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PAKISTAN JOURNAL OF OPHTHALMOLOGY

THE OFFICIAL JOURNAL OF THE OPHTHALMOLOGICAL SOCIETY OF PAKISTAN

INDEX ISSUE

In This Issue

Modern Therapy and Prognosis of Rhabdomyosarcoma, . . . Editorial	85
Camera Clinicals Feature	86
Ethics in Medical Practice Awan	87
Orbital Rhabdomyosarcoma Ahmad, Ahmad	97
Total Recovery from Central Retina Artery Occlusion, . . Humayun	100
Book Reviews Feature	101
Abstracts from Elsewhere Am J Ophthalmol	102
Ophthalmic "Pastpourri" Feature	85, 99
Indexes Volume 9	110
Instructions the the Authors Information	C4

Complete Contents on the Next Page

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Complete Contents

	Page
Editorial: MODERN THERAPY AND PROGNOSIS OF ORBITAL RHABDOMYOSARCOMA.....	85
Ophthalmic "Pastpourri": RHABDOMYOSARCOMA REVOLUTION.....	85
Camera Clinicals.....	86
Intraprofessional and Socioeconomic Ethics of Medical Practice. Khalid J. Awan	87
Rhabdomyosarcoma of the Orbit in a Pakistani Infant Girl. Nasim Ahmad, Waleed A. Ahmad.....	97
Ophthalmic "Pastpourri": HOW TO EYE FOR AN EYE	99
Total Recovery from Central Retinal Artery Occlusion. Khalid J. Awan and Muhammad Humayun.....	100
Book Reviews: Reviews by Khalid J. Awan	
COSMETIC OCULOPLASTIC SURGERY. Second Edition by Allen M. Putterman.....	101
MEDICAL WRITING. Edited by Shaukat Ali, Jawaid and Maqbool H. Jafary.....	101
Abstracts from Elsewhere: AMERICAN JOURNAL OF OPHTHALMOLOGY.....	102
Primary Subject Index.....	110
Author Index.....	110
Abstract Index.....	111
Scholarship Schedules.....	C3
Instructions to the Authors.....	C4

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Modern Therapy and Prognosis of Orbital Rhabdomyosarcoma

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

Bismillaahir Ruhmaanir Raheem. According to Jones, Reese, and Kraut,¹ it was Weber who first described rhabdomyosarcoma in 1854. Nearly 30 years later, in 1882, Bayer² first documented its occurrence in the orbit, in the right lower eyelid of a 3-year-old boy. Although clinical manifestations and histopathological features of rhabdomyosarcoma have not changed any over the last several decades, there has taken place a revolution in its therapy and prognosis, as is made evident by the "Ophthalmic 'Pastpourri'" on this page.

Overall, rhabdomyosarcoma is the most frequently occurring "soft tissue" malignancy of childhood.³ Although it occupies no higher than ninth place in incidence of all orbital tumors,¹ it is a standard statement in ophthalmic texts that rhabdomyosarcoma is the most common "primary" malignant tumor of the orbit in children. Nonetheless, the tumor fortunately is not a common one. In Pakistan, Munirulhaq⁴ found only three cases (0.5%) in his series of 581 primary tumors of the orbit collected in 24 years; in the series of Rootman³ from North America the incidence was 2% of orbital neoplasia. Orbit is the most common site for this tumor,⁵ and a large majority occurs in the first decade of life. Rarely, its occurrence has been recorded in patients in their seventh decade or in infancy, for instance, the Pakistani patient reported by Ahmad and Iftikhar in this issue of THE JOURNAL.

On the basis of cytology, some authors classify the tumor into embryonal, alveolar, or adult pleomorphic type; others into anaplastic, monomorphous, or mixed type.³ But what is more significant is to remember that the tumor is extremely malignant with an alarmingly rapid rate of growth. Because of the tumor's rarity, only a high index of suspicion will result in an early and life-saving diagnosis. Immediate biopsy is imperative on the very first suspicion of orbital rhabdomyosarcoma. This is most important, because with radiotherapy (5,000 rads at 200 rads daily for five days per week for over six weeks) combined with two-drug chemotherapy (vincristine, actinomycin D, doxorubicin, cyclophosphamide), the cure rate in orbital cases is now as high as 90%.⁷ Exenteration of the orbit is now advised only for selected non-responsive or recurrent cases.

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Ophthalmic "Pastpourri"

Rhabdomyosarcoma Revolution

Past:

In 1952, Duke-Elder⁶ wrote under the management of orbital rhabdomyosarcoma: "Treatment is generally disappointing. The tumours are radio-resistant and local removal is invariably followed by recurrences. Early exenteration of the orbit offers the only hope of survival, and that a slender one."

Present:

In 1990, H. J. Ronner and I. S. Jones⁷ of New York advise that "radiotherapy and chemotherapy are the preferred modes of therapy for the majority of cases of primary orbital rhabdomyosarcoma,...because the tumor is highly radiosensitive,...." They inform that with this method of treatment "local cure has progressed to over 90 per cent of cases," and that "exenteration, obviously, is no longer the preferred mode of therapy and should be reserved for recurrent tumor formation."

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Camera Clinicals

In this section of THE JOURNAL, photographic documentation of interesting and challenging observations are presented to the reader. He should make the diagnosis from the information given here, and compare his conclusions with the expositions given on page 100. -Editor

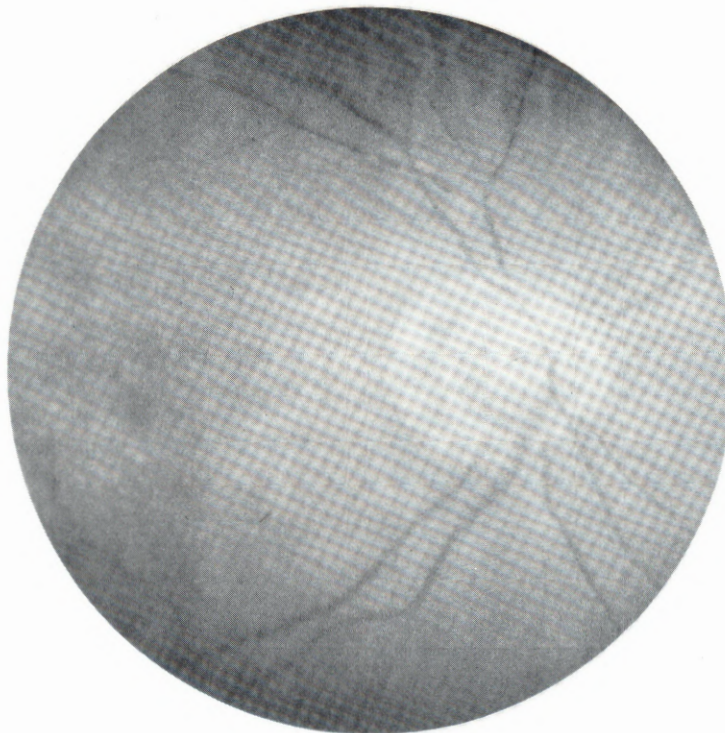


Figure 1

Figure 1: A 73-year-old man (Mr. K) was referred from a local hospital's emergency department with a complaint that nearly a couple of hours before he had lost sight in his right eye. The patient had been known to be under treatment for hypertension for many years. He was not a diabetic, and in fact, generally enjoyed good health, taking his regular exercise in the form of morning walks with a religious regularity. There was no history of any dizzy spells, attacks of temporary blurriness of sight, headaches, breathing difficulties, etc.

The eye examination gave visual acuity of 20/25 with glasses in the left eye, but the right eye could only detect light through the significantly dilated pupil. An easily noticeable afferent pupillary defect (Marcus Gunn pupil) was present on the right. The right eye had no inflammation, no elevation of the intraocular pressure, no sign of injury, etc., and appeared outwardly as normal as the other eye. Only remarkable clinical observation was the ophthalmoscopic view of the right fundus as is shown above in Figure 1. The treatment was successful in recovering full sight.

Intraprofessional and Socioeconomic Ethics of Medical Practice

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

ABSTRACT: Usually, the intraprofessional and socioeconomic ethics in medical practice become lost in debates and deliberations over issues related to direct patient-physician contact. This article deals with ethical responsibilities of a physician toward his colleagues, the social and economic conditions of the patient, the profession itself, the patient's rights in malpractice, teaching in medicine, and behavior in general. Because over 90% of the population of Pakistan is Muslim, the discussions and conclusions delineated herein are formulated in the light of the Islamic precepts. (Pakistan Journal of Ophthalmology 9:87-96, October, 1993)

Bismillaahir Ruffmanir Raheem. NufumodoHo wa nosullee a'laa RasooloHikareem.

Nushirwan (Khosru I, 531-579 C.E.), the great Sassanid emperor of Iran, had gathered about him scholars in every field from all corners of the world. While holding court one day, he asked his learned men, "What is the greatest misery?"

"An impoverished and imbecile old age," said the Greek philosopher.

"A harrassed mind in a diseased body," replied the learned Hindu.

"For my part," observed Nushirwan's Vizier, "I think the extreme misery is for a man to see the end of life approaching without having practiced virtue."

Pleased, Nushirwan awarded the Vizier the winner's prize.¹

What is this thing called virtue that Nushirwan and his vizier held in such high regard? Is it the same today that it was in the times of Nushirwan? Does it bear the same definition in all cultures? Is it a thing the worth of which is measured by the material gains it yields, or by the degree of ability it imparts for obeying the inner urgings of conscience and the commands of the Creator? Do faith and the sense of communal good spawn it, or do skepticism and selfishness make its foundation?

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Whatever the answers to these questions, virtue in philosophical terms remains man's greatest source of pleasure and happiness. Happiness, according to Aristotle² and Immanuel Kant,³ the Father of modern Western philosophy, is the universal end sought by man and the ultimate object of his actions. Kant⁴ defines virtue as "good conduct not from instinct but on principle." Virtue to him implies an "ability and readiness to overcome our inclination to evil on moral principles." Aristotle⁵ classified virtue into intellectual and moral. He wrote: "Intellectual virtue owes both its inception and its growth chiefly to instruction, and for this very reason needs time and experience. Moral goodness [virtue], on the other hand is the result of habit, from which it has actually got its name, being a slight modification of the word *ethos*." *Ethos*, meaning "character," is the Greek root for the word ethics, the study of right and wrong and application of principles drawn therefrom, also known as moral philosophy after the Latin word *mores*, meaning "customs." Prophet Muhammad *SullAllaaho a'alaehi wasallum* said, "*Ulbirro hosnol kholqe*." ('Virtue' means superior ethics.)⁶

In the Western moral philosophy the aim of practicing virtue, in general terms, is the happiness; in the Muslim ethics it is the pleasure of God Almighty that is the object. The motivation and purpose of every good action in Islam, writes Nadwi,⁷ is the approval and pleasure of Allah. This concept in Islamic thought is derived from Qor'aanic teachings and the practices of the Holy Prophet *SullAllaaho a'alaehi wasallum*. When asked about the nature of virtue, the Holy Prophet *SullAllaaho a'alaehi wasallum* is reported to have recited in reply the verse, "*Laesulbirra un towulloo wojoohaqom qibul mushrege wul mughrebe walaa kinnulbirra mun aamana biLlaahe wul*

yaamil aakhere wul malaakeete wul kitaabe wumabiyyeena; wa aatul maala a' alaa hobbehee zawil qorbaa wul yataamaa wul masaakeena wubnussabeefe, wussaaeena wa firreqaabe; wa aqaamussalaata wa aatuzzaakaata; wulmoofona bea' hdehim eza aiaahadoo, wussaabereena fil b'asaee wudhurraae wa heenul b'se." (Virtue does not mean that you turn your face to East or West, but virtue is to believe in Allah, and the Last Day, and the angels, and the Book, and the Prophets; and to spend for love of Allah your wealth on your kins, and orphans, and the needy, and the wayfarer, and the needy who ask, and freeing slaves; and to be steadfast in *Salaat*, and to gladly pay *Zakaat*; and to fulfil the contracts you make; and be patient under suffering, and hardship, and at times of hurt.-2:177)⁸ Expounded the great Muslim philosopher Imam Fokhr-ud-Deen Razi⁹ in his *Ilm Al-Akhlaq [Kitaab al-Nafs wul Rooh wa Shurh Quwaahomaa]*, "It is manifest that there is more resemblance between human souls and the next world than there is between human souls and this world." "It is therefore necessary," he concluded, "that man should be more inclined towards the other-worldly spiritual bliss than towards his interest in the immediate happiness."

In the above cited Qor'aanic verse the specific use of word "*aataa*" to exhort spending in good causes also highlights, according to the revered Muslim jurist *Moftee* Mohummud Shafeea¹⁰, that preferable is to perform such acts from the inner disposition and the willingness of heart rather than to perform them under compulsion. This kind of ethical motivation is important in the practice of medical arts and sciences, even though all good deeds when performed with good intention are considered laudable and valuable in Islam. According to John S. MacKenzie's *Manual of Ethics*, Kant held that excepting good intention there wasn't anything in the world and even outside the world that could be unconditionally regarded as good.¹¹ Kant¹² explained that an act is performed either "from grounds of compulsion or from those of the intrinsic goodness of the action." He viewed the necessity in the first case to be legal; in the second, ethical. The study of the intrinsic quality of actions is ethics. To explain this Kant¹³ used the example of a man who pays his debt. "He may be swayed by the fear of being punished if he defaults," he argued, "or he may pay because it is the right and proper that he should do." The conduct according to the first assumption is *rectitudo juridica* [legally upright conduct], classifying the man as a "good citizen." and the second assumption renders the act *rectitudo ethica* [morally upright conduct], marking him as a "goodman," a man whose acts follow inner good or moral disposition.

