusions with the expositions given on pages 71-72. -Editor

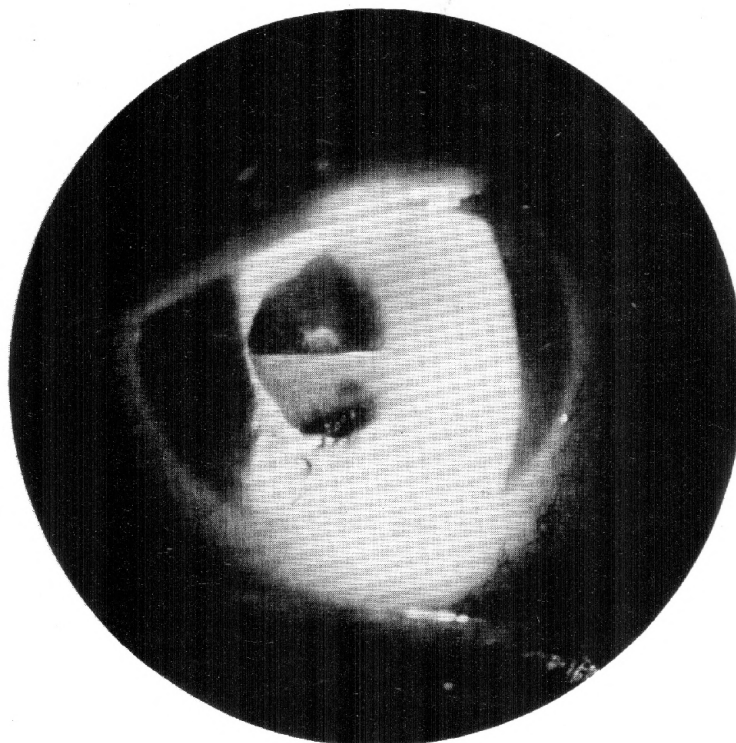


Figure 1

Figure 1: A 68-year-old woman (#10066) who had been under treatment for glaucoma for nearly 10 years underwent extracapsular cataract extraction with posterior chamber intraocular lens implantation in her right eye without any complications. On the first postoperative day the eye looked satisfactory, but on the second postoperative day the pupil was distinctly divided into two horizontal halves as shown in Figure 1. The patient complained of severe dimness of sight but had no pain or added irritation in the eye. On slit lamp examination, the anterior chamber and the intraocular lens implant appeared totally clear except for the usual postoperative cellular reaction. The intraocular pressure was 22 mm Hg, and there were no changes in the clarity of the vitreous.

The lightness of the lower half of the pupil in the black and white Figure 1 is due to the brightness of its color. The condition was treated with topical antibiotic and anti-inflammatory drops, and a regular monitoring of the intraocular pressure. The condition showed very slow spontaneous improvement, and took four months to completely clear. After the condition resolved, an opacification of the posterior capsule was discovered, resulting in the reduced visual acuity of 20/60 (6/18). A neodymium:YAG posterior capsulotomy resulted in the final visual acuity of 20/30 (6/9).

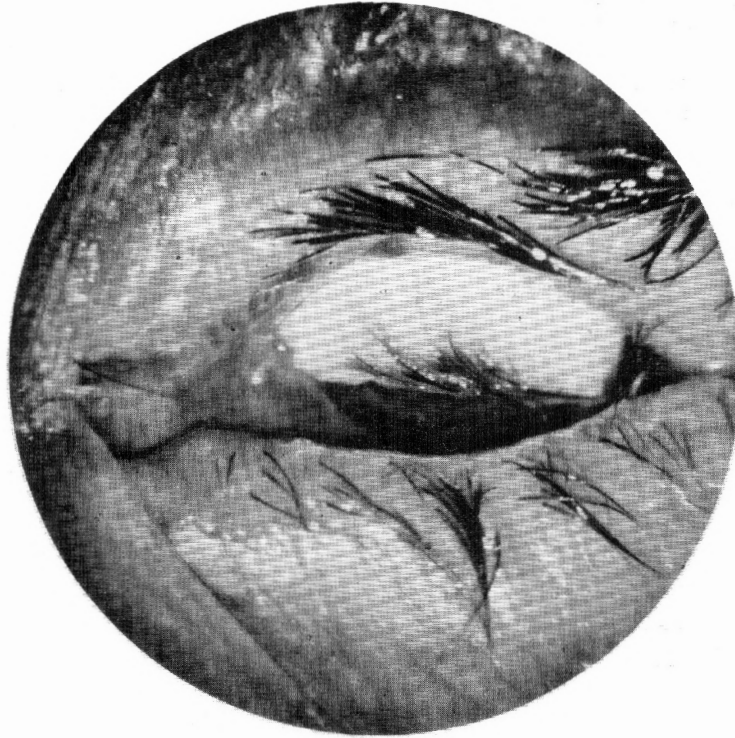


Figure 2

Figure 2: A 73-year-old woman, a resident of a nursing home, was brought in for ophthalmic examination because of chronic redness and off and on discharge from her left eye. Because of her mental deterioration, the patient was totally non-cooperative and oblivious to her systemic or ocular problems. As the patient was belligerent and not able to communicate, most of the information was collected from attendants and whatever scanty entries the nursing home medical records contained.

The patient has been for years non-ambulatory and preferred to be left alone. It was learned that her left eye had been removed long before she was placed in the nursing home, and one source told that it was probably in her childhood, because of some trauma. The right eye had never bothered her, or at least the attendants never noticed any problem with it. However, because of the chronic redness in her left eye, the nursing home doctors had prescribed various eye ointments and drops for years.

The eye examination showed that her right eye had an early to moderate cataract, and was otherwise externally normal. The intraocular pressure was normal with Schiøtz's tonometry. The left socket was red with chronic induration of the conjunctiva. There was thick whitish discharge in it. On cleaning the thick discharge from the left eye, it was noticed that there were two rows of eyelashes superiorly that were separated by greyish cartilaginous area (Figure 2). On closer inspection, the etiology of the double ciliary margin became clear, but unfortunately the patient did not return for follow-up due to her having been transferred to another out of state nursing home.

A TRIPLE-HEADER



Combined Conference

**Third Ophthalmological Congress of SAARC* Countries
17th Annual Congress of Ophthalmological Society of Pakistan**

and

Lahore Ophthalmo '93

December 16-19 (Thursday - Sunday), 1993

Alhamra Art Center, Lahore

For submitting ABSTRACTS and further information contact:
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Fax: (92-42) 583-4200

* South Asian Alliance for Regional Cooperation

ABSTRACT FORM

Title:

Author(s):

Reconstruction of the Eyelid by Using Semicircular Flap

M. Idrees Adhi, F.R.C.S.

ABSTRACT: We used semicircular flap technique to successfully reconstruct lower eyelid in one woman of 65 and the upper eyelid in another woman of 70 after the excision of large eyelid basal cell carcinoma. The technique was also helpful in reconstructing the lower eyelid in an 18-year-old woman with contracted socket. This patient also required a graft from the buccal mucosa. The technique also gave very gratifying results in another patient, a 15-year-old girl, who had developed ugly and contracted upper right eyelid with corneal exposure following severe osteomyelitis. This technique produces very satisfactory cosmetic and functional results. (Pakistan Journal of Ophthalmology 9:63-66, July, 1993.)

The technique of eyelid reconstruction using a semicircular lateral advancement as described by Tenzel¹ in 1975 has gained much popularity. It consists of creating a semicircular skin-muscle flap laterally, performing a lateral canthotomy and cantholysis, severing the lateral attachments of orbital septum, and advancing the flap medially to close the defect.²

Forty to 60 percent of the central and lateral lid defects can be repaired by this technique. Seventy-five to 80 percent of the lower lid defects can be reconstructed by some modification of it.²

I report in this paper the successful use of the semicircular flap technique in the upper and lower eyelid reconstruction in cases of eyelid tumors as well as in the reconstruction of unusual cases of contracted socket and post-osteomyelitis scarring involving the upper lid.

Material and Methods

This study includes four patients, all of whom were referred from the remote areas. Surgery was carried out under general anesthesia.

Tenzel's semicircular flap technique was used for obtaining the semicircular flaps to reconstruct the central and lateral portions of upper and lower eyelid as required. This also included the lateral canthotomy, inferior or superior cantholysis and severing the orbital septum from the orbital margins in the involved area.

The surgical aim in lower eyelid tumor in Case 2 and upper eyelid tumor in Case 2 was a total removal

of the tumor for biopsy and possibly cure in addition to acceptable cosmetic and functional results. In Case 3, the surgical target was to create a place to accommodate prosthesis in a contracted socket; while in Case 4 the surgical aim was to reconstruct cosmetically acceptable upper eyelid that also was capable of protecting the cornea without producing blepharoptosis.

To reconstruct the lower eyelid, skin and muscle incision was begun at the lateral canthus. It curved superiorly and temporally in a semicircular fashion. A lateral canthotomy was performed beneath the flap and inferior portion of lateral canthus tendon was cut.

In all four cases the orbital septum in the corresponding areas was cut to get greater mobility of the flap.

Five-0 silk was used to close the flap incision. The eyelid margins in Case 1 and Case 2 were reconstructed by placing the first suture with 6-0 silk through grey line. The anterior and posterior lid margin sutures were then placed and tied with long ends. Tarsal and muscle layers were closed by using 6-0 polyglatin (Vicryl) interrupted sutures while 6-0 silk interrupted sutures were used to close the skin wound in the repair of eyelid in Case 1, Case 2, and Case 3.

In Case 1 and Case 2, the tumor was excised including a 2 mm of healthy lid margin around it. The specimens were sent for histopathology.

In Case 3, buccal mucus membrane was obtained from oral side of the lower lip. The area was allowed to granulate in the center while the lateral ends were sutured with 6-0 Vicryl. Submucosal tissue was cleaned and immersed in the saline. Mucosa so obtained was used in reconstruction of upper and lower fornices. The graft was secured in position by using 6-0 polyglatin (Vicryl) interrupted sutures. The space

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Figure 1 (Adhi): Case 1, right eye. Notice a huge tumor of the lower eyelid. Its removal required 60% excision of the eyelid.

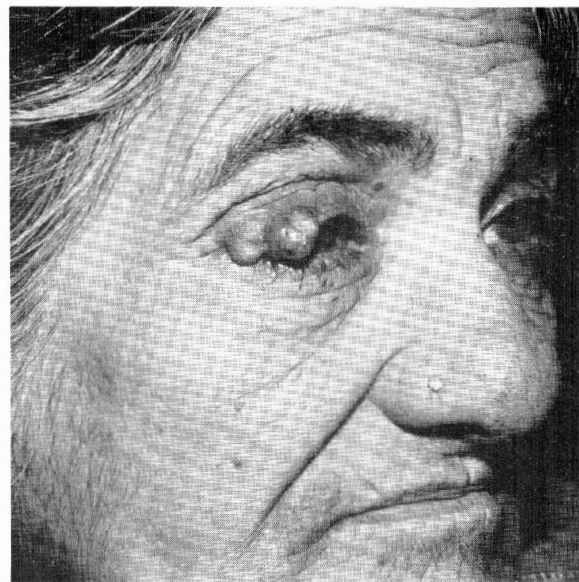


Figure 3 (Adhi): Case 2, right eye. Notice a large tumor of the upper eyelid.



Figure 2 (Adhi): Case 1, right eye. Five days postoperative appearance.



Figure 4 (Adhi): Case 2, right eye. The appearance of the upper eyelid five days postoperatively.

so obtained appeared of such a size as to be able to accommodate a glass marble.

In Case 4, apart from the semicircular flap, the upper eyelid surgical skin defect received skin from the medial aspect of the right arm. In the second procedure in Case 4, a free skin graft was obtained from post-auricular area. The subcutaneous fat was excised from the free graft before it was sutured in the upper eyelid defect with 6-0 interrupted silk sutures. Donor site was closed with 6-0 silk interrupted sutures.

