مجلہ طب العیون پاکستان

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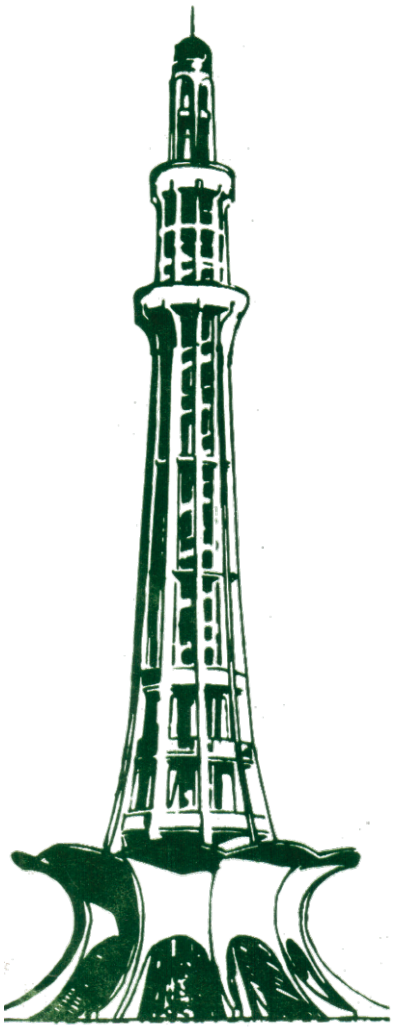

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BISMILLAHIR-RAHMANIR-RAHEEM

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Editorial

Say: Are the blind and the seeing man equal, or are the darkness and the light equal?
-Holy Qur'an 13:16

Behavior of Ocular Tumors in Pakistan

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

Basal cell and squamous cell carcinomas are the most common epidermal primary malignant tumors of the eyelid, constituting over 95% of the cancerous lid lesions.[1] Basal cell carcinoma is much more common than squamous cell carcinoma, and according to most authors the ratio in incidence of basal cell and squamous cell carcinoma in the eyelid varies from 5:1 to 20:1 [2-4] One careful re-evaluatory study places this figure at 38.6:1.[4]

Retinoblastoma is regarded as the most common intraocular malignancy of infancy and early childhood in the Western countries,[5,6] and as the overall most common intraocular malignant tumor in those populations, it is third only to uveal malignant melanoma and metastatic carcinoma, which respectively occupy first and second position.[6] However, retinoblastoma is the most common intraocular malignant tumor in all population in Pakistan[7] and India.[8] This is because the uveal melanoma is not as common in our regions as it is in the West. Also, from the few published reports on retinoblastoma from Pakistan, it appears that this tumor is more prevalent in our people, particularly in the northwestern regions of country.[9]

In this issue, there are two reports on ocular tumors in Pakistan that are of much interest, one from point of view of pathogenesis and diagnostic techniques and the other from standpoint of socioeconomics and public health education.

The lead article by Halepota, Soomro and Shaikh (page 7) concludes that the incidence of squamous cell carcinoma is higher than that of basal cell carcinoma of the eyelid in Sindh and other adjoining areas of Pakistan. It obviously is most interesting.

It is known that many lesions can be confused, even on histopathologic examination, with squamous cell carcinoma, spuriously inflating its incidence. In one study from the United States, Kwitko, Boniuk, and Zimmerman[4] re-evaluated the histopathologic slides of 115 lesions that had been histologically diagnosed as eyelid squamous cell carcinomas during the years 1955 and 1959. They found that only 12 of these 115 lesions were frank squamous cell carcinomas. Out of the remaining 103, 40 were other malignant or premalignant lesions, such as senile keratosis, Bowen's disease, basal cell carcinoma, adenocarcinoma, etc., and 63 were outright benign conditions, such as inverted follicular keratosis, keratoacanthoma, benign keratosis, pseudoepitheliomatous hyperplasia, etc.

At least in one patient of Halepota et al, the one shown in Figure 4, question may be raised that it actually is a squamous cell carcinoma of the palpebral conjunctiva. However, even if this case is excluded, the comparative incidence of squamous cell carcinoma in their small series remains unusually high.

It will not be surprising, if in the future a re-evaluation of pathology slides of lesions reported by Halepota et al. duplicates the conclusions of Kwitko, et al. However, if such a review of material reconfirms the findings as they are reported here, it is very important that well-planned research projects be carried out in Pakistan's leading medical centers to delineate causes of this most interesting variation in the comparative incidence of eyelid tumors in Pakistan.

The second interesting report is that of Kundi, Khan and Mohammad (page11). It conclude that prognosis of retinoblastoma in Pakistan has remained alarmingly dismal, with no change of even a few percentage points since the time of publication of report of Islam[9] in the *Journal* many years ago.

Today, in the United States nearly 90% or more patients survive retinoblastoma following treatment. In Pakistan the situation is diametrically opposite, with mortality rate reaching this figure. The major reason for this is too late presentation of cases in our country. Hence, the problem is not different nature or altered behavior of the tumor, but an overwhelming lack of public awareness about the disease. Poverty and illiteracy keep parents unaware of the early alerting signs of the disease and also from seeking timely treatment. It is imperative that the Ophthalmological Society of Pakistan prepare a comparative report based on the current statistics from the United States and Pakistan and present it to the Ministry of Health of Pakistan for urgent action in public education about retinoblastoma.

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Self-Evaluation, Self-Education

Camera Clinicals

In this section of THE JOURNAL, *photographic documentation of interesting and challenging observations are persented to the readers. They should make their diagnosis from the given information, and compare their conclusions with the expositions given on pages 19-20.* -Editor.

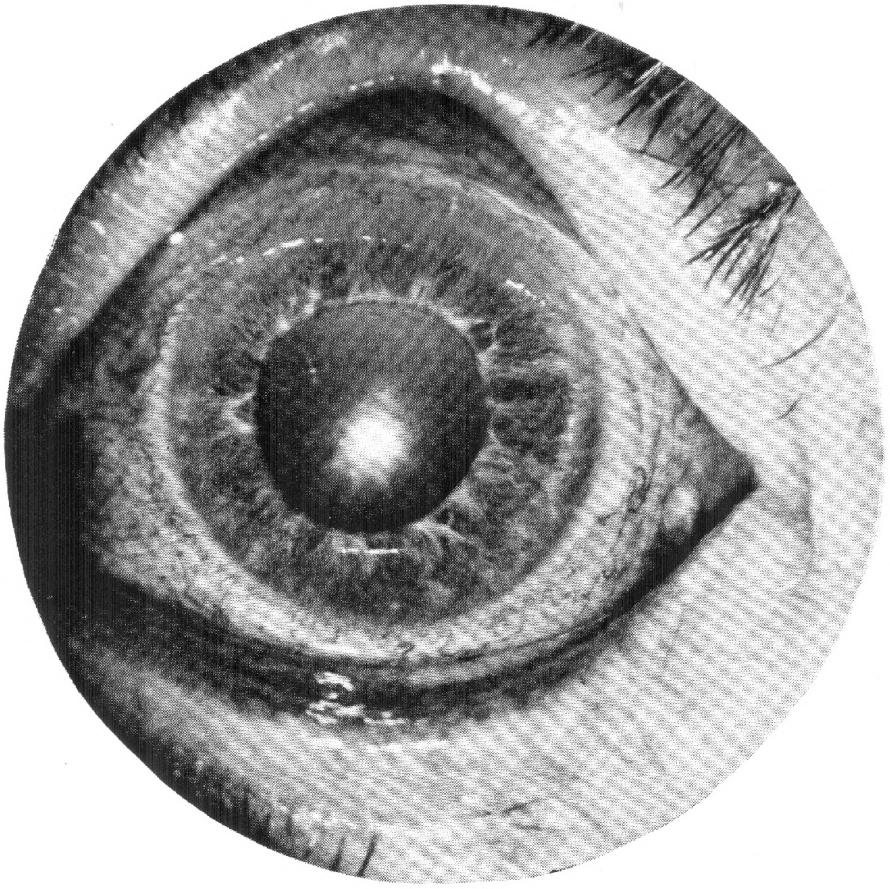

Figure 1

Figure 1: A 68-year-old woman came for eye evaluation because of loss of sight in both eyes. She had been a diabetic for 13 years and wore glasses since age of 23. Because of a recent "small heart attack," she had been placed on nitroglycerin by her family physician. She was using insulin for a successful blood sugar control, and her last glucose level two months prior to her visit was 129. On questioning she also told of now-and-then flashes of light in both eyes.

The eye examination showed that her vision was counting fingers at six feet in both eyes with her glasses of moderate mixed astigmatic correction. Nothing remarkable was present on external, extraocular muscle function, pupillary, tonometric, and slit lamp examinations. Ophthalmoscopy showed a very advanced proliferative diabetic retinopathy in both eyes. The right eye also had long-standing inferior traction detachment. The retinal surgeon to whom she was referred performed lensectomy, vitrectomy, membrane sectioning, scleral buckling, fluid/gas exchange, and panrertinal endophotocoagulation on the right eye on April 14, 1989. On November 9, 1989, he performed vitrectomy, scleral buckling, membrane peeling and fluid/air exchange on the left eye. On January 16, 1990, she developed red and painful left eye (Figure 1) with elevation of intraocular pressure. The conjunctival culture showed growth of Gram-negative rods. However, on the basis of slit lamp examination and gonioscopy, she received Nd:YAG laser treatment in addition to the topical antibiotics with fast relief from her symptoms. She required long-term topical drops following this episode. However, following a successful extracapsular cataract extraction from this eye on July 18, 1990, these medications became unnecessary, and she has done well since then.

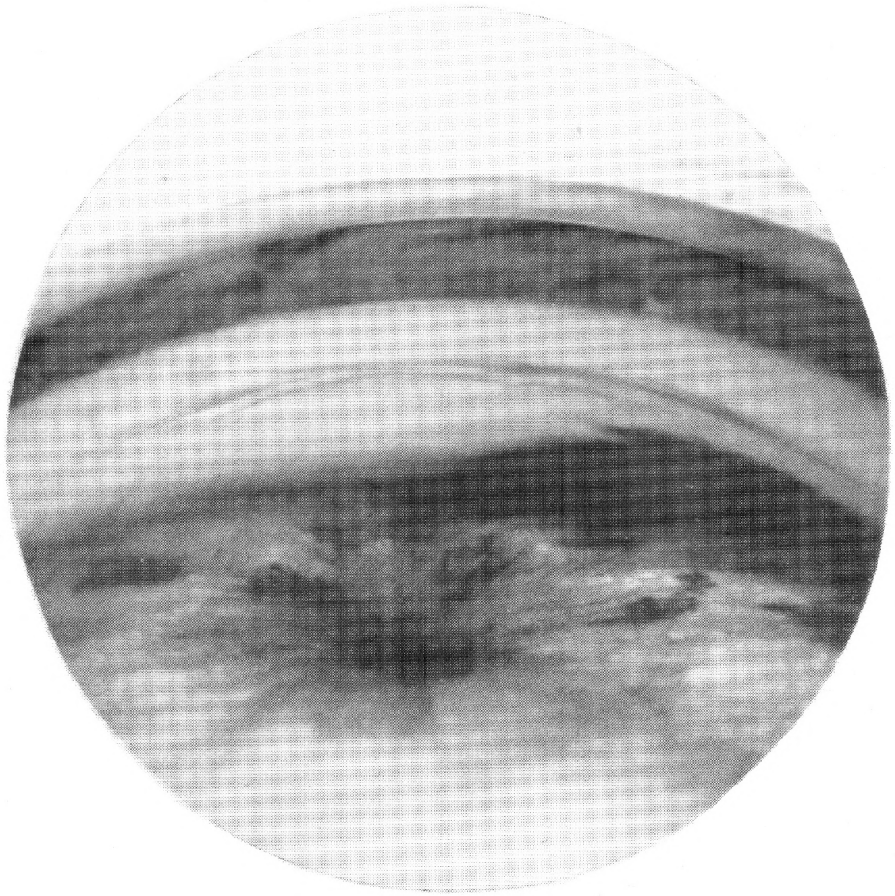

Figure 2

Figure 2: An 80-year-old man who had successfully controlled bilateral open angle glaucoma for 10 years developed elevation of the intraocular pressure despite the maximum tolerable medical treatment. This led to a decision to perform laser trabeculoplasty on his right eye. Under topical anesthesia, blue-green argon laser trabeculoplasty was carried out in the two-thirds area of the filtration angle. As soon as the contact lens was removed from the eye at the completion of the procedure, the findings shown in Figure 2 appeared. The problem appeared to be progressive. Firm pressure was applied to the eye for ten minutes, after which the clinical situation stabilized.

The patient received prescription for topical corticosteroid drops to be used at two hour intervals during the day. He also continued the use of his antiglaucoma medications. He returned the next day. The findings in Figure 2 had resolved to some extent. A week later, no abnormal finding was present on gonioscopy, and the patient's intraocular pressure had fallen within the range of satisfactory control.

Other than arteriosclerosis and mild hypertension, the patient had no systemic health problems, and was not taking any medications other than antiglaucoma therapy.

Book Reviews

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

VITREORETINAL DISEASE, 2nd Edition, 1989. By Peter H. Morse and Associate Editors, Marvin F. Kraushar and Ching J. Chen. Chicago, Year Book Publishers, Inc. Hardcover, 590 pages plus 23-page index, a large number of black and white illustrations, table of contents. Price: US $75.00.

This book originally appeared as *Vitreoretinal Disease. A Manual for Diagnosis and Treatment* in 1979 as "an introductory clinical manual intended for the use of residents and postgraduate fellows in the study of vitreoretinal disease. At that time it was perhaps the only book of its kind that commendably fulfilled its stated purpose. The present edition has been totally rewritten without any increase in the number of pages, and is intended "as a cohesive introduction for those beginning the study of vitreoretinal disease and as a reference source for the ophthalmologist in practice."

This edition is dvided into 14 chapters titled: History and Examination, Ocular Fundus Drawing, Clinical Findings and Classification of Retinal Detachment and Related Disorders, Prophylaxis of Retinal Separation, Scleral Buckling Techniques, Vitrectomy, Fluorescein Angiography of Ocular Fundus, Photocoagulation, Retinal Vascular Disease, Diseases of Retinal Pigmented Epithelium and Choroid, Manifestation of Systemic Disease and Idiopathic Inflammatory Manifestations, Parasitic Diseases, Toxic Effects on the Retina, and Intraocular Tumors. Appended at the end of each chapter is a very adequate list of current references. However, these references would have been more useful if they were also cited in the text.

The first six chapters on examination, documentation (particularly fundus drawing), and retinal surgical procedures are some of the best writing one can find anywhere for the intended readers of this book. If read carefully, they will prove worth more than the price of the book. The chapter on fluorescein angiography has been greatly expanded, and in addition to normal fluorescein features of ocular fundus a large number of pathologic entities are illustrated with 135 excellent and sharply defined black and white fluorescein angiographs.

A step by step and to the point description of application of photocoagulation, both xenon arc and laser, in the management of focal or generalized vascular retinopathies, retinal tears, subretinal neovascularization (e.g. age-related macular degeneration, presumed ocular histoplasmosis syndrome, etc.) retinoblastoma, malignant melanoma, and parasites is contained in chapter on photocoagulation. A concisely written excellent chapter on retinal vascular diseases follows . Here, in addition to more common and well-known entities, the interesting rarities such as diabetic papillitis, radiation retinopathy, etc. also receive decidedly brief but sufficient treatment. On page 324, FIG 9-55 is perhaps the best illustration of Elschnig's spots in hypertensive choroidopathy this author has ever set his eyes on. This photographs and several others would have made stunning color plates. This chapter perhaps should have preceded the chapter on photocoagulation. Also, its portions on some of the entities, such as thromboangiitis oblitrans, aortic arch syndrome, etc. might have been better located in chapter on systemic diseases, to which such arrangement might have given badly needed extra weight. The chapter on "Diseases of Retinal Pigment Epithelium and Choroid" is another excellent and very current section of the book.