A physician is bound to place the interest of his patient above all other concerns, both ethically and legally. The topic under discussion here, however, is only the ethical side. It might come as an inspiring surprise to physicians of Pakistan that the credit for the

first formal composition of ethics in the practice of the healing arts, even before the Greek writings of the Hippocratic school, belongs to the early inhabitants of the subcontinent Indo-Pakistan. And the general ideas of etiquettes expressed therein, Leake¹⁴ informs us, were carried forward in the Hippocratic work entitled *Decorum*. "The great ancient tradition," he adds, "was reinforced during Roman times particularly by the writings of Galen (131-210 A.D.), and was maintained in the magnificent Moslem culture by such writers as Al-Ruhawi [9th century]." Consequently, their historical traditions as well as their philosophical concepts obligate the physicians of Pakistan to pursue the practice of medical ethics even more punctiliously. For the same reason, they may justifiably be subjected to greater condemnation for any lapses of ethical responsibility. In his *Adaab al-Tabeeb*, one of the earliest Muslim writing on conduct of a physician, Al-Ruhawi placed emphasis not only on the high principles of professional conduct but also on superior standards of day to day general behavior. The early great Muslim physicians, such as Abu Bakr Muhammad ibn Zakariyya Al-Razi (250-312 H./ 865-926 C.E.), Abu Ali al Hussain ibn Abd Allah ibn Sina (364-428 H./ 980-1037 C.E.), Abu-al-Qasim Khalaf bin Abbas al-Zahraawi (324-403 H./ 936-1013 C.E.), and others made even greater contributions to medical ethics. They taught and demonstrated by actual practice the high professional moral principles formulated after the Islamic codes of conduct. Ebrahim¹⁵ points out "that the classical Muslim physicians like Ibn Sina did not speak on medical ethics as such because in their minds medical ethics was in no way divorced from the broad ethical teachings of the Qor'aan and *Sunnah* of the Prophet *SullAllaaho a'alaehi wasullum*." I myself have never become convinced of the necessity of a Muslim taking any formal so-called "physician's oath," because the oath (*Kalemah*) required of a Muslim, "*Laa Elaaha IllAllaaho Mohummador Rasoolollaaah*," (There is no god except Allah, and Muhammad *SullAllaaho a'alaehi wasullum* is His Messenger.) supersedes all other oaths, and, therefore, should be taken as sufficient in all aspects of life. There are several reasons for this. Firstly, this Oath is not a mere confession of a belief in a God; it also is an open and unambiguous commitment to follow in all aspects of life a sharply delineated and perfect Model of Humanity, rendering any other oath rather redundant and unnecessary. Secondly, no creed, religious or otherwise, other than Islam requires a comparable fundamental formal oath that amalgamates the belief in God Almighty with an actual human example after which to shape one's conduct. This state of affairs makes it necessary for the followers of other doctrines to formulate oaths for different occasions and occupations. Thirdly, to expect that a Muslim who is oblivious to this Oath in his actions will comply with any other ceremonial oath is altogether illogical. Fourthly, any oath formulated by

man is limited in that it reflects only the societal attitudes of the period in which it was formulated, and, therefore, has the inherent flaw of losing its effectiveness in time with changes in the society. Consequently, the man-made oaths may influence the human behavior for a certain period, but eventually rather than effecting any permanent molding of a society's character, they are doomed to sooner or later become molded by it. Take, for instance, the Hippocratic Oath, the Father of all Western medical oaths. Lord Ritchi-Calder¹⁶ writes that "the Hippocratic Oath, noble in its intentions, no longer serves. It has been overtaken by events."

How does the Oath of *Kalemah* apply to doctor-patient relationship? By professing this *Kalemah* a Muslim, no matter what his calling or trade, becomes obligated to follow certain specific codes of conduct. A *Hadith* elucidates what these codes of conduct are. Sa'd bin Hishaam visited A'aeshah Siddeeqah *Rudhe Allah unha* and asked her about the ethics of the Prophet *SullAllaahoa'alaeh wasullum*. "Haven't you read the Qor'aan?" she asked. "Indeed, I have," he replied. Thereupon she asserted, "Surely, the Qor'aan was the ethics of the Prophet *SullAllaahoa'alaeh wasullum* of Allah."¹⁷ Hence, whatever is in words in the Qor'aan should be in actions in a Muslim.

Aristotle is reported to have held "rationality to be the divine spark in man, constituting his communion with the godhead and therefore, his peculiar distinction."¹⁸ Despite having held ill-founded but strong anti-Islamic prejudices, the famous English philosopher and statesman Francis Bacon¹⁹ declared, "They that deny God destroy man's nobility." Even the modern American medical ethicists Tom L. Beauchamp and James F. Childress²⁰ have used teachings of the Bible as the basis for their ethical discussions. Therefore, to regard religion as the important source of moral idealism is not peculiar to the Muslims. On a closer inspection one discovers that many of the philosophical rules of ethics are very near to, or even rooted in, the religious teachings. This parallelism between ethical philosophy and religion appears on many occasions to exist even when the ideas were developed entirely independently from each other. In his discussion of ethics philosopher William Frankena,²¹ for instance, says that "to remove evil or harm" and "to do or promote good" are obligations of beneficence. Now consider the following verse from the Holy Qor'aan: "*W'a mor bilma'roofe wunha a'anil monkur.*" (And enjoin that is good and forbid that is evil. -31:17), a theme that is recurrent throughout the Qor'aan, i.e., 3:105, 3:110, etc.

The formal beginnings of the Western medical ethics go back to the principles formulated and promulgated in 1803 in England by Thomas Percival, a highly esteemed and scholarly physician, who despite his poor vision and chronic headaches was acutely conscious of the social problems of his times. In 1847, the

American Medical Association (AMA) based its first Code of Ethics on Percival's "Code of Medical Ethics."²² During its history, the AMA's Code has gone through many revisions. The latest and the most extensive of which took place in 1980. In this revision the Judicial Council of the AMA made significant changes to clarify and update the language, to eliminate references to gender (and thereby make it politically correct), and to seek a proper and reasonable balance between the professional standards and the legal requirements imposed by the changing modern society. Swisher²³ writes that the foundations of the Western medical ethical responsibility are "principles of beneficence (the duty to promote good and prevent harm), nonmaleficence (the duty to do no harm), and respect for patient autonomy (the duty to protect and foster an individual's freedom of choice). However, the complexities in the legal and ethical issues created by the lifestyle and values of the modern Western society make it difficult on quite a few occasions to bring these principles in harmony with actual medical care.

The literature on medical ethics is overwhelmingly vast and ethical opinions so many and so divergent that sometimes it becomes a frustratingly difficult task to reconcile them. In recent years, mushrooming of sophisticated medical technology and the public attitudes defiant of religious and conventional mores have further riddled the field of ethics with issues that are most intricate and at times altogether impossible to resolve. This trend is steadily on the rise, and with every new day there surfaces a new ethical dilemma. It was unlikely even a decade ago to conceive of a physician openly assisting patients in committing suicide. Now, ironically, in as modern a country as the United States, the American pathologist Jack Kevorkian, nicknamed "Doctor Death," is continuing this bizarre practice, and both legal and professional systems of this leading nation of the world are helpless to stop him. To overcome this cognitive dissonance in medical ethics and medical practice the recognition of the rights of the Creator and the limitations of man is essential. Islamic precepts categorically forbid committing or assisting in suicide, and the Muslim ethicists universally view euthanasia (mercy killing) as an act of willful murder.²⁴

Many other man-made complex issues, such as abortion, *in vitro* fertilization, surrogate motherhood, right-to-die, donor insemination, genetic engineering, ectogenesis, vital organ transplantation, etc. have become the nightmare of the Western ethicists and jurists.

MEDICAL ETHICS IN PAKISTAN

Any discussion of ethics in Pakistan must take place in the light of Islamic precepts. This view is neither religious zealotry nor a reactionary urge to prove the superiority of the Muslim philosophical views over the Western concepts. The stark reality that over 90%

of the population of Pakistan is Muslim impels that to be appealing and to be of any practical value there, all ethical considerations should reconcile with the teachings of Islam. It also is logical that each society must build its rules of conduct on foundations of the beliefs and needs of its own people. Any other concepts that they follow will not at all enhance them, and promote only those they imitate.

Islamic philosophy allots ethics the highest place in human conduct. "In Islam," says Sayyad Sulaiman Nadwi,²⁵ "the honor granted to the ethics (in Islam) is such that they should be followed as if they are the commandments of the Almighty." Allah thusly proclaims the purpose of appointing Muhammad *SullAllaho a'alahe wasullum* as His Messenger, "*Wa imaka la a'ala khaloqin a'azeem.*" (And indeed you are the representative of the highest ethics. -68:4) Historically, even before his prophethood, Muhammad *SullAllaho a'alahe wasullum* held himself to exemplary high standards in his public dealings. He himself communicated to his followers, "*Boetho leotummema makaarem ukhalaage.*" (I have been sent for the completion of the best ethics.)²⁶ The word "*makaarem*" is applied in Arabic to express the highest in moral concepts and acts. Even the salvation of a Muslim in hereafter depends on his practice of ethics. "On the Day of Judgement the weightiest thing in one's balance will be one's good ethics, and nothing shall weigh more than that," taught the Prophet *SullAllaho a'alahe wasullum*.⁶ At another occasion, he said, "The dearest and closest to me on the Day of Judgement shall be one with the best of morals."⁶ He thus defined the virtuous, "Virtuous and better among you is he who has better ethics."⁶ This concept of ethics being paramount and above all other considerations was revived by the Ethical Movement—now known as the Ethical Culture—that was initiated by Felix Adler in the United States in 1876 and by Stanton Coit in England in 1888.²⁷ Imam Fakhruddin Al-Razi,²⁸ the great jurist, scholar, and philosopher of the Golden Age of Muslim Civilization, held that "the knowledge that leads to the path of the people of the right-hand is the science of ethics." As one with even a fair knowledge of the Holy Qor'aan knows, "the people of the right-hand" therein refers to those who will earn the favor of Allah on the Day of Judgement.

The Qor'aanic verse *Wa mun uhyaa haa fakummaa uhyummaasa jameea'aa.* (And he who saveth one life is as if he saveth the whole mankind.-5:32) affirms that medical ethics occupy a position among the noblest of human morals. This astoundingly out of proportion honor does not come without an equally damning warning to one whose unethical conduct and negligence bring about the opposite consequences. If someone unjustly causes the death of a man, it is, declares the Qor'aan, "*Faka ummaa qatalummaasa jameea'aa*" (as if he had killed all mankind.-5:32) Without ethics a Muslim is a mere shell of a Muslim; but a Muslim physician,

no condemnation is harsh enough for his unethical conduct. Just as practicing ethics is an active positive force, not following ethics is regarded in Islam as an active negative force that can gradually pull one into total moral corruption. A *Hadith* informs us that when one commits an immoral act, there appears a black mark on one's heart. If one desists from that evil deed and seeks Allah's forgiveness, the heart is cleansed of that black mark. And if one persists in doing the evil deed, with each turn the black mark enlarges in size and eventually a time comes when the heart becomes totally engulfed by it.²⁹

A multitude of varied views and an enormous amount of material published on ethics make it necessary that to attract the attention of a reader and to be clearly understood an author must be selective in choice of his topics. Therefore, the discussion here is restricted, with specific references to Islamic thinking where appropriate, to ethical concepts having a direct bearing on intraprofessional relationships, professional proficiency, and socioeconomics of patient care. In view of the routines and attitudes that are alleged to now prevail in the practice of medicine in Pakistan, these are the ethical issues that are in need of attention more than any other.

ETHICS OF INTRAPROFESSIONAL RELATIONSHIP

Universally known and accepted is the ethical concept that the rights of a patient are supreme and inviolable. But colleagues, professional skill, and the profession itself also have legitimate rights on a physician. These intraprofessional ethics usually get lost in debates over issues related to direct patient-physician contact. But the importance of their role in achieving the overall well-being of the patient and in defining the noble character of medical profession cannot be overestimated. Clearly, in modern time a physician cannot attain full expertise in all fields. Therefore, only that physician who is able to recognize what is beyond his expertise and is unhesitatingly willing to involve in patient care an ethical colleague who has the capability to adequately provide that additional care can meet the responsibility of an optimal medical care. It is ethically important to consult other expert colleagues rather than to be content with giving less than optimal care to a patient with a disease complex beyond one's own expertise. An ethical physician cannot absolve himself of this significant obligation. In fact, mutual consultation is enjoined by Islamic creed in all matters. Of Muslims says Allah, "*Wa umrohoom shoora baenahom.*" (And they conduct their affairs by mutual consultation. -42:38) Both physicians, the one who refers the patient and the one who sees him in consultation, must execute this collaboration on no basis other than the universal welfare of the patient. Of paramount relevance also is to recognize that in addition to being an ailing individual the patient is a human with his own

limitations that must receive full consideration from the physician.