Skin sutures were removed six days after surgery while the lid margin sutures were removed ten days postoperatively.

CASE 1: A 65-year-old woman was referred for for the excision of a large lower eyelid tumor (Figure 1). She had noticed this painless swelling on the lower lid for nearly one and a half year, gradually increasing in size. Her vision was recorded 20/30 (6/9) in the right eye and ame in the left eye. Her cornea did not reveal any epithelial or stromal disease on either side. No preauricular or cervical lymph nodes were palpable. Large pentagonal excision of the lower eyelid through healthy lid margin completely excised the tumor. Tissue so obtained was sent for histopathology. The eyelid gap measuring up to 60% of the eyelid was repaired using Tenzel's semicircular flap (Figure 2).



Figure 5 (Adhi): Case 4, right eye. Notice the severe post-osteomyelitis scarring of the upper eyelid.



Figure 6 (Adhi): Case 4, right eye. Appearance of the upper eyelid after six days after the second procedure.

CASE 2: A 70-year-old woman was referred for upper eyelid tumor excision (Figure 3). It was painless and was noticed to be slowly increasing in size, the duration of which patient could not recall. Her visual acuity was 6/12, OD and 6/12 OS on account of posterior subcapsular lens opacities. Her corneas were clear, and no local lymph nodes were palpable. The large upper eyelid defect after tumor excision was repaired by the technique described here (Figure 4).

CASE 3: An 18-year-old unmarried woman had undergone enucleation of her right eye because of severe trauma. She had developed contracted socket and was unable to insert any prosthesis in the anophthalmic socket. She had 6/6 (20/20) visual acuity in the left eye. Extensive fibrosis had obliterated the fornices and distorted lower eyelid was adherent to the fibrosed conjunctiva.

After excision of the adhesions, socket-bed and fornices were reconstructed using buccal mucosa. Lower eyelid was freed of adhesions and reconstructed using semicircular flap. With the reconstructed fornices and lower eyelid, socket could accommodate a marble. Unfortunately, this patient was lost to follow-up after four weeks, a disappointing fact of medical practice one too often comes across in our country.

CASE 4: A 15-year-old girl had a history of developing osteomyelitis after a severe skin infection over right temporal area couple of years back. The

resultant scarring involved the right periorbital area, producing scarred and notched right upper eyelid (Figure 5), not able to protect the cornea for which a medial tarsorrhaphy had been carried out elsewhere.

Her visual acuity was recorded at 6/12 in the right eye, because of stromal haze in the right cornea, and 6/6 in the left eye. There was no history of epiphora.

Surgical procedure included mobilization of adherent eyelid, reconstruction with semicircular flap along with grafting a free skin graft obtained from inner side of right ear, which unfortunately got infected.

At four-month postoperative follow-up the medial tarsorrhaphy was released and free post-auricular skin graft was used to replace the scarred anterior lamellae of the upper eyelid (Figure 6).

Results

In Case 1, the histopathology revealed basal cell carcinoma completely excised. Postoperative period was uneventful. On discharge after ten days her vision was 6/9, right eye and 6/9, left eye, with good Bell's phenomenon. Her right cornea was clear. There was no local recurrence during three months of follow-up. Thereafter, patient did not report for follow-up.

In Case 2 tumor free margin with basal cell carcinoma was reported on histopathology. Post-operative vision was 6/12, right eye and 6/12, left eye,

as recorded preoperatively. The patient could close the eye with no exposure. Mild blepharoptosis was noted because of the local edema in the initial postoperative period. It completely resolved in three to four weeks. No local recurrence was noted on six-month follow-up. The patient was lost to follow-up thereafter.

Regarding the Case 3, the young girl was extremely happy in postoperative period with black glass marble in her right socket and 6/6 vision in her left eye. The patient could take out, re-insert, and retain the glass marble up to four weeks on follow-up. Thereafter patient did not report for follow-up.

In Case 4, on discharge ten days after second graft, her vision was 6/12, right eye and 6/6, left eye, as noted preoperatively. She could close the right eye and there was no exposure. No drooping of the eyelid was noticeable. This extremely happy patient never reported back after discharge.

Surgical cure with acceptable cosmetic result was achieved in Case 1 and Case 2. Reconstructed contracted socket in Case 3 could accommodate the marble with good support of reconstructed lower eyelid. In Case 4, cosmetically acceptable functional upper eyelid was achieved.

Discussion

Most eyelid defects encountered by the ophthalmic plastic surgeon are created by the removal of eyelid tumors or are the result of trauma. When considering any reconstructive eyelid procedure, the surgeon must keep in mind that the lid consists of an anterior (skin, muscle) and the posterior (tarsus, conjunctiva) lamella. A reconstructive procedure must deal with each of these components to achieve acceptable functional and cosmetic results.³

In most cases lower eyelid can be pulled taut without causing any functional or cosmetic difficulty. If upper eyelid is too taut, blepharoptosis will result because of the bowstring effect caused by stretching the horizontally shortened upper eyelid between medial and lateral canthal tendons.⁴

The use of the lateral canthal area to reconstruct lower eyelid was first advocated by Imre.⁵ In 1975 Tenzel¹ first described the technique of semicircular flap in reconstruction of either upper or lower eyelid. The procedure consists of creating a skin muscle flap laterally, performing lateral canthotomy and cantholysis, inferior or superior as the case may be, cutting the lateral attachments of orbital septum and advancing the flap medially to close the defect. The procedure can be used in reconstruction of defects involving the 40% to 60% central and lateral eyelid.²

If attention is directed towards severing the orbital septum from its attachment at the inferior orbital rim and cutting the inferior retractions and conjunctiva at the inferior tarsal border, the flap can be completely mobilized and advanced. With the modification, up to 75 to 80 percent of the lower eyelid defects can be

successfully corrected using Tenzel's rotational advancement.²

In many circumstances the semicircular flap, if properly done, may be used in lieu of a Hughe's flap, chondronasal mucosal graft or scleral graft in the reconstruction of lower eyelid.²

With pentagon excision of the tumor in first two cases surgical cure was achieved with tumor free margins reported on histopathology.¹ Using semicircular flaps good cosmetic and anatomic results were achieved.

The technique proved useful in the reconstruction of scarred lower lid in Case 3 with contracted socket. Along with the buccal mucosal graft, used to form the fornices, the flap reconstruction gave good lower eyelid to anchor the marble.

The greater mobility required of the upper lid, its role in protecting globe and the limited amount of tarsal tissue available in the ipsilateral lower eyelid combine to pose unique difficulty in reconstruction.⁶

In Case 4 with post-osteomyelitis scarring the upper eyelid was deformed, shortened, scarred and adherent to the periosteum. Using semicircular flap combined with free skin grafts produced acceptable cosmetic and functional result.

In a country like Pakistan where concept of ophthalmic subspecialty practice is yet to prevail, most ophthalmologists end up practicing general ophthalmology, and coming across eyelid reconstruction problem is no exception. I believe that with good anatomical concepts Tenzel's semicircular flap technique for eyelid reconstruction is very rewarding both cosmetically and functionally.

Acknowledgements

Thanks are due to Mr. Ibrahim Ismail and to Dr. Mehmood Saeed of Jinnah Post Graduate Medical Center, Karachi for his help in finding references.

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Safety and Efficacy of Extracapsular Cataract Surgery without Operating Microscope

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ABSTRACT: We conducted a prospective study to assess the safety and efficacy of extracapsular cataract surgery without operating microscope. A total of 989 patients with senile cataracts were included in the study. Male to female ratio was 1.8:1. Intra-operative and immediate post-operative findings showed that forty nine patients (4.95%) had vitreous loss. In ninety-one patients (9.2%) posterior capsular rupture was detected on the first post-operative day when examined under slit lamp. Three patients (0.3%) had an iris prolapse and six cases (0.6%) had a flat anterior chamber due to a leaking wound. One hundred and twenty-six patients (12.74%) had mild to moderate striate keratopathy. Eighteen patients (1.82%) had residual soft lens matter enough to interfere significantly with vision. All such patients were re-operated. None of the patients developed infective endophthalmitis. (*Pakistan Journal of Ophthalmology* 9:67-68, July, 1993.)

Since some extracapsular cataract surgery is routinely performed without operating microscope in our department due to scarcity of space and resources, we endeavored to assess the safety of the procedure by documenting the incidence of various intra- and post-operative complications. We also compared our figures with currently published figures in the literature.

Materials and Methods

The study is based on 989 consecutive patients for cataract surgery in the Ophthalmic department of the Postgraduate Medical Institute, Lady Reading Hospital Peshawar, during the period of November, 1990 to December, 1991. All the patients went through routine urine and hematological investigations one day before surgery. No preoperative topical antibiotics were prescribed. All these patients were operated under local anesthesia using the standard peribulbar technique. Pupils were dilated with a combination of mydriacyl 0.5% and phenylephrine 10%, half hour before the operation. Proparacaine hydrochloride 0.5% was instilled 4-5 times to achieve topical anesthesia.

Surgery was performed by surgeons who have minimum experience of one year in cataract surgery. The only magnifying aid used was a x2 loupe with an overhead operating light.

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The operative procedure in all cases consisted of either a corneal section or a cornea-scleral incision with a fornix based conjunctival flap. Capsulotomy was performed with 1cc disposable syringe using the Can-opener technique. The nucleus was expressed with the Smith technique and the remaining cortical material was aspirated with the help of Simcoe Irrigation aspiration cannula. The section was either sutured with 10-0 monofilament nylon or 8-0 virgin silk. The irrigating fluid used was Hartman's infusion fluid.

Postoperative care was simple in our study. Bed rest was not compulsory, bathroom privileges and regular diet were allowed after the operation.

All patients were examined on first post-operative day with the help of a slit lamp. Operative details and the results of first post-operative examination were entered on a standard proforma. Particular attention was directed to the presence of any residual lens material in the pupillary area and the integrity of the posterior capsule.

All the patients were discharged on the first post-operative day, except those who required repeat surgical intervention.

Results

A total of 989 patients had extracapsular cataract surgery without the use of an operating microscope, out of these 619 were male (62.66%) and 370 were female (38.44%).

The results of the study showed that 49 cases had vitreous loss during surgery. Examination with a slit

lamp on first post-operative day showed three cases with iris prolapse, six cases with a flat anterior chamber due to leakage from the section and one hundred twenty-six cases with mild to moderate striate keratitis. Ninety-one patients had posterior capsule rupture. Eighteen patients needed repeat lens matter aspiration. None of the patients had raised intraocular pressure or signs of endophthalmitis. The results are summarized in Table 1.

Table 1
Principal operative and early post-operative complications arising from non microscopic extracapsular cataract surgery.
(Total number of patients, 989)

Complication	No.	%
1. Vitreous loss	49	4.95
2. Iris prolapse	3	0.30
3. Leaking wound	6	0.68
4. Posterior capsular rupture	91	9.20
5. Repeat lens matter aspiration	18	1.82
6. Striate keratopathy	126	12.74
7. Raised intraocular pressure	None	
8. Infective endophthalmitis	None	

Discussion

Our department has seen a complete shift from intracapsular cataract extraction to extracapsular extraction in the past four years. This has been mainly due to the reported decrease in the incidence of cystoid macular edema¹ and aphakic retinal detachment.² The universal popularity of the posterior chamber implant has also contributed to change the surgical habit of a lifetime. Although the argument for the need of an intact posterior capsule for the purpose of posterior chamber implantation are convincing enough, the need for the same in plain cataract surgery remains to be established, particularly in the developing countries. The matter is further complicated by the development of secondary posterior capsule opacification, with the incidence reported as high as 20% per year.³

Most of the complications in cataract surgery are easily amenable to remedy such as a leaking section, iris prolapse and incomplete clearance of cortical lens material. On the other hand operative complications like vitreous loss and posterior capsule rupture have far reaching consequences for the eye and it is these two that will be mainly discussed.