The chapter on "Manifestations of Systemic Disease and Idiopathic Inflammatory Manifestations" is the softest spot of this edition and suffers from "ultrabrevity" in several areas. Many of the conditions appear to have been included simply to fill in the blanks, with a bold subtitle but only a sentence of a few words as description. In this reviewer's judgement it would have been better to either eliminate this chapter totally, or to present it as an elaborate table, even if a lengthy one. Also, for the convenience of the readers the contents of this chapter sould have been arranged under the subtitles named after various systems. For the same reason, the contents of the chapter on "Toxic Effects on the Retina" should have been presented either alphabetically, or according to the tissues of the retina.

An inconsistency in writing, not erroneous but certainly amusing, is noticeable in the titles and texts of chapters on retinal detachment. The term "retinal detachment" in the title and text of chapter 3 is suddenly changed to "retinal separation" in the title and text of chapter 4. This interchanageable use of two terms may be intentional on part of the author, to popularize the more appropriate term "retinal separation" among the trainees.

The writing is concise, comfortable to read, and easy to follow. This is an ecxellent book for the trainees and fellows interested in retina. Also, it will prove, particularly in Pakistan, greatly useful to those who perform retinal surgery but are not retinal subspecialists. In other words, it delivers what the author states in the preface. ❋

EYELID SURGERY, 1990. By J. Earl Rathburn. Little, Boston, Mass, and Company, Clothbound, 276 atlas-size pages plus 14-page index,

extensively illustrated with color and black and white photographs and line drawings. Price: US $150.00.

It is a very beautifully produced atlas on one of the important but unfortunately underrated subdivision of ocular surgery. The fact is that unlike the cataract or retinal operations, the two most popular procedures with the ophthalmologists, the eyelid surgery places before the surgeon a dual challenge of restoration of function as well as of appearance. This demands that a surgeon who aspires to successfully meet this challange must possess a detailed and instantly recallable fundamental knowledge of the structures involved, a meticulous grasp of the technical steps of the operation, a pair of dexterous hands, and the experience to make the right decision in situations involving individual response variations. To write a book on such a topic one would also require the talent of lucid communication. Fortunately, after nearly a quarter century of practicing ophthalmic plastic and reconstructive surgery in the most demanding region of the United States, the author of *Eyelid Surgery* meets all these requirements. The publisher has also done a splendid job of book's printing and get-up.

The book is divided into 10 chapters titled: Eyelid Anatomy, Basic Techniques, Entropion, Cicatricial Entropion and Trichiasis, Ectropion, Eyelid and Canthal Reconstruction, Eyelid Trauma, Blepharoplasty and Brow Elevation, Blepharoptosis, and Eyelid Retraction. Each chapter is followed by a list of selected references.

The two characteristics of this book make its usefulness superior to other publications on the topic of lid surgery. The book presents the techniques, views, and experience of a single successful surgeon, which eliminates inconsistencies and contradictions from the text, allowing a reader to learn without getting double-minded. The inclusion of the discussion of pathophysiology responsible for eyelid disorder in need of repair helps the reader to independently modify the technique to suit him. This approach to writing is apparently based on the philosophy espoused by the author, who states in the preface that "one must also be prepared to modify the procedure when different circumstances are found during the actual procedure."

The most impressive features in clarifying the individuals steps of the surgical procedure are the actual step by step photographs and the line drawings. The photographs are stunningly crisp and their reproduction equally as good. However, the black and white reproductions of photographs are poorer in quality. The up-to-datedness of the book is obvious from author's comments on newer devices such as the upper eyelid gold weight implants for lagophthalmos in facial paralysis.

Despite its many qualities, the book is not without some minor deficiencies. The index lacks some important entries, such as epiphora, lacrimal pump, blepharospasm, lagophthalmos, etc. A recent study from UK has re-confirmed the value of argon laser treatment of trichiasis, but no description of this is given, though the unsatisfactory technique of electrolysis, a limited-valued epilation, and relatively complicated cryotherapy are discussed under separate subtitles. Treatment of blepharospasm, a blinding and deforming condition, should have received appropriate attention. Despite these critical remarks, *Eyelid Surgery* is an excellent book for those interested in relieving their patients of many annoying and disfiguring lid conditions. It has great usefulness for the trainees, the seasoned oculoplastic surgeons, and anyone falling in between these extremes of the spectrum of plastic surgery of the eye.

COSMETIC BLEPHAROPLASTY, 1990. By Stephen L. Bosniak. Raven Press Ltd., 1185 Avenue of the Americas, New York, New York 10036. Clothbound, atlas-sized 110 pages and a 4-page index, profusely illustrated with color photographs and artwork, explanatory line drawings. Price: US $114.00.

The mind-boggling explosion and accessibility of the electronic communication media have created, in addition to bringing awareness, a tug of war between mind and nature in an ever-increasing number of individuals , in whom the personal desire must win over the nature's course. Who would have thought a few years back that one of the Jacksons would write lyrics and broadcast songs about his phenomenally famous sibling's obsession with artificially altering his appearance. The trend is here, and it makes Bosniak's monogram timely and significant.

There is no reason or need to compare this publication with Rathburn's *Eyelid Surgery*, previewed in the preceding section. *Cosmetic Blepharoplasty* is a so greatly expanded version of that book's 27-page chapter "Blepharoplasty and Brow Elevation" that its role is complementary and not at all competitive. Also, this atlas presents views and experience of a younger expert from the opposite (eastern) end of the United States, and uses much larger amount of excellent colored artwork for illustration. However, the line drawings, though adequate in serving their purpose, are not of matching quality.

The author opens the very brief preface with a most appropriate cautionary note, alerting that on a first cursory glance "cosmetic blepharoplasty may appear to be an easily performed procedure. It is, however, fraught with complexities that, if unrecognized, may lead to inadequate results and unhappy patients." This brevity and directness of the preface is a fair indicator of how author has presented the material.

The book is divided into eight chapters, including one titled "Introduction;" three on anatomy and surgical techniques related to "Eyebrow," "Upper Lids," and "Lower Lids;" and one each on "Adjunctive Techniques," "Blepharoplasty in Males," "Upper Lid Blepharoplasty in the Asian Patient," and "Complications: Diagnosis and Treatment." Appended at the end of the book is a bibliography of 51 references from ophthalmic and non-ophthalmic literature. However, the usefulness of these references would have tremendously enhanced, if they were also cited in the text.

In the chapter Introduction, the discussion includes patient selection, preoperative concerns, important anatomical measurements, and suturing techniques. The suturing techniques described here should have been illustrated with line drawings. Nonetheless, the chapter is very informative reading.

The chapters on eyebrows and lids are nicely written, but some shrtcomings do show. Most of the surgical steps are illustrated with line drawings. The color photographs of steps of actual surgical procedures, something not too difficult these days, should have been employed instead. The larger number of color reproductions of photographs are limited to the "before and after" format, and look more like the media advertisements than illustrations contributing to the understanding of technical steps. Their page after page presence seems more like an attempt to reassure the reader that the technique works, rather than to help him grasp how it is executed. They should either be greatly reduced in number to lower the price of the book, or swapped with photographs of actual surgical steps, an infintely more useful choice. Moreover, some of the line drawings, such as FIG. 32 on page 55 illustrating Fasanella-Servat procedure, are confusing. The description of bicoronal brow lift, an extensive operation, in chapter on eyebrow concludes without any hint about its complications, and neither does the chapter on complications say anything about eyebrow surgery. There are also other deficiencies, such as no mention of trichiasis, a distressful as well as disfiguring condition, is made, though entropion is dealt with in detail. Also, no mention of xanthalasma, an entity obviously more in the realm of cosmetic surgery, is included in the text or in the index. Nonetheless, *Cosmetic Blepharoplasty* has some very strong points in its favor, making it helpful to its intended readership. ✪

MODERN NEURORADIOLOGY, Volume 4: RADIOLOGY OF THE EYE AND ORBIT, 1990. Edited by Thomas H. Newton, Larissa T. Bilmaniuk. Clavadel Press (Raven Press) 200 S. Ridgewood, Kentfield, CA 94904. Clothbound, atlas-sized 283 pages plus 25-page index, a large number of black and white illustrations, one-page table of contents. Price: US $138.00.

The progress in three imaging modalities, ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI), has benefited the diagnostic process in the orbital region more than many other body areas. The editors of this publication, Volume Four in the series *Modern Neuroradiology*, approached it with the idea that the development and improvement in these fields has now reached a stage where it is possible to delineate "strengths and shortcomings" of these techniques. They have accomplished their task with the help of nine other colleagues, including one ophthalmologist of great experience and repute.

The book is divided into nine chapters. The first five of which are devoted to the **magnetic resonance imaging,** dealing with its "Technical Aspects," and the "Ocular Anatomy," "Ocular Pathology," "Orbital Anatomy," and "Orbital Pathology" as shown by it, allotting a separate chapter to each. The next two chapters contain discussions on the "Principles and Techniques" of **ultrasonography** and its applications in "Ocular and Orbital Pathology." Details of **computed tomography** related to "Orbital Anatomy" and its application in delineating "Ocular and Orbital Pathology" occupy the last two chapters. Each chapter has at its end a list of up-to-date references from ophthalmic and non-ophthalmic literature, which are also cited in the text. The figures and writing are excellent throughout.

The discussion of each modality, MRI is the first, begins with very informative description of basic principles and technical specifications of each technique and the features of the normal orbital and ocular structures as shown by it. These descriptions are lucid, concise, and informative. To read these portions will benefit all ophthalmologists whether they handle orbital cases or not. The black and white figures have generous number of markers and arrows to help even the most novice in the field understand what is being presented.

Ultrasonography, the shortest of the three sections, occupies the next portion of the book. The first half of this section is devoted to ocular and the second half to the orbital evaluation. The last part deals with computed tomography and is built of same guidelines as the previous two chapters.

Although the material is not encyclopedic, but this author found this publication very fascinating. It should be considered one of essential readings for the trainees, and should be given place on the bookshelves of all physicians interested in ocular and orbital disorders.

-KJA

Research Results

Higher Incidence of Eyelid Squamous Cell Carcinoma in Comparison to Basal Cell Carcinoma*

Faiz M. Halepota, F.C.P.S. (Pak), Akber H. Soomro, D.O.M.S.,
and Sher M. Shaikh, M.Phil (Path)

ABSTRACT: According to this study, the incidence of eyelid squamous cell carcinoma (45%) is nearly twice the incidence of basal cell carcinoma (25%) in the upper Sindh and the surrounding areas of Baluchistan, Pakistan. Also, squamous cell carcinoma occurred twice as frequently in the lower eyelid (six cases) than in the upper eyelid (three cases). Both of these findings are contrary to the established views of the Western authors and publications. Nonetheless, more research is needed in all parts of the country to confirm this most interesting discovery of our study. Out of a total of 20 histopathologically studied eyelid tumors collected from the Department of Ophthalmology and the Department of Pathology, Chandka Medical College, Larkana, nine (45%) were squamous cell carcinomas, 5 (25%) basal cell carcinomas, one (5%) sebaceous adenocarcinoma, two (10%) neurofibromas, one (5%) compound nevus, and one (5%) tricho-epithelioma. One lesion (5%) was a chronic tuberculous granuloma. The racial, genetic, socioeconomic, and environmental factors may be responsible for this reverse trend in the relative incidence of squamous and basal cell carcinomas of the eyelid. All of the patients in this study were from the poor socioeconomic group. (Pakistan Journal of Ophthalmology 7:7-10, January, 1991.) *- See also editorial on page 1*

Squamous cell carcinoma is relatively rare, and basal cell carcinoma is the most common eyelid tumor according to the Western statistical data.[1,2] Squamous cell carcinoma commonly affects upper lid and originates from surface epithelium or as a result of metaplasia of conjunctival and meibomian gland epithelium. It may initially appear as a small hard indurated nodule, a wart, or a roughened keratotic patch. In time, this growth develops erosion and fissures which tend to crust, eventually turning the lesion into an ulcer.[1] A continuous and slow extention occurs, and the lids, conjunctiva, orbital tissues, periostium, bone and sinuses are all gradually destroyed, leaving behind a deep crater which may extend to the cranial cavity itself. The eyeball is lost not by direct invasion but indirectly by exposure keratitis, ulceration, infection and perforation. The cervical lymph nodes metastasis is uncommon and occurs late in the course of disease.[1,2] Even large fungating, ulcerated tumors do not have a hopeless prognosis, because these external, sun-induced tumors do not usually metastasize to distant organs.[3]

Basal cell carcinoma commonly affects the lower eyelid and inner canthus, and arises from the basal layer of epithelium (primary epithelium germ cells). This tumor is characterized by its relatively benign nature, slowness in growth and invasion, and rarity of systemic or regional lymph node metastases. Its tendency of tissue destruction is neither great nor as rapid as in squamous cell carcinoma.[1]

Sebaceous cell carcinoma is an uncommon malignancy, which affects the upper eyelid more frequently.[4] It arises from meibomian glands, glands of Zeis and sebaceous glands associated with hair follicles. Usually, it presents as a chalazion-like nodule at the lid margin, or may have a deceptive presentation consisting of thickening of the lid margin with changes that may be mistaken as chronic blepharo-conjunctivitis. The patients are usually elderly, but occasionally adolescents and young adults may be affected.[2,4]

This paper presents the eyelid related results of a study we conducted to ascertain the incidence of various types of tumors involving the orbit, eye, and the ocular adnexa in the upper Sindh and the surrounding parts of Baluchistan which constitute the draining area of our Department of Ophthalmology, Chandka Medical College, Larakana, Sindh, Pakistan.

Materials and Methods

We started a study on the tumors of the orbit, eye, and ocular adnexa at the Department of Ophthalmology in conjunction with the Department of Pathology,

From the Department of Ophthalmology (Dr. Halepota and Dr. Soomro) and the Department of Pathology (Dr. Shaikh), Chandka Medical College, Larkana, Pakistan.

Reprint requests to Dr. Faiz M. Halepota, F.C.P.S., 4 Doctor's Colony, VIP Road, Larkana , Sindh. Pakistan.

*This paper was presented at the 13th Annual Congress of the Ophthalmological Society of Pakistan held on May 4-6, 1990 at Quetta.

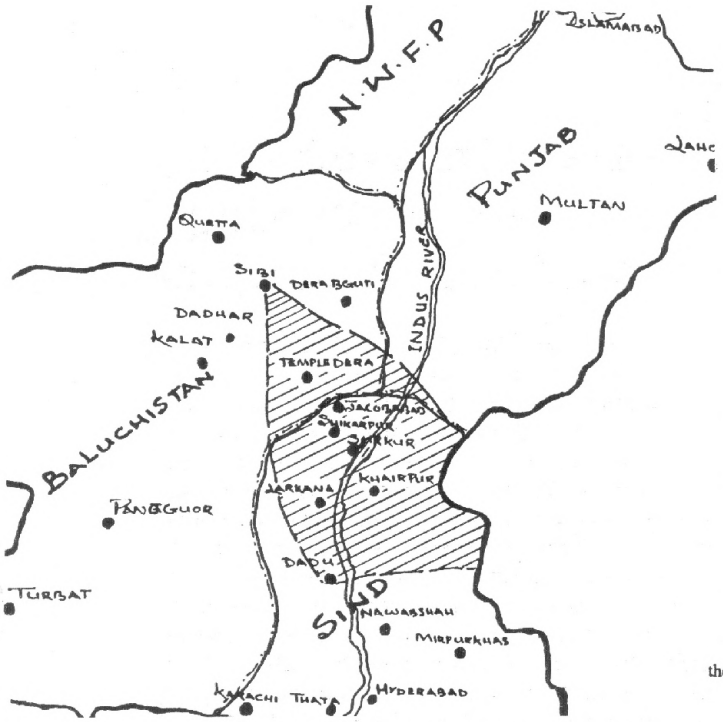

Figure 1 (Halepota, Soomro, Shaikh): Geographical drawing area of the study.