Another very serious problem in Pakistan—actually, in all Muslim countries—is the unethical way in which power and authority in the professional hierarchical structure are exercised. Consequently, instead of producing compassionate and well-trained physicians, the system is hopelessly caught in the vicious circle of mostly creating vindictive cynics with medical degrees biding their time to get their turn to fulfill selfish motives and wield power to protect personal turfs. In academia, a medical team leader is responsible not just for patient care and administrative operations but also for professional development and ethical makeup of the junior staff and those in training under him. Rather than being a catalyst in creating a pleasant educational ambience, the traditional respect for the seniors is abused in Pakistan as an excuse to deprive juniors of their free expression of honest opinions. Likewise, instead of working as a helpful mechanism for the evaluation of ability, the annual confidential report (ACR) has become a tyrannical tool in the hands of the unethical heads of departments, who employ it to coerce their medical staffs into obsequiously carrying out the agendas of boss's selfish interest. Because he is a mentor in technical skill and an example in professional conduct for every member of his team, the leader of a faculty group has the inescapable duty to employ his skills meticulously and to conduct himself ethically. There does not at present exist an effective mechanism in Pakistan that seriously urges or successfully enforces such behavior. An unchecked and steady deterioration in these ideals has produced in Pakistan, with a few noble exceptions, a medical community that is allegedly characterized by mediocrity in skills and extreme in self-interest.

This moral corruption has played havoc not just with patient care and the medical education, it also is harming the scientific progress of our nation. One can readily find instances of personal agenda taking priority over national needs even at the highest levels of official responsibility. For example, there's not a single specially trained *bona fide* ophthalmic pathologist in Pakistan. I have been for years trying, promising my full assistance, to convince several influential professional leaders to send some bright young pathologist abroad for training in this field. Recently, a highly placed medical official with full control over perhaps the largest government appropriation for medicine responded favorably to my suggestion. He selected an interested and qualified candidate, assured me of having all the necessary funds, and gave me an unqualified go-ahead for finding an appropriate position in ophthalmic pathology in the United States. After a great deal of effort, pleading, and exerting whatever personal influence I had, I was able to get his application approved for a position in ophthalmic pathology at the prestigious Johns

Hopkins University. I also was lucky to receive from them a concession of not charging any tuition. However, a proof of funding for the candidate's travel and stay in the United States was required before the Johns Hopkins could issue any papers for his visa. My respected colleague in Pakistan told me that the funding papers were on their way to the Johns Hopkins. A month had passed when the University called me to tell that they had not received the requested papers from Pakistan. We several times played the unpleasant routine of the Johns Hopkins writing me, I telephoning him in Pakistan, him giving me one or the other excuse for the delay, and then each time assuring me that it was being taken care of right away. When the start of classes was only weeks away, the Johns Hopkins wrote me a terse note saying that if they did not get funding documents by a certain date, they will forthwith cancel our candidate's admission. I understood their predicament, and felt deeply embarrassed for putting them in the awkward position of writing such a note. I took that letter to Pakistan to show it to my highly regarded colleague. He took one look at the letter, tossed it on the huge office table before him, and remarked without a single wrinkle of concern in his ever-polite face, "Well, that's good. Now they cannot blame us for not coming to join their program." The logic of his statement has to this day eluded me, but I have a fair idea why he did what he did. Nonetheless, it is painfully clear to me that because of his action our country lost a great and already in hand chance to have its pioneer ophthalmic pathologist.

A certain sadness comes over me every time I cast my eyes on the pile of correspondence I had with Johns Hopkins to get that position; not because I lost face before the Johns Hopkins, but because in that pile I see one more lost opportunity for our country's progress and our people's betterment.

Our country's medical education system has also been thrown into a complete shambles by this downhill slide of ethics, and by all indications seems on its way to further decline. The quality of teaching, students' desire to study, teachers' concern for the students, academic discipline, and pupil-teacher relationship are at their lowest they ever have been. Their helplessness in stemming this tide has forced even the concerned and capable faculty members to throw their hands up in despair. Disenchanted and confused, the students in professional institutions are turning to disruptive, and many a time destructive, non-academic activities as a way of venting their frustrations. The natural outcome is that a large number of them have become easy prey for the special interest political groups. A common complaint of medical students and young doctors, among many other grievances, is that the children of the faculty members and of those in power not only get easy admission to medical institutions, but they also "win," deserve or

not, top honors and medals in examinations. This obviously is demoralizing to these highly intelligent youngmen who enter medical school with great enthusiasm and expectations. They soon lose their aspirations and faith in hard work and the education system, and become cynical and discouraged. Those who do not rebel end up, nonetheless, losing respect for the professional ethics. As a matter of fact, much less than what wrong has allegedly become a commonplace in Pakistani medical institutions is being categorized as unethical faculty behavior and "medical student abuse" in today's scientifically advanced countries.³⁰

This widespread paucity of ethics has turned many of our medical practitioners and educators, despite their having been blessed with first-rate abilities, into third-rate physicians. The blame for allowing moral corruption to reach this alarming stage must be shared by the government, the professional organizations, and the academic leaders. The press also seems to have failed the public by not persistently and strongly enough demanding accountability and change in the medical practices in Pakistan.

From ethical as well as professional standpoints, every physician is expected to have a dual obligation: to provide the best possible care to his patients and to communicate to his colleagues whatever new ideas he learns from his professional experiences. To neglect the former is to demolish the very foundation of medicine; to ignore the latter is to impede its progress. An ideal Muslim physician would not permit either. This concept in medical ethics draws its support from the Holy Prophet's *SullAllaaho a'alaeh wasullum* commandment, "Communicate to others whatever you hear me say and whatever you see me do."³¹ It is imperative that to provide optimal health care to his patients a physician must stay abreast with current medical knowledge and the new techniques that have proven their effectiveness, and when necessary modify them to best suit his and his patients' circumstances for the greatest benefit. It is then clear that for a physician both education (acquiring new knowledge) and research (producing new knowledge or confirming the value of what is already known) are important obligations. The continuing medical education (CME) needs to become a more widespread activity for all Pakistani physicians at personal and collective levels. For without CME a physician cannot remain competent and may even become hurtful to his patients. Even as far back in history as classical Greece, the scholars and the ethicists realized the importance of a thorough and well-balanced medical knowledge in a physician. "A doctor who intends to treat the eye must have a knowledge of the body as a whole," commented Aristotle³² to illustrate this point. The ethical basis for CME in Islam is further strengthened by the *Hadith* according to which Prophet Muhammad *SullAllaaho a'alaeh wasullum* "forbade the

incompetent physician to practice medicine."³³ In discussing the issue of proper knowledge in a physician, the Muslim medical ethics expert Al-Ruhawi a thousand years ago advocated qualifying examinations for the physicians.³⁴ He also urged, in contrast to Hippocratic tradition, that charlatans among physicians be exposed. Because their participation in patient care is important, adequate education and training of a physician's paramedical staff is also his moral obligation. Al-Ruhawi, for instance, held physicians responsible for technical skills, willingness in attitude, and general behavior of their nurses. Apparently, to ensure this all in his time overseers were appointed.³⁴ A *Hadith* warns that "everyone of you is an overseer over his subordinates. And on the Day of Judgement he will be held responsible for everyone of them."³⁵

Research is another important ethical concern and responsibility in Islam for those who have capabilities. Research is the first step toward finding the cause and the final step toward discovering the solution of every problem that confronts us. Says Allah, *Innuhzhunaa Laa Yoghnee Minul Huqqe Shaeaa*. (Surely, conjecture cannot be a replacement for truth. -10:36), and *Wa Fil Urdhe Aayaatonil Moqeneen. Wa Fee Unfosekom. Afalaa Tobseeroon*. (And in the earth there are signs for those who have a confident faith. And also in yourselves. Can you then not perceive? -51:20-21). *Imam Ghazali*³⁶ writes of the Holy Prophet *SullAllaaho a'alaeh wasullum* teaching his followers that *Tafukkaroo Saa'atin Khaerommin Ebaadatin Sanatin*. (To reflect for one hour is better than worship of a year.) Research, therefore, is the nature of man, the command of Allah, and the advice of Prophet *SullAllaaho a'alaeh wasullum*. Most physicians in Pakistan routinely borrow, without any necessary modification, the diagnostic criteria and therapeutic regimens for most diseases from publications of the Western writers. This is quite contrary to the characterization of a Muslim by the Holy Qor'aan, which says, "*Wullazeena eza zookferoo beaayaate Rubbehim lum yakfirroo alaehee soomumwawa oomyaanaa*." (And those who on being made aware of the signs of their Lord do not plunge thereat blind and deaf [but ponder] -25:73.) By not fully exploiting his abilities, a Muslim demeans his nation, betrays his God, and disappoints his Prophet *SullAllaaho a'alaeh wasullum*. What other argument, admonition, or threat do the Muslim physicians need to realize this responsibility as healers and scholars. Those who do not have abilities to engage in research have obligation to support the activities that promote it.

SOCIOECONOMIC MEDICAL ETHICS

In their discussion of the "social ethics for medical educators," Bruhn and Smith³⁷ comment that "the concept of social responsibility must permeate our system of medical education," adding further that the "social responsibility, however, has been narrowly

conceived and usually left to the realm of experience or chance." These authors recommend that medical "students should be encouraged to take electives in medical ethics, medical economics, health administration, social issues in medicine, genetic counseling, family planning, health education, behavioral sciences, and so forth." To overcome this deficiency many medical schools in the West have altered their curricula, and established courses in the social sciences and humanities.³⁷ It is bewildering that in Pakistan, a nation whose religious concepts and social customs should naturally spawn heightened social consciousness, medicine is alarmingly behind in recognizing and meeting its social responsibilities.

Caring for the sick is not just the exercise of one's professional skill and knowledge, compassion and a sense of service to humanity are equally important. A widespread blind pursuit of monetary gain in the medical profession generally renders ethical considerations so insignificant that unsettling doubts about the humanitarian and moral aspects of medical practice begin to creep even into the minds of those physicians who value the nobility of their profession. Most of the conscientious members of the profession have been expressing off-the-record concerns about the trend of the interests of the patient taking a back seat to the financial gain among the Pakistani doctors. A greedy academician is an even poorer role model for a nation's young doctors and medical students.

In a recent personal experience, I was much bewildered at the exorbitant fees some physicians in Pakistan are charging. For instance, a patient I know needed diagnostic bronchoscopy with biopsy. When I called Pakistan to ask about patient's progress, the family told me that the professor who saw the patient had told them that his fee for the procedure was Rs. 35,000.00. I doubted my ears but they insisted the figure was correct. I called one of the more reputable specialists at the nearby East Tennessee State University Medical School in Johnson City, and was told that his fee for bronchoscopy with biopsy was US\$500.00. This comes to only Rs. 15,000.00 at the rate of thirty rupees per US dollar. Our professor is charging in Pakistan, one of the poorest countries in the world, the fee that is over twice the fee, not in relative terms but in absolute monetary value, an American expert is charging in the US. This screams of the slaughter of ethics that not only has corrupted medicine in Pakistan, but has also depraved the regulatory agencies and the professional organizations, who seem to have lost all will to eradicate or stall this moral decay.

No doubt, that sometimes the patients are reluctant to meet their financial obligations to their physicians. This is not at all a new phenomenon; and, in fact, it has been the subject of many a satire through the centuries. A satirical verse titled "*Tres Facies Habit Medicus*" by the 16th century physician Euricius

Cordus is a well-known illustration of this.

Three faces has the doctor:
A god's when first he's sought;
And then an angel's the cure half wrought;
But when comes due the doctor's fee,
Then Satan looks less terrible then he.³⁸

But greed in medical practice is the bane of its quality, and, eventually, the death of physician's conscience. All those in whom selfishness and greed are bridled neither by the fear of God, nor the voice of conscience, nor the rules of ethics cannot feel much regard for the true commonweal of others.

No denying that physicians must earn enough to maintain their practices and a decent lifestyle for themselves and their families. In the 9th century, Al-Ruhawi's recommendation was that a physician should charge fees to only earn enough to meet his needs, such as marriage, healthy nutrition, clothes, housing, etc., and enough to educate his children in the art of medicine.³⁶ But no argument can make avarice acceptable in good men, particularly in those in medical profession. Accumulating worldly possessions through greed and corruption gives one neither true happiness, nor everlasting life. To quote Holy Qoor'aan, "*Nillazee jama'a maahumwawa uddadah. Yuhsabo unna malahoo ukhladah*" (He who amasses wealth and lays it by. Thinks it will make him immortal. -104:2-3) and "*Maa ughnaa unho maalohoo wa maa kasub.*" (His wealth and gains will not exempt him. -111:2) Therefore, it is totally unethical from Islamic point of view to make medical practice a means of amassing unjust wealth.

MEDICAL MALPRACTICE

Malpractice in health care is another important aspect of medical socioeconomic ethics. An "improper or negligent treatment of a patient by a physician, resulting in damage or injury" is how *The American Heritage Dictionary* defines malpractice. Whether the patient is aware of the truth about it or not, such improper care by a physician still will fall under malpractice. To be compensated for any injuries arising from malpractice is a patient's just right. Even in the ancient times, the Assyrian Code of Hammurabi (2000 B.C.) dictated that "if a physician shall treat a man, and that man shall die, then surely the physician shall die also...If a physician shall treat the eye of a man, and the man shall lose the sight thereof, then surely the physician shall lose the sight of his eye...however, members of the health professions...could ransom themselves or parts of their bodies by paying appropriate sums for damages to the patients whom they may have injured."³⁴ Salmaan Mansoorpori³³ writes that Prophet Mohummud^{SullAllaaho a'alahe wasallum} "held the physician who committed malpractice to be responsible for the patient's injury and loss."