Since posterior capsule cannot be easily identified with the naked eye it is susceptible to damage by the I/A cannula leading to a tear in the capsule itself or its dehiscence from the zonules. There is wide variation in the incidence of posterior capsule rupture reported in the literature. Acheson, McHugh and Falcon⁴ report a

figure of 8% for this complication, while the OCTET (Oxford Cataract Treatment and Evaluation Team) study has not reported any case of posterior capsule rupture in their 112 patient series.⁵ Our study gives a figure of 9.2% for the above complication but when combined with patients, who had vitreous loss, the final figure goes up to 14%. This figure is certainly higher than those published in the current literature. Eighteen patients (1.82% had excess cortical remains and were taken back to the theater for its clearance. The OCTET study reported a figure of 2.6% for the same complication which is higher than ours. It is pertinent to mention here that it is patients with nuclear sclerosis who suffered more from this complication. Forty-nine patients (4.9%) had vitreous loss. Falcon et al reports 2% incidence of vitreous loss in extracapsular surgery while the OCTET study has quoted a 6.2% incidence. Our figure therefore falls between and is in conformity. The loss of vitreous during surgery has many untoward consequences for the eye. Thus the emphasis on prevention of this disastrous event were recognized as early as 200 years ago by A.G. Richter of Germany.⁶ The rate of vitreous loss has decreased steadily from the reported 12.7% in 1601 to less than 1% presently. The use of an operating microscope has been termed mandatory for surgery performing extracapsular cataract surgery. Although extracapsular cataract surgery without an operating microscope is not ideal, the above figures show that naked eye surgery with an appropriate binocular loupe can be carried out under circumstances of inadequate resources, such as rural eye camps in developing countries, where microscopic facilities are not available.

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Society's President of Pakistan Gold Medal-1992

THE HISTORY: In 1979, President of the Islamic Republic of Pakistan, the late Gen. Muhammad Zia-ul-Haq *Shaheed*, instituted the President of Pakistan-Ophthalmological Society of Pakistan Gold Medal, to be awarded annually to the most outstanding Pakistani ophthalmologist of the year. He also suggested that the award be named after the pioneer ophthalmologist of the country, the late Professor Ramzan Ali Syed. In the early years, the medal was awarded to ophthalmologists whose efforts have been instrumental in promoting ophthalmology in Pakistan. Gradually, the scholarly academic accomplishments also started figuring in choice of a recipient.

In 1989, the Awards Committee of the Society, the members of which included Professor Murad Ali, the late Lt. Gen. Wajid A. Burki, Professor M. Daud Khan, Professor Raja Mumtaz, Professor Muhammad Nawaz, the late Professor Mahmud Ali Shah, and the late Dr. Jamshed H. Wania, met to establish clearly defined guidelines for the future selection of the recipients.

THE CRITERIA: The Awards Committee recommended the following qualifications:

1. The nominee must be a member in good standing of the Society for at least ten years.
2. He should have been an author of at least four original scientific papers that have been published in the recognized indexed journals.
3. He should have been an author or a co-author of a book on ophthalmology.
4. He should have some original published research work to his credit.
5. He should have been an outstanding teacher in ophthalmology for at least ten years.
6. He should be a person of high academic reputation, and should have made outstanding contributions toward the promotion of ophthalmology in Pakistan.
7. He should have to his credit some commendable social service in the field of ophthalmology.
8. He should have high moral and professional ethics, and should neither have ill reputation for malpractice, nor have been convicted of any immoral, criminal, or professionally reprehensible act by the court of law or any other legitimate professional investigative body.
9. He should have attended and made presentations at a minimum of four international ophthalmic congresses in his career.
10. He should have attended at least ten national ophthalmological conferences, at which he should have presented basic or clinical papers as the primary or senior author.

THE PAST RECIPIENTS: The first recipient under these guidelines was Khalid J. Awan, MD, FPAMS in 1989. The other recipients of the President of Pakistan-OSP Gold Medal since its institution are the late Dr. Abdus Sattar (1980), the late Lt. Gen. Wajid A. K. Burki (1981), Dr. Sohrab Dinshaw Anklesaria (1982), the late Professor Mahmud Ali Shah (1984), Drs. Norval Christy and Ronnie Holland (1985), Professor Raja Mumtaz Quli Khan (1986), Professor Mohammad Nawaz (1987), the late Dr. Jamshed H. Wania (1988), Professor M. Lateef Chaudhary (1990), and Professor Mohammad Daud Khan (1991).

1992 Citation (Read by Professor Raja Mumtaz)

Professor Khwaja Sharif-ul-Hasan, the son of Khwaja Zia-ul-Hasan was born in 1936 at Aligrah (Pre-Independence India). His family migrated to Pakistan after it became a free nation. Now he is living in Karachi. He matriculated in 1951 from the Government High School, Dera Ghazi Khan, and got his M.B.,B.S. from the Dow Medical College, Karachi in 1958. After

a house job in the Eye Department of the Jinnah Central Hospital, Karachi with the late Dr. A.D. Minhas and a year as a demonstrator in physiology at his alma mater, he went to England in 1960 for higher education. There he worked with renowned consultants, and also joined the Moorfields Eye Hospital, Institute of Ophthalmology, London. He



Figure: Professor Khwaja Sharif-ul-Hasan is receiving 1992 President of Pakistan-OSP (Ramzan Ali Syed) Gold Medal from Mr. Graham Layton at the Society's 16th Annual Congress on November 24-26, 1992 at Karachi. Standing on the left is Dr. Ziauddin Ahmed Shaikh.

attended various courses in basic medical sciences at the Royal College of Surgeons, and received his Diploma in Ophthalmology (DO) from the Royal College of Physicians and Surgeons of England in 1962. He did his fellowship (FRCS) from Edinburgh in 1971, and was awarded fellowship of the England's College of Ophthalmologists (F.C.Ophth.) in 1988. In 1972, he received appointment as Assistant Professor of Ophthalmology at the Liaquat Medical College, Hyderabad, and then at the Dow Medical College in 1977. He returned to the Liaquat Medical College in 1982. Two years later, he was promoted to his present position of the Professor and Head of the Department of Ophthalmology, Dow Medical College. In addition to this, he is the Chairman of Postgraduate Education Committee of the Dow Medical College, Secretary, Faculty of Ophthalmology, College of Physicians & Surgeons Pakistan, an organizer of the College's fellowship and membership courses, a member of the National Committee for Cure and Prevention of Blindness, the President-Elect of Ophthalmological Society of Pakistan, a Life Patron of the Al-Shifa Trust for the Prevention & Cure of Blindness, Rawalpindi, and the Chairman, Organizing Committee, the 16th Annual Congress of the Ophthalmological Society of Pakistan. He is a past-President of the Karachi Branch of Ophthalmological Society of Pakistan. He holds membership of different national and international societies, including the Ophthalmological Society of United Kingdom, the Oxford Ophthalmological Congress, Pakistan Medical Association, etc. He is a member of the Editorial Board of *Pakistan Journal of Ophthalmology*, and is an Honorary Editor of *Spectrum*. He is an examiner to various universities in Pakistan. He has visited many countries to attend conferences and workshops. There

are 11 research publications and 32 scientific national and international presentation to his credit. He has arranged six eye camps in different parts of the country.

Professor Sharif-ul-Hasan has also been a very good sportsman. He has represented the Dow Medical College in field hockey, athletics, basketball, and soccer. He was the best sprinter of Dow for years 1953-57. He was a captain and color holder in field hockey and athletics.

In recognition of his achievements, the Awards Committee has decided to award Professor Khwaja Sharif-ul-Hasan the Society's 1992 President of Pakistan's Ramzan Ali Syed Gold Medal.



Ophthalmic "Pastpourri"

Nudging the Nucleus

EXACTLY A CENTURY AGO, Arnold wrote about his observations on cataract extraction by Zurich's Professor Otto Haab (of Haab's Giant Magnet fame), who employed extracapsular technique. He made the following comment on his technique:

"Professor Horner used to press on the lid with the thumb in such circumstances (to express the nucleus and cortex), but Professor Haab does not now employ the procedure, as it may eject the contents of the Meibomian follicles into the incision, and he simply relies of the rubber spatula (for pressure on the lower corneal margin)."

-Dr. Theodor Arnold

-1893

-122-93463

Figure 1

Retropseudophakic Endocapsular Hemorrhage after Extracapsular Cataract Extraction with Intraocular Lens Implantation

Khalid J. Awan, F.P.A.M.S.

ABSTRACT: On the second postoperative day following an uncomplicated extracapsular cataract extraction from her right eye, a 68-year-old woman developed an unusual intraocular hemorrhage that was confined to the space between the posterior surface of the lens implant and the posterior capsule. The hemorrhage occupied the lower half of the pupillary space and seriously obstructed the sight. Other than the visual symptoms the eye remained comfortable and uninflamed. The hemorrhage differed from the ordinary postoperative hyphema in that it took unusually long, four months, to spontaneously clear up. When hemorrhage cleared the posterior capsule had become opacified, the neodymium:YAG laser capsulotomy of which gave final visual acuity of 20/30 (6/9) in the involved eye. It appears that other than taking a long time to spontaneously clear up, this type of hemorrhage is not a serious complication, with a very good eventual prognosis. (Pakistan Journal of Ophthalmology 9:60,71, July, 1993.)

On rare occasions, I have seen on the postoperative day a small piece of cortex or a tiny fragment of iris epithelium caught between the lens implant and the intact posterior capsule. These, however, become rapidly absorbed and never cause any serious loss of sight. Also, postoperative hyphema is not an uncommon complication, but this too absorbs rapidly. Some authors have reported cases of hypopyon or endophthalmitis sequestered in the capsular bag.^{1,2}

Recently, Hagan and Gastrand³ reported six patients with what they termed "endocapsular hematoma" following extracapsular cataract extraction with intraocular lens implantation. In this postoperative complication the patients does not appear to have a usual hyphema, but a collection of blood between the optic of the implant and the posterior capsule as is shown in Figure 1 here. They distinguished this entity from the standard hyphema by (1) the location of the blood, (2) the much smaller amount of blood in the endocapsular hematoma, (3) its occurrence without an accompanying anterior chamber or vitreous bleeding, and (4) much slower absorption of the endocapsular hemorrhage. They also found that when spontaneous absorption of endocapsular blood does not take place even after a long period of waiting, it can be drained into the vitreous by Nd:YAG capsulotomy.

It seems that the slow absorption of the blood from the capsular bag results from inability to come in contact with the iris and becoming diluted by mixing with the aqueous.³ Out of Hagan and Gaasterland's six patients only one showed spontaneous absorption after a long period of eight months, and even then the absorption was not complete. Therefore, they resorted to allowing the blood to leak into the vitreous after Nd:YAG laser capsulotomy, if the hematoma failed to improve after a fair amount of waiting. They think that if vision is significantly obstructed, it is a good option for handling this unusual complication.

They postulated that the probable source of endocapsular blood, like the hyphema, is the cataract incision. I think that the bleeding does not happen directly into the capsular bag, but is the part of hyphema that itself rapidly disappears but the blood that goes behind the implant becomes caught there due to formation of capsular adhesions.

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Figure 2

Pseudo-Ciliary Margin after Neglected Long-standing Orbital Implant Extrusion

Khalid J. Awan, F.P.A.M.S.

ABSTRACT: A 73-year-old woman, a resident of a nursing home, developed slow extrusion of the orbital implant from her left socket. The left eye had been enucleated many years before, or perhaps in childhood, presumably due to trauma. Because of her deteriorating mental faculties, the patient had become extremely non-cooperative and totally oblivious to her ocular or systemic problems. Because the patient never complained about it, for years the nursing home doctors kept treating the redness of the left eye, caused by the extruding implant, as chronic conjunctivitis. Gradually, the low grade infection and discharge accumulated under the upper eyelid as a white cheesy platform which kept catching the loose eyelashes in it. The blinking motions of the eyelid brushed the caught eyelashes into a smooth row which took the shape of a pseudo-ciliary margin behind and below the upper eyelid margin. The cleaning of the pussy discharge from the most recent flare up of conjunctival inflammation uncovered this unusual clinical situation. A closer inspection of this additional row of eyelashes and the structure to which it was attached revealed the true nature of this unique pseudo-ciliary margin. (Pakistan Journal of Ophthalmology 9: 61,72, July 1993.)