Chandka Medical College, Larkana, Sindh. Although it is an ongoing project, in the study reported here only the patients with eyelid tumors were included.

These patients were seen from September 1987 through August 1990, and they belonged to the region of Pakistan that includes the upper Sindh and its adjoining areas of the province of Baluchistan as depicted in Figure 1.

This study includes 20 patients, and all of them were adults over the age of 30. Each patient provided a detailed medical history and received clinical examination with special attention to the regional lymph nodes and possible sites for systemic metastases. Clinical photographs were taken in every case. Routine laboratory investigations consisted of complete blood picture, sedimentation rate, urine analysis, plain X-rays of the orbit and chest. Ultrasonography was done in selected cases, and patients requiring CAT scan had it done by experienced specialists in the field elsewhere. Excisional biopsies were done in all patients with small and operable tumors. In advanced and large lesions, wedge biopsy was taken for histologic diagnosis.

All excised tissues were submitted for careful histopathologic studies. The patients in whom either the repeat surgery was technically not possible, or the tumor had metastasized, were referred to radiotherapy department with their biopsy reports.

We were unable to monitor further morbidity (including tumor advance and spread) and mortality in our most patients because of the poor patient follow-up, a factor that also figured in limitation of the length of time of study.

Table 1
Eyelid tumors in upper Sindh and the adjoining areas of Baluchistan (A total of 20 cases)

Type of tumor	No. of cases
Malignant	
Squamous cell carcinoma	9 (45%)
Basal cell carcinoma	5 (25%)
Sebaceous adenocarcinoma	1 (5%)
Benign	
Neurofibroma	2 (10%)
Compound nevus*	1 (5%)
Tricho-epithelioma*	1 (5%)
Inflammatory	
Chronic tuberculous granuloma	1 (5%)

*These usually benign lesions have potential to rarely turn malignant, but they showed no such tendency in our cases.

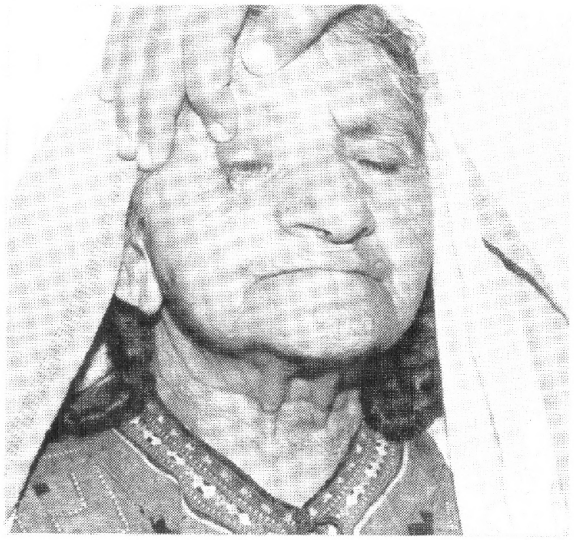

Figure 2. (Halepota, Soomro and Shaikh): Right eye. Squamous cell carcinoma of the right lower lid has eaten it away, and the growth is extending to orbital floor. The eyeball was immobile and fixed to the orbital floor.

Results

Squamous cell carcinoma was the most common tumor, overall as well as among the malignant lesions. The detailed analysis of the number of cases of each type of tumor are given in Table 1.

Majority of squamous cell carcinomas originated from the lid margin . In five cases, the lower lid was eaten away and the tumor tissue extended into the orbital floor, with fibrosis tethering the eyeball to it, causing restriction of elevation. In some cases, the lesion mimicked basal cell carcinoma (Figure 2), but histopathological study proved otherwise (Figure 3).

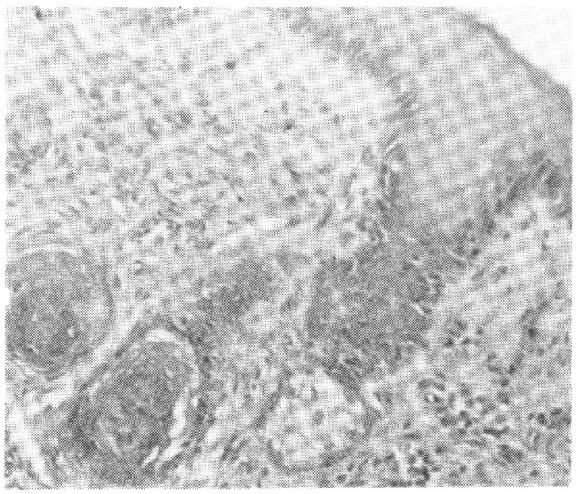

Figure 3. (Halepota, Soomro and Shaikh): Histopathologic section of Figure 2 lesion. Note typical sheets of squamous epithelial cells, hyperchromatism, and keratoepithelial pearls. (Hematoxyline and eosin , X 100).

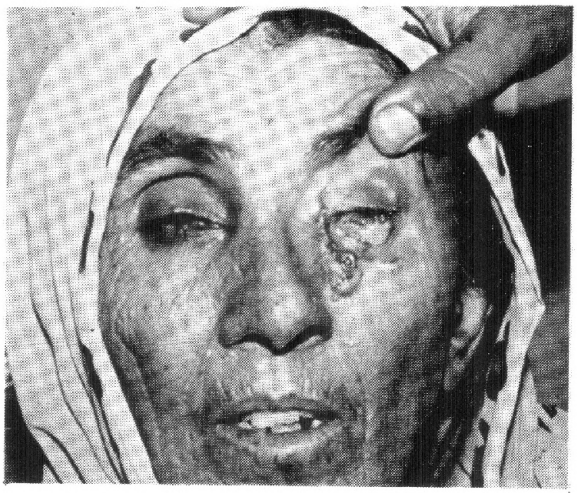

Figure 5. (Halepota, Soomro and Shaikh): Basal cell carcinoma. Tumor is extensively involving the lower eyelid and the inner canthus.

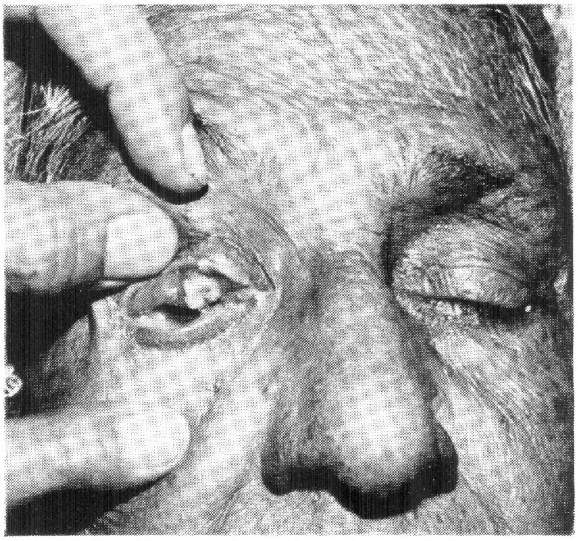

Figure 4. (Halepota, Soomro and Shaikh). Squamous cell carcinoma. Growth arising from the inner aspect of the upper eyelid.

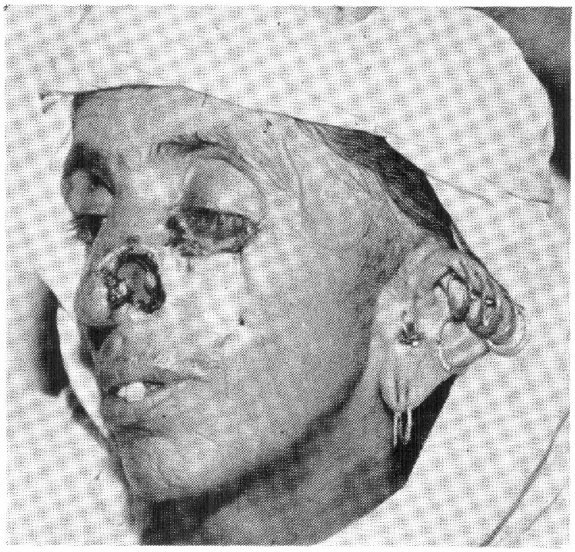

Figure 6. (Halepota, Soomro and Shaikh): Basal cell carcinoma. Tumor involving the lower eyelid, the side of nose, and the malar fold.

In one case, the squamous cell carcinoma arose from the inner aspect of the right upper eyelid, presumably due to metaplasia of the tissues (Figure 4).

In another patient, the tumor apparently grew from the meibomian gland epithelium, and was initially treated as chalazion. Tumor involved upper lid in three cases, and lower lid in six cases. History of blunt trauma was available in nearly half the cases with squamous cell carcinoma, but in none with basal cell carcinoma. Reccurrence after surgical excision (Mohs' technique) was observed in three cases. All patients came from economically poor class, except one patient who belonged to middle class. Regional lymph node involvement occurred in only one case.

Basal cell carcinoma patients were comparatively older (Figures 5 and 6), but like the patients with squamous cell carcinoma were from the poor socioeconomic group.

Discussion

In the Western literature, basal cell carcinoma is regarded to be by far the most common malignant tumor of the eyelid, and its reported occurrence rate is 20 to 40 times greater than squamous cell carcinoma.[5] Out of the malignant tumors of the eyelid in our series, nine (45%) were squamous cell type. Basal cell carcinoma was present in only five (25%) patients. Hence, our study has very interestingly revealed that occurrence of squamous cell carcinoma in the eyelid in our population is nearly twice more frequent when compared to basal cell carcinoma. This discovery of the higher prevalence of squamous cell carcinoma was merely an incidental finding of our study, and quite surprising to us.

Six of the nine squamous cell carcinomas in our cases involved the lower eyelid, and the other three occurred in the upper eyelid. This is in contrast to frequent involvement of the upper eyelid in the Western countries,[1] another interesting discovery.

Only one (5%) of our patients showed spread to the regional lymph nodes. However, our patient follow-up was poor and of short duration. Had our follow-up been better and of longer duration, we might have detected lymph node metastasis in more patients. Duke-Elder and MacFaul[1] mention two squamous cell carcinoma series with a record rate of cervical lymph node metastasis of 3/14 and 9/55. In both of these series, patient follow-up was better and of longer duration. We found in our study that squamous cell carcinoma affected more men than women, possibly because men in our society are exposed more to sun and other environmental irritants than are women. Our region is mostly sunny with hot climate, temperature ranges from 35° C to 45° C, from April through September. This may be an important factor in the pathogenesis of squamous cell carcinoma in our region.

All our cases of basal cell carcinoma were advanced, and involved the lower lid, inner canthus and orbit. They all were in older age group and from the poor socioeconomic section. The male to female ratio was 3:2. It seems that our more heavily pigmented ethnic groups have a comparatively lower incidence of basal cell carcinoma, possibly due to higher melanin content of epidermis protecting basal cell layer from the effects of radiation and cancerous proliferation.

We have recorded only one case of sebaceous adenocarcinoma of eyelid durimg the three-year period of our study. It is an uncommon neoplasm, comprizing 1%-5.5% of the tumors of eyelids.[4] In our country no statistics about its incidence are available, and only two case reports have been published.[6,7] One of these cases was published by us, and it presented as an elongated, smooth, cylindrical mass hanging from the left lower eyelid of a 60-year-old farmer.[7] It is interesting that in addition to its commonest presentation as a recalcitrant chalazion, this tumor may mimic a cutaneous horn or other clinical forms.[4,8] Wide excision is the currently recommended treatment and response to radiotherapy is poor. However, in some early cases, usually detected by chance, an adequate local excision of the tumor may prove curative.[9]

Our preliminary, but nonetheless important, study and its conclusions underline the role of racial, geographical, environmental, and socioeconomic factors in the etiology and varied incidence of cancerous process in the eyelid. There is a dire need for undertaking studies on ocular and adnexal tumors in other centers of Pakistan, so that a common consensus on the prevalence of squamous cell carcinoma and basal cell carcinoma of the eyelid is established.

Acknowledgements

Thanks are due to Professor S. Mahmood Alam and Dr. Mrs. Qamar Jamal of the Jinnah Post-graduate Medical Center, Karachi, for his expert opinion and photomicrography; to Dr. Shahid Jamal Siddiqui, Registrar, Eye Department, Chandka Medical College and Hospital, Larkana for assistance in collecting data from patients' records and typing the manuscript. This work was supported in part from a grant of the Pakistan Medical Research Council (P.M.R.C.) Centre, Larkana, Sindh, Pakistan.

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Ophthalmic "Pastpourri"

Glaucoma and Optic Disc Asymmetry-100 Years Ago

"*...physiological excavations are always bilateral, but are not always identical in size and location.* Such cases as these call for extended and careful observation. If the tension does not increase, if sight does not deteriorate, if the field of vision remains of normal extent, we may exclude glaucoma...."

- Professor C. Schweigger of Berlin, **1891**

120-50191

Clinical Courses

Current Status of Presentation and Prognosis of Retinoblastoma in Pakistan

Niamatullah K. Kundi, M.D., M. Daud Khan, F.P.A.M.S., Shad Mohammad, F.R.C.S.

ABSTRACT: To determine the current presentation pattern and prognosis of retinoblastoma in Northern Pakistan, we reviewed 26 retinoblastoma cases (13 boys and 13 girls) admitted to the Department of Ophthalmology, Lady Reading Hospital, Postgraduate Medical Institute, Peshawar between April 1985 and November 1988. Of these patients, 25 were children ranging in age from eight months to seven years, and one was a woman of 22. The tumor was unilateral in 15 patients and bilateral in 11. The presenting signs were fungating mass in 10 (38.36%) patients, proptosis in seven (26.92%), leukokoria in five (19.26%), orbital cellulitis in one (3.85%), loss of vision in one (3.85%), strabismus in one (3.85%), and quadriplegia in one (3.85%). Because of nearly universal late presentation, the mortality rate in our cases was 88.46%, which is similar to retinoblastoma with biopsy proven orbital extension. The only treatment suited for a great majority of our patients was enucleation followed by external beam radiotherapy (EBR). One female patient's elder sister was known to have suffered from retinoblastoma, but their parents were clinically free of the disease. Finally, although some improvement has been made in the treatment of retinoblastoma, no noticeable progress in public health education regarding this tumor has occurred in the past decade in Pakistan. (Pakistan Journal of Ophthalmology 7:11-14, January, 1991.)

Six years ago, Zia-ul-Islam[1] reported on the prevalence and clinical presentation of retinoblastoma in the North West Frontier Province (N.W.F.P.), and made recommendations for improvement in its earlier detection and treatment. We reviewed 26 cases of retinoblastoma admitted to our institution, Lady Reading Hospital, Postgraduate Medical Institute, Peshawar, from the time of the above mentioned publication (April 1985) to November 1988 to evaluate the change in the pattern of time and presentation of retinoblastoma. This paper describes our experience and conclusions about this childhood tumor, which is still usually fatal in Pakistan.

Material and Methods

In this study we reviewed the data of 26 patients admitted to the Department of Ophthalmology, Lady Reading Hospital, Postgraduate Medical Institute, Peshawar with diagnosis of retinoblastoma from the North West Frontier Province (N.W.F.P.) of Pakistan during the period extending from April 1985 to November 1988.