Says one multiply-reported *Hadith*, "*Mun taeyyaba walum yo'lamo minhottibbo qubla zaaleka fahowa dhaamenoon.*" (He who gives medical treatment and is not beforehand fully knowledgeable about it is fully responsible for its consequences.)³⁹ Malpractice, therefore, is not merely a substandard health care, but if a patient is not told about and is not compensated for his loss resulting from medical malpractice, it becomes a serious legal offense and a religious transgression of usurping the rights of a wronged person. For a Muslim physician, such a circumstance is of most grievous consequence, both in this life and in the hereafter.

It is unfortunate that in a Muslim country like Pakistan very little is formally said or done about malpractice, even though undoubtedly it occurs here in astronomical numbers. Even in the Western countries a common and justified, complaint is that secrecy frequently surrounds medical malpractice. In Pakistan, it is the paramount moral and legal responsibility of the regulatory agencies and professional bodies need to devise without any further delay effective mechanisms to expose and eliminate malpractice, and make CME a mandatory requirement for all practicing physicians.

It was the realization of this trend toward unethical practices in the country that recently prompted the Pakistan Academy of Medical Sciences (PAMS) to urge, promising its full cooperation, all other national professional bodies to take steps and join hands with country's upright leaders for formulating and enforcing plans to eradicate all violations of ethics in the practice of medicine in Pakistan.⁴⁰

ISLAMIC MEDICAL ETHICS: SOME CONCLUSIONS

There are three important points that one should not overlook when considering the following conclusions deduced from the preceding discussion. Firstly, these formulations express only the Islamic viewpoint of ethical considerations in medical practice. Secondly, their scope is specific and they do not cover all aspects of medical ethics. Thirdly, though they are well thought-out opinions of the author, these codes are not *shura'ee fataawa*; therefore, if one comes across a *futwa* by a solid and practicing Muslim scholar that does not agree with any of these codes, that *futwa* will supersede the code with which it disagrees.

1. The object of practicing proper ethics for a Muslim physician, unlike the Hippocratic and Aristotlian concepts, is the pleasure of the Almighty Creator.

2. Practice of high ethics is the foremost and worthiest of human actions in Islam. Preferable is to practice high ethics from the inner disposition and willingness of the heart rather than to practice them under compulsion.

3. A teacher or professor is responsible, in addition to teaching technical skills, for the ethical development of his students and staff in training by actually upholding the ethical principles in his own conduct.

4. Muslim ethics condemn greed and dishonest amassing of wealth as immoral and evil. Justified for a Muslim physician is to only earn what is sufficient for his and his family's needs and education and the upkeep of an efficient clinic.

5. A physician must honor and give full consideration to the socioeconomic limitations of a patient and his family, and must not deny care to a patient because of his lack of ability to pay.

6. A physician should be honest in admitting his limitations in professional skill, and when the care of a patient goes beyond his own field or expertise, he must without delay ask his qualified colleagues with good ethics to join him in the care of that patient.

7. If a procedure or treatment has the potential of causing damage or loss to the patient, the physician must inform the patient about it before the patient undergoes it; and when injury occurs to a patient from any improper management, the physician should inform the patient about it and duly compensate him for the resultant damage or loss.

8. A physician is ethically bound to stay abreast of new developments in professional knowledge and techniques. In Islam, the time and energy spent in this activity are considered to have gone into a virtuous deed.

9. Research is an ethical obligation of a Muslim physician and a great virtue in Islam.

10. A physician is ethically obligated to expose charlatans and those physicians deficient in character or competence, and to help prevent them from practicing medicine.

11. For a Muslim physician the Oath of *Laaelaaha illAllaah, Mohummador RasoolAllaah* obviates the necessity of taking any other formal professional "oath."

12. Euthanasia and any form of suicide is categorically forbidden in Islam, and, therefore, the so-called physician-assisted "mercy killing" unquestionably is an act of willful murder.

EPILOGUE

Could a discussion of conventional ethics be of any real impact in modern days? The pertinence of this question is validated by the fact that virtue and what should be regarded as virtuous is no more defined by traditional moral values and judgement. The powerful element of modern media, particularly the electronic communication media with their tremendous global penetration, is aggressively trying through relentless and deliberately slanted propaganda to reshape the yardsticks that determine what is moral and what is not. With its carefully contrived approach and flashy charm, this deceitful force is rapidly warping the perception and moral judgement of modern man.

During the last couple of decades, Euro-American morals have rapidly deteriorated, something about which the populace of these regions is manifestly perturbed and concerned. The decline in moral values has coincided with the rise of electronic communication media, television entertainment industry in particular. This mainly is because the control of information and entertainment media is in the hands of a relatively small segment of society—it is not true that they all are Jews—that evaluates every activity and impression only from point of view of physical pleasure, material gain, or power enhancement. They have cunningly retained and continue to preach the traditional moral terminology, but promote their own twisted interpretations of these words to induce and justify actions that are in diametrical discordance with their true meanings. The truth is that the love of money and a lack of sense of justice are rapidly replacing conscience and ideals of humanity in the "advanced" man's ethical equation. The natural upshot is intensified material sense, spiritual emptiness, and generalized discontent among their masses. To bolster the populace's self-image damaged by this moral confusion and weakness, these media masterminds have duped them into seeking pride in nationalistic chauvinism and material advantage.

The victims of this media masterminding are not only the people of Europe and America, but also the helpless nations that are under their influence. In addition to poisonous exposure to their immoral media programming and propaganda, these nations are as well the victim of their unjust and inhuman foreign policies. Despite their ceaseless claims to the contrary, these powers found their foreign policies neither on justice nor on freedom of choice for all men; their

motivation instead is the agenda of personal priorities and profits.

The vengeance is being extracted from the shrivelled aged men for what they allegedly did over half a century ago, but only rhetorical admonitions suffice for the perpetrators of the on-going shameful ethnic cleansing in Bosnia. What codes of morality are being upheld in continuing the arms embargo against the helpless victim of this holocaust? If Iraq is tricked and invades Kuwait, she must be, mandates the United Nations, blown to smithereens by the latest bomb technology; but if the US invades the tiny country of Panama, to allegedly keep control of the Panama Canal, the United Nations must turn into a three-in-one monkey who sees not, hears not, speaks not. When England wages all-out war against Argentina over half the earth away Flakland Islands, all the self-proclaimed "civilized nations" declare it a struggle for one's rights and freedom; but when Pakistan supports the neighboring Kashmir to help its oppressed people rid themselves of nearly half a century of occupation and inhumanity, the high and mighty "standard bearer of human rights and liberty" must threaten to label her a terrorist state. Because it is dangerous to health, smoking must be banned everywhere in Europe and North America, including the Euro-American cigarette producing countries; but no question must be raised when threats of the World Trade Agreement violation, political arm-twisting, and bribery are shamelessly employed to create markets for their cigarettes and other dirty industries and their products in the poorer and weaker nations. When 4 to 6 million women are battered every year in the United States,⁴¹ it just is an internal social problem; but when women in Muslim countries cover their heads to uphold their religious traditions of modesty, they must be declared oppressed and investigations by the Human Rights Commission are in order. Hypocrisy, which is thy face?

A nation knowingly declares its corrupt ways as just, pride of power is her argument; another knowingly acknowledges this evil as good, fear of weakness is her argument. The Creator watches, history waits, time takes forty winks—the stuff of which the rise and fall of civilizations are made.

The purpose here is not a put-down of any European or American country or community; the purpose simply is to point out in a totally non-political context the kind of influence one can expect to be exerted on the morals of a nation that emulates these modern leaders of the world. Because the developing nations, including Pakistan, are becoming politically and economically trapped into the steadily tightening snare of neo-colonialism, it is clear that their moral ideologies face a real peril of becoming distorted—even obliterated for all practical purpose—from the effects of glittering Euro-American media propaganda and political arm-twisting. If this calamity does come to pass, it would be wrong to place the

entire blame on the foreigners. The victim nation's leaders, teachers, and religious authorities will have plenty of share in it.

All this in light of the fact that modern technological progress also has gradually devoid man of the fear of God is greatly disturbing to those who equate humanity with moral existence. Question is will there be left anyone willing to accord serious attention to moral issues of life in the world overwhelmed by materialism. Also, the notion that discussions of ethics are destined to become futile exercises in semantics may not appear that far-fetched to some. Nonetheless, these should not be acceptable reasons to anyone who loves humanity and has faith in God Almighty for becoming discouraged and giving up the promulgation of true understanding and practice of ethical principles.

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Rhabdomyosarcoma of the Orbit in a Pakistani Infant Girl

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ABSTRACT: The parents of a year old female infant sought medical advice for a rapidly increasing proptosis of her right eye of three-month duration. There were no signs of any primary systemic disease or malignancy on clinical and laboratory evaluations. The X rays and computerized tomography (CT) scan of the right orbit showed a hazy orbital mass. Immunohistochemical markers were employed. The biopsy tissue was negative for epithelial membrane antigen (EMA), ruling out epithelial tumors. The positive result for desmin confirmed that the lesion was a mesenchymal/muscle cell tumor. The patient had local radiotherapy followed by surgical excision of the regressed tumor. Adjuvant chemotherapy now is under deliberation. (Pakistan Journal of Ophthalmology 9:97-99, October, 1993.)

Rhabdomyosarcoma is the most common primary malignant orbital tumor of childhood and overall the third most common tumor in children, after leukemia and neuroblastoma.¹ It is more common in males (male:female, 5:3). It comprises 4% of orbital biopsies in all patients under 18. The average age of onset is 7-8 years, 75% cases occurring under the age of 10. However, the tumor may appear at any age.

See also page 85

Case Report

A one-year-old female infant presented with rapid swelling and protrusion of her right eyeball within previous three months, starting in May 1993. (Figure 1). She was first suspected of having and was treated for acute orbital cellulitis with combination of ampicillin and oxacillin parenterally in divided doses, but to no avail. After unsatisfactory treatment in various ophthalmic units, she was referred to us. Examination under anesthesia and exploration of the right orbit was done under ketamine anesthesia. Clinically, she had a large right orbital growth which had caused distortion and destruction of tissues of the orbit.

From the Department of Ophthalmology, Army Medical College, Rawalpindi, Pakistan.

Reprint requests and inquiries to Maj. Gen. Nasim Ahmad, Professor and Chairman, Department of Ophthalmology, Army Medical College, Rawalpindi, Pakistan.



Figure 1 (Ahmad and Ahmad): Right eye. Fungating rapidly growing orbital mass.

Histopathological features

Routine histopathology studies revealed malignant cells showing a mixed population of mesenchymal and epithelial tumor cells. Tumor markers for epithelial membrane antigen (EMA) were negative, but showed

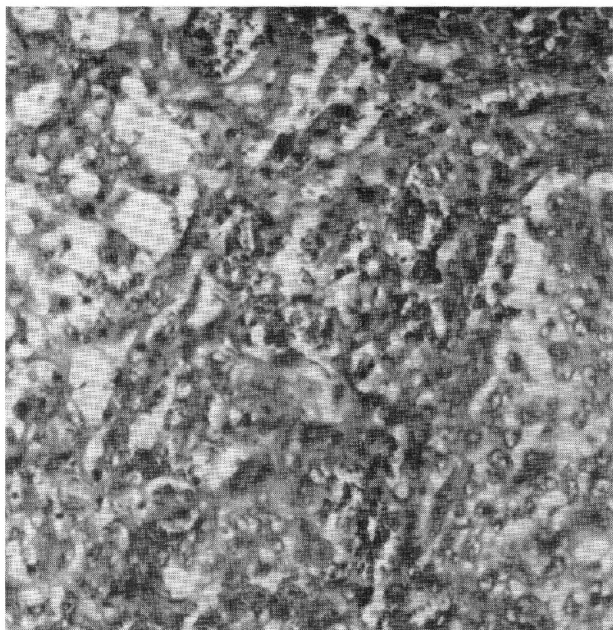


Figure 2 (Ahmad and Ahmad): Right orbit. Histopathologic section (H&E)

a positive response for desmin specific for mesenchymal tissues. (Figures 2 and 3) On the basis of clinical evaluation, computerized tomography (CT) scan and immunohistochemistry a diagnosis of primary malignant rhabdomyosarcoma of the orbit was made.

Her management included right orbital radiotherapy of 5000-6000 cGy, delivered in divided doses over a five- to six-week period. She is being followed with the aim to start adjuvant chemotherapy and surgery when the vascularity and size of the tumor mass has reduced significantly.

Discussion

Depending upon the growth pattern rhabdomyosarcoma is divided into four histopathological types: pleomorphic, alveolar, embryonal, and botryoid.

By definition rhabdomyosarcoma is a malignant neoplasm composed of cells with histologic features of striated muscles in various stages of embryogenesis. Alveolar and embryonal types affect the soft tissue of the eye/orbit more often.

It is amongst the most common primary malignant orbital tumors with the classical presenting clinical features of rapid onset and protrusion of the eyeball, mostly in the supranasal quadrant, displacing the globe down and out. It may sometimes present without proptosis as an anterior visible mass under the eyelids and the conjunctiva.

As the tumor size enlarges it produces optic disc atrophy/edema, choroidal folds, optic foramen enlargement and dilated tortuous retinal veins.