Figure 2 presents a bizarre and unique ocular condition in which the patient appears to have two upper eyelids on top of each other. The abnormal eyelid is a whitish structure with its own row of eyelashes, and it is lying under the normal upper eyelid. The condition became apparent only after the thick pussy discharge of the most recent conjunctival inflammation was carefully wiped off. The initial impression was that these abnormal eyelashes were the cause of chronic long-standing inflammation. The closer inspection showed that the pseudo-eyelid was not a real tissue but a collection of cheesy material from low grade infection and chronic irritation of the conjunctiva. Over a period, the broken or loose eyelashes had become caught in it, and the blinking motions of the upper eyelid had brushed these lashes into a nicely aligned row and the thickened discharge into a flat and smooth platform.

The patient had undergone enucleation of the left eye long time ago, perhaps in late childhood, due to injury.

The orbital implant had at some point started extruding, but it did not or could not, because of the patient's complete lack of cooperation due to her mental and physical deterioration, get properly diagnosed. Over the years, the nursing home doctors kept treating the recurrent irritation caused by the extruding orbital implant as a chronic conjunctivitis. Because of the severity of the recent conjunctivitis episode, the patient was brought to my attention.

Unfortunately, the planned surgical intervention and pathologic study could not be carried out as the patient did not return for follow-up. The nursing home informed me that patient had been transferred to another out of state nursing home.

Several situations can give rise to the doubling of the eyelash rows. Ectopic cilia and distichiasis are rare congenital abnormalities.¹ Trauma may also disorganize eyelid margin, causing a spurious doubling of ciliary margin. Scheie and Albert² reported that acquired cilia may arise from the meibomian glands of chronically inflamed eyelids.

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Death of a Father

Khalid J. Awan, F.P.A.M.S.

Bismillaahir Rufimaanir Raheem. Nuhmodoho wa Nosullee A'alaai Rasoolihilkareem.

"A great, pious, and just king died. When Azrael (the angel of death) returned to heaven with his soul, the other angels asked him:

'Have you ever felt pity for anyone during your assignments?'

'Yes,' said Azrael, 'once a woman gave birth to a baby boy in a desolate desert where there was no human around for miles. I had been sent to collect her soul, and the infant was left behind with none to look after him. I couldn't help feeling great pity for that helpless baby.'

'Do you know,' said the angels, 'the soul of the mighty king you have brought today belongs to the same infant you left in that wilderness.'

'Glory be to the Most Merciful Who does what He wills,' cried the Angel of Death."¹

That the true purpose of why anything happens is known only to the Almighty is illustrated by the above anecdote from the philosopher-jurist *Imam* Al-Ghazali's *Keemya-e-Sa'aadut*. Nonetheless, some events in life render even the strongest of faith to a flimsy barrier before the sense of loss and heartache that ensue them. Death of a parent is one such tragedy.

A physician is, or at least is supposed to be, fully versed in handling the professional, social, and even spiritual aspects of death. But the sudden death of my father earlier this year shook me, and made bare the facets of this phenomenon that I was oblivious to before. I was overwhelmed by apprehensions, regrets, and grief that no professional expertise could eradicate or ease. My father's presence, his advice, his prayers were an invincible shield between me and all adversity, and because of it I fearlessly took on every challenge that came my way. After his demise, there quietly appeared a strange reluctance, a caution in my approach. In Whittemore's² words, "With his passing I was abruptly stripped of any illusions of my own immortality; no longer might I comfort myself with the thought that he was next in line ahead of me. For any boy, that is one of his father's silent functions—to stand as a shield between his son and the abyss."

For me, my father also was the role model in my professional conduct. His utter lack of greed and intense concern for his patients nurtured in me the desire to become a doctor. He was fiercely self-dependent, and would rather limit his needs than to put himself under obligation to others. This taught me the true meanings and value of self-respect. For years, when I still was a

boy in school, it was my father's daily routine to play chess in the evening with the Nawab of Kalabagh, Malik Amir Mohammad Khan. (Their both being Awans perhaps had something to do with this camaraderie.) When later the Nawab became the powerful Governor of Punjab, I thoughtlessly asked my father if he would intercede with the Governor to get me an appropriate medical posting. "No son," he made emphatically clear, "if I do this, all my friends will think I foster friendships for personal gain. The quickest way to lose respect in the eyes of others is to bring them your needs. Faith in God and self-reliance mean that the need you cannot meet yourself isn't your need." Yet, when it came to others, I don't remember him ever saying no to anyone who sought his help. I so many times saw him readily going to the office door of even the lowliest bureaucrat to plead for as menial a job as that of a janitor or a gardner for some poor family man. His demise took away from the people around him an ever-willing benefactor; from me, my earthly wellspring of steadfastness.

Months later, faith, reflecting, and time have greatly eased my grief and fears. Why, then, make it the subject of a commentary in the JOURNAL? For a healer must appreciate in depth the physical as well as the psychologic aspects of human existence, I supposed, perhaps too pretentiously, that my reflections on my recent bereavement might shed some purposeful light on the latter aspect. Moreover, we—I mean most of our colleagues—have reached that stage in life where many among us have already suffered this tragedy, and the others too will sadly face it in time. And because there can't be any material answers to something that comes to a physical end, I thought my musings on my father's death may be of some consolation or comfort to others.

My apprehensions arose from my losing his guidance and prayers that in my mind never missed their mark, my regrets from not having been there with him all that time, and my grief from losing someone who loved me so dearly yet so selflessly. Who would I now open myself to when plagued by inner fears and doubts?

As the shock of my father's death began wearing off, my attention became more focussed on my own role as the leading link in the life chain of my family. I found in me an unconstrained willingness to be more attentive to the needs of my children, more eager to extend to them my hand in help, and more tolerant to their youthful antics. Also, because my father's wisdom and experience are there no more to boost me, a more deliberate behavior has quietly displaced the impetuosity in me. A keener awareness of my own mortality brought on by his passing has erased from my mind every temptation to place any expedient consideration

before honesty or self-esteem. Even in his death, my father has taught me how to be a better father and man. An intelligent person would learn from anyone's death. Said the Prophet *Sullullaho Alaeh wa Sullum*: "Kafaa bilmaote waeezhun." (Death is the most effective preacher of them all.)¹

To ponder over the philosophical and spiritual perceptions of death is an efficient balm to the bereaved's grief and depression. This is not necessarily restricted to one's religious beliefs, for a rational analysis of the day to day observations about life and death may also bring solace to one by giving a clearer understanding of this reality.

Death is not the end. Socrates, though not very vocal about God, was totally convinced of the immortality of soul. Hence, when authorities hand Socrates the cup of hemlock, Crito asks him in Plato's *Phaedo*, "How shall we bury you?" "However you please, if you can catch me and I do not get away from you," replies Socrates with a gentle laugh. Clearly, he was speaking of man's true self, his soul, which on leaving the prison of flesh becomes free of all confines, and never perishes. Death simply is a transformation. Plato³ held that death is "nothing but the divorce of two separate entities, body and soul." But where does the soul go after severing its corporeal bonds?

Returning to its Maker is a deeply rooted spiritual concept about soul. "I will take no more my physick, not even my opiates; for I have prayed that I may render up my soul to God unclouded," insisted Dr. Samuel Johnson, the renowned lexicographer, in the final days of his terminal illness.⁴ Proclaims the *Holy Qur'aan*: "Say, Allah gives you life, then gives you death; then will gather you together on the Day of Judgement; about this there is not the least doubt." (45:26)

The soul's breaking of ties with this world is complete and permanent. But luckily, in Islam a

meaningful and continued relationship, if not a direct contact, may be maintained between the departed soul and those it leaves behind. A *Hadith* says, "When a man dies, all his ability to earn reward from good deeds is lost. But there are three things that keep bringing benefit to one even after one's death. Firstly, an ongoing charitable trust one established or participated in during one's life; secondly, the beneficial knowledge one imparted to others while alive; and thirdly, those devoted offsprings who regularly pray for his salvation."⁵ It makes me reassuringly content that my father did the necessary to keep benefitting from our world even after his death.

Yes, my dad is dead, but his existence has not ended. He continues to live, in Heaven in reality and in our hearts symbolically. I am sad no more, for I am too occupied being the "devoted offspring" that the Prophet *Sullullaho Alaeh wa Sullum* mentions in the above *Hadith*. My bosom is still full of his love, my deeds still add to his good name, and my prayers are still filled with supplications for his salvation. And I add to my every prayer, bless, too, O Allah, all the fathers of my colleagues, those living with them on this earth, and those living with God's promise in hereafter.

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Ophthalmic "Pastpourri"

King's Evil, Eye, and the Royal Touch

The famous Dr. Samuel Johnson (1709-1784), writes his biographer James Boswell, "had the misfortune to be much afflicted with the scrophula, or king's evil, which disfigured a countenance naturally well formed, and hurt his visual nerves so much, that he did not see at all with one of his eyes, though its appearance was little different from that of the other." "One day," narrates on Boswell, "when the servant who used to be sent to school to conduct him home, had not come in time, he set out by himself, though he was then so nearsighted, that he was obliged to stoop down on his hands and knees to take a view of the kennel before he ventured to step over it." Referring to a popular belief of those days, Boswell informs that young Johnson's mother "yielding to the superstitious notion, which, it is wonderful to think, prevailed so long in this country, as to the virtue of the regal touch; a notion which our kings encouraged, and to which a man of such inquiry and such judgement as [Thomas] Carte could give credit; carried him to London, where he was actually touched by Queen Anne.... This touch, however, was without any effect."

- James Boswell - 1791
(*The Life of Samuel Johnson*, Penguin Books, London, 1979, pp 38-39)

Book Reviews

Edited by Khalid J. Awan, F.P.A.M.S.

ATLAS OF FLUORESCEIN ANGIOGRAPHY. 1993. By Alex E. Jalkh, Jose M. Cicerio and a contribution by Carlos W. Arzabe. W.B. Saunders Company, The Curtis Center, Independence Square West, Philadelphia, PA 19106-3399. Hardcover, 255 full-sized pages, illustrated with 484 color and black and white figures, index. Price: US\$140.00.

Fluorescein angiography has become as common an office procedure in modern ophthalmic practice as doing perimetry or ultrasonography. Therefore, there exists a real and important need for texts and atlases that not only explain the basics and techniques of fluorescein angiography but also impart to the readers up-to-date and the latest developments in the field. The *Atlas of Fluorescein Angiography* genuinely fulfills this need.

The authors have divided the contents of the book into six major sections of Basics and Techniques of Fluorescein Angiography, Fluorescein Angiography: Normal Transit and Interpretation, Diseases Affecting the Retinal Pigment Epithelium and Choroid, Diseases of the Retina and the Vitreoretinal Interface, Intraocular Tumors, and Optic Nerve Disorders. All sections, excepting the Section 2, are preceded by a very informative but concise one- to three-paragraph introductions. Each Section is further subdivided into varying number of Parts (chapters).

There are 17 Parts in all, and they include Basics of Fluorescein Angiography, Practical Aspects of Fundus Photography and Fluorescein Angiography, Normal Fluorescein Angiography, Interpretation of Fluorescein Angiography, Diseases of the RPE and Choroid Causing a Macular Degeneration, Age-Related Macular Degeneration, Inflammation of the RPE and Choroid, Hereditary Disorders of the RPE and Choroid, Disorders of RPE and Choroid Caused by External Factors, Other Diseases of the Retina and Choroid, Diseases of the Vitreoretinal Interface, Retinal Vascular Disorders, Retinal Inflammation, Choroidal Tumors, Retinal Tumors, Congenital Anomalies of the Optic Nerve, and the final Part Inflammatory and Vascular Diseases of the Optic Nerve. This gives a pretty good idea of the thoroughness with which the authors have prepared this book.