All patients had a thorough routine ocular evaluation, with special emphasis on family history, examination under anesthesia to uncover any hidden tumors in the second eye of unilateral cases, and any previous eye examinations or treatment.

Results

Age distribution, sex incidence, laterality of tumor involvement, and preponderance of family history are given in Table 1. Half of the patients (13) were male and half (13) female. The median age for children, excluding the 22-year-old woman, was 3.4 years. The age at which the diagnosis was confirmed (not the age at which the first signs were noticed by the parents) in each patient is shown in Table 2. The analysis of the greatest attention getting presenting sign is outlined in Table 3. Table 4 gives initial treatment, any additional therapy, and eventual outcome both in unilateral and bilateral cases.

One of the bilateral cases, a girl, had one older sister who also had retinoblastoma. This gives an overall familial incidence of 3.18%, but it rises to 8.3% when only bilateral cases are considered, and drops to nil when only unilateral cases are taken into consideration. Despite all efforts 92.86% (13) of patients with unilateral involvement and 83.3% (10) of the bilateral cases died, an overall mortality rate of 90%. Two unilateral and four bilateral cases required further treatment after initial therapy. The leading presenting sign was the fungating mass in the orbit, in 10 (38.46%) patients, all of whom also had evidence of metastatic spread of tumor.

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Table 1
Clinical profiles

AGE		SEX		LATERALITY		FAMILY HISTORY	
Mean	Range	Male	Female	Unilateral	Bilateral	Present	Absent
3.4 years@	3M-7(22) years*	13(50%)	13(50%)	14(53.85%)	12(46.15%)	1(3185%)	25(96.15%)

@ This mean age is based on 25 pediatric cases only; * The figure 22 in parentheses is the age of one adult patient not included in the pediatric age range.

Table 2
Age at diagnosis of retinoblastoma (26 cases)

Age	Unilateral	Bilateral	Total
3-18-month	3	2	5
2-year	1	3	4
3-year	3	4	7
Upto 3-year	7 (50%)	9 (75%)	16 (61.54%)
4Y	0	3	3
Upto 4-year	7 (50%)	12 (100%)	19 (73.1%)
6-year	5	0	5
7-year	1	0	1
22-year	1	0	1
Total	14	12	26

Table 3
Presenting signs or symptoms

Fungating lesions	10	38.46%
Proptosis	7	26.92%
Leukokoria	5	19.23%
Orbital cellulitis	1	3.85%
Strabismus	1	3.85%
Poor vision	1	3.85%
Quadriplegia	1	3.85%

Discussion

No definite figures on the overall incidence of retinoblastoma in Pakistan are available. In the United States the latest figure is one case of retinoblastoma for every 18,000 live births.[2] Zia-ul-Islam[1] suggested, and our experience is similar, that the incidence of retinoblastoma is higher in Pakistan, at least in its northern parts, than in the rest of the world. Hence, it is depressing to see that no progress in its mode of presentation and mortality rate has occurred in the last decade in Pakistan. It is obvious that both the government and the profession need to pay urgent attention to this problem in our country. It is believed that environmental influences play no role in the etiology of retinoblastoma.[3] It is possible that refinement in research methods, more accurate estimations of population, mobility patterns of people, wide-spread public health education, increased professional perception of the problem, and establishment of a central tumor registry may show that the incidence of retinoblastoma in Pakistan is not much different than the ones reported in studies from other countries.

Average age of diagnosis of retinoblastoma in the western publications is 13 months, and 89% of the cases are diagnosed within first three years of life.[4] In our study, the average age of diagnosis of tumor in pediatric cases was 4 years, and 92% cases were diagnosed by or before age six.

The age distributions of unilateral and bilateral cases was quite different (Table 2). Nearly all bilateral cases were diagnosed in the first four years of life; whereas, half of the unilateral cases were diagnosed after this age. Recent reports indicate that bilateral retinoblastoma presents at an earlier age than does unilateral retinoblastoma[5] All our cases except two (one aged 22 and the other 7) were diagnosed before the age of six.

Table 4
Therapy and outcome

INITIAL TREATMENT			REPEAT TREATMENT		LIVING	DEAD
Unilateral (14 patients, 14 eyes)	Enucleation	7	EBR*	2	1 (7.14%)	13 (92.86%)
	EBR*	3				
	No treatment	4				
Bilateral (12 patients, 24 eyes)	Enucleation	13	EBR*	4	2 (16.67%)	10 (83.33%)
	Cryotherapy	2				
	EBR*	9				

EBR: External beam radiotherapy

Although there was one instance of familial occurrence of retinoblastoma in two sisters in our review study, no clinical evidence of direct transmission of the disease from parents to their children was present. It could be due to the fact that death in early life is almost the rule in Pakistani patients. None of the children had a parent previously diagnosed with retinoblastoma.

In the United States, the leading presenting signs of retinoblastoma are white "cat's eye" reflex (in 56% of the cases) and strabismus (in 20% of the cases).[6] In our series, as in other developing countries of the world, presentation of retinoblastoma in very advanced stages was a common occurrence. Fungating lesion was the commonest presentation, and 10 cases (38.46%) who so presented also had the clinical evidence of metastatic disease. Proptosis due to the extension of the tumor into the orbit was the second commonest presenting sign (26.92% of the cases). Leukokoria was the cause to seek medical advice in 5 (19.23%) of the patient, but even here the tumor had reached quite an advanced stage. Only one patient each presented with loss of sight, strabismus, and orbital cellulitis. The other unusual presenting signs of retinoblastoma include unilateral mydriasis, heterochromia iridis, nystagmus, white spots on the iris, and hyphema.[6] Here it must be mentioned that if an eye with hyphema is suspected of harboring a retinoblastoma, the diagnostic anterior chamber biopsy must be examined by an experienced ophthalmic pathologist. Awan[7] reported a case of retinoblastoma who presented with spontaneous hyphema. When biopsy of anterior chamber was submitted for histopathologic studies, two general pathologists interpreted it as only a blood clot. However, when at Awan's insistence the general pathologist of the hospital sent the specimen slide to the Ophthalmology Division of the Armed Forces Institute of Pathology (AFIP), Washington, DC, the diagnosis turned out to be definitely retinoblastoma.

Our patient with the complaint of loss of sight was a 22-year-old woman. She had a tumor-like mass in the retinal periphery of her right eye. Histopathologic studies of the enucleated eye revealed the typical features of retinoblastoma. In very rare instances, retinoblastoma may develop in adults. Takahashi et al.[8] reported retinoblastoma in a 26-year-old Japanese woman in 1983, and found in literature only 11 other cases over the age of 20 up to that time. It is interesting that one of these was reported from India.[9] Ours is apparently the 13th reported case of retinoblastoma in a patient over the age of 20. Spontaneous regression of retinoblastoma has also been reported on several occasions.[10,11]

The explosive onset of orbital cellulitis suggests an active inflammatory process perhaps incited by necrotic changes in the tumor. Such presentation may obscure the tumor. Hence all children in retinoblastoma age group who present with orbital cellulitis should be thoroughly checked to rulr out any underlying retinoblastoma.

One child in our series presented with quadriplegia. She had an orbital recurrence after enucleation of her right eye elsewhere. Unfortunately, she died of intracranial extension on the day of admission to the hospital. The only hope for children with intracranial or systemic metastatic spread is combination of vincristine and cyclophosphamide.[12]

Three children with unilateral retinoblastoma had phthisis bulbi of the fellow eye. One phthisical globe was excised for histopathological examination, which revealed chronic inflammation. The eyes with retinoblastoma may experience repeated attacks of uveitis, which may eventuate in phthisis bulbi. Hence, a combination of a phthisical eye on one side and a buphthalmic eye on the other side may point to the presence of retinoblastoma.[13]

The risk of developing a second primary neoplasm, usually a pineal tumor or a sarcoma, in survivors from genetic retinoblastoma has been emphasized as being statistically significant.[14,15] In our series, there was no evidence of such tumors in any of the cases, perhaps because no patient with bilateral retinoblastoma survived long enough to manifest such development.

Table 4 gives the therapeutic modalities, and their outcomes, we used in our patients. The great majority of patients that we treated were those with eyes so massively involved that only enucleation followed by external beam radiation (EBR) could be entertained as appropriate form of treatment. For the 14 children with unilateral tumors, the most usual treatment was enucleation. Two cases out of these were followed by external beam radiation because histological examination revealed optic nerve involvement. Three children received radiotherapy alone. Out of four children who received no treatment, the parents of three refused treatment and one died in the hospital on the day of admission. Of the 14 cases with unilateral tumors only one, the 22-year-old woman, survived. The treatment for the patients with bilateral tumors was enucleation of the more severely affected eye followed by external beam radiation to the less involved remaining eye. Two of the children with bilateral involvement received cryotherapy to the less severely affected eye after the enucleation of the fellow more severely affected eye.

There were only two survivors amongst the bilateral cases who were diagnosed recently and are currently under observation for the last eight months. It is was not possible to decide which eye could be salvaged with functional vision as the tumors were advanced in stage at the time of detection. Our 88.46% of the patients died, a mortality rate which is diametrically opposite the survival rate of countries with good ophthalmic, oncological and radiotherapeutic services. In the European countries and the United States the

survival is assured for 92% of the children afflicted with retinoblastoma.[16] The high mortalilty in Pakistani patients cases is mostly on account of the late diagnosis. This is a clear evidence that there is an urgent need to improve circumstances in our country for early diagnosis and prompt treatment of retinoblastoma.

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Ophthalmic "Pastpourri"

"Retinitis Diabetica"

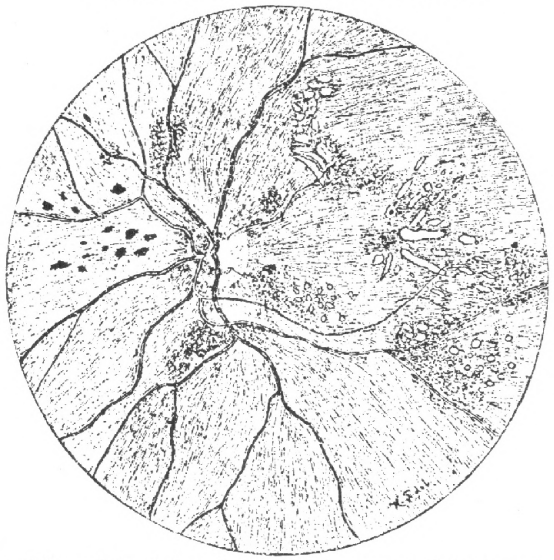

Figure: The original drawing of background diabetic retinopathy from the article "Retinitis Diabeticia," published in 1891.

-Harry Friedenwald, **1891**

120-54691

An 11 1/2-Year Review of Ocular Trauma in the North West Frontier Province of Pakistan

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and M. Naeem Khattak, FRCS

ABSTRACT: We present an analysis of ocular trauma cases that required hospitalization during a period of 11 1/2 years. Out of a total of 30,477 ophthalmic hospital admissions, 3,924 (12.9%) were due to eye injuries. The trauma patients were predominantly men (3,323 patients or 84.7% of injury cases) and a relatively small number (601 patients or 15.3%) women, giving a male to female ratio of 5.5:1. More than 80% of these men were below the age of 30. A total of 4,166 eyes were affected, out of which 2,376 (57.7%) eyes had perforating injury, making it the most common type of injury. Out of these eyes with perforating injuries, 381 (16%) eyes also had retained intraocular or intraorbital foreign body. The largest number of eyes (37.7%) were injured during sports activities. The next most common injuries were occupational (27.7%), domestic activities (11.6% eyes), the bomb blasts (9.0% eyes). The infection had already developed in 386 (9.4%) eyes at the time of presentation. Because of the extensiveness of injury or infection, 228 (5.5%) eyes were lost during primary repair. It appears that the severity of injuries and other adverse factors that are operative in our region make visual rehabilitation following ocular trauma very unsatisfactory. Therefore, major efforts are needed toward the prevention of ocular injuries in Pakistan. (Pakistan Journal of Ophthalmology 7:15-18, January, 1991.)

Eye injury is one of the most common causes of ophthalmic morbidity and monocular blindness in all parts of the world.[1] Like many other developing countries, ocular trauma is more common, and its effects more serious, in Pakistan in general and in its North West Frontier Province (N.W.F.P.) in particular.[2] In order to improve its management and formulate some guidelines for its prevention, we conducted a retrospective study of ocular trauma covering the past 11 1/2-year period. Our aim also was to determine its incidence, causes, types, and effects in our region.

Material and Methods

The case notes of all patients admitted with eye injuries to the Khyber Hospital (now called Hayat Shaheed Hospital) and the Lady Reading Hospital, both at Peshawar, during the period between July 1978 and December 1989 were obtained and studied. The two hospitals are the main referral centers for ophthalmic patients in the NWFP Province, which now has its own population of 11 million plus 3 million Afghan refugees. The study was conducted in two phases, the first phase (6 1/2 years) was completed at the Khyber Hospital and the second phase (5 years) was done at the Lady Reading Hospital, both at Peshawar. The patients were divided into three age groups of 0-15, 16-30 and over 30. The details of sex, cause of injury, its effects and management were entered according to the age groups for a final analysis by dBASE III PLUS.

The methods of examination, evaluation and management were basically the same in both phases of the study, except that in the second phase of the study, better diagnostic methods (ultrasonography and CT scan) and improved means of management (viscoelastic material, intra-ocular lenses, vitrectomy and YAG laser) became available.

Results

Out of a total of 30,477 eye patients admitted to both hospitals during the period of study, 3,924 (12.9%) patients were victims of eye injuries, involving 4,116 eyes. Bilateral ocular trauma was sustained by 192 (4.9%) patients. Men constituted 84.7% (3,323 cases) of the patients and women only 15.3% (601 cases). This gave a male to female ratio of 5.5:1; whereas, for the general eye patients this ratio was 1.2:1. Perforating eye injury was the most common type of trauma, affecting 2,376 (57.7%) eyes out of which 381 (16.0%) eyes also had retained intraocular or intraorbital foreign body.

A total of 228 eyes (5.5%) were lost during primary repair either because of extensive and irreparable tissue damage, or because of severe infection. Six eyes pre-

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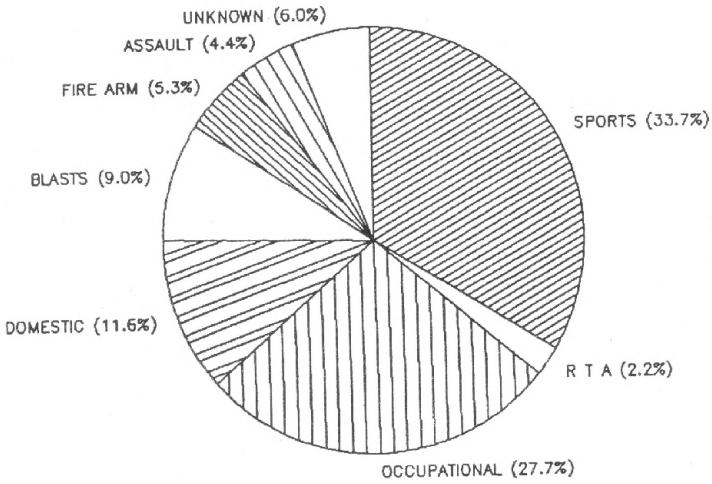

Figure 1 (Khan, Mohammad, Islam, and Khattak): Causes of eye injuries. (RTA: Road traffic accidents.)