If the tumor remains undiagnosed it locally extends and involves the nasal sinuses causing orbit/eyeball destruction with hematogenous spread to the lungs, the

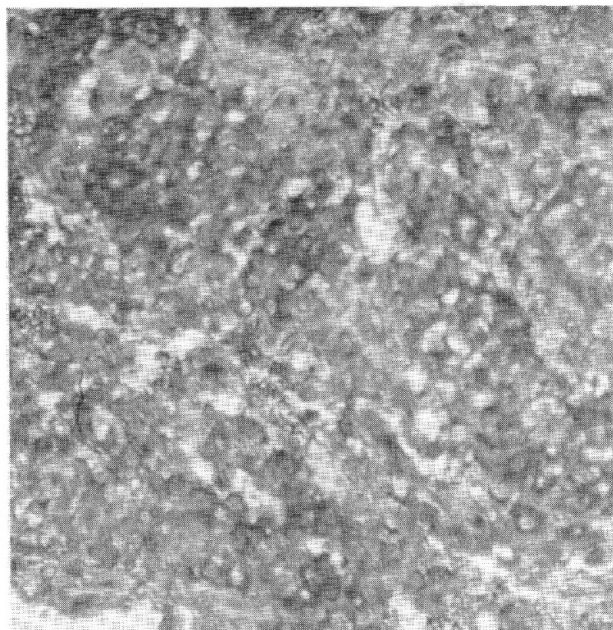


Figure 3 (Ahmad and Ahmad): Right orbit. Histopathologic view. Immunohistochemical marker desmin is positively denoted by pink stained cells.

cervical lymph nodes, and rarely to the bones. Orbital rhabdomyosarcoma shows less metastatic potential than its extraorbital varieties.

The differential diagnosis of rhabdomyosarcoma consists of most of the causes of eyeball/orbital swellings and proptosis in childhood. These include acute orbital cellulitis, pseudotumor oculi, capillary hemangioma of the orbit, lymphangioma, dermoid cyst and granulocytic sarcoma.

The diagnostic approach for orbital growths/tumors can be divided into two categories. In the basic modalities, complete blood picture will rule out leukemias/inflammations. Caldwell, Reese Water's view on X ray of the orbit/skull and periodic bone X rays are helpful. Normal liver enzyme assays rule out metastases. Orbital/abdominal ultrasound are useful and the appearance of a sonodense mass with decreased internal reflectivity is characteristic. Biopsy and substantiated histopathological confirmation form the mainstay of the diagnosis. Masson's trichome and phosphotungstic-acid hematoxylin (PTAH) stain the characteristic cytoplasmic cross striations of tumor cells. CT scan and MRI will show the proptosis and space occupying orbital lesion. Immunohistochemical markers as epithelial membrane antigen (EMA)/desmin will differentiate mesenchymal from epithelial tumor cells. In chemical pathology alphafetoproteins (AFP) and BHCG assays are useful in the differential diagnosis. While parallel arrays of thick myosin filaments are evident on electron microscopy.

Some tumors may resemble orbital rhabdomyosarcoma on histopathology. These include fibrous histiocytoma, fibrosarcoma, malignant schwannoma,

leiomyosarcoma, Ewing's tumor, hemangiopericytoma and granulocytic sarcoma.

Initial etiological misconception was that the tumor arose from the extraocular muscles. Actually the tumor arises independently from undifferentiated mesenchymal cells with the capacity to differentiate into striated muscle. Conceivably, wherever in the body these pluripotential cells exist, rhabdomyosarcoma can occur there. It has been documented in the iris of 4-year-old girl. It also occurs in the elderly who have undergone radiotherapy.² However, as a rule any rapidly evolving spindle cell sarcoma in a child's orbit is taken as rhabdomyosarcoma unless proved otherwise.

Histologically, rhabdomyosarcoma has four types. Pleomorphic type occurs as an adult muscle tumor with rare involvement of orbit. Cross striations and irregular cytoplasmic granularity is present. Embryonal type is the most common orbital variant and its cross striations are more difficult to see than in pleomorphic type. Alveolar variety has tumor cells arranged in loose cohesive groups along the connective tissue septal walls and also floating freely in the central cavity. This decrease in cohesiveness is responsible for the increased metastasis. Botryoid type is identical clinically and histopathologically to sarcoma botryoids that afflict the gut of female infants. It appears clinically as a polypoid grapelike mass beneath conjunctival epithelium. Following is a statistical study of orbital/ocular swellings, growth and tumor carried out at AFIP over one year in 1991. Table 1 shows a comparison with a Reese study from the United States.

The diagnosis of rhabdomyosarcoma is of paramount importance as the management for retinoblastoma and acute orbital inflammations differs from rhabdomyosarcoma in modality and effect.

Management consists of ocular radiotherapy with 1000 cGy/week for five to six weeks. Then the tumor is assessed for decreased vascularity and regression in its bulk. Surgical excision of removable mass and chemotherapy with cyclophosphamide, vincristine sulfate and actinomycin-D is usually given in a triple regimen, disowing the treatment complications.



Ophthalmic "Pastpourri"

How to Eye for an Eye

"A doctor who intends to treat the eye must have a knowledge of the body as a whole."

-Aristotle: *Nicomachean Ethics* (translation J.A.K. Thomson), New York, Penguin Books, 1976, p 88.

Table 1
A comparison of biopsies of the space occupying lesions of the orbit (170 cases)

Type	Pakistan (AFIP, 1991)	USA (Reese ³)
Malignant	41% (70)	25%
Benign	26% (44)	34%
Pseudotumor	33% (56)	41%

As hematogenous spread in unresponsive tumors causes death in and around 18 months.

The prognosis for vision varies with the tumor's extent, the treatment modality and its antecedent complications. While prognosis for life has improved dramatically from 30% to 90% when the tumor is confined to the orbit and to 65% with accompanying bony destruction, mortality is enhanced four times if the nasal sinuses are also involved.

Conclusion

The purpose of presenting this case is to highlight the finding of a mixed uncommon morphological picture found on routine histopathology in a case of orbital rhabdomyosarcoma. The various diagnostic difficulties are outlined, and the importance of pertinent diagnostic modalities, such as orbital X rays, CT scans, the specific immunohistochemical markers is demonstrated.

References

1. Kanski, JJ: Clinical Ophthalmology, 2nd edit, London, Butterworth & Heinemann, 1989, p 41.
2. Shields, JA: Diagnosis and Management of Orbital Tumors. Philadelphia, W. A. Saunders, 1989, p 135.
3. Reese, AB: Tumors of the Eye, 3rd edit, New York, Harper & Row, 1976.

Figure 1

Total Recovery from Central Retinal Artery Occlusion

Khalid J. Awan, F.P.A.M.S., Muhammad Humayun, F.R.C.S. (C), F.P.A.M.S.

ABSTRACT: A 73-year-old man suffered sudden right central artery occlusion from embolism with total loss of sight. Immediate management included breathing in an airtight paper bag, intravenous acetazolamide, and aggressive bulbar massage at considerable discomfort to the patient for one hour. (Pakistan Journal of Ophthalmology 9:86,100, October 1993.) Reprint requests to Dr. Muhammad Humayun, 176 Portland Street, Suite 600, Dartmouth, N.S. B2Y 1J3 Canada. Fax No. (902) 461-9997.



Figure 2

The ophthalmoscopic view in Figure 1 shows typical segmentation of the blood column in the retinal vessels. The retinal arteries are quite thin and the smaller branches have been reduced to barely visible streaks. The embolus at the bifurcation of the central retinal artery at the disc is noticeable only if one looks for it very closely. As the diagnosis was very clear, no fluorescein angiography was performed due to the urgency for instituting the treatment. Breathing in a paper bag, aggressive ocular massage at considerable discomfort to the patient, and intravenous diamox brought the sight back to the eye in about one hour.

The return of sight in visual acuity is accompanied with clinical improvement as shown in Figure 2. The blood vessels show no box-carring of their blood columns. The visual acuity of the patient returned to pre-occlusion level of 20/25. The patient was referred to his internist, who examined him and prescribed some medication for high blood pressure. About seven months after this episode patient was admitted to the hospital for a coronary artery occlusion. Unfortunately, he did not recover from it. Any episode of retinal artery occlusion should be regarded as a precursor to a life threatening vascular accident even months later.

Book Reviews

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

Cosmetic Oculoplastic Surgery, second edition. Edited by Allen M. Putterman. W. B Saunders Company, The Curtis Center, Independence Square, Philadelphia, PA 19106-3399 USA 1993. Hardcover, 412 full-sized pages, 422 black and white figures, table of contents, index. Price, US\$ 95.00.

Putterman is both imaginative and energetic, traits essential not only to being a good cosmetic surgeon but also to being a good teacher. This work based on his ideas and experience in the field of oculoplastic surgery is, like his many other writings, an impressive display of these characteristics. It has been nearly a dozen years since the first edition of this text appeared. This time around, nearly two-thirds of the text is written by the author's two-dozen famous colleagues from all parts of the United States. This naturally has makes the present volume representative of the leading American views in the field.

The contents of the book are divided into 27 chapters: The History of Cosmetic Surgery, which opens with an original description and instrumentation of blepharoplasty as practiced by Ali ibn Isa a 1000 years ago in Baghdad; Evaluation of the Cosmetic Oculoplastic Surgery Patient; Patient Selection for Cosmetic Oculoplastic Surgery; Psychiatric Issues in Cosmetic Blepharoplasty; Photographing the Blepharoplasty Patient; Dermatopathology in the Cosmetic Oculoplastic Surgery Patient; Eyelid Anatomy, Anesthesia, Analgesia, and Amnesia; Surgical Treatment of Upper Eyelid Dermatochalasis and Orbital Fat: Skin Flap Approach; Surgical Treatment of Upper Eyelid Dermatochalasis with Reconstruction of Upper Eyelid Crease: Skin-Muscle Approach; Upper Blepharoplasty in the Asian Patient; Internal Brow Lift: Browplasty and Browpexy; Upper Blepharoplasty Combined with Levator Aponeurosis Repair; Muller's Muscle—Conjunctival Resection—Ptosis Procedure Combined with Upper Blapharoplasty; Treatment of a Prolapsed Lacrimal Gland; Surgical Treatment of Lower Eyelid Dermatochalasis, Herniated Orbital Fat, Abnormal-Appearing Skin, and Hypertrophic Orbicularis Muscle: A Skin Flap Approach; Surgical Treatment of Lower Eyelid Dermatochalasis, Herniated Orbital Fat, and Hypertrophic Orbicularis Muscle: Skin-Muscle Flap Approach; Transconjunctival Approach to Resection of Lower Eyelid Herniated Orbital Fat; Tarsal Strip Procedure and Plication Sutures Combined with Lower Blepharoplasty; Rejuvenation of the Aging Brow and Forehead: Chemical Peel: Eyelid and Periorbital Skin Rejuvenation in Conjunction with or Independent of Cosmetic Blepharoplasty; Blepharoplasty with Laser, Cautery, or Colorado Needle; Blepharopigmentation; Complications of Upper Blepharoplasty; Complications of Lower Blepharoplasty; Ocular Cosmetics; and Patient Satisfaction in Cosmetic Oculoplastic Surgery. Going over these topics not only gives one an idea of the exact scope of the book, it also confirms that the material is well up-to-date. Chemical peel,

blepharopigmentation, Colorado needle, etc. are items that every ophthalmologist needs to be familiar with even if he does not perform them. Each chapter, irrespective of its authorship, is preceded by an interesting and informative introduction by Putterman, bringing this multi-authored text into uniformity.

Of great practical value are discussions on patient selection, psychiatric issues, patient expectations, photographic documentation, etc. Although the book is not all-inclusive, this reviewer found step-by-step descriptions of surgical procedures to be its most useful aspect. This one of the few splendidly produced quality books on cosmetic blepharoplasty is also an easy read. It is highly recommended to medical libraries and those interested in oculoplastics. ■

Medical Writing. Edited by Shaukat Ali Jawaid and Maqbool H. Jafary. Doctors Publications, Room No. 522, 5th floor, Panorama Centre, Building 2, Raja Ghazanffar Ali Road, Karachi, Pakistan. 1993. Paperback, 176-pages, no index. Price: R. 200 (\$ 30).

I have for a long time held that our physicians, particularly the academicians, must make serious efforts to fill the dismal void in medical research and writing in Pakistan. It was to accomplish this goal that I several years ago began giving didactic lectures on medical writing during my teaching assignments in Pakistan. Therefore, I am much delighted to see this publication come into existence.

What is most remarkable about this book is that the Pakistani authors willingly wrote on its subject. Based on the proceedings of seminars at Lahore, Karachi, and Faisalabad held under the auspices of the Pakistan Medical Journalists Association, the book is intended, according to its preface, "to help, guide and assist all those members of the medical profession who though have got lot [*sic*] of useful data but find it difficult to present this [*sic*] in a way which could be acceptable to standard medical journals." This aim, or claim, by its very nature, invites a critical evaluation that is thorough and minces no words. Any reviewer who approaches this text with this justifiably rigid yardstick will probably be tempted to dismiss it altogether. Nonetheless, the editors deserve praise for drawing attention of Pakistan's medical profession to one of its most important but much ignored responsibilities.