The authors' aim, as stated in the preface, is "to offer the reader useful information and guidelines that are helpful in differentiating fluorescein angiography findings characteristic of specific disease process." And they have gone over more than 50,000 angiograms to successfully carry out their plan. The authors belong to

the younger generation of writers and, therefore, are appropriately knowledgeable about the needs and difficulties of the contemporary ophthalmic practice. This has made their text useful and practical even in a private clinical practice setup.

They have set out to achieve their stated goal by selecting crisp photographs, both color and black and white, and adding a text that is equally lucid and to the point. In their desire to make their readers get the clearest possible idea of each step of angiography, the authors have included illustrative cases with almost every entity they describe, including even such rare conditions as choroidal osteoma.

The discussion of each case is also followed by essential and related Comment section, a device that should further eliminate any possible confusion that might arise in a reader's mind.

The Section 2 by Arzabe dealing with anatomical and clinical considerations is valuable in that it gives information in a concise fashion, explaining the various phases of fundus fluorescein angiography. He also includes a dictionary page of terms used in fluorescein angiography for a ready reference. The most impressive part of the book are the Section 3, dealing with the retinal pigment epithelial and choroidal diseases, and Section 4, comprising of diseases that affect the retina. All sections carry extensive lists of current literature references, but unfortunately these references are not cited in the body of the text. Therefore, though impressive as a list, these references lose their full usefulness in the highly demanding modern clinical practice.

The book is not without some flaws. For instance, the authors advise that the patients "should be informed of all aspects related to fluorescein angiography, including side effects during and after the study." Yet, the only side effect they mention is "skin discoloration for 6 to 24 hours and yellow-orange discoloration of the urine for 24 to 36 hours." Other complications, such as nausea, perhaps the most common side effect with subjective symptoms, local infiltration of the dye causing severe pain and rarely tissue necrosis, allergic reactions, cardiac complications, no doubt very rare but also most important, etc. are not at all mentioned. It would enhance the practical value of the book, if in the second edition the authors include a separate chapter on complications of fluorescein angiography and their management.

The book includes, perhaps in an attempt to achieve comprehensiveness, comments on anterior segment fluorescein angiography. One can hardly call a book on

fluorescein angiography comprehensive when it has only a single 11-line paragraph and two figures on anterior segment fluorescein angiography. It might be a good idea either to include a full chapter on the anterior segment uses of fluorescein angiography, or to eliminate the present scant contents on this subject and rename the *Atlas* "Atlas of Ocular Fundus Fluorescein Angiography."

The book is exquisitely printed on a very high quality paper. The print size is very comfortable on eyes, and the reproduction of photographs is uniformly excellent.

The *Atlas of Fluorescein Angiography* is a valuable aid for studying disorders of the ocular fundus. Because the book's price may be prohibitive for individual clinicians in the developing nations, it is recommended that the medical institutions there keep it on their library shelves. ■

CECIL TEXTBOOK OF MEDICINE, 19th Edition, 1992. Edited by James B. Wyngaarden, Lloyd H. Smith, Jr., and J. Claude Bennett. W.B. Saunders Company, The Curtis Center, Independence Square West, Philadelphia, PA 19106-3399. Hardcover, 2,380 full-sized pages, 96-page index, 8-page table of contents, 16 color plates.

The first edition of this venerable textbook appeared 66 years ago, and its author Russell Cecil impressed by its quality felt compelled to exhibit his national pride by giving the subtitle of "by American authors" to its name *A Text-book of Medicine*. It did not take long for the whole medical world to acknowledge the quality of *Cecil*, elevating it to the position of standard by which to measure the worth of all other textbooks. Seeing that their national pride has been sufficiently satisfied by a universal acceptance of their effort, the editors have long since dropped the subtitle. Nevertheless, they have never let up on their efforts to keep *Cecil* one of the most respected, exhaustive, and authoritative texts in the medical field.

The editors of this 19th edition have thoroughly revised the book to "reflect the best in medical practice." Nearly one third of the text is totally new and the color plates have been doubled from the number in the last edition.

The new chapters include "Oncologic Emergencies," "Metastatic Cancer, Source Unknown," "Ovarian Carcinoma," "Neurologic Problems Associated with Aging," "Disturbances of Memory and Language," "Alzheimer's Disease and Related Dementias," "Brief Loss of Consciousness," "Sustained Impairments of Consciousness," "Brain Death," "Zoonoses" (the zoonotic diseases of interest to the ophthalmologist include the occupational tuberculosis, pet-acquired toxoplasmosis, toxocariasis, etc., agricultural hydatid disease, and paramyxovirus follicular conjunctivitis of Newcastle disease from poultry, etc.), "Liver

Transplantation," "Erythromelalgias," "NSAID's: Aspirin and Aspirin-like Drugs," "Antiviral Therapy," "Human T Cell Lymphotropic Virus Type I-Associated Myelopathy and Tropical Spastic Paraparesis," "Immunology Related to AIDS," "Biology of Human Immunodeficiency Viruses," "Epidemiology of HIV Infection and AIDS," "Prevention of HIV Infection," "Neurologic Complications of HIV-1 Infection," "Pulmonary Manifestations of AIDS: Special Emphasis on Pneumocystosis," "Gastrointestinal Manifestations of AIDS," "Cutaneous Signs of AIDS," "Hematology/Oncology of AIDS" Renal, Cardiac, Endocrine, and Rheumatologic Manifestations HIV Infection," "Treatment of AIDS and related Disorders," "Chronic Management and Counseling for Persons with AIDS," and of specific interest to our readers the "Ophthalmologic Manifestations AIDS." This last chapter is in addition to one whole section of book (PART XXIV) that is devoted to "Eye Diseases."

These chapters are but a tiny peek into the exhaustive treasure of knowledge contained in a total of 534 chapters to which, other than the Editors, seven consulting editors and 350 renowned experts have contributed. They have collectively achieved the Editors' desire "to balance content, format, style, integration, and innovation."

One interesting typographical error mentioned in the "Erratum" enclosed with the book provides a chuckle for the day: the Chapter 48.3 on "Surgical Treatment of Coronary Artery Disease" has been wrongly attributed to Professor Lawrence S. Cohen of Yale, whereas in actuality it was written by Professor Lawrence H. Cohn of Harvard.

The mushrooming expansion of understanding of pathophysiology, rapid advances in diagnostic techniques, and ever-increasing number of therapeutic modalities has made medical information so vast that in modern times it is impossible to usefully contain it in books of the size to which the earlier students of medicine were accustomed. The present size of *Cecil* would have scared this reviewer stiff in his medical school days. To overcome this problem, the producers of *Cecil* have wisely embarked upon the plan of a trilogy by adding two other smaller texts to this "senior" *Cecil*. They are *Cecil Essentials of Medicine*, which contains more concentrated material and is intended for medical students and busy practitioners, and *Cecil Review of General Internal Medicine*, containing 1200 questions and answers that are "designed to be of general educational benefit" and to reinforce the value of 19th edition as a reference text.

There are many other features that are highly valuable for specialists in any field. Ophthalmology is perhaps one specialty that is connected in one way or the other to all other systems. Therefore, no ophthalmologist can afford to be without this comprehensive and current *Cecil*. -KJA

Abstracts from Elsewhere

Edited by Khalid J. Awan, F.P.A.M.S.

OPHTHALMOLOGY

Journal of the American Academy of Ophthalmology

VISION IN THE "GOOD" EYE OF CHILDREN TREATED FOR UNILATERAL CONGENITAL CATARACT, TL Lewis, D Maurer, ME Tytla, ER Bowering, HP Brent.

Purpose: The authors examined linear acuity and contrast sensitivity in the "good" (fellow) eye of children treated for unilateral congenital cataract to determine (1) whether there were subtle deficits like those described for the good eye of patients with strabismic amblyopia and (2) whether any deficits were related to the degree to which the good eye had been patched.

Methods: The authors tested patients treated for unilateral congenital cataract who had a well-documented history of patching. The good eye was physically normal with minimal refractive error. The measures were linear acuity at far (n = 15) and contrast sensitivity (n = 9).

Results: Compared with age-matched control subjects, the good eyes of patients had subtle deficits in linear acuity and in contrast sensitivity at high spatial frequencies. These deficits occurred even in eyes that had received minimal patching, and their severity was not related systemically to the duration of patching, which varied widely across the group.

Conclusion: The visual sensitivity of the good eye of children treated for unilateral congenital cataract is, on average, slightly reduced, even in cases of minimal patching. Consequently, and deficits discovered after aggressive patching may not have been caused by occlusion amblyopia. (*Ophthalmology* 1992;99:1013-1017) Reprint requests to T.L. Lewis, PhD, Department of Psychology, McMaster University, Hamilton, Ontario, L8S 4K1, Canada.

SURGICAL TREATMENT OF SUBLUXATED LENSES IN CHILDREN, DA Plager, MM Parks, EM Helveston, FD Ellis.

Background: Surgical removal of subluxated lenses has traditionally been discouraged because of

concerns about poor surgical results and unacceptably high complication rates.

Methods: The authors reviewed the surgical results of 29 eyes in 15 consecutive patients who were operated on for subluxated lenses.

Results: Best-corrected visual acuity improved in all 29 eyes and was limited only by amblyopia. There were no significant complications in follow-up ranging from 5 months to 12 years.

Conclusion: Modern surgical techniques using vitrectomy instruments allow the vitreous to be handled more effectively and have led to improved results and lower complication rates. Surgery for subluxated lenses can be done effectively and safely when indicated. (*Ophthalmology* 1992;99:1018-1023) Reprint requests to David A. Plager, MD, 702 Rotary Circle, Indianapolis, IN 46202.

RISK ANALYSIS IN THE DEVELOPMENT OF PTERYGIA, FD Mackenzie, LW Hirst, D Battistutta, A Green.

Purpose: No detailed analysis of risk factors in the development of pterygia has been previously performed. In this report, the authors identify and quantify these risk factors.

Methods: In a case-control study, 278 patients treated in a Brisbane hospital for primary pterygium between 1973 and 1978 were compared with a similar number of people without pterygium who were matched for age, race, and sex, using information from a standard questionnaire completed during a personal interview.

Results: Risk of pterygium was increased among patients who, in their third decade of life, worked outdoors in an environment with high surface reflectance of ultraviolet light compared with those who worked indoors. The elevation of risk was raised several hundred-fold among those subjects who worked mainly on sand compared with those who worked indoors when results were adjusted for associated risk factors. When risk was measured among subjects who worked in an environment that was mainly concrete risk was increased almost 20-fold. Those subjects who spent their first 5 years of life at latitudes less than 30 degrees had almost 40 times the risk of pterygium than those living at latitudes greater than 40 degrees; spending the majority of times outdoors in these earliest years was associated with a 20-fold increase in risk of developing pterygium. There was a strong

protective element in the wearing of regular glasses, sunglasses, or a hat.

Conclusions: There is a strong suggestion of a casual relationship between ultraviolet light exposure and the development of pterygia during the early years of life and the cumulative exposure over the next 2 to 3 decades in occupations in which there is a high component of reflected ultraviolet light. (*Ophthalmology* 1992;99:1056-1061) Reprint request to Lawrence W. Hirst, MD, 2nd Floor, Lions Research Building, Princess Alexandra Hospital, Ipswich Road, Woolloongabba, Brisbane, Queensland 4102, Australia.

ORAL ACYCLOVIR FOR HERPES ZOSTER OPHTHALMICUS, T Hoang-Xuan, ER Buchi, CP Herbort, J Denis, P Frot, S Thenault, Y Pouliquen.

Background: Reports on the natural history of herpes zoster ophthalmicus stress its high morbidity related to vicious scars on eyelids, ocular complications, and postherpetic neuralgia. Early treatment with oral acyclovir is effective, but the optimal duration of treatment has not been defined.