Table I
Breakdown of types of injuries and their effects (Total eyes: 4,116)

Type and effect	No. of eyes	Percentage
I: Perforating		
Without IOFB*	1,995	
With IOFB*	381	
Total	2,376	57.7%
II: Contusion		
Cataract	862	
Hyphema	450	
Corneal abrasion, ulcers, or deep foreign body	83	
Chorioretinal damage, including retinal detachment	59	
Subluxation, or dislocation of lens	37	
Glaucoma	14	
Proptosis, 3rd nerve palsy, or caroticocavernous fistula	5	
Optic nerve avulsion	3	
Blowout fracture	5	
Total	1,518	36.9%
III: Superficial non-perforating		
Lid and adnexal injuries	167	
Burns	55	
Total	222	5.4%

*IOFB: Intraocular foreign body

Table 2
Types of injuries with infection at the time of presentation 386 eyes (9.4% of a total of 4,116 eyes)

Type of injury	No. of eye	Percentage
Agricultural	120	31.1%
Bomb blast	93	24.1%
Domestic	50	13.0%
Disposable syringe	40	10.4%
Stone or rock	24	6.2%
IOFB*	22	5.7%
Firearm	18	4.6%
Animal bite	10	2.5%
Finger or fist	8	2.1%
Contact lens	1	0.2%

*IOFB=Intraocular foreign body

sented with siderosis bulbi, one with chalcosis bulbi and three with sympathetic ophthalmia. The most common cause of eye injury was sports and playing, followed by occupational activities (crude manual industry and agriculture) and war-related injuries. Interestingly, road traffic accidents (RTA) accounted only for 87 (2.2%) cases (Figure 1). Contusion injuries occurred in 1,518 (36.9%) of the eyes. Superficial, nonperforating eyelid and adnexal injuries and burns occurred in only 222 (5.4%) of the eyes. Table 1 contains the full breakdown on the types of injuries.

Almost half (49.6%) of the victims of these injuries were children below 15 years of age and 81.6% patients were below the age of 30 years (Figure 2).

The average delay between the time of injury and the time of presentation was three days, and 386 (9.4%) eyes were already infected at the time of presentation (Table 2).

Discussion

Instead of the usual 5-10% of ophthalmic admissions reported in some other surveys,[3] the proportion of ocular trauma in our study is 12.9%. It is generally said that the eye trauma is a characteristic of a particular environment.[4,5] In our cases, there were multiple environmental factors working simultaneously. In our predominantly agricultural community which is only slowly getting mechanized, slow but steady industrialization is taking place. The old crude manual industry with no concept of protective devices still exists, and is a constant source of perforating eye injuries with or without foreign bodies. The Afghan war is still on and is another source of serious eye injuries. Our male to female ratio for the general ophthalmic patients is (1.2:1) as compared to trauma patients (5.5:1) confirms the findings in other large surveys that men are more often affected.[3,6] The marked difference in the three age groups (Figure 2) is also an interesting finding. A possible explanation may be that in the conservative Pathan society, the girls after

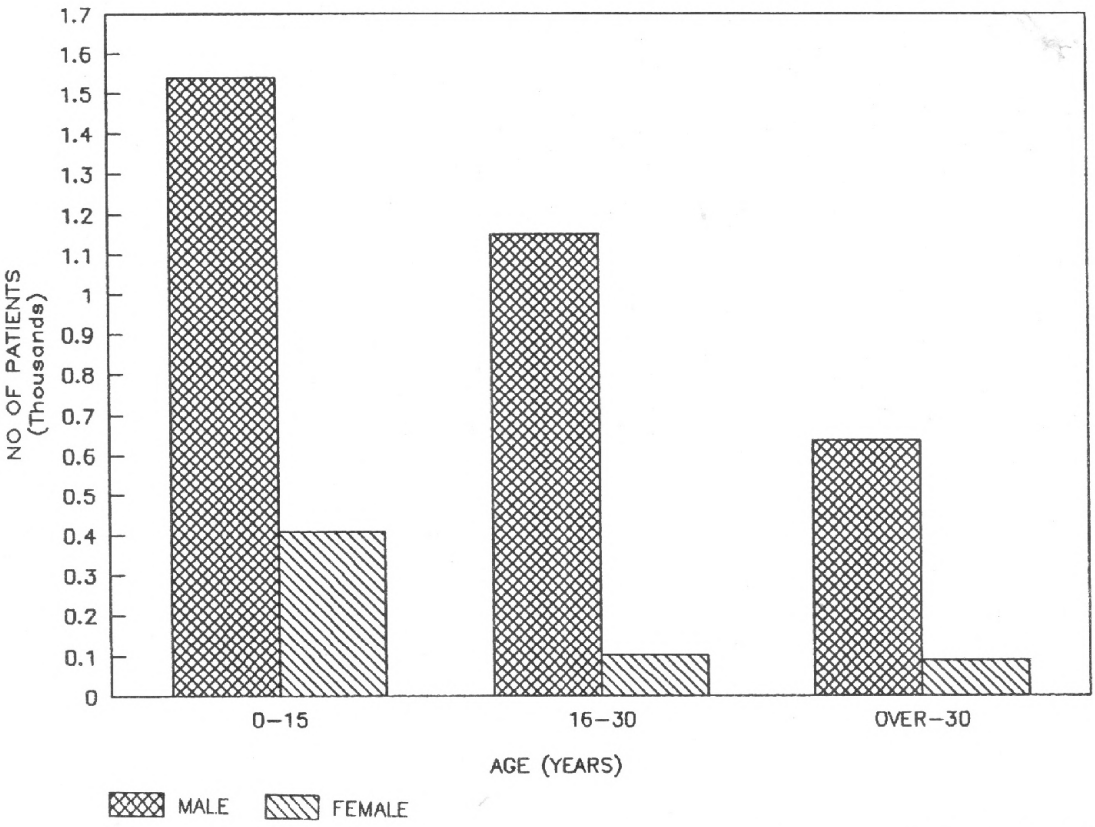

Figure 2 (Khan, Mohammad, Islam, and Khattak): Bar graph showing overall age and sex distribution of eye injuries.

interesting finding. A possible explanation may be that in the conservative Pathan society, the girls after puberty often live in the more protected home surroundings.

Most of the eye injuries occurred during sports and play such as, tipcart, stones and mudball throwing from catapults or slingshots, sticks, racquets, toy guns and variety of other sport balls. One recent and most dreadful type of injury was caused by disposable syringes, which had been ineffectively disposed of after their use. Such syringes are picked up by young children to squirt water at each other and during the process they inadvertently insert the needles in either their own or their playmate's eye. Forty-three such injuries were recorded out of which 40 eyes were lost due to severe infection. Occupational injuries (agricultural and industrial) accounted for the second most common cause, followed by domestic causes.

Bomb blasts and fire arm injuries accounted for 561 (14.3%) cases. Most of these were victims of the Afghan war, and most of the bilateral injuries belonged to this group. In contrast to reports from the developed world[6] road traffic accidents accounted only for 2.2% cases. A total of 228 eyes (5.5%) were lost during primary repair either because of severe infection or severe tissue damage. This figure is small as compared to other studies.[6,7]

Infection of some degree occurred in 386 eyes (Table 2). The most common causes of such trauma induced infections were agriculture and bomb blast injuries. Forty eyes were infected by disposable syringe injuries. Contact lens wear related infection occurred in only one eye. The visual prognosis in concussion injuries was not as disappointing (49.0% cases regained visual acuity of better than 6/60 or 20/200) as in perforating injuries, where most patients suffered monocular blindness, either due to effects of trauma or secondary to uncorrected aphakia. Although visoco-elastic material and IOL's are now available, neither the state nor the individual can usually afford them. It is thus clear that ocular trauma in North West Frontier Province of Pakistan poses a major eye health problem. Therefore not only should constant efforts be made to improve its management, but major attention should be given to its prophylaxis. This may be achieved in the following ways.

a. To obtain nation-wide statistics on the magnitude of the problem, a trauma register should be maintained in all departments of ophthalmology throughout the country.

b. The repetitive nature of certain types of trauma should be recorded and reported.

c. Ocular trauma centers should be developed in the country which should not only offer excellent services but should also conduct research into the causes, mechanism, effects and prophylaxis of eye injuries.

d. Public awareness should be created through public health education about the dangers of hazardous toys and games like BB guns, explosives, *goli danda*, slingshots, sharp needles and sharp kitchen and other household utensils. Certain members of society, for instance young parents, school teachers, managers at work and sports should be made special target of such public health education.

e. General education with special emphasis on social values should help the society toward a more careful behavior. All of the health agencies and professional associations need to hold regular public education seminars on trauma in all parts of the country.

f. The Ophthalmological Society of Pakistan (OSP) should constantly remind the government authorities of their responsibility by sending them its yearly reports and recommendations. In the light of these the government may voluntarily or through pressure of a public campaign enact and enforce mandatory laws in favor of such proven prophylactic measures such as using the seat belts in transportation vehicles and protective eyewear in sports and such undesirable states as war. Certain dangerous games and practices may be banned or modified to make them less dangerous.

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Ophthalmic "Pastpourri"

A Century of Syphilis

A Century Ago:
" . . . 2.16 % of all eye diseases are syphilitic."

Professor C. Horstmann (of Berlin) - **1889**
118-174

In 1957:
Undoubtedly syphilis is the single disease which produces more ocular and nervous system involvements together than any other."

Frank B. Walsh:
Clinical Neuro-Ophthalmology
2nd Edition, **1957**

Today:
"Syphilis was once considered to be common cause of uveitis but since the Second World War the incidence has declined and the disease is now comparatively rare."

Sir Stephen Miller:
Clinical Ophthalmology - **1987**

Figure 1

Acute Angle-closure (Delayed Pupillary Block) Glaucoma Following an Encircling Scleral Buckling Procedure

ABSTRACT: A 68-year-old woman developed pupillary block glaucoma with iris bombe in her left eye eight weeks following vitrectomy, encircling scleral buckling, and panretinal endophotocoagulation for proliferative diabetic retinopathy. This case is interesting, firstly because the angle-closure following scleral buckling usually is not from a pupillary block but is caused by swelling of the ciliary body and forward shift of the lens that push the periphery of the iris against the trabecular meshwork, and secondly because the acute angle-closure usually occurs within the first several postoperative days. Two Nd:YAG (neodymium: yttrium, aluminum, garnet) laser iridectomies in the iris bombe area relieved the glaucoma attack in this patient. However, topical medication was required to keep the intraocular pressure under control until the patient had extracapsular cataract extraction six months later, after which the intraocular pressure remained normal even after discontinuation of these drops. (Pakistan Journal of Ophthalmology 7:2, 19-20 January, 1991.)

After a 24-hour topical antibiotic treatment, the patient complained that the pain in the left eye had increased. The measurement of the intraocular pressure in the eye showed it to be 44 mmHg. The slit lamp examination and gonioscopy revealed a 360° iris bombe, suggesting the diagnosis of acute angle-closure glaucoma due to a pupillary block. Two iridectomies with Nd:YAG (neodymium:yttrium, aluminum, garnet) laser relieved the glaucoma, and the intraocular pressure fell to 18 mmHg. It is interesting that in this patient the post-scleral buckling angle-closure glaucoma occurred due to a delayed pupillary block.

It is not unusual to see a temporary shallowing of the anterior chamber following retinal detachment surgery.[1] However, in only 1.2% to 4.4% of these cases, acute angle-closure glaucoma develops.[2-4] The glaucoma most often appears within first several postoperative days in patients who do not have narrow angles to begin with. Hence, it is important that the anterior chamber angle of the eye should also be carefully examined preoperatively in eyes with retinal detachment to rule out any primary narrowing, and, hence the increased possibility of postoperative angle-closure. Interestingly, one study indicates that this complication is more common after episcleral (3.4%) than after intrascleral (0.6%) implants.[2]

Postoperative angle-closure following retinal detachment surgery develops due to one of the three possible mechanisms and not due to pupillary block,[1] which was the case with the patient reported here. The forward shift of the lens may push the iris against the trabecular meshwork. The impedence of venous flow in the vortex veins may cause congestion and swelling of the ciliary body, which may force the iris root against the filtration area. In some instances, the indentation of sclera by the buckle may rotate the non-congested ciliary body forward, but this may not, however, be the sole mechanism of angle-closure. A choroidal detachment in an eye with elevated intraocular pressure is almost certainly an evidence of high pressure in the choroidal veins.[1]

Usually, iridectomy is of no help and miotics worsen the angle-closure glaucoma that occurs after retinal detachment surgery, and many authorities recommend drainage of the choroidal detachment, which in many instances quickly recurs.[1,3,5,6] Medical treatmnet includes use of topical cycloplegics and corticosteroids to reduce inflammation, topical beta-blockers and systemic carbonic anhydrase inhibitors to reduce aqueous production, and epinephrine drops and hyperosmotic agents to eliminate the produced aqueous. Ritch, York, and Szmyd[7] report successful treatment of angle-closure following a scleral buckling procedure with argon laser peripheral iridoplasty, in which the peripheral iris is treated with laser applications to shrink it away from the filtration area.

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Figure 2

Hyphema, A Complication of Laser Trabeculoplasty

ABSTRACT: An 80-year-old man developed gross hyphema following green-blue argon laser trabeculoplasty in his right eye. Hemorrhage is an uncommon complication of laser trabeculoplasty, and is usually microscopic. In this patient bleeding occurred soon after the contact lens was removed. The suction affect of the contact lens during its removal might have triggered bleeding from one of the vessels in a treated area of the filtration angle. Pressure application for ten minutes stopped further bleeding, and hyphema spontaneously cleared up in a few days without any sequelae or adverse affect on the success of trabeculoplasty. (Pakistan Journal of Ophthalmology 7:3,20, January, 1991.)

Hemorrhage during a laser trabeculoplasty may occur when the laser beam accidentally hits one of the blood vessels in the anterior chamber angle. It is usually microscopic and does not become a problem. However, to see a gross hyphema following this procedure is rare.[1] In the patient reported here, the hyphema was not only gross it also occurred not after the contact lens was removed. Either the pressure of the contact lens during the procedure did not allow the blood from an injured vessel to leak, or the suction affect from the removal of contact lens precipitated the bleeding. Interesting also is the fact that this patient neither had any bleeding tendencies, nor he was taking any anticoagulants. One conclusion that is obvious from this report is that even a gross hyphema that may rarely develop during laser trabeculoplasty does not affect the eventual outcome of this procedure.

Since the first introduction of the use of laser to create "goniolaserpuncture" by Krasnov,[2] in 1973, for the treatment of open angle glaucoma, modifications by other authors have produced today's popular technique of laser trabeculoplasty.[1,3] This involves the placement of 40 to 50 spots in the anterior half of the trabeculum with laser beam setting at 50μ, 800 or more mW and 0.1 Sec. The technique is not optimally effective in patients under the age of 35. It is also contraindicated in eyes with uveitis, complete angle-closure, corneal edema or hazy view of the angle.