The book contains concise chapters contributed by 22 authors. The contents of these contributions range from entirely philosophical musings to raw practical instructions. A willing reader, however, will be able to sift enough practical information worth the price. The editors will need to pay more meticulous attention to removing grammatical and typographical errors before the second edition is sent to the printer. ■ -KJA

Abstracts from Elsewhere

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

AMERICAN JOURNAL OF OPHTHALMOLOGY

ARGON LASER GONIOPLASTY IN THE TREATMENT OF ANGLE-CLOSURE GLAUCOMA, H.S. Weiss, BJ Shingleton, SM Goode, AR Bellows, CU Richter. The authors used argon laser gonioplasty as means to treat angle-closure glaucoma unrelieved by patent iridectomy. Laser energy (mean; 30 spots, 723 mW, and 0.2 second) was applied to the peripheral iris stroma to open the anterior chamber angle. Twenty of 32 eyes were successfully treated. After a median follow-up period of 18 months, 17 of these 20 successfully treated eyes (85%) had an intraocular pressure less than or equal to 19 mm Hg. and 19 of these 20 successfully treated eyes (95%) had an intraocular pressure less than or equal to 21 mm Hg. The 20 successfully treated eyes had a median duration of angle closure of 12 days. Twelve unsuccessfully treated eyes had more than 50% of the treated angle opened by argon laser gonioplasty and all but three successfully treated eyes had more than three clock hours opened by argon laser gonioplasty. Argon laser gonioplasty may be successful in treating angle-closure glaucoma unrelieved by iridectomy, especially in cases that are recognized and treated soon after onset. (*Am J Ophthalmol.* 114: 14-18, 1992.) Reprint requests to Bradford J. Shingleton, M.D., 50 Staniford St., Boston, MA 02114.

SUCCESSFUL THERAPY FOR TRILATERAL RETINOBLASTOMA, S Nelson, HS Friedman, WJ Oakes, EC Halperin, R Tien, GN Fuller, B Hockenberger MW Scroggs, M Moncino, J Kurtzberg, EG Buckley. The authors report that trilateral retinoblastoma, the intracranial malignancy associated with bilateral retinoblastoma, is an uncommon and clinically aggressive malignancy with uniformly fatal outcome. Three children with newly diagnosed trilateral retinoblastoma were treated with systemic (cyclophosphamide and vincristine) and intrathecal (methotrexate, hydrocortisone, and cytarabine) chemotherapy, as well as craniospinal irradiation (one patient) in addition to therapy of the eye lesions. All three patients have had partial or complete response of the pineal tumors to chemotherapy, with no active

disease eight or more years, 33 or more months, and 12 or more months, respectively, after diagnosis of the lesions. (*Am J Ophthalmol.* 114:23-29, 1992.) Reprint requests to Edward G. Buckley, M.D., Department of Ophthalmology, Duke University Medical Center, Durham, NC 27710.

A NEW, BAND-SHAPED AND WHORLED MICROCYSTIC DYSTROPHY OF THE CORNEAL EPITHELIUM, W Lisch, CP Steuhl, C Lisch, EG Weidle, CT Emmig, KL Cohen, HD Perry. These authors studied five family members and three unrelated patients (four women, four men, 23 to 71 years old) who had a dystrophy of the corneal epithelium. Direct slit-lamp examination showed bilateral or unilateral, gray, band-shaped, and feathery opacities that sometimes appeared in whorled patterns. Retroillumination showed intraepithelial, densely crowded, clear microcysts. Light and electron microscopy disclosed diffuse vacuolization of the cytoplasm of epithelial cells in the affected area. Visual acuity was so reduced in three patients that abrasion of the corneal epithelium was performed. The corneal abnormalities recurred within months, with the same reduction in visual acuity as before. The corneal opacities were progressive in two patients but diminished noticeably in another after he began using a hard contact lens. They found no other ophthalmic irregularities or associated systemic abnormalities and no indication of drug-induced keratopathy. (*Am J Ophthalmol.* 114:35-44, 1992.) Reprint requests to Walter Lisch, M.D., Augenlinik des Stadtkrankenhauses, Leimenstr. 201 6450 Hanau, Germany.

SIX CASES OF SCLERITIS ASSOCIATED WITH SYSTEMIC INFECTION, R Hemady, MS de la Maza, MB Raizmancl. The authors state that isolated scleritis (without keratitis) associated with infections is uncommon, and correct diagnosis and appropriate therapy for it are often delayed. Six patients with infection-associated scleritis were seen at their institution between May 1983 and May 1990 (these patients represented 4.6% of all patients with scleritis (six of 130 patients) in that period. Three of these cases were associated with systemic infections. One was associated with syphilis, one was associated with tuberculosis, and one was associated with toxocariasis. Three cases resulted from local infections. One was associated with infection with *Proteus mirabilis*, one was associated with

infection with herpes zoster virus, and was associated with infection with *Aspergillus*. The *Aspergillus* infection developed after trauma and the *P. Mirabilis*-induced infection developed after strabismus surgical procedures. Four of the six cases were initially misdiagnosed and inappropriately managed. Correct diagnosis was made seven days to four years after onset of symptoms. Review of systems, scleral biopsy, culture, and laboratory investigation were used to make the diagnosis. Differential diagnosis of scleritis must include infective agents. (*Am J Ophthalmol.* 114:55-62, 1992.) Reprint requests to Ramzi Hemady, M.D., Department of Ophthalmology, University of Maryland Hospital, 22 S. Greene St., Baltimore, MD 21201.

SUPERIOR RECTUS MUSCLE OVER-ACTION AFTER CATARACT EXTRACTION, MR Grimmett, SR Lambert. The authors report four patients with an ipsilateral hypertropia after cataract extraction consistent with superior rectus muscle overaction were identified between March 1990 and April 1992. Operative trauma was the most likely conditions were excluded.

The proposed pathogenesis for all cases is similar to that of botulinum type-A toxin therapy: a transient postoperative weakness of the ipsilateral inferior rectus muscle leads to a contracture of strengthening of the ipsilateral antagonist (the superior rectus muscle). Possible mechanisms of injury that would result in a transient inferior rectus muscle palsy would include anesthetic myotoxicity or direct trauma to the muscle and related structures from the retrobulbar injection (or subconjunctival injections).

Surgical intervention consisting of an ipsilateral superior rectus muscle recession and posterior fixation sutures (when the vertical incomitance was large) yielded excellent results in restoring single binocular vision. Possible preventive measures would include using a minimal volume of anesthetic along with careful needle placement. (*Am J Ophthalmol.* 114:72-80, 1992.) Reprint requests to Scott R. Lambert, M.D., Emory Eye Center, Room 5826, 1327 Clifton Rd. N.E., Atlanta, GA 30322.

OCULAR TOXOPLASMOISIS IN HUMAN IMMUNODEFICIENCY VIRUS-INFECTED PATIENTS, IC Massin, P LeHoang, ML Frau, E Zerdoun, L Zazoun, M Roinet, P Marcel, B Girard, C Katlama, C Leport, W Rozenbaum, JP Coulaud, M Gentilini. These doctors' files of 45 human immunodeficiency virus-infected patients with ocular toxoplasmosis were reviewed, with a median follow-up of eight months. The condition was unilateral in 37 of the 45 patients (82%) and was bilateral in eight (18%). Inflammation of the anterior chamber and the vitreous was present in 32 of 53 eyes (60%) and 38 of 53 eyes (72%), respectively. Cytomegalovirus retinitis developed during the follow-up period in nine patients (20%).

Cerebral toxoplasmosis was concurrently diagnosed with the ocular toxoplasmosis in 13 patients (29%). The efficacy of the combination of pyrimethamine and sulfadiazine or clindamycin was assessed in 42 patients for the induction therapy and in 38 patients for the maintenance therapy. Induction therapy was always effective within a median period of six weeks. During maintenance treatment, the 34-month relapse rates were 0.20 and 0.18 for the 50-mg/day and 25-mg/day dosage of pyrimethamine, respectively. The overall 12-month survival rate was 0.72. Our results suggested that ocular toxoplasmosis has a better ocular prognosis than cytomegalovirus retinitis, but that it requires appropriate treatment because life-threatening cerebral involvement is often associated. (*Am J Ophthalmol.* 114: 130-135.) Reprint requests to Phuc LeHoang, Ph.D., Service D'Ophthalmologie, Hopital Pitie-Salpetriere, 83 Poullevard De l'Hopital, 75 013, Paris France.

SUDDEN RETINAL MANIFESTATIONS OF INTRANASAL COCAINE AND METH-AMPHETAMINE ABUSE, RT Wallace, GC Brown, W Benson, A Sivalingham. The authors examined two patients who had sudden decrease in vision after intranasal cocaine of methamphetamine abuse. A 38-year-old woman with a history of systemic arterial hypertension developed a central retinal artery occlusion for hours after intranasal use of cocaine. A 26-year-old woman had blurred vision and intraretinal hemorrhages shortly after using methamphetamine nasally. The adrenomimetic response and sudden increase in blood pressure associated with the intranasal use of these drugs may have contributed to the retinal vascular manifestation observed in these patients. (*Am J Ophthalmol.* 114: 158-160, 1992.) Reprint requests to Gary C. Brown, M.D., 910 E. Willow Grove Ave., Philadelphia, PA 19118.

PROGRESSION AND REGRESSION OF PARTIAL CORNEAL INVOLVEMENT IN THE IRIDOCORNEAL ENDOTHELIAL SYNDROME, WM Bourne, RF Brubaker. The authors observed three women with partial corneal involvement in the iridocorneal endothelial syndrome for more than ten years. During this time, the peripheral anterior synechiae progressed in all three, with one patient developing glaucoma. In two patients, the abnormal endothelial cells spread to cover the entire posterior corneal surface; in the third, they disappeared almost entirely. The endothelial permeability to fluorescein remained abnormally low only in the two eyes with diffusely abnormal endothelium, and increased to normal in the third eye as the abnormal endothelium disappeared. The permeability in the third eye had been abnormally low only in the superior half of the cornea, where the abnormal endothelium was located. As the abnormal endothelium regressed, it was replaced by normal endothelium with a normal cell

density similar to that of the unaffected fellow eye. Thus, for more than ten years, the partial endothelial involvement associated with the iridocorneal endothelial syndrome progressed substantially in two patients and regressed dramatically in a third. (*Am J Ophthalmol. 114: 171-181, 1992.*) Reprint requests to William M. Bourne, M.D., Mayo Clinic, 200 First St. S.W., Rochester, MN 55905.

MEIBOMIAN GLAND FUNCTION AND GIANT PAPILLARY CONJUNCTIVITIS, WD Mathers, M Billorough. The authors examined 42 contact lens-wearing patients for clinical evidence of giant papillary conjunctivitis and for meibomian gland dysfunction with gland dropout. Fifteen patients were free of clinical signs and symptoms of giant papillary conjunctivitis, whereas 27 had clinical symptoms and evidence of giant papillary conjunctivitis. Patients with giant papillary conjunctivitis had significantly more gland dropout with an average of 0.6 ± 1.2 gland absent in both lower eyelids compared with 0.2 ± 0.4 gland absent in patients without giant papillary conjunctivitis. Additionally, the viscosity of meibomian gland excreta was greater in the giant papillary conjunctivitis group. There was no difference in tear osmolarity or in the Schirmer test results between the two groups. These results indicated patients with giant papillary conjunctivitis were more likely to have meibomian gland dysfunction with gland dropout than patients without giant papillary conjunctivitis. (*Am J Ophthalmol. 114: 188-192, 1992*) Reprints requests to William D. Mathers, M.D., Cornea and External Disease Services, Department of Ophthalmology, University of Iowa, Iowa City, Iowa, 52242.

SPONTANEOUS VISUAL IMPROVEMENT IN CHIASMAL GLIOMAS, GT Liu, S Lessell. The authors reported that three untreated patients with presumed chiasmal gliomas had spontaneous visual improvement, although serial magnetic resonance imaging in two of the patients showed the lesions to be unchanged. Two patients had evidence of neurofibromatosis. Three other patients with similar disease courses have been documented in the medical literature. These cases demonstrate that conservative management of optic chiasmal gliomas may sometimes be associated with favorable outcomes. (*Am J Ophthalmol. 114: 192-201, 1992.*) Reprint requests to Simmons Lessell, M.D., 243 Charles St., Boston, MA 02114.

THE SOLUBILITY OF ANTIBIOTIC AND CORTICOSTEROID COMBINATIONS, BL Lee, AY Matoba, MS Osato, NM Robinson. The authors reported the use of collagen shields soaked in various combinations of medications has been advocated to enhance drug delivery to the cornea. Recently, severe corneal toxicity associated with aggregate formation in mixtures of gentamicin and methylprednisolone prompted our study of the effect of

drugs concentration, pH, and temperature on the solubility of several antibiotic and corticosteroid formulations commonly used to treat ocular disease. Selected combinations of cefazolin, vancomycin, tobramycin, gentamicin, methylprednisolone, and dexamethasone were evaluated. Mixtures of tobramycin and vancomycin produced no precipitates, but many spheroid aggregates were seen when methylprednisolone and gentamicin were combined. Although the effects of precipitate formation on drug bioavailability and toxicity have not been fully determined, until such information is available, the use of combination of drugs that remain in solution during administration is recommended. (*Am J Ophthalmol. 114:212-215, 1992.*) Reprint requests to Alice Y. Matoba, M.D., Cullen Eye Institute, Baylor College of Medicine 6501 Fannin St. NC-200, Houston, TX 77030.