Methods: The authors performed a bicentric, prospective, randomized, doublemasked study of 86 patients with acute herpes zoster ophthalmicus, within 72 hours of skin eruption, who received oral acyclovir (800 mg 5 times daily), either for 7 days (plus 7 days oral placebo) or for 14 days. All patients concomitantly received ophthalmic 3% acyclovir ointment; follow-up was at least 6 months.

Results: Statistical analyses of subjective symptoms, skin lesions, and ocular complications showed no significant differences between the groups, suggesting that a 7-day course of treatment was sufficient. Drug tolerance was good. Pooled data from both groups corroborated earlier reports that prompt treatment with oral acyclovir reduces the severity of the skin eruption, the incidence and severity of late ocular manifestations, and the intensity of postherpetic neuralgia. At 6 months, late ocular inflammatory complications were seen in 29.1% of our 86 patients, versus 50% to 71% of untreated patients described by others. Only 13% of our patients experienced postherpetic neuralgia, which in no case required the use of analgesics.

Conclusion: The authors believe it is not useful to prolong treatment with 800 mg of oral acyclovir 5 times daily for more than 7 days in herpes zoster ophthalmicus. This study confirms the efficacy of oral acyclovir not only against skin lesions and ocular complications, but also against postherpetic neuralgia in herpes zoster ophthalmicus. (*Ophthalmology* 1992;99:1062-1071) Reprint requests to Thanh Hoang-Xuan, MD, Hopital Bichat, Service d'Ophthalmologie, 46 Rue Henri-Huchard, 75018 Paris, France.

A SURVEY OF INTRAOCULAR SILICONE OIL USE IN THE UNITED

STATES, AW Eller, TW Gardner, JA D'Antonio.

Purpose: This survey was conducted to determine the pattern of usage of intravitreal silicone oil in the United States.

Methods: A questionnaire was sent to 542 members of the Retina and Vitreous Societies in December 1990, and again 6 weeks later in an attempt to improve the response rate.

Results: Two hundred eighty-seven questionnaires (53%) were returned. Ninety eight percent of the respondents perform vitreous surgery, and 61% of them use silicone oil. This survey determined the degree of participation in Food and Drug Administration (FDA) - and institutional review board-approved protocols and the most common indications for use of silicone oil. Ninety-six percent of the respondents indicated that the use of silicone oil represented an acceptable standard of care.

Conclusion: Silicone oil is widely used in the United States despite its lack of FDA approval. (*Ophthalmology* 1992;99:1174-1176) Reprint requests to Andrew W. Eller, MD, The Eye & Ear Institute, 203 Lothrop St, Pittsburgh, PA 153213.

CONTACT LENS FAILURE IN KERATOCONUS MANAGEMENT, MR Dana, JL Putz, MAG Viana, J Sugar, TT McMahon.

Purpose: Surgery is indicated for keratoconus when management with contact lenses fails. The authors sought to determine the relative contribution of various preoperative patient and ocular factors to the ultimate causes of contact lens failure.

Methods: The records of unoperated eyes of keratoconus patients whose contact lenses were managed intensively before undergoing penetrating keratoplasty (PK) at the authors' institution between 1981 and 1990 were selected for study. Univariate and multivariate analyses were performed to identify risk factors for early contact lens failure.

Results: The records of 99 keratoconic eyes of 75 patients with an average age of 34 years and average keratometry readings of 57.5 diopters at presentation were studied. Cases had been followed for an average of 27 months before PK. The primary reasons for PK were a best-corrected visual acuity of under 20/40 (despite good contact lens fit) causing disability for the patient (43%), contact lens intolerance (32%), frequent lens displacement (13%), and significant peripheral thinning of the cornea (12%). The referral source of the patient, sex, a history of PK in the fellow eye, or of contact lens wear in either eye did not alter the relative contributions of these parameters to surgery.

Conclusion: Poor best-corrected visual acuity at presentation, higher keratometry readings ($\geq 55D$), age (≥ 40 years), and duration of disease (> 5 years) were significantly associated with failure due to poor functional acuity and peripheral thinning, frequently

ABSTRACTS

leading to surgery within the first 12 months after presentation. (*Ophthalmology* 1992;99:1187-1192) Reprint requests to Timothy T. McMahon, OD, Department of Ophthalmology and Visual Sciences, UIC Eye Center, 1855 W Taylor St, Chicago, IL 60612.

CORNEAL EPITHELIAL ALTERATIONS INDUCED BY DISPOSABLE CONTACT LENS WEAR, K Tsubota, M Yamada.

Purpose: To study the effect of disposable extended-wear soft contact lenses on the corneal epithelium.

Methods: Thirteen healthy patients (1 male, 12 females; average age 26.3 ± 7.6 years) with or without histories of previous contact lens use were recruited for this study. Specular microscopic pictures of the corneal epithelium and endothelium were taken with the help of a specular contact lens, before and after 3 months of contact lens use. The pictures were analyzed by means of a computer-assisted morphometric analysis system.

Results: The mean cell area and coefficient of variation (CV) of the mean cell area of the corneal epithelium before contact lens use were $639.4 \pm 84.0 \mu\text{m}^2$ and 29.1 ± 13.2 , respectively. After lens wear, the mean cell area increased to $819.7 \pm 99.2 \mu\text{m}^2$ ($P < 0.01$), whereas the CV decreased to 20.0 ± 6.1 ($P < 0.05$). The corresponding values for the endothelium were $300.8 \pm 22.5 \mu\text{m}^2$ and 36.4 ± 7.3 before contact lens use, and remained at $32.33 \pm 27.8 \mu\text{m}^2$ and 32.8 ± 3.7 after contact lens use, respectively ($P > 0.05$).

Conclusions: Based on the 3-month results, disposable extended-wear soft contact lenses caused similar enlargement of the mean cell area of the superficial corneal epithelium, as has been reported previously. It would appear that disposable lenses may cause the same metabolic and physiologic changes in the corneal epithelium as do conventional extended-wear soft contact lenses. (*Ophthalmology* 1992;99:1193-1196) Reprint requests to Kazuo Tsubota, MD, Department of Ophthalmology, Tokyo Dental College, 11-13 Sugano 5 chome, Ichikawa-shi, Chiba, Japan.

EXCIMER LASER PHOTOREFRACTIVE KERATECTOMY, 18-MONTH FOLLOW-UP, DS Gartry, MG K Muir, J Marshall.

Purpose: This study, comprising 120 patients (follow-up, 12 to 22 months; mean, 18 months), was designed to evaluate the efficacy and safety of excimer laser photorefractive keratectomy.

Methods: Ablation zone diameter (4 MM), ablation rate (0.22 $\mu\text{m}/\text{pulse}$), fluence ($180 \text{ mJ}/\text{cm}^2$), and frequency (10Hz) were kept constant, and all patients used a standard topical corticosteroid regimen.

Results: Overcorrection was followed by regression to a stable refraction by 4 months. At 1 year, 95% and 70%, respectively, of patients undergoing -2.00 diopters (D) and -3.00 D corrections

and 40% and 20% of those undergoing -6.00 D and -7.00 D corrections were within ± 1.00 D of intended refraction. Anterior stromal "haze," maximal at 6 months and diminishing thereafter, was detected in 110 patients (92%). However, best-corrected Snellen visual acuity was reduced in only 22 (18%). Good correlation existed between haze and regression ($r=0.68$). Night "halos," due to the relatively small 4-mm diameter ablation zone, were reported by 94 patients (78%) in the early postoperative period, and, at 1 year, 12 (10%) declined treatment of the other eye because of persistence of this problem.

Conclusion: Marked individual variation was found after photorefractive keratectomy. However, in low myopia, predictability is "fair", and the procedure is safe. The authors conclude that excimer laser photorefractive keratectomy holds considerable promise for refractive surgery in the future. (*Ophthalmology* 1992;99:1209-1219) Reprint requests to David Gartry, MD, FRCS, FCOphth, Moorfields Eye Hospital, City Road, London EC1V 2PD, England.

EXTRACAPSULAR CATARACT EXTRACTION AND POSTERIOR CHAMBER INTRAOCULAR LENS IMPLANTATION IN UVEITIS PATIENTS, RE Foster, CY Lowder, DM Meisler, ZN Zakov.

Purpose: Intraocular lens implantation in uveitis patients has been a controversial issue. The purpose of this study is to evaluate the visual and surgical outcomes of extracapsular cataract extraction (ECCE) and posterior chamber intraocular lens (PC IOL) implantation in a diverse group of uveitis patients.

Patients and Methods: The results of 39 cases of ECCE and PC IOL implantation in 30 patients with uveitis were retrospectively analyzed. Five patients (six eyes) had pars plana vitrectomies combined with ECCE and PC IOL implantation. Patient age ranged from 26 to 71 years (average, 53.0 years). Specific uveitic syndromes were determined for 22 patients (73.3%). The postoperative follow-up period ranged from 6 to 43 months (average, 20.3 months).

Results: Visual acuity improved postoperatively in 38 eyes (97.4%), and this improvement ranged from 1 to 11 Snellen lines (average, 7.5 Snellen lines). Visual acuity improved postoperatively to 20/40 or better in 32 eyes (82%). Seven eyes had visual acuity worse than 20/40, which was attributed to posterior segment abnormalities after ECCE and PC IOL implantation. Uveitis recurred in 20 eyes (51.3%), and postoperative cystoid macular edema (CME) was observed in 18 eyes (46.2%). In all cases, the recurrent uveitis and CME improved or resolved with corticosteroid therapy.

Conclusion: These results suggest selected uveitis patients can have improved vision without unacceptable risk for 1 to 3 years after ECCE and PC IOL implantation. (*Ophthalmology* 1992;99:1234-1241) Reprint requests to Careen Y. Lowder, MD,

Department of Ophthalmology A31, Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland OH 44195-5024.

RETAINED INTRAVITREAL LENS FRAGMENTS AFTER CATARACT SURGERY, GD Gilliland, WL Hutton, DG Fuller.

Purpose: The purpose of this study is to review the possible benefits and complications of vitrectomy for retained lens fragments after cataract surgery.

Methods: The authors reviewed the charts of 65 patients referred over a 12-year period for retained lens fragments after cataract surgery. Of these, 56 underwent vitrectomy and 9 were followed. Of these 56 eyes, 29 (52%) had received an intraocular lens (IOL) at the time of cataract surgery.

Results: Resulting complications from retained lens material included glaucoma (52%), corneal edema (46%), uveitis (56%), and decreased vision (100%). These sequelae responded equally to vitrectomy in eyes with or without an IOL and irrespective of type of cataract surgery (phacoemulsification or extracapsular cataract extraction). The timing of surgery did not statistically influence the final vision or the incidence of glaucoma.

Conclusion: Removal of retained lens fragments allows rapid visual restoration, enhances resolution of uveitis, and improves control of glaucoma. Insertion of an IOL at the time of cataract surgery in the face of dislocated lens fragments is not contraindicated provided that it could be performed safely. (*Ophthalmology* 1992;99:1263-1269). Reprint requests to William L. Hutton, MD, Texas Retina Associates, 7150 Greenville Ave, Dallas, TX 75231.

PARS PLANA VITRECTOMY IN THE EARLY TREATMENT DIABETIC RETINOPATHY STUDY, ETDRS Report Number 17, HW Flynn, Jr., EY Chew, BD Simons, FB Barton, NA Remaley, FL Ferris III, The Early Treatment Diabetic Retinopathy Study Research Group.