One of the significant complications of laser trabeculoplasty is the elevation of intraocular pressure in the immediate postoperative period in nearly 50% of the patients, in some of whom it may become dangerously high, leading to further visual field loss.[4] This may be counteracted by use of 4% pilocarpine drops or apraclonidine (Iopidine) drops immediately after the procedure. Other complications that have been reported after laser trabeculoplasty include peripheral anterior synechiae, iritis, corneal burns and endothelial damage.[1]

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Abstracts from Elsewhere

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

Ophthalmology
The Journal of the American Academy of Ophthalmology

OPTIC NERVE DAMAGE IN ALZHEIMER'S DISEASE. AA Sadun, CJ Bassi. The authors noted that optic nerves from ten patients with Alzheimer's disease were histologically examined and compared with those from age-matched controls. Specific and nonspecific measures of degeneration were noted in eight of ten Alzheimer's disease optic nerves; no degeneration was noted in any of the controls. Results of histologic examination of the retinas of one eye of three Alzheimer's disease patients also showed degeneration of retinal ganglion cells and their axons in the nerve fiber layer. Morphometric analysis suggested that in many cases of Alzheimer's disease, the optic nerve showed predominant loss of the largest class of retinal gangloin cells (M-cells) that contribute large caliber fibers to the optic nerve. The M-cell system is known to mediate specific visual functions, and selective involvement of the M-cell system is known to mediate specific visual functions, and selective involvement of the M-cell population leads to clinically measurable neuro-ophthalmic and psychophysical impairments in many Alzheimer's disease patients. *(Ophthalmology 1990; 97:9-17.) For reprints: Alfredo A. Sadun, MD, PhD, Depts. of Ophthalmol. and Neuro-Surgery, Univ. of Southern California Sch. of Med. 1355 San Pablo St, L.A., CA 90033.*

MANAGEMENT OF ENCAPSULATED FILTRATION BLEBS. BJ Shingleton, CU Richter, AR Bellows, BT Hutchinson. The authors discussed increased intraocular pressure (IOP) in encapsulated filtration blebs was evaluated in 49 eyes of 49 patients followed for 6 to 48 months (mean ± standard deviation, 19.7 ± 12.6 months). Intraocular pressure increased from 10.2 ± 7.5 mmHg at 1 week postfiltration surgery to a peak of 26.1 ± 10.7 mmHg at 3 weeks postoperatively and then decreased to 16.2 ± 5.0 mmHg at 16 weeks and remained stable through the follow-up period. Thrity-nine eyes had a final IOP of 19 mmHg or less; 35 eyes required medical therapy alone (antiglaucoma drops, oral carbonic anhydrase inhibitors, and/or digital massage) with a final IOP of 14.1 ± 3.8 mmHg; and 14 eyes required surgical reintervention more surgical reoperative procedures. Vigorous medical therapy, including glaucoma medications, topical steroids, and digital massage, is particularly important for encapsulated blebs during the first 2 months after surgery. After this period, IOP decreases and often remains sufficiently reduced to avoid further surgical intervention. *(Ophthalmology 1990; 97:63-68.) Reprint requests to Bradford J. Shingleton, MD, Ophthalmic Consultants of Boston, Inc, 50 Staniford St, Boston, MA 02114.*

CHOROIDAL DETACHMENT, FLAT ANTERIOR CHAMBER, AND HYPOTONY AS COMPLICATIONS OF NEODYMIUM: YAG LASER CYCLOPHOTOCOAGULATION. M Maus, LJ Katz. The authors talked of severe hypotony, flat anterior chamber, and serous choroidal detachment after transscleral neodymium: YAG laser cyclophotocoagulation (Nd: YAG-CPC) for three cases of intractable glaucoma are reported. The three patients had failed previous filtering surgery and were receiving maximal medical therapy. The types of glaucomas treated were two cases of primary open-angle and one chronic-angle closure. The complications were noted between 1 and 2 weeks from the time of treatment. One patient improved spontaneously after 1 week of observation. Another patient required drainage of the choroidal effusion and anterior chamber reformation. The last patient remains under observation with a low intraocular pressure (IOP) and a slowly resolving serous choroidal detachment. Though the incidence of shallow anterior chambers is three cases (0.5%) in this series of 750 Nd:YAG-CPCs, it represents a serious problem that had not been reported previously. *(Ophthalmology 1990; 97:69-72.) For reprints: L. Jay Katz, Glaucoma Dept.,Wills Eye Hosp., 9th and Walnut Sts, Philadelphia, PA 19107.*

BLOOD PRESSURE AND RETINOPATHY IN TYPE I DIABETES. HP Chase, SK Garg, WE Jackson, MA Thomas, S Harris, G Marshall, MJ Crews. The authors discussed the relationship between blood pressure and diabetic retinopathy that was evaluated in 249 young subjects with type I diabetes. Although hypertension is known to be associated with an increased risk for retinopathy, the effects of high-normal blood pressure are unknown. Retinopathy (158 of 249 subjects, 63%) is considerably more common in a young diabetic population than is hypertension (7 of 249 subjects, 2%). Thus, if blood pressure is important in the etiology or progression of diabetic retinopathy, levels below the hypertensive range (<141/90 mmHg) must be considered. The combined effect of hypertension and high-normal blood pressure (>90th percentile but <141/90 mmHg) was studied. Elevation in diastolic blood pressure, alone, and in combination with elevated systolic blood pressure, correlated significantly ($P<0.03$) with retinopathy. The presence of high-normal blood pressure resulted in a prospectively

higher occurrence of retinopathy and of progression of preexisting retinopathy. Glycohemoglobin (HbA1) and duration of diabetes also correlated with retinopathy. Both good glycemic control and maintenance of diastolic blood pressure below the 90th percentile for age may be important in relation to diabetic retinopathy. *(Ophthalmology 1990; 97:155-159.) Reprint requests to H. Peter Chase, MD, Barbara Davis Center for Childhood Diabetes, Box B140, 4200 East Ninth Ave, Denver, CO 80262.*

OPTIC DISC SIZE IN CENTRAL RETINAL VEIN OCCLUSION. AM Mansour, JB Walsh, P Henkind. The authors discussed that predisposing factors in central retinal vein occlusion (CRVO) have included various systemic disorders and glaucoma. Recent reports have suggested a possible relation between specific anatomic configurations of the optic nerve head and the development of anterior ischemic optic neuropathy. The authors analyzed several optic disc parameters in 57 ocular normotensive patients with unilateral CRVO and in 27 control subjects. There was no significant difference in the horizontal disc diameter and cup-to-disc ratio between eyes with unilateral CRVO, fellow eyes with CRVO, and control eyes. The current data suggest that there is no relation between optic disc size and CRVO. *(Ophthalmology 1990; 97:165-166.) Reprint requests to Joseph B. Walsh, MD, 310 E. 14th St, New York, NY 10003.*

DEEP CORNEAL STROMAL OPACITIES IN LONG-TERM CONTACT LENS WEAR. L Remeijer, G vanRij, WH Beekhuis, BCP Polak, J vanNes. The authors talked of 32 patients with long-term contact lens wear (up to 19 years), deep whitish opacities directly adjacent to Descemet's membrane were seen in the central part of the cornea. These opacities were seen in soft hydroxyethylemethacrylate (HEMA) as well as in hard (polymethylmethacrylate, PMMA) contact lens wear. These conditions could reduce visual acuity. When contact lens wear was discontinued or when the HEMA or PMMA lenses were replaced by gas-permeable rigid lenses, the lesions gradually diminished and resolved completely in most patients. One possible cause of these opacities is an allergic reaction to thimersol. Another possible cause is chronic anoxia of the corneal stroma and endothelium. Endothelial cell density was not abnormal, but there was a marked polymegethism of the endothelium as a sign of endothelial stress. *(Ophthalmology 1990; 97:281-285.) Reprint requests to L. Remeijer, MD, Eye Hospital, Schiedamsevest 180, 3011 BH Rotterdam, The Netherlands.*

THERAPEUTIC CONTACT LENSES. WE Smiddy, TR Hamburg, GP Kracher, JD Gottsch, WJ Stark. The authors discussed that therapeutic contact lenses are useful in a variety of ocular surface disorders. Their efficacy was evaluated in 40 consecutive patients presenting for therapeutic contact lens fitting for pain due to depressed surface disorders (14 patients), raised surface disorders (11 patients), corneal decompensation (7 patients), trauma (5 patients), and disorders of corneal wetting (3 patients). The therapeutic contact lens was successfully fit and worn, with achievement of the therapeutic objective in 37 of the 40 patients. Corneal wetting disorders and corneal decompensation require only intermediate-term contact lens wear. Thus, therapeutic contact lenses are usually effective for relief of pain due to corneal surface disorders. *(Ophthalmology 1990; 97:291-295.) For reprints: Walter J. Stark, MD, 327 Maumenee, The Johns Hopkins Hospital, 600 N. Wolfe St, Baltimore, MD 21205.*

EFFECTS OF PUPILLARY DILATION ON AUTOMATED PERIMETRY IN NORMAL PATIENTS. KA Lindenmuth, GL Skuta, R Rabbani, DC Musch, TJ Bergstrom. The authors discussed that the effects of pupillary dilation (tropicamide 1%) on automated static threshold perimetry were studied in 18 normal subjects using the Humphrey field analyzer 30-2 and STATPAC programs. The mean defect worsened by 0.83 decibels (standard deviation, 0.92 decibels) in dilated fields as compared with baseline visual fields (P=0.001). These findings indicate that pupillary dilation in healthy subjects who are not receiving ocular medications produces statistically significant declines in threshold sensitivities. Valid comparison of results from serial visual field testing, therefore, depends on control of or adjustment for the effect of pupillary dilation. *(Ophthalmology 1990; 97:367-370.) Reprint requests to Gregory L. Skuta, MD, W. K. Kellogg Eye Center, 1000 Wall St, Ann Arbor, MI 48105-1994.*

COMPLICATIONS OF SULCUS-SUPPORTED INTRAOCULAR LENSES WITH IRIS SUTURES, IMPLANTED DURING PENETRATING KERATOPLASTY AFTER INTRACAPSULAR CATARACT EXTRACTION. M Busin, P Brauweiler, T Boker, M Spitznas. The authors analyzed, in a retrospective study, visual results and postoperative complications in a series of 14 consective patients who had undergone penetrating keratoplasty and implantation of a posterior chamber intraocular lens (PCIOC) in the absence of the posterior capsule. Seven patients suffered from aphakic bullous keratopathy and seven from pseudophakic bullous keratopathy. Postoperative follow-up was 7.6 months on the average. Best-corrected postoperative visual acuity was 20/60 or better in four cases and 20/200 or better in eight. Glaucoma was present before surgery in four eyes, which persisted in all cases and developed in four new cases. Results of gonioscopic examination showed the postoperative development of goniosynechiae in four eyes. Pseudophakodonesis of various extent was present in ten eyes. Preoperatively, cystoid macular edema was diagnosed angiographically in one case. It did not

improve after surgery and was seen in three additional eyes postoperatively. Causes for postoperative visual acuity lower than 20/200 were cystoid macular edema in three cases, graft rejection in one case, central retinal scar in one case, and optic nerve atrophy in one case. A distortion of the pupil was seen in three eyes in miosis and in four additional eyes in mydriasis. Corneal thickness as well as anterior chamber depth were within normal limits. Fluorophotometric evaluation of the blood-aqueous barrier showed values comparable with those obtained after intracapsular cataract extraction and implantation of an iris-fixated IOL. Dispite the relatively good visual results, the high postoperative incidence of cystoid macular edema and/or glaucoma may discourage the use of this technique. *(Ophthalmology 1990; 97:401-406.) For Reprints: Massimo Busin, MD, Universitaets-Augenklinik, Sigmund Freud Strasse 25, 5300 Bonn 1, Federal Republic of Germany.*

PENETRATING KERATOPLASTY FOR PSEUDOPHAKIC BULLOUS KERATOPATHY ASSOCIATED WITH CLOSED-LOOP ANTERIOR CHAMBER INTRAOCULAR LENSES. EW Kornmehl, RF Steinert, MG Odrich, JB Stevens. The authors discussed closed-loop anterior chamber intraocular lenses (AC IOLs) are associated with a high incidence of pseudophakic bullous keratopathy (PBK). The prognosis for recovery of vision with penetrating keratoplasty and the exchange of one type of AC IOL for another remains controversial. A total of 40 consecutive patients with closed-loop AC IOLs and varying degrees of PBK underwent penetrating keratoplasty, explantation of the closed-loop AC IOL, and implantation of a flexible tripod AC IOL - all done with a uniform technique. The average follow-up study was 24 months. Average preoperative visual acuity was 20/170 (range, 20/25-hand motions) and average postoperative visual acuity was 20/44 (range, 20/20-no light perception). A total of 23 eyes (57.5%) achieved a visual acuity of 20/40 or better. Eleven eyes (27.5%) had a visual acuity of 20/200 or worse. Persistent cystoid macular edema was the most frequent cause of poor vision postoperatively (4 eyes), followed by age-related macular degeneration (3 eyes) and graft rejection (2 eyes). This is the first series documenting a good visual outcome for at least 2 years after penetrating keratoplasty and exchange of a closed-loop AC IOL for a single type of flexible tripod AC IOL. *(Ophthalmology 1990; 97:407-414.) Reprint requests to Roger F. Steinert, MD, Cornea Consultation Service, Massachusetts Eye and Ear Infirmary, 50 Staniford St, Boston, MA 02114.*

PERIPHERAL ANTERIOR SYNECHIA OVERLYING THE HAPTICS OF POSTERIOR CHAMBER LENSES. OCCURRENCE AND NATURAL HISTORY. RB Evans. The authors discussed sixty consecutive eyes that met the standard criteria for cataract surgery underwent phacoemulsification with insertion of a posterior chamber lens implant. The filtration angle of each eye was examined with routine postoperative gonioscopy in a prospective manner. Peripheral anterior synechia (PAS) overlying the position of the lens haptic (lens haptic PAS) were observed in up to 80% of eyes implanted with haptics vaulted anteriorly by 10°. The rate of occurrence of lens haptic PAS was reduced by a statistically significant level in a group of eyes implanted with nonvaulted haptics. Most of the lens haptic PAS were observed early in the postoperative period and remained stable in size. Progression in size was noted quantitatively in three eyes and documented with goniophotography in two eyes. A delay in the presentation of lens haptic PAS was observed in seven eyes. A postoperative increase in intraocular pressure (IOP) associated with enlargement of lens haptic PAS developed in one patient with preoperative chronic open-angle glaucoma. These observations support others that progressive PAS overlying posterior chamber lens haptics can be a form of progressive angle closure glaucoma in pseudophakia. This mechanism may be more likely to occur in eyes implanted with anterior vaulted haptics. *(Opthalmology 1990; 97:415-423.) For Reprints: R. Blair Evans, MD, Eye Clinic of Seattle, 1601 16th Ave, Seattle, WA 98122-4098.*

MANAGEMENT OF CORNEA-LENS TOUCH AFTER FILTERING SURGERY FOR GLAUCOMA. S Fourman. The authors indicate that the success of filtering surgery for glaucoma may be compromised by a postoperative flat anterior chamber associated with cornea-lens touch, hypotony, and absence of wound leakage. The clinical course of eight patients with this complication was reviewed. Six patients had chronic angle-closure glaucoma. Only one patient responded to medical therapy which included frequent topical application of atropine sulfate 3.0% for 1 hour. Reformation of the anterior chamber with air and drainage of any suprachoroidal fluid was immediately performed in the remaining seven. At the time of follow-up (mean, 16 months), the glaucoma was controlled in all eyes except one. The mean intraocular pressure (IOP) was 14 mmHg in those eyes not requiring reoperation. Six (75%) of eight eyes had diffuse, succulent filter blebs. Five eyes (63%) required no antiglaucoma medications, one eye (12%) required one, one eye (12%) required two, and one eye (12%) underwent repeat filtering surgery. The results suggest that, once medical therapy is not immediately successful, prompt surgical reformation of the anterior chamber along with drainage of any suprachoroidal fluid may preserve the filter blebs in these eyes. *(Ophthalmology 1990; 97:424-428.) For Requests: Stuart Fourman, MD, State University of New York at Stony Brook,*

Department of Ophthalmology, HSC T-2, Room 152, Stony Brook, NY 11794-8123.