PATTERN DISCRIMINATION PERIMETRY IN PATIENTS WITH GLAUCOMA AND OCULAR HYPERTENSION, MJ Nutaitis, WC Stewart, DM Kelly, HH Hunt, ML Severns. The authors compared the results of the pattern discrimination perimeter to the program 30-2 on the Humphrey Field Analyzer (Humphrey, Inc., San Leandro, California) in 93 consecutive patients with ocular hypertension and glaucoma and 30 control patients. In 20 patients with ocular hypertension, a significantly greater number of glaucomatous defects were noted on pattern discrimination perimetry (ten patients) than on the program 30-2 (two patients) ($P < .05$, Wilcoxon signed rank test). The diversity in diagnoses found on pattern discrimination testing was not explained by age, intraocular pressure, refraction, number of glaucoma medicine, race, presence of vascular disease, optic disk status, or pupil size. In contrast, in 73 patients with glaucoma no statistical difference in the severity of diagnoses was noted between perimeter ($P > .05$, Wilcoxon signed rank test). These results suggest the potential value of pattern discrimination perimetry as a visual function test in patients with glaucoma and in defining subsets of patients with ocular hypertension not found with conventional automated perimetry. (*Am J Ophthalmol. 114: 297-301, 1992.*) Reprint requests to William C. Stewart, M.D., Medical University of South Carolina, Storm Eye Institute, 171 Ashley Ave., Charleston, SC 29245-2236.

VAGAL RESPONSES TO ADJUSTABLE SUTURES IN STRABISMUS CORRECTION, H Eustis, C Eiswirth, D Smith. The oculocardiac reflex is a recognized complication of ocular stimulation, precipitated most commonly by traction on the extraocular muscles. To determine the true incidence of occurrence of the oculocardiac reflex during suture adjustments, 20 patients undergoing suture adjustment were monitored for blood pressure, heart rate, and rhythm abnormalities during the suture adjustment. A control group of ten patients with

strabismus were studied postoperatively for comparison. Thirteen study patients and two control patients were noted to have a vagal response ($P < .001$). The most common response noted was a decrease in heart rate in 15 patients. Only two patients were symptomatic during vagal response (one patient became light-headed and another had an episode of nausea and vomiting). Suture adjustment was found to be the most common triggering event in precipitating vagal responses. Surgeons performing suture adjustment in strabismus correction should be cognizant of vagal responses so that they may properly inform patients of this possibility and take steps to minimize its occurrence. (*Am J Ophthalmol.* 114: 307-310, 1992.) Reprint requests to H. Sprague Eustis, M.D., Ochsner Clinic, 1514 Jefferson Hwy., New Orleans, LA 70121.

RECESSION OF BOTH HORIZONTAL RECTI MUSCLES IN DUANE'S RETRACTION SYNDROME WITH ELEVATION AND DEPRESSION OF THE ADDUCTED EYE, GK von Noorden. The author discusses upshoot and downshoot of the adducted eye in Duane's retraction syndrome which is thought to be caused by a bridle effect of the co-contracting horizontal recti muscles. A recession of both of these muscles transposes their insertions posteriorly in relation to the center of rotation of the globe, which reduces the bridle effect and decreases the upshoot and downshoot. An 11-year-old girl had Duane's retraction syndrome type III and upshoot and downshot of the left eye. The left lateral rectus muscle was recessed 8 mm and the left medial rectus muscle 6 mm. At last examination 10 1/2 months postoperatively, the upshoot and downshoot on attempted adduction was no longer present. (*Am J Ophthalmol.* 114: 311-313, 1992.) Reprint requests to Gunter K. Von Noorden M.D., Department of Ophthalmology, Texas Children's Hospital, Houston, TX 77030.

CIPROFLOXACIN-RESISTANT BACTERIAL KERATITIS, ME Snyder, HR Katz. The authors report that ciprofloxacin, a new broad-spectrum antibiotic effective against a variety of gram-positive and gram-negative bacteria, has recently become available in topical ophthalmic solution (3 mg/ml) for the treatment of bacterial keratitis. It has rapidly become the drug of choice in treating bacterial keratitis. They treated three patients with bacterial corneal ulcers that were resistant to ciprofloxacin, yet were effectively treated with other topical antimicrobial agents. The initial culture results are important in the therapy of corneal ulcers. (*Am J Ophthalmol.* 114:336-338, 1992.) Reprint requests to Harold R. Katz, M.D., Kreiger Eye Institute, Department of Ophthalmology, Sinai Hospital of Baltimore Belvedere at Greenspring, Baltimore, MD 21215-5271.

INTRAOCULAR LENS POWER CALCULATIONS FOR MULTIFOCAL INTRAOCULAR LENSES, JT Holladay, KJ Hoffer. The authors performed calculations for anterior and posterior chamber intraocular lenses, determining the necessary power for emmetropia and 3 diopters of myopia for various axial lengths and corneal powers. Our results demonstrate that to achieve an effective add of 3.00 diopters at the spectacle plane (reading distance of 33 cm), the fabricated add (labeled add) on an intraocular lens must vary from 3.3 diopters for an anterior chamber lens in a patient with a flat cornea, to 5.1 diopters for a posterior chamber lens in a patient with a steep cornea. For most patients, targeting for an effective add of 3 diopters is appropriate, but factors such as availability of fabricated adds from the manufacturer and unusual patient requirements for near vision, may alter this target. They reviewed alternatives with monofocal lenses, such as monovision and compound myopic astigmatism. (*Am J Ophthalmol.* 114: 405-408, 1992.) Reprint requests to Jack T. Holladay, M.D., Hermann Eye Center, Hermann Hospital 6411 Fannin St., Houston, TX 77030.

RESULTS OF LATE SURGERY FOR PRESUMED CONGENITAL CATARACTS, KW Wright, LE Christensen, BA Noguchi. The authors reviewed the results of cataract extraction and visual rehabilitation in 76 eyes of 47 infants and children with presumed congenital cataracts who were first seen after they were 10 months old. Eighteen patients underwent surgery for unilateral cataracts, including five patients with persistent hyperplastic vitreous, five with posterior lenticonus, one with a nuclear cataract, six with posterior subcapsular cataracts, and one with a lamellar cataract. Of these 18 patients, seven (39%) attained a visual acuity of 20/60 or better, one (6%) had a visual acuity of 20/100, and ten (60%) had a visual acuity of 20/200 or worse. Twenty-nine patients (62 eyes) underwent bilateral cataract extraction. The visual acuity could be measured in 22 patients (44 eyes). Visual acuity improved to 20/60 or better in 32 eyes (73%), was between 20/70 and 20/150 in 11 eyes (25%), and became worse than 20/200 in one eye (2%). Results were good in patients with persistent hyperplastic primary vitreous, posterior lenticonus, and bilateral cataracts. (*Am J Ophthalmol.* 114 409-415, 1992.) Reprint requests to Kenneth W. Wright M.D., Division of Ophthalmology, Childrens Hospital of Los Angeles, 4650 Sunset Blvd., Los Angeles, CA 90027.

TOPICAL FIBRONECTIN IN THE TREATMENT OF KERATOCONJUNCTIVITIS SICCA, JD Nelson, JF Gordon, DVM and the Chiron Keratoconjunctivitis Sicca Study Group. This group evaluated topical fibronectin for the treatment of keratoconjunctivitis sicca in a multicenter, double-masked, controlled study

in which 272 patients were randomly assigned to treatment. Patients with documented clinical evidence of keratoconjunctivitis sicca received either fibronectin, a vehicle alone, or a commercially available artificial tear. Evaluation at baseline, 21, 42, and 63 days consisted of patient self-evaluation of symptoms, rose bengal and fluorescein staining, tear breakup time, Schirmer's testing, and conjunctival impression cytology. Although all groups showed improvements in most study variables during the course of the study, there were no statistically significant differences found between any of the groups. Topical fibronectin does not appear to be more effective than artificial tears in the treatment of keratoconjunctivitis sicca. (*Am J Ophthalmol.* 114:441-447, 1992. Reprint requests to J. Daniel Nelson, M.D., Department of Ophthalmology, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101.

PROGRESSION OF NONPROLIFERATIVE DIABETIC RETINOPATHY AND VISUAL OUTCOME AFTER EXTRACAPSULAR CATARACT EXTRACTION AND INTRAOCULAR LENS IMPLANTATION, GJ Jaffe, TC Burton, E Kuhn, A Prescott, A Hartz. Twenty-one patients with symmetric nonproliferative retinopathy who underwent extracapsular cataract extraction and intraocular lens implantation were followed up postoperatively for an average (\pm standard deviation) of 18 ± 7 months to determine the incidence of progression of diabetic retinopathy, the final visual acuity, and factors predictive of progression of retinopathy and final visual acuity. Progression of retinopathy, defined as the development of clinically significant macular edema, an increase in intraretinal hemorrhages or hard exudate, or the development of proliferative diabetic retinopathy, was assessed in both eyes of 19 patients; in two remaining patients, dense preoperative cataract in the fellow eye precluded comparison of retinopathy progression in the operated-on eye to progression in the fellow eye. Overall, retinopathy progressed in 14 of 19 operated-on eyes (74%). Cataract extraction was highly associated with asymmetric progression of nonproliferative retinopathy; it progressed only in the operated-on eye in seven of 19 patients (37%), but in no patients did progression occur in the fellow eye alone ($P = .0078$). Women had a significantly increased risk of progression of retinopathy in the operated-on eye compared to men ($P = .005$). Visual acuity improved in 19 of 21 operated-on eyes (86%); however, only 11 eyes (52%) achieved a visual acuity of 20/50 or better and only six eyes (14%) achieved a visual acuity of 20/25 or better. In only five eyes was the final visual acuity in the operated-on eye more than two lines better than the final visual acuity in the fellow eye. The visual acuity measured preoperatively by the Potential Acuity Meter was highly correlated with the final visual acuity ($P = .0046$). Patients treated

with oral hypoglycemic agents had a worse visual prognosis than those treated with insulin ($P = .035$). Overweight women also had a significantly worse visual outcome than those patients with normal body weight ($P = .021$). The results of this study have important implications for the preoperative and postoperative management of diabetic patients undergoing extracapsular cataract extraction and intraocular lens implantation. (*Am J Ophthalmol.* 114:448-456, 1992.) Reprint requests to Glenn J. Jaffe, M.D., Box 3802, Duke University Eye Center, Durham, NC 27710.

EFFICACY OF FLUID-AIR EXCHANGE FOR POSTVITRECTOMY DIABETIC VITREOUS HEMORRHAGE, DF Martin, BW McCuen II. The authors reviewed the records of 33 fluid-air exchanges to assess the efficacy of fluid-air exchange in the management of recurrent vitreous cavity hemorrhage after vitrectomy for proliferative diabetic retinopathy. Fluid-air exchange along was successful in clearing the vitreous cavity in ten of 20 eyes after a mean of 1.5 exchanges per eye. Repeat vitrectomy was required in the remaining ten eyes and anterior hyaloidal fibrovascular proliferation was frequently found. Hemorrhages that occurred in the late postoperative period (more than nine months) appeared more likely to be successfully treated with fluid-air exchange alone. Failure of the initial fluid-air exchange to induce clearing immediately after the procedure appeared to be associated with subsequent exchange failures and need for surgical intervention. Complications from the exchange procedure were infrequent with the development of peripheral retinal detachment in one eye. Our current recommendation for nonclearing recurrent postvitrectomy diabetic vitreous hemorrhage is to perform a fluid-air exchange, provided no other high-risk characteristics were present. If clearing occurs in the immediate postexchange period but rebleeding occurs at a later period, we recommend a second fluid-air exchange. If clearing does not occur in the immediate postexchange period, they recommend proceeding directly to revision of vitrectomy. (*Am J Ophthalmol.* 114: 457-463, 1992.) Reprint requests to Brooks W. McCuen II, M.D., Duke University Eye Center, Box 3802, Durham, NC 27710.

IMMUNOHISTOCHEMICAL AND HISTOCHEMICAL PROPERTIES OF SURGICALLY EXCISED SUBRETINAL NEOVASCULAR MEMBRANES IN AGE-RELATED MACULAR DEGENERATION, HE Grossniklaus, JA Martinex, VB Brown HM Lambert, P Sternerg, Jr., A Capone, Jr., TM AAborg, PF Lopez. The authors studied the immunohistochemical and histochemical properties of 16 surgically excised subretinal neovascular membranes from 16 patients with age-related macular degeneration. Primary antisera to c-retinaldehyde-binding protein; leukocyte common antigen; factor

VIII-related antigen; S-100 protein, glial fibrillary acid protein; muscle-specific actin; neuro-specific enolase; collagen types I, II, III, IV, and V; laminin; and fibronectin were used for immunohistochemical characterization of the membranes. Histochemical staining for lipid and mucopolysaccharide was performed. The results of the staining in conjunction with histologic examination showed the cellular components of the membranes to be composed of retinal pigment epithelium, inflammatory cells, vascular endothelium, glial cells, myofibroblast, photo-receptor cells, and fibrocytes. The extracellular matrix of the membranes contained collagen types I, III, IV, and V; fibronectin; laminin, mucopolysaccharide; and lipid. These findings are consistent with the concept that subretinal neovascular membranes in age-related macular degeneration are composed of localized intra-Bruch's membrane granulation tissue proliferation associated with diffuse drusen. (*Am J Ophthalmol. 114: 464-472, 1992.*) Reprint requests to Hans E. Grossniklaus, M.D., L.F. Montgomery Ophthalmic Pathology Laboratory, Rm. 1603, Emory Eye Center, 1327 Clifton Rd. N.E., Atlanta, GA, 30302.