Background: The Early Treatment Diabetic Retinopathy Study (ETDRS) enrolled 3711 patients with mild-to-severe nonproliferative or early proliferative diabetic retinopathy in both eyes. Patients were randomly assigned to aspirin 650 mg/day or placebo. One eye of each patient was assigned randomly to early photocoagulation and the other to deferral of photocoagulation. Follow up examinations were scheduled at least every 4 months, and photocoagulation was initiated in eyes assigned to deferral as soon as high-risk proliferative retinopathy was detected. Aspirin was not found to have an effect on retinopathy progression or rates of vitreous hemorrhage. The risk of a combined end point, severe visual loss or vitrectomy, was low in eyes assigned to deferral (6% at 5 years) and was reduced by early photocoagulation (4% at 5 years). Vitrectomy was

carried out in 208 patients during the 9 years of the study. This report presents baseline and previtrectomy characteristics and visual outcome in these patients.

Methods: Information collected at baseline and during follow-up as part of the ETDRS protocol was supplemented by review of clinic charts for visual acuity and ocular status immediately before vitrectomy.

Results: Vitrectomy was performed in 208 (5.6%) of the 3711 patients (243 eyes) enrolled in the ETDRS. The 5-year vitrectomy rates for eyes grouped by their initial photocoagulation assignment were as follows: 2.1% in the early full scatter photocoagulation group, 2.5% in the early mild scatter group, and 4.0% in the deferral group. The 5-year rates of vitrectomy (in one or both eyes) were 5.4% in patients assigned to aspirin and 5.2% in patients assigned to a placebo. The indications for vitrectomy were either vitreous hemorrhage (53.9%) or retinal detachment with or without vitreous hemorrhage (46.1%). Before vitrectomy, visual acuity was 5/200 or worse in 66.7% of eyes and better than 20/100 in 6.2%. One year after vitrectomy, the visual acuity was 20/100 or better in 47.6% of eyes, including 24.0% with visual acuity of 20/40 or better.

Conclusions: With frequent follow-up examinations and timely scatter (panretinal) photocoagulation the 5-year cumulative rate of pars plana vitrectomy in ETDRS patients was 5.3%. Aspirin use did not influence the rate of vitrectomy. (*Ophthalmology* 1992;99:1351-1357). Reprint requests to Biometry & Epidemiology Program, National Eye Institute, Building 31, Room 6A24, 9000 Rockville Pike, Bethesda, MD 20892.

OUTCOME AND COST ANALYSIS OF SCHEDULED VERSUS EMERGENCY SCLERAL BUCKLING SURGERY. AJ Hartz, TC Burton, MS Gottlieb, DJ McCarty, DF Williams, A Prescott, P Klein.

Background: Retinal detachments are usually considered to be a surgical emergency. However, there are additional risks and costs for unnecessary emergency surgeries. The purpose of this study is to evaluate whether the conventional wisdom for treating all retinal detachments as emergencies needs to be re-examined.

Methods: Forty-eight patients who had an emergency scleral buckle and 89 patient who had a scheduled procedure were randomly selected from 884 consecutive patients who had a primary scleral buckling procedure during a 4 1/2-year period. The medical records of each patient were used to obtain detailed information related to prognosis. The visual acuity measurements of each patient, taken 6 months after the procedure, were obtained from the records of the ophthalmologist following the patient. Linear regression analysis was used to compare the final visual outcome for patients who had emergency

surgery with patients who scheduled surgery after taking into account patient factors related to prognosis.

Results: Patients selected for emergency surgery had better visual prognoses than scheduled patients but had the same risk of systemic complications and the same extent of detachment if the macula was not involved. None of the 18 patients with an attached macula experienced macular involvement while awaiting scheduled surgery. There were no differences between emergency and scheduled patients in ocular or systemic complications, rate of reattachment, rate of decreased visual acuity after surgery, visual outcome adjusted for prognosis, or since 1985, length of hospital stay. A greater cost was incurred for the patients having emergency surgery due to difference in pay scales for support personnel.

Conclusions: Because the study is not large and the patients were not randomized to treat, the results are not definitive. However, they suggest that emergency surgery is unnecessary for many patients with a detached retina. (*Ophthalmology* 1992;99: 1358-1363.) Reprint requests to Thomas C. Burton, MD, The Eye Institute, 8700 W Wisconsin Ave, Milwaukee, WI 53226

LOW-DOSE METHOTREXATE THERAPY FOR OCULAR INFLAMMATORY DISEASE. SS Shah, CY Lowder, MA Schmitt, WS Wilke, GS Kosmorsky, DM Meisler.

Background: Methotrexate is a second-line anti-inflammatory agent used in the treatment of rheumatic diseases. At low doses (12.5 mg/week), it is associated with few serious side effects.

Methods: Twenty-two patients (5 men, 17 women) with chronic noninfectious ocular inflammatory disease, who had not responded to or who had become intolerant of corticosteroid or alternate cytotoxic agents, were treated weekly with oral low-dose, pulse methotrexate. Treated diseases included chronic uveitis-vitreitis (9), scleritis (4), inflammatory pseudotumor (3), orbital myositis (3), and retinal vasculitis (3).

Results: Follow-up ranged from 2 to 39 months (mean, 11 months). Response time ranged from 3 to 9 weeks (mean, 5 weeks) after implementation of methotrexate therapy. Sixteen of 22 patients had reduction of inflammatory activity. Fourteen of these 16 patients were able to taper or discontinue corticosteroid therapy. Five patients had complete remission of their disease; six patients did not respond to methotrexate.

Conclusion: Treatment with low-dose methotrexate appeared to be effective therapy for steroid-resistant ocular inflammatory disease. (*Ophthalmology* 1992;99: 1319-1423.) Reprint requests to Careen Y. Lowder, MD, PhD, The Cleveland Clinic Foundation, Department of Ophthalmology-A31, 9500 Euclid Ave, Cleveland OH 44192-5024.

INTRAOCULAR PRESSURE REDUCTION IN NORMAL-TENSION GLAUCOMA PATIENTS. M Schulzer, (The normal tension glaucoma study group).

Background: In a collaborative study, patients with untreated normal-tension glaucoma were randomly assigned to a marked intraocular pressure reduction group or to a no therapy group. It was anticipated that medical therapy and laser trabeculoplasty would generally not achieve adequate pressure lowering and that fistulizing surgery would be required. This hypothesis was examined using current observation in the study.

Methods: Patients randomized to the therapy group had a pressure reduction of at least 30% from their last prerandomization level. This was achieved within 6 months by means of fistulizing surgery or with pilocarpine and/or laser trabeculoplasty. Beta-blockers and adrenergic agonists were excluded from both eyes.

Results: Of 30 Patients with documented stable 30% pressure reduction, 17 (57%) achieved this with topical medication and/or laser trabeculoplasty: 8 with pilocarpine alone, 2 with laser trabeculoplasty alone, and 7 with laser trabeculoplasty after initial topical medication. The remaining 13 (43%) patients required a single fistulizing procedure. There was no statistically significant difference between the mean follow-up time for the nonfistulized group (533.8+ 437.6 days) and for the fistulized group (502.7 + 344.7 days). Both treatment groups had similar baseline profiles.

Conclusion: Marked presured reduction can be achieved and maintained on a long-term basis by means other than fistulizing surgery in a large proportion of patients with untreated normal-tension glaucoma. (*Ophthalmology* 1992;99:1468-1470). Reprint requests to Michael Schulzer, MD, PhD, Department of Medicine, University of British Columbia, Laurel Pavilion, 910 W 10th Ave, Vancouver, British Columbia V5Z 4E3, Canada.

NATIONAL OUTCOMES OF CATARACT EXTRACTION. Increased risk of retinal complications associated with Nd: YAG laser capsulotomy. JC Javitt, JM Tielsch, JK Canner, MM Kolb, A Sommer, EP Steinberg, on behalf of the cataract patient outcomes research team.

Purpose: The authors studied 57,103 randomly selected Medicare beneficiaries who underwent extracapsular cataract extraction in 1986 or 1987 to determine the possible association between performance of neodymium (Nd): YAG laser capsulotomy and the risk of subsequent retinal break or detachment.

Methods: Cases of cataract surgery were identified from Medicare claims submitted in 1986 and 1987 and were followed through the end of 1988. Episodes of cataract surgery, posterior capsulotomy, and retinal complications were ascertained based on procedure and

diagnosis codes listed in physician bills and hospital discharge records. Lifetable and Cox's proportional hazards models were used to analyze the risk of retinal detachment or break in patients undergoing and not undergoing capsulotomy during the period of observation.

Results: Of the 57,102 persons identified as having undergone extracapsular cataract extraction in 1986 or 1987, 13,709 subsequently underwent Nd:YAG laser capsulotomy between 1986 and 1988. A Total of 337 persons had aphakic or pseudophakic retinal detachments between 1986 and an additional 194 underwent repair of a retinal break. Proportional hazards modeling shows a 3.9-fold increase in the risk of retinal break or detachment among those who underwent capsulotomy (95% confidence interval: 2.89 to 5.25).

Conclusion: The authors conclude that there is a statistically significant increase in the risk of retinal detachment or break in those patients who undergo capsulotomy after cataract extraction. Therefore, capsulotomy should be deferred until the patient's impairment caused by capsular opacification warrants the increased risk of retinal complications associated with performance of capsulotomy. (*Ophthalmology* 1992;99:1487-1498). Reprint requests to Office of the Dean, The Johns Hopkins School of Public Health, Baltimore, Maryland.

INCIDENCE AND MANAGEMENT OF GLAUCOMA AFTER INTRAVITREAL SILICONE OIL INJECTION FOR COMPLICATED RETINAL DETACHMENTS. QH Hguyen, MA Lloyd, DK Heuer, G Baerveldt, DS Minckler. **Background:** Intravitreal silicone oil injection used for managing complicated retinal detachments can be associated with elevated intraocular pressure (IOP). This study was undertaken to determine the incidence of glaucoma in patients who underwent silicone oil injection, as well as to evaluate the effectiveness of medical and surgical therapy in patients in whom glaucoma developed.

Methods: The postoperative courses of 50 eyes of 47 consecutive patients who underwent pars plana vitrectomy and silicone oil injection for the management of complicated retinal detachments were reviewed retrospectively. The outcomes of patients who underwent silicone oil removal and/or glaucoma surgery also were evaluated.

Results: The mean overall postoperative IOP before any glaucoma surgery was 16.7+ 9.3 mmHg (range, 0 to 45 mmHg), with a mean follow-up of 16.6 + 12.1 months (range, 2 to 51 months). Twenty-four (48%) eyes had postoperative IOPs of at least 25 mmHg and IOP elevations of at least 10 mmHg above the preoperative levels. Twenty-one (42%) eyes underwent complete removal of silicone oil and/or glaucoma surgery to effect IOP control. The IOPs were controlled to 21 mmHg or less (but >5 mmHg) in 8 to

14 eyes that underwent removal of silicone oil alone, in 3 of 5 eyes that underwent Molteno implantation, and in 1 eye that underwent Nd:YAG transscleral cyclophotocoagulation, but not in 1 eye that underwent a modified Schocket procedure (mean follow-up, 13/5 + 11.0 months; range, 0.2 to 33 months).

Conclusion: Intraocular pressure elevation is a common occurrence after intravitreal silicone oil injection. The underlying mechanism may often be multifactorial in nature. Patients in whom uncontrolled IOP develops may benefit from aggressive medical and/or surgical treatment with silicone oil removal, glaucoma implants, or cyclodestructive procedures. (*Ophthalmology* 1992;99:1520-1526). Reprint requests to Mary Ann Lloyd, MD Doheny Eye Institute, 1450 San Pablo St, Los Angeles, CA 90033.

USE OF PERFLUOROPERHYDROPHENANTHRENE IN THE MANAGEMENT OF SUPRACHOROIDAL HEMORRHAGES. UR Desai, GA Peyman, CJ Chen, NC Nelson, Jr., WA Alturki, KJ Blinder, CL Paris.

Background: Suprachoroidal hemorrhage may cause the expulsion of intraocular contents. Generally, cases of nonexpulsive suprachoroidal hemorrhage have a better outcome than their expulsive counterparts. Those cases with massive nonexpulsive suprachoroidal hemorrhage do better with treatment than without. Treatment modalities have included suprachoroidal hemorrhage drainage with or without intraocular volume reformation, and vitrectomy.