CLINICAL MANAGEMENT OF KERATOCONUS. A MULTICENTER ANALYSIS. JH Lass, RG Lembach, SB Park, DL Hom, ME Fritz, GM Svilar, IF Nuamah, WJ Reinhart, EG Stocker, RH Keates, CT Moran, LM Cobo, GN Foulks. The authors stated that the clinical management of 746 eyes in 417 patients referred for keratoconus from January 1984 through January 1988 was retrospectively analyzed. In 357 patients, 554 eyes (74%) did not require surgery and were managed with contact lenses or spectacles, 156 eyes (21%) in 137 patients either underwent penetrating keratoplasty (PK) (140 eyes) or surgery was recommended (16 eyes), and 36 eyes (4%) in 34 patients underwent epikeratoplasty. Comparing baseline and final examination findings, the nonsurgical group showed a significant improvement in average best-corrected visual acuity from 20/30 to 20/25, the PK group from 20/70 to 20/25, and the epikeratoplasty group from 20/40 to 20/30. Average keratometry was unchanged in the nonsurgical group, whereas there was a reduction of the percentage of eyes with indeterminant cylinder from 55 to 2% in the PK group and from 36 to 0% in the epikeratoplasty group. Previous contact lens history, best-corrected visual acuity of 20/50 or worse, and average keratometry of 55D or greater at baseline were associated with a significant risk for PK. No baseline variables were associated with significant risk for epikeratoplasty, suggesting that this group was similar to the nonsurgical group, except for contact lens intolerance. The nonsurgical management of keratoconus continues to play a predominant role in the management of this disorder in a referral population. *(Ophthalmology 1990; 97:433-445.) Reprint requests to Jonathan H. Lass, MD, University Hospitals of Cleveland, 2074 Abington Rd, Cleveland, OH 44106.*

SUBLUXATED (ECTOPIC) LENSES IN ADULTS. LONG-TERM RESULTS OF PARS PLANA LENSECTOMY-VITRECTOMY BY ULTRASONIC FRAGMENTATION WITH AND WITHOUT A PHACOPROSTHESIS. LJ Girard, R Canizales, N Esnaola, WJ Rand. The authors showed that the long-term results of pars plana lensectomy-vitrectomy by ultrasonic fragmentation for 18 consecutive subluxated (ectopic) lenses were retrospectively reviewed. There were no serious operative or postoperative complications at the 16-year follow-up. Visual acuity of 20/15 to 20/50 was obtained in 16 (89%) of 18 eyes. Lensectomy-vitrectomy for subluxated lenses appears to be relatively safe and effective procedure. The technique can be combined with a phacoprosthesis (intraocular lens implant) in adults. *(Ophthalmology 1990; 97:462-465.) For reprints: Louis J. Girard, MD, 4126 Southwest Frwy, #500, Houston, TX 77027.*

NEURO-OPHTHALMOLOGIC MANIFESTATIONS OF LYME DISEASE. RL Lesser, EW Kornmehl, AR Pachner, J Kattah, TR Hedges III, NM Newman, PA Ecker, MI Glassman. The authors note that Lyme disease is a tick-borne spirochetal infection characterized by skin rash, neurologic, cardiac, and arthritic findings. The authors report six patients with Lyme disease who had neuro-ophthalmologic manifestations. One patient had meningitis with papilledema, two had optic neuritis, and one had neuroretinitis. Three patients had sixth nerve paresis, two of whom cleared quickly, whereas multiple cranial nerve palsies and subsequent optic neuropathy developed in another. Early recognition of neuro-ophthalmologic findings can help in the diagnosis and treatment of Lyme disease. *(Ophthalmology 1990; 97:699-706.) Reprint requests to Robert L. Lesser, MD, Yale University School of Medicine, Department of Ophthalmology and Visual Science, 333 Cedar St, New Haven, CT 06510.*

CORNEAL BIOPSY. INDICATIONS, TECHNIQUES, AND A REPORT OF A SERIES OF 87 CASES. P Lee, WR Green. The authors show that corneal biopsy can be an effective aid in establishing diagnoses in a variety of infections, dystrophic and degenerative conditions, corneal manifestations of systemic diseases, and drug-induced changes. Preoperative planning and proper preparation of the tissue are stressed. In a series of 87 cases, the indications for biopsy were ulcerative keratitis in 42 cases, nonulcerative lesions in 25 cases, dystrophic and degenerative processes in 15 cases, and corneal manifestations of systemic diseases in 5 cases. Of the 42 cases of ulcerative keratitis, the presence of bacteria, fungi, and *Acanthamoeba* organisms was excluded in 33 instances (79%). Organisms observed in 9 (21%) of the 42 ulcerative cases included 4 with bacteria, 3 with fungi, and 1 each with *Acanthamoeba* organisms and virus. *(Ophthalmology 1990; 97:718-721.) For reprints: W. Richard Green, MD, Eye Pathology Lab.,Wilmer Institute, Johns Hopkins Hosp., 600 N. Wolfe St, Baltimore, MD 21205.*

SURGICAL MANAGEMENT OF THE IDIOPATHIC UVEAL EFFUSION SYNDROME. MW Johnson, JDM Gass. The authors talked of twenty-three eyes of 20 patients with idiopathic ciliochoroidal effusion that underwent quadrantic partial-thickness sclerectomies without decompression of the vortex veins. The mean postoperative follow-up interval was 41 months (range, 6-86 months). Resolution of subretinal and/or supraciliochoroidal fluid occurred within 6 months in 19 eyes (83%) after one procedure and in 22 eyes (96%) after one or two procedures. The mean interval to reattachment for the 19 successfully treated eyes with nonrhegmatogenous retinal detachment (RD) was 2.4

months compared with an average preoperative detachment duration of 18.5 months (P=0.0005). Recurrences were seen in 23% of eyes; all resolved spontaneously or with a single reoperation. Final visual acuity was improved by two or more lines in 13 eyes (56%), stable in 8 (35%), and worse in 2 (9%). The efficacy of this surgical technique supports the hypothesis that an abnormality of transscleral protein transport plays a primary pathophysiologic role in this disorder. *(Ophthalmology 1990; 97:778-785.) Reprint requests to Mark W. Johnson, MD, Bascom Palmer Eye Institute, P.O. Box 016880, Miami, FL 33101.*

VITRECTOMY IN EYES AT RISK FOR MACULAR HOLE FORMATION. BF Jost, WL Hutton, DG Fuller, A Vaiser, WB Snyder, GE Fish, R Spencer, DG Birch. The authors discussed fifteen eyes believed to be at increased risk for macular hole formation underwent vitrectomy in an attempt to prevent macular hole formation. Full-thickness macular holes have not developed in 10 of 11 eyes with stage 1 macular holes. Four eyes were noted to have small full-thickness foveal defects (stage 2 macular holes) at the time of vitrectomy. Two of the four eyes have not progressed to macular hole formation and have 20/25 visual acuity. All patients have been followed for a minimum of 13 months (median, 18 months). The 12 eyes that have not experienced macular hole formation have had a significant (P<0.001) improvement in vision with seven (58%) attaining visual acuity of 20/25 or better. The postoperative foveal electroretinogram (ERG) amplitude was higher than the preoperative amplitude in five of the six eyes tested. *(Ophthalmology 1990; 97:843-847.) For reprints: Bradley F. Jost, MD, Texas Retina Associates, 7150 Greenville Avenue, Suite 400, Dallas, TX 75231.*

BILATERAL ISCHEMIC OPTIC NEUROPATHY AND RETINAL VASCULAR OCCLUSIONS ASSOCIATED WITH LYMPHOMA AND SEPSIS. CLINICOPATHOLOGIC CORRELATION. DR Guyer, WR Green, AP Schachat, S Bastacky, NR Miller. The authors report the clinicopathologic correlation of a patient with non-Hodgkin's mixed-cell lymphoma who had impairment of the circulation of the optic nerve and retina in both eyes. The results of histopathologic examination showed that the pial septa of the optic nerves were infiltrated by lymphoma and that there was extensive infarction of the orbital portions of both optic nerves and occlusion of both central retinal arteries and the right central retinal vein by thrombi with bacteria. The infiltration of the optic nerves seemed to be resistant to therapy. *(Ophthalmology 1990; 97:882-888.) Reprint requests to W. Richard Green, MD, Eye Pathology Laboratory, Maumenee 429, Johns Hopkins Hospital, 600 N. Wolfe St, Baltimore, MD 21205.*

TOPICAL ANESTHETIC ABUSE. GOD Rosenwasser, S Holland, SC Pflugfelder, M Lugo, DG Heidemann, WW Culbertson, H Kattan. The authors state that topical ocular anesthetic abuse is a serious disorder causing keratitis and persistant epithelial defects. It may be the result of either prescription by the patient's eye care practitioner, theft from the practitioner's office, or occult additives in therapeutic medications. The authors report observations of six individuals suffering from this disorder which suggest that persistant epithelial defects, corneal stromal ring infiltrates, disproportionate pain, and prescription or nonprescription substance abuse may be factors involved. Penetrating keratoplasty was required to treat corneal perforation in two patients, and permanent corneal structural damage was noted in two eyes. Two eyes had a relentless downhill course culminating in enucleation. Because five of the six patients were diagnosed and treated as having presumed *Acanthamoeba* keratitis during the course of their disease, topical ocular anesthetic use should be included in the differential diagnosis of chronic keratitis and may masquerade as *Acanthamoeba* keratitis. The authors believe that practitioners should not prescribe or dispense topical anesthetics and should avoid clinical settings which provide an opportunity for the theft of topical ocular anesthetics. *(Ophthalmology 1990; 97:967-972.) For reprints: George O. D. Rosenwasser, MD, Dept. of Ophthalmology, The Milton S. Hershey Medical Center, PO Box 850, Hershey, PA 17033.*

EPISCLERITIS, CONJUNCTIVITIS, AND KERATITIS AS OCULAR MANIFESTATIONS OF LYME DISEASE. AJ Flach, PE Lavoie. The authors discussed a 35-year-old woman presented with a bilateral palpebral follicular conjunctivitis. Subsequently, she developed a bilateral keratitis and, on a seperate occasion, an episcleritis that was associated with a recrudescence of Lyme disease and poor compliance with the antibiotic regimen. Both the keratitis and episcleritis cleared completely after topical corticosteroid therapy and reinstitution of appropriate antibiotic treatment. This report emphasizes the importance of collaboration between internal medicine and ophthalmologic specialists during the long-term management of Lyme disease. *(Ophthalmology 1990; 97:973-975.) For reprints: Allan J. Flach, MD, Ophthalmology Service, VA Hospital and Medical Center, Mailstop 112A, 4150 Clement Street, San Francisco, CA 94121.*

CONJUNCTIVAL CYTOLOGIC FEATURES OF PRIMARY SJOGREN'S SYNDROME. SC Pflugfelder, AJW Huang, W Feuer, PT Chuchovski, IC Pereira, SCG Tseng. The authors discussed that to determine there are specific cytologic features associated with primary Sjogren's syndrome (SS), they evaluated impression cytology specimens from three conjunctival sites (temporal bulbar [TB], inferior bulbar [IB], and inferior

tarsal [IT] from 38 SS eyes, 34 eyes of aqueous tear-deficient patients without SS, 35 eyes of seborrheic blepharitis patients, and 17 eyes of normal controls in a masked fashion. The following features were observed more frequently in SS eyes than in the eyes of the other groups: squamous metaplasia of the TB and IB ($P<0.05$), extensive (>75%) goblet cell loss of the TB ($P<0.05$), mucous aggregates of the bulbar conjunctiva ($P<0.05$), and inflammatory cells intercalated with epithelial cells on the IT conjunctiva ($P<0.06$). The conjunctival inflammatory cell infiltrate correlated with the presence of extensive squamous metaplasia ($P<0.01$) in SS specimens. The inflammatory cells on the IT conjunctival epithelium were found to consist predominantly of T-lymphocytes by immunofluorescent staining of cytologic specimens from six eyes. Based on these findings, the authors speculated that conjunctival squamous metaplasia, in addition to aqueous tear deficiency, may be due to primary involvement of the dysfunctional immune system of SS. *(Ophthalmology 1990; 97:985-991.) For reprints: Stephen C. Pflugfelder, MD, Bascom Palmer Eye Ins., PO Box 016880, Miami, FL 33101.*

OCULAR MANIFESTATIONS AND IMPRESSION CYTOLOGY OF ANOREXIA NERVOSA. JM Gilbert, JS Weiss, AL Sattler, JM Koch. The authors discussed a prospective age- and sex-controlled study of seven anorexia nervosa patients and seven normal control patients which was conducted to determine the ocular manifestations of anorexia nervosa. Slit-lamp examination of the anorexic patients demonstrated a high incidence (4/7) of multiple episcleral capillary aneurysms and subconjunctival hemorrhages. Two of seven anorexia nervosa patients had bilateral superficial punctate keratopathy. Anesthetized Schirmer tear testing demonstrated a significantly ($P<0.005$) reduced mean tear production in the anorexia nervosa group (11.3 mm) compared with the control group (22.4 mm). Masked interpretation of conjunctival impression cytology demonstrated moderate to severe conjunctival squamous metaplasia in the majority of the anorexia nervosa group (5/7) compared to normal conjunctival epithelium in the majority of the control group (5/7). Absence of nyctalopia, Bitot's spots, and xerosis, and lack of conjunctival goblet cell loss indicate that the anorexia nervosa group did not have vitamin A deficiency. *(Ophthalmology 1990; 97:1001-1007.) Reprint requests to Jayne S. Weiss, MD, University of Massachusetts Medical Center, 55 Lake Ave North, Worcester, MA 01655.*

INTRAOPERATIVE MASSIVE SUPRACHOROIDAL HEMORRHAGE DURING PARS PLANA VITRECTOMY. V Lakhanpal, SS Schocket, MJ Elman, MR Dogra. The authors stated that seven eyes (7 patients) developed massive suprachoroidal hemorrhage (MSCH) during pars plana vitrectomy (PPV) for complicated retinal detachments. The MSCH developed late in the procedure following PPV, air fluid exchange, endolaser, cryopexy, and scleral buckling in five of seven eyes. In two eyes, mild hemorrhagic choroidal detachments noted intraoperatively progressed to MSCH within 72 hours postoperatively. Diagnosis of MSCH was confirmed by echography and CT scan. Multiple scleral buckling surgeries, high myopia, aphakia, and intraocular inflammation were the main risk factors. Placement of a broad posterior scleral buckle with intraoperative hypotony and cryopexy were important precipitating factors. Visual results were poor, with six of seven eyes showing no light perception. The mean follow-up time was 12.8 months. Once acute MSCH is recognized intraoperatively, surgical decompresssion at that time should be avoided as MSCH itself may tamponade the choroidal bleed. Details of prevention and management are discussed. *(Ophthalmology 1990; 97:1114-1119.) Reprint requests to Vinod Lakhanpal, MD, Retina Service, Department of Ophthalmology, University of Maryland School of Medicine, 22 S. Greene St, Balitmore, MD 21201.*

AUTOSOMAL DOMINANT NEOVASCULAR INFLAMMATORY VITREORETINOPATHY. SR Bennett, JC Folk, AE Kimura, SR Russell, EM Stone, EM Raphtis. The authors noted twenty-eight of 61 members of a six-generation family are affected by an autosomal dominant eye disease which has not been described previously. Affected patients are asymptomatic in early adulthood, but have vitreous cells and the selective loss of the b-wave on the electroretinogram. Later, peripheral retinal scarring and pigmentation, peripheral arteriolar closure, and neovascularization of the peripheral retina at the ora serrata or occasionally neovascularization of the optic disc develop. Cystoid macular edema, vitreous hemorrhage, tractional retinal detachment, and neovascular glaucoma can cause profound visual loss. Vitrectomy reduces traction on the retina and allows for retinal reattachment. The role of argon laser photocoagulation or cryopexy in reducing the neovascular complications remains uncertain. *(Ophthalmology 1990; 97:1125-1136.) Reprint requests to James C. Folk, MD, Vitreoretinal Service, Department of Ophthalmology, University Hospitals, Iowa City, IA 52242.*