Methods: The authors used the liquid perfluorocarbon perfluoroperhydrophenanthrene in the treatment of three patients with nonexpulsive suprachoroidal hemorrhage. The perfluorocarbon was injected into the vitreous cavity while the suprachoroidal blood was drained through anterior sclerotomies.

Results: With five months of follow-up, complete resolution of the suprachoroidal blood was noted in all patients. All three patients had attached retinas, and postoperative visual acuities were improved over preoperative visual acuities.

Conclusion: Perfluoroperhydrophenanthrene and other perfluorocarbon liquids may be beneficial in the treatment of certain cases of nonexpulsive suprachoroidal hemorrhages. (*Ophthalmology* 1992;99:1542-1547.) Reprint requests to Gholam A. Peyman, MD, LSU Eye Center, 2020 Gravier St, Suite B, New Orleans, LA 70112.

EFFECTS OF POVIDONE-IODINE CHEMICAL PREPARATION AND SALINE IRRIGATION ON THE PERILIMBAL FLORA. DA Boes, TD Lindquist, TR Fritsche, RE Kalina.

Purpose: To analyze the effects of 5% povidone-iodine preparation and saline irrigation on the species composition of perilimbal flora.

ABSTRACTS

Methods: Cultures were taken from the perilimbal conjunctiva in 100 eyes before preparation for ophthalmic surgery, after instillation of povidone-iodine solution, and after saline irrigation.

Results: Bacteria were isolated in 75% of eyes before preparation, in 28% after povidone-iodine instillation, and in 24% after saline irrigation. Fifty-one culture-positive eyes became negative with povidone-iodine, while only four culture-negative eyes became culture-positive ($P < 0.0001$). The number of eyes yielding coagulase-negative staphylococci, *Staphylococcus aureus* and *Propionibacterium* were significantly decreased after povidone-iodine instillation. Twenty-three culture-positive eyes became negative after saline irrigation, while 19 culture-negative eyes became culture-positive ($P > 0.25$).

Conclusion: Povidone-iodine solution is effective in reducing bacterial recovery from the perilimbal conjunctiva, where most incisions for intraocular surgery occur. (*Ophthalmology* 1992;99: 1569-1574). Reprint requests to Thomas D. Lindquist, MD, PhD, Department of Ophthalmology, RJ-10, University of Washington, Seattle, WA 98195.

COMPLICATIONS ASSOCIATED WITH ALLOPLASTIC IMPLANTS USED IN ORBITAL FRACTURE REPAIR. DR Jordan, P St. Onge, RL Anderson JR Patrinely JA Nerad.

Background: The treatment of orbital wall fractures involves observation and/or surgical reduction with reposition of herniated orbital tissues. To prevent reherniation of tissue and development of enophthalmos, the orbital floor or wall defects is commonly covered with an alloplastic implant. Complications associated with these implants are infrequent and generally appear as isolated case reports.

Methods: The authors reviewed the files of four consultative oculoplastic surgeons and searched for individuals with complications secondary to their alloplastic implants used during orbital fracture repair.

Findings: Seventeen patients were identified with a variety of complications related to their alloplastic implant.

Conclusion: Although these implants are relatively inert and develop a fibrous capsule walling them off from the surrounding orbit, they remain foreign bodies and are thus subject to possible complications at any time. The authors review the spectrum of complications occurring with various alloplastic implants. (*Ophthalmology* 1992;99: 1600-1608). Reprint requests to David R. Jordan, MD, The Doctors Building, 267 O'Connor St. Suite 611, Ottawa, Ontario K2P 1V3, Canada.

SERIOUS COMPLICATIONS OF TOPICAL MITOMYCIN-C AFTER PTERYGIUM SURGERY. RS Rubinfeld, RR Pfister, RM Stein, CS Foster, NF Martin, S Stoleru, AR Talley, MG Speaker.

Background: The use of topical mitomycin (mitomycin-C) as a medical adjunct to pterygium and glaucoma surgery is increasing.

Methods: The authors report on a series of 10 patients who experienced serious, vision-threatening complications associated with the use of this drug after pterygium surgery.

Results: Complications included severe secondary glaucoma (4 patients), corneal edema (3 patients), corneal perforation (1 Patient), corectopia (2 patients), iritis (8 patients), sudden onset mature cataract (2 Patients), scleral calcification (1 patient) and incapacitating photophobia and pain (8 patients). Two patients required penetrating keratoplasties and a third required three lamellar keratoplasties. Another patient underwent four additional surgeries including a conjunctival Z-plasty, scleral patch grafting, and conjunctival autografting before his intractable pain and photophobia resolved 15 months after the original surgery. Because of these complications, 6 patients required a total of 20 return visits to the operating room after their original pterygium surgery. In five eyes, visual acuity remained at 20/200 or less. Three of the six patients with the most severe complications had concomitant chronic external diseases (rosacea (3 patients), ichthyosis (1 patient) keratitis sicca (1 patient).

Conclusion: The authors urge extreme caution in the use of mitomycin. If mitomycin is used, the lowest possible concentration should be applied for the shortest time period in an effort to avoid these complications. A prospective multicenter study of the ophthalmic use of this medication is needed. (*Ophthalmology* 1992;99: 1647-1654). Reprint requests to Roy S. Rubinfeld, MD, 5454 Wisconsin Ave, Suite 950, Chevy Chase, MD 20815.

STERILE ENDOPHTHALMITIS AFTER SUTURELESS CATARACT SURGERY. DB Nelson, ED Donnemfeld, HD Perry.

Background: Sutureless cataract surgery has recently increased in popularity because of the rapid visual rehabilitation and the inherent reduction of surgically induced astigmatism.

Methods: This procedure is dependent on a lamellar, multiplaned incision. As with new surgical techniques associated complications become evident with time. Recently, there have been several cases of infectious endophthalmitis after this procedure. The authors report on none cases of sterile endophthalmitis. In all nine cases, surgery was performed with refrigerated balanced salt solution (BSS) and 100 mg of cefazolin and / or 20 mg of methylprednisolone sodium succinate, given subconjunctivally, at its completion.

Results: All nine cases occurred in a period of time during which 68 cases were performed using refrigerated BSS for irrigation. These nine cases came from two different surgeons using basically the same surgical technique. After the investigation of these

complications, the refrigerated BSS was discontinued, and there have been no episodes of sterile endophthalmitis in the last 650 cases.

Conclusion: It appears that refrigerated BSS should be avoided if periocular injections are going to be used. It may be that the cold BSS fails to allow sufficient tissue swelling to seal the surgical incision, allowing for subconjunctival injections to seep into the wound, and leading to a sterile endophthalmitis. (*Ophthalmology* 1992;99: 1655-1657). Reprint requests to David B. Nelson, MD, 2000 N Village Ave, Rockville, Center, NY 11570.

COMPARISON OF DEPTH OF FOCUS AND LOW-CONTRAST ACUITIES FOR MONOFOCAL VERSUS MULTIFOCAL INTRAOCULAR LENS PATIENTS AT 1 YEAR. CT Post, Jr.

Purpose: Multifocal lenses have been shown to produce enhanced near and intermediate vision. The division of incoming light into more than one focal point must physically produce retinal images of reduced contrast. The purpose of this report is to provide quantitative data on the increased depth of focus and decreased contrast sensitivity demonstrated in patients receiving the 3M diffractive multifocal lens versus the parent monofocal control lens.

Methods: Uncorrected and best-corrected distance and near acuities, Regan and Pelli-Robson contrast sensitivity measurements, and defocus curves were obtained on 22 eyes with monofocal and 16 eyes with multivocal age-matched, pathology-free implants at 1 year after surgery.

Findings: Visual acuity data demonstrated significantly improved ($P < 0.001$) near acuities in multifocal patients with manifest refraction in place. No difference was noted between implants for other acuity measures. A statistically significant reduction ($P < 0.05$) in contrast sensitivity was measured for multifocal implants at the limits of contrast and resolution (Regan 4%); however, careful patient questioning revealed on clinical impact. Defocus curves demonstrated significantly increased ($P < 0.0001$) depth of focus at the 20/40 acuity level of 3.8 diopters (D) in multifocal patients versus 1.8 D in monofocal patients.

Conclusion: The quantifiable and expected loss of contrast sensitivity in the examining lane, not manifest in patient awareness, appears to be an acceptable tradeoff for enhanced near/intermediate vision and depth of focus. (*Ophthalmology* 1992;99: 1658-1664). Reprint requests to Charles T. Post MD, 40 Industrial Park Rd, Plymouth, MA 02360.

AUGMENTATION LASER FOR PROLIFERATIVE DIABETIC RETINOPATHY THAT FAILS TO RESPOND TO INITIAL PANRETINAL PHOTOCOAGULATION. BH Doft, DJ Metz, SF Kelsey.

Purpose: A study was performed to determine if diabetic subjects who fail to respond to initial panretinal photocoagulation with regression of retinopathy risk factors do better with supplemental panretinal photocoagulation.

Methods: Thirty-five patients with three or more retinopathy risk factors who failed to respond to panretinal photocoagulation with regression to less than three retinopathy risk factors by three weeks after initial panretinal photocoagulation were prospectively randomized to augmentation laser panretinal photocoagulation (MORE) or to no additional treatment (NOMORE).

Results: Six months after initial treatment, the MORE group ($n = 16$) had regressed a mean of -0.94 retinopathy risk factors (with 95% confidence interval (CI) -1.60 to -0.26), compared with -0.21 retinopathy risk factors (95% CI -0.69 to 0.27) in the NOMORE ($n = 19$) group ($P = 0.055$). However, by one year, there was no statistically significant difference in the amount of regression of retinopathy risk factors with a mean decrease of -1.12 (95% CI -2.0 to -0.24) versus -1.05 retinopathy risk factors (95% CI -1.80 to -0.28) in the two groups, respectively. Similarly, for visual acuity, there was no difference in outcome. For all study patients, the persistence of three or more retinopathy risk factors was associated with a poorer visual result than if there was regression to less than three retinopathy risk factors.

Conclusions: This study shows that although augmentation panretinal photocoagulation achieved faster regression of retinopathy risk factors, by one year, there was no difference in either mean regression of retinopathy risk factors or visual acuity between eyes treated or not treated with augmentation panretinal photocoagulation. In addition, the study shows that the persistence of three or more retinopathy risk factors one year after treatment was associated with a poorer visual result. Because sample size limited the power of the study to find small differences between groups, and because in proliferative diabetic retinopathy small differences could be important clinically, the authors do not recommend changes in current clinical practice. (*Ophthalmology* 1992;99:1728-1735). Reprint requests to Bernard H. Doft, MD, Retinal-Vitreous Consultants, 3501 Forbes Ave, Pittsburgh, PA 15212.

☆☆☆

Announcement

Shah Memorial Issue

The next issue of the JOURNAL has been designated as the Professor Mahmud Ali Shah Memorial Issue. You may submit your papers and other write-ups for it until the last day of the combined Ophthalmological Congress of OSP, SAARC, and Ophthalmology '93 at Lahore.

اڪادمي علوم الطبيه پاكستان

*To you have come signs from your Lord;
Whoever therefore sees,
Does so for himself;
And whoever remains blind,
Does so to his own loss.*

-Holy Qur'an 6:105



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Convocation '93 and Conference, December 14 (Tuesday), 1993

Baqai Medical College, Karachi

The Pakistan Academy of Medical Sciences will hold its Convocation '93 at the Baqai Medical College, Karachi on December 14 (Tuesday), 1993 at 9:00 a.m. The PAMS Convocation will be followed by the PAMS Oration by a prominent and illustrious scholar. The PAMS Conference will be held on the afternoon of the Convocation Day. There will be a rehearsal for the convocation ceremonies in the afternoon of the eve of the Convocation Day.

For further details contact:

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1. Newell, FW: *Ophthalmology: Principles and Concepts*. 6th ed., St. Louis. C.V. Mosby Company, 1986, p 73.
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