ACQUIRED RETINAL ARTERIOVENOUS COMMUNICATIONS IN OCCLUSIVE DISEASE OF THE CAROTID ARTERY. JP Bolling, H Buettner. The authors noted that retinal arteriovenous communication proximal to extensive areas of complete vascular closure developed in three patients with occlusive disease of the carotid arteries. In one case, the authors document of the development of the arteriovenous communications through successive enlargement of

small retinal vessels after progressive signs of retinal ischemia in the form of narrowed retinal arteries, venous dilation and beading, microaneurysms, retinal dot and blot hemorrhages, cotton-wool spots, and capillary nonperfusion. The development of arteriovenous comunications in carotid occlusive disease has not been described previously. *(Ophthalmology 1990; 97:1148-1153.) For reprints: James P. Bolling, Mayo Clinic Jacksonville, 4500 San Pablo Rd, Jacksonville, FL 32224.*

SERUM AND AQUEOUS HUMOR SIALIC ACID LEVELS IN BEHCET'S DISEASE. A Yagci, ZA Karcioglu, C Akkin, K Andac, D Cimrin, T Onat. The authors discussed serum and aqueous humor sialic acid (SA) levels were determined in 27 patients with Behcet's disease (Bd). Serum SA levels were elevated significantly during the active episode (mean, 113.4 $\pm$ 4.12 mg/dl) and in the remission stages (mean, 85.4 $\pm$ 4.79 mg/dl; $P<0.001$). A significant increase was also detected in active episodes when compared to chronic stages ($P<0.02$). Aqueous humor levels were also evaluated but could only be determined in the six eyes at the end-stage of the disease (mean, 2.65 $\pm$ 0.60 mg/dl; $P<0.05$). *(Ophthalmology 1990; 97:1153-1155.) Reprint requests to Zeynel A. Karcioglu, MD, Department of Ophthalmology, Tulane University Medical School, 1430 Tulane Avenue, New Orleans, LA 70112.*

EARLY MAGNETIC RESONANCE IMAGING IN ACUTE TRAUMATIC INTERNUCLEAR OPHTHALMOPLEGIA. KA Haller, M Miller-Meeks, R Kardon. The authors talk of deficiency following acute head trauma may result not only from orbital damage but also from internuclear ophthalmoplegia, and in most instances this resolves over weeks to months. To date, noninvasive imaging studies during the acute phase following injury have not been definitive in localizing the pathology. Three cases of adduction deficiency following head trauma that were caused by internuclear ophthalmoplegia are reported. A lesion in the brain stem was found in all three cases by magnetic resonance imaging in the subacute post-traumatic period. These lesions were not visible on routine x-ray computed tomography obtained at the time of injury. *(Ophthalmology 1990; 97:1162-1165.) Reprint requests to Randy Kardon, MD, PhD, Department of Ophthalmology, University of Iowa Hospitals and Clinics, Iowa City, IA 52242.*

PROPHYLAXIS OF APHAKIC CYSTOID MACULAR EDEMA WITHOUT CORTICOSTEROIDS. A PAIRED-COMPARISON, PLACEBO-CONTROLLED DOUBLE-MASKED STUDY. AJ Flach, RC Stegman, J Graham, LP Kruger. The authors state that prior investigations have reported that topical nonsteroidal anti-inflammatory drug (NSAID) therapy prevents the development of postoperative angiographic signs of angiographic cystoid macular edema (CME). However, these studies include concurrent use of corticosteroids. The current study reports therapeutic efficacy for ketorolac ophthalmic solution (an NSAID) in the prophylaxis of angiographic aphakic CME (ACME) after cataract surgery without concurrent corticosteroids for the first time. Fifty patients with bilateral cataracts were enrolled in this placebo-controlled, paired-comparison, double-masked study. Eleven patients had evidence of angiographic ACME on postoperative day 40. Two of these patients demonstrated bilateral ACME, one patient had ACME in the NSAID-treated eye, and eight patients demonstrated ACME in the placebo-treated eye. This is a statistically significant difference favoring drug treatment. The signs of anterior ocular inflammation were greater in the eyes with ACME. This study suggests prophylactic treatment of ACME may be possible without the risks of concurrent corticosteroid toxicity. In addition, a higher incidence of ACME in black patients (22%) is observed in this study than has been recognized previously. *(Ophthalmology 1990; 97:1253-1258.) Reprint requests to Allan J. Flach, MD, VA Hospital and Medical Center, Ophthalmology Service, Mailstop 112A, 4150 Clement St, San Francisco, CA 94121.*

OCULAR SYPHILIS. RR Tamesis, CS Foster. The authors stated that the ability of syphilis to mimic different ocular disorders can lead to misdiagnosis and delay in appropriate antimicrobial therapy. The authors describe their experience over the past 5 years with the ocular manifestations of syphilis in 25 patients who comprised 2.45% of 1020 new patients. Uveitis was the most common ocular manifestation seen. All patients had positive results from FTA-ABS tests, whereas only 68% had reactive serum VDRLs. Two of five patients tested for human immunodeficiency virus (HIV) antibody were reactive. The authors recommend routine FTA-ABS and VDRL screening in patients with uveitis or unexplained ocular inflammation. They also recommend testing for HIV antibody in luetics and aggressive treatment with high-dose aqueous penicillin for syphilis. *(Ophthalmology 1990; 97:1281-1287.) Reprint requests to Richard R. Tamesis, MD. Immunology and Uveitis Service, Massachusetts Eye & Ear Infirmary, Harvard Medical School, 243 Charles St, Boston, MA 02114.*

INDICATIONS AND RESULTS OF RELAXING RETINOTOMY. DA Iverson, TG Ward, MS Blumenkranz. The authors report their results of a consecutive series of 40 eyes for the following indications: proliferative vitreoretinopathy (PVR), 21 eyes (52%); trauma, 10 eyes (25%); diabetic retinopathy, 6 eyes (15%); and expulsive choroidal hemorrhage, 3 eyes (8%). Thirty eyes (75%) had undergone previous vitreoretinal procedures. Extended tamponade was achieved in all cases with either silicone oil (27 eyes, 68%) or long-acting gas (13 eyes, 32%). Retinotomy size ranged from 45^{o} to

360°. Intraoperative retinal attachment was possible in all eyes with 33 (83%) achieving total or subtotal retinal attachment including the macula for 5 months or more. Twenty-seven eyes (68%) achieved 3/200 visual acuity or better and 10 (37%) achieved 20/400 or better. Thriteen eyes (32%) failed to achieve 3/200 visual acuity secondary to recurrent detachment (18%), corneal decompensation (8%), macular dysfunction (5%), and glaucoma (3%). *(Ophthalmology 1990; 97:1298-1304.) For reprints: Mark S. Blumenkranz, MD, Associated Retinal Consultants, 3535 W. 13 Mile Rd, Suite 507, Royal Oak, MI 48072.*

THE GLAUCOMA LASER TRIAL (GLT). RESULTS OF ARGON LASER TRABECULOPLASTY VERSUS TOPICAL MEDICINES. The Glaucoma Laser Trial Research Group. The authors noted that the Glaucoma Laser Trial, a multicenter, randomized clinical trial involving 271 patients, was designed to assess the efficacy and safety of argon laser trabeculoplasty (ALT) as an alternative to treatment with topical medication for controlling intraocular pressure (IOP) in patients with newly diagnosed, previously untreated primary open-angle glaucoma (POAG). Each patient had one eye randomly assigned to ALT (the laser first[LF]eye) and the other eye assigned to timolol maleate 0.5% (the medication first [MF] eye). Medication was initiated or changed for either eye according to the same stepped regimen if the IOP was not controlled. Throughout the 2-year follow-up, LF eyes had lower mean IOPs than MF eyes (1-2 mmHg), and fewer LF eyes than MF eyes required simultaneous prescription of two or more medications to control IOP ($P<0.001$). After 2 years of follow-up, 44% of LF eyes were controlled by ALT, 70% were controlled by ALT or ALT and timolol, and 89% were controlled within the stepped medication regimen. After 2 years, 30% of MF eyes remained controlled by timolol, and 66% were controlled within the stepped regimen. There were no major differences between the two treatment approaches with respect to changes in visual acuity or visual field over the 2 years of follow-up. *(Ophthalmology 1990; 97:1403-1413.) Reprint requests to GLT Coordinating Center, Department of Epidemiology, Johns Hopkins School of Hygiene and Public Health, 615 North Wolfe St, Baltimore, MD 21205.*

BOTULINUM TREATMENT OF CHILDHOOD STRABISMUS. AB Scott, EH Magoon, KW McNeer, DR Stager. The authors indicate that four hundred thriteen children ranging in age from 2 months to 12 years were treated for strabismus by botulinum injection of extraocular muscles. An average of 1.7 injections per patient was given. Follow-up at an average of 26 months after the last injection (minimum, 6 months) was available on 362 children (88%). The frequency of correction to 10 prism diopters (PD) or less in various groups of strabismus cases was: all 362 cases, 61%; all esoptopia, 66%; infantile esotropia, 65%; and exotropia, 45%. Smaller deviations (10-20 PD) were more frequently corrected (73%) than were larger deviations (20-110 PD, 54%). The frequency of correction to 10 PD or less of previously operated cases was not different from that of unoperated cases. There was no globe perforation, amblyopia, or visual loss produced by the injection treatment in this series. *(Ophthalmology 1990; 97:1434-1438.) For reprints: Alan B. Scott, MD, Smith-Kettlewell Eye Research Institute, 2232 Webster St, San Francisco, CA 94115.*

ROLE OF POSTERIOR VITREOUS DETACHMENT IN IDIOPATHIC MACULAR HOLES. J Akiba, MA Quiroz, CL Trempe. The authors discussed that the role of posterior vitreous detachment in the formation of idiopathic macular hole was evaluated in 310 eyes. The eyes were classified according to the stage of the initial macular pathology: group 1, macular cyst; group 2, early macular hole; and group 3, fully developed macular hole. The initial prevalence of posterior vitreous detachment was 0% (none of 15 eyes) in group 1, 6% (three of 50 eyes) in group 2, and 27% (67 of 245 eyes) in group 3. During the study, all 15 eyes in group 1 and all 43 eyes in group 2 for which data were obtained progressed to fully developed macular holes without the occurrence of posterior vitreous detachment. The findings strongly suggested that most idiopathic macular holes develop in the absence of posterior vitreous detachment and that the pathogenesis of the holes may be independent of the occurrence of posterior vitreous detachment. *(Ophthalmology 1990; 97:1610-1613.) For reprints: Library, Eye Research Institute, 20 Staniford St, Boston, MA 02114.*

IMMUNOPATHOLOGY OF VITREOUS AND RETINOCHOROIDAL BIOPSY IN POSTERIOR UVEITIS. LS Fujikawa, JP Haugen. The authors used immunopathologic techniques to study vitreous and/or retinochoroidal biopsies from 23 patients with posterior uveitis unresponsive to conventional therapy or who had developed significant complications despite therapy. Results indicated that during active uveitis from many casuses, T-helper cells predominated in the vitreous and retinochoroidal biopsies. Monocytes were not prominent constituents except in several cases of granulomatous etiology (e.g., syphilis and acute retinal necrosis). Class II major histocompatibility complex (MHC) antigens were increased on the retinal vascular endothelium, implicating an important role for these cells in the local cellular immune response. These results may be of great importance in our understanding of uveitis and helpful in categorizing posterior uveitis, permitting appropriate therapy to be given. *(Ophthalmology 1990; 97:1644-1653.) For reprints: Leslie S. Fujikawa, MD, Ocular Immunology, PO Box 190922, San Francisco, CA 94119-0922.*

IN THE NAME OF ALLAH, THE BENEFICENT, THE MERCIFUL

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1. Newell, FW: Ophthalmology: Principles and Concepts. 6th ed., St. Louis. C.V. Mosby Company, 1986, p 73.
2. Duke-Elder, S, and Leigh, AG: Diseases of the Outer Eye. Cornea and Sclera. In Duke-Elder, S (ed): System of Ophthalmology, vol. 8, pt. 2. St. Louis, C.V. Mosby Company, 1965, pp 110-114.

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Holy Quran 6:105

Patron:
Mr. Ghulam Ishaq Khan
President of the
Islamic Republic of Pakistan

President:
Khalid J. Awan, PPAMS

Pakistan Academy of Medical Sciences

CONVOCATION '91 AND CONFERENCE '91, December 16, 1992, LAHORE

The Pakistan Academy of Medical Sciences will hold its Convocation '91 on **Monday, December 16, 1991** at 10 a.m. at the **Postgraduate Medical Institute, Lahore. President of the Islamic Republic of Pakistan** is expected to deliver the Convocation Address.

The **PAMS Convocation '91** will be followed by a **Conference on "Public Health Education in Pakistan."** We request that you send your papers on the topic of the PAMS Conference '91 before **November 15, 1991 to:**

Professor Najib Khan, FPAMS, Vice President and Conference Chairman, PAMS
11-C, Danepur Road, GOR-1, Lahore. (Tel: 92-42-487390) OR
Maj. Gen. Iftikhar A. Malik, F.P.A.M.S., Secretary General, PAMS
Department of Pathology, Army Medical College, Rawalpindi. Tel: (92-51-584796;860203)

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WORLD CONGRES ON LENS IMPLANT SURGERY

July 1, 2, 3, 1994
MONTRÉAL, CANADA

To be held just after the International Ophthalmological Conference at Queen Elisabeth Hotel, Montreal, Canada, Montreal Convention Center.

Under the patronage of Province of Quebec (Robert Bourassa, Premier), City of Montreal (Jean Dore, Mayor), and Quebec Association of Ophthalmologists (Dr. Paul Eugene Demers, President).

For further information: Dr. Marvin L. Kwitko, Program Chairman, 5591 Cote-des-Neiges Road, Suite #1, Montreal, Que. Canada H3T 1Y8.
Phone: (514) 735-1133, Fax: (514) 731-0651.

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OPHTHALMOLOGICAL SOCIETY OF PAKISTAN

XV Congress at Peshawar
February 25-27, 1992

The XV Congress of the Ophthalmological Soceity of Pakistan will be held on **February 25-27, 1992** at the **Postgraduate Medical Institute-Lady Reading Hospital in Peshawar.** Speakers and participants are cordially invited from all parts of the world. Anyone interested in making a presentation should send the abstract(s) of his paper(s) to the **Professor Muhammad Duad Khan, F.P.A.M.S.** The theme of the XV Congress is:

"RECENT TRENDS IN OPHTHALMOLOGY"

In addition to symposia on many topics, free papers on surgical and medical aspects of ophthalmology will be included in the scientific programme. The XV Congress will provide an excellent opportunity to exchange views, share experiences and knowledge in teh fast developing fields of ophthalmology. We expect many well known ophthalmologists from abroad to attend and participate in the congress. An exhibition of latest ophthalmic equipment and medicines, social functions and sight seeing will form part of the programme. The last **pre-registration date is December 31, 1991.**

For further details contact: **Professor Mohammad Daud Khan, F.P.A.M.S., Chairman, Organizing Committee, XV Congress, Department of Ophthalmology, Lady Reading Hospital, Peshawar, Pakistan. Tel: (92-521) 811-857; 812-857(Res.); FAX: (92-521) 218-124,*OR* Dr. Shad Mohammad Tel:212-402.**