ASYMMETRIC PIGMENTARY GLAUCOMA RESULTING FROM CATARACT FORMATION, R Ritch, T Chaiwat, TS Harbin, Jr. These authors report that pigment dispersion syndrome usually manifests bilaterally, and asymmetric involvement is unusual. When asymmetric involvement is present, the eye with greater involvement may have an additional exacerbating condition or the eye with less involvement may be protected. Analysis of such cases should further elucidate the mechanism of the disorder and its development and regression. We examined four patients in whom unilateral cataract formation or extraction was associated with reduced clinical signs of pigment dispersion syndrome in the affected eye. Cataract formation, by inducing relative pupillary block, appears to decrease or prevent the manifestation of pigment liberation. (*Am J Ophthalmol. 114:484-488, 1992.*) Reprint requests to Robert Ritch, M.D., Glaucoma Service, New York Eye and Ear Infirmary, 310 E. 14th St., New York, NY 10003.

HYPOTONOUS MACULOPATHY AFTER TRABECULECTOMY WITH SUBCONJUNCTIVAL 5-FLUOROURACIL, RL Stamper, MG McMenemy, MF Leiberman. The authors report long-term success in trabeculectomy has been enhanced in recent years by postoperative subconjunctival 5-fluorouracil injections and intraoperative mitomycin C applications. During 1990 and 1991, after trabeculectomy with a small scleral flap (2 X 3 mm augmented by antimetabolite therapy) hypotonous maculopathy developed in eight eyes of six patients. The maculopathy was characterized by loss in visual acuity, retinal striae, and choroidal folds

without evidence of vascular leakage. The average loss in visual acuity was four Snellen lines. Visual acuity did not return to preoperative levels even when the hypotony could be revised. Revising the hypotony with various strategies aimed at stimulating subconjunctival scarring has been relatively ineffective.

During that same period, an additional seven eyes in six patients had prolonged hypotony but without development of maculopathy. Features common to patients who developed maculopathy included age (mean age, 46 years; range, 32 to 60 years) and myopia (mean, -7.5 diopters; range, -.075 to -11.75 diopters.) The patients with hypotony but no maculopathy were older (mean age, 73 years; range, 63 to 82 years) and were closer to emmetropia (mean, -1.11 diopters; range, +1.50 to -9.00 diopters). The means of the ages and refractive errors were statistically significantly different in the two groups (P + .007 and .04, respectively). Trabeculectomy with adjunctive antifibrosis therapy should be used with caution in young myopic patients. (*Am J Ophthalmol. 114: 544-553, 1992.*) Reprint requests to Robert L Stamper, M.D., Department of Ophthalmology, California Pacific Medical Center, 2340 Clay St., San Francisco, CA 94115.

DEVELOPMENT OF OBJECT VISION IN INFANTS WITH PERMANENT CORTICAL VISUAL IMPAIRMENT, TC Chen, MH Weinberg, RA Catalano, JW Simon, WA Wagle. The authors examined 30 infants in whom cortical visual impairment was diagnosed during their first year of life to ascertain prognostic factors for the development of object vision, defined as the ability to recognize faces or hand-held toys. All patients were followed up for a minimum of 12 months. The most common causes of cortical visual impairment in the 30 infants were hydrocephalus in nine infants (30.0%), birth asphyxia or neonatal hypoxia in eight infants (26.7%), intracranial hemorrhage with or without hydrocephalus in seven infants (23.3%), and meningitis in five infants (16.7%). Lack of development of object vision was associated only with hypoxia (P = .013). Findings on ophthalmic examination, an abnormality in the visual pathway on computed tomographic or magnetic resonance scan, and seizures, hydrocephalus, intracranial hemorrhage, meningitis, cerebral palsy, developmental delay, prematurity, microcephaly, and hearing deficit, did not appear to be risk factors for the lack of development of object vision. (*Am J Ophthalmol. 114: 575-578, 1992.*) Reprint requests to Robert A. Catalano, M.D., Olean General Hospital, 515 Main St., Olean, NY 14760.

DIODE LASER PHOTOCOAGULATION FOR PRETHRESHOLD, POSTERIOR RETINOPATHY OF PREMATURITY, TN Fleming, PE Runge, ST Charles. These authors treated nine infants with posterior retinopathy

of prematurity by using the diode laser through an indirect ophthalmoscopic delivery system. Treatment was commenced as soon as plus disease (defined as tortuosity and dilation of posterior vessels) developed. They defined posterior retinopathy of prematurity as retinopathy of prematurity located in zone 1 (the limits of zone 1 are defined as twice the disk-fovea distance in all directions from the optic disk, that is, an arc of 60 degrees centered on the optic disk) or the posterior one half of zone 2 (zone 2 extends from the edge of zone 1 peripherally to a point tangential to the nasal ora serrata and around to an area near the temporal anatomic equator.) Disease regressed in all eyes. These results are encouraging and represent an improvement over the results obtained by allowing these eyes to reach threshold (threshold disease is defined as 5 or more contiguous or 8 total clock hours of neovascularization in zone 1 or 2 in the presence of plus disease) before intervention. (*Am J Ophthalmol.* 114: 589-592, 1992). Reprint requests to Steven T. Charles, M.D., Center for Retina Vitreous Surgery, 6401 Poplar Ave., Suite 190, Memphis, TN 38119.

POSTERIOR SEGMENT CHANGES IN MEMBRANOPROLIFERATIVE GLOMERULONEPHRITIS, DD Kim, WF Mieler, MD Wolf. The authors discuss membranoproliferative glomerulonephritis, a renal disorder characterized by proliferation of cells and changes in the basement membrane of the glomerulus. The disease is divided into three subtypes: type I, characterized by the presence of subendothelial electron-dense deposits; type II characterized by deposition of electron-dense material of unknown origin in the lamina densa of the glomerular basement membrane; and type III, characterized by lesions having both type I and type II qualities. Specific posterior segment changes have been reported with membranoproliferative glomerulonephritis type II. They examined three patients with membranoproliferative glomerulonephritis type II and two patients with type III disease. All three patients with type II disease had Bruch's membrane and retinal pigment epithelial changes, where as both patients with type III disease had normal posterior segments. (*Am J Ophthalmol.* 114: 593-599, 1992.) Reprint requests to William F. Mieler, M.D. 8700 W. Wisconsin Ave., Milwaukee, WI 53226.

RETAINED LENS FRAGMENTS AFTER PHACOEMULSIFICATION MANIFESTING AS MARKED INTRAOCULAR INFLAMMATION WITH HYPOPYON, WD Irvine, HW Flynn, TG Murray, FE Rubsamen. The authors reviewed the medical records of four patients with marked intraocular inflammation and hypopyon as the initial manifestation of retained lens fragments after phacoemulsification. The severe inflammatory reaction occurred between one month and one year after the cataract extraction. All four patients underwent pars

plana vitrectomy to removed the lens fragments. The vitreous specimens were cultured to rule out infectious endophthalmitis. In all patients, no organisms were isolated from the vitrectomy specimens placed on both aerobic and anaerobic media. All patients had improved vision and resolution of the marked intraocular inflammation after vitrectomy. Echography was useful in establishing the diagnosis in these uncommon cases. (*Am J. Ophthalmol.* 114: 610-614, 1992). Reprint requests to Harry W. Flynn, Jr., M.D., Bascom Palmer Eye Institute, P. O. Box 016880, Miami, FL 33101.

OPTIC NEUROPATHY IN HODGKIN'S DISEASE, RM Siatkowski, BL Lam, NJ Schatz, JS Glaser, SF Byrne, JR Hughes. These authors report that Hodgkin's disease is a rare cause of infiltrative optic neuropathy, which typically evolves late in the disease course. They managed an unusual case of isolated optic neuropathy in a 21-year-old man occurring during clinical remission from Hodgkin's disease. Radiotherapy and treatment with high-dose systemic corticosteroids resulted in dramatic improvement in vision. Even without other evidence of recurrent disease, acute-onset optic neuropathy in a patient with a history of a lymphoproliferative disorder should raise the question of a reemergence of the malignancy. (*Am J. Ophthalmol.* 114: 625-629, 1992.) Reprint requests to Joel S. Glaser, M.D., 900 N.W. 17th St., Miami, FL 33136.

SURGICAL MANAGEMENT OF MYOKYMIA OF THE SUPERIOR OBLIQUE MUSCLE, LC de Sa, WV Good, CS Hoyt. In the past 15 years, the authors have examined 20 patients in whom myokymia of the superior oblique muscle was diagnosed. Medical treatment (carbamazepine) failed in three patients, and one patient did not accept drug therapy. These four patients (20%) were operated on for persistent oscillopsia and diplopia. One patient underwent only a superior oblique muscle myotomy, but required an inferior oblique muscle myectomy six months later because of iatrogenic superior oblique muscle palsy. The other three patients underwent simultaneous superior oblique muscle myotomy and inferior oblique muscle myectomy. The symptoms resolved postoperatively in all four patients. Symptomatic patients with superior oblique muscle myokymia in whom medical treatment fails or is intolerable can benefit from surgical treatment consisting of combined superior oblique muscle/inferior oblique muscle myectomy. (*Am J. Ophthalmol.* 114: 693-696, 1992. Reprint requests to William V. Good, M.D., 400 Parnassus No. 704A, San Francisco, CA 94143.

CAUSES OF REDUCED VISUAL ACUITY ON LONG-TERM FOLLOW-UP AFTER CATARACT EXTRACTION IN PATIENTS WITH UVEITIS AND JUVENILE RHEUMATOID ARTHRITIS, GM

Fox, HW Flynn, Jr., JL Davis, W Culbertson. The authors reviewed the long-termed follow-up on a consecutive series of 16 eyes from ten patients with juvenile rheumatoid arthritis-associated cataracts that were removed by using pars plana lensectomy and vitrectomy. All patients had prominent cataracts, chronic uveitis, posterior synchia, and vitritis preoperatively, and had at least 12 months of follow-up postoperatively. The median length of follow-up was 51 months (range, 12 months to ten years). In the early postoperative period, a visual acuity of 20/70 or better was obtained in 13 of 16 eyes (81%). With longer follow-up, the final visual acuity was 20/70 or better in only nine of 16 eyes (56%). The primary categories of delayed visual loss in these cases were glaucoma and macular disease (chronic cystoid macular edema, macular hole, hypotony maculopathy, and recurrent macular pucker). Despite these limitations in maintaining good visual acuity, a pars plana lensectomy and vitrectomy approach is effective for cataracts in these patients with uveitis. (*Am J Ophthalmol.* 114: 708-714, 1992). Reprint requests to Harry W. Flynn, Jr., M.D., Bascom Palmer Eye Institute, P O. Box 016880, Miami, FL 33101.

PREDICTION OF VISUAL RECOVERY AFTER SCLERAL BUCKLING OF MACULA-OFF RETINAL DETACHMENTS, TR Friberg, AW Eller. These authors report that patients with rhegmatogenous retinal detachments involving the fovea have visual loss that may not be recoverable despite anatomically successful surgery. Few Guidelines exist to predict ultimate visual outcome with any certainty. They found that despite macular detachment, a device commonly used to predict visual acuity in cataractous eyes, the Potential Acuity Meter (Mentor O & O, Inc., Norwell, Massachusetts), provided acuity measurements even when Snellen visual acuity levels were poor or unmeasurable. In a study of 50 consecutive patients with clear media, they investigated a possible correlation between postoperative Snellen visual acuity with the preoperative Potential Acuity Meter results. They found that actual visual improvement correlated well with potential visual improvements as determined by Potential Acuity Meter measurements ($R = .92$). Preoperative assessment of patients with this device was a better predictor of final visual outcome than preoperative Snellen visual acuity, the extent of retinal detachment, or the duration of the retinal detachment by history. (*Am J. Ophthalmol.* 114: 715-722, 1992). Reprint requests to Thomas R. Friberg, M.D., Eye and Ear Institute, 203 Lothrop St., Pittsburgh, PA 15213.

PREVALENCE AND RISK FACTORS OF DIABETIC RETINOPATHY AMONG NON INSULIN-DEPENDENT DIABETIC SUBJECTS, MS Chen, CS Kao, CJ Chang, TJ Wu, CC Fu, CJ Chen, TY Tai. The authors report that in a population-based study in Taiwan,

11,478 subjects aged 40 years or older were screened for diabetes in one urban and five rural areas. Among the 715 subjects proven to have diabetes, 527 subjects underwent ophthalmoscopy. Diabetic retinopathy was present in 184 of the 527 subjects (35.0%), including background diabetic retinopathy in 157 subjects (30.0%), preproliferative diabetic retinopathy in 15 subjects (2.8%), and proliferative diabetic retinopathy in 12 subjects (2.2%). Diabetic retinopathy was correlated with the duration of diabetes and age at onset of diabetes, type of diabetes treatment, higher serum creatinine levels, and lower serum cholesterol levels. Several other factors, including gender, age, residential area, family, income, educational level, control and family history of diabetes, body mass index, physical activity, exercise, cigarette smoking, stroke, ischemic heart disease, leg vessel disease, hypertension, and proteinuria, had no significant association with retinopathy. By multiple logistic regression analysis, duration of diabetes was the most important risk factor related to retinopathy. Diabetic subjects treated with insulin had a higher risk of developing retinopathy than those treated with dietary control (relative risk, 1.57; $.05 < P < .10$). The univariate analysis disclosed that proliferative diabetic retinopathy was related to older age at examination, older age at onset of diabetes, type of diabetes treatment and presence of leg vessel disease. Insulin-treated diabetic subjects also had a higher risk of proliferative diabetic retinopathy than patients in whom diabetes was controlled by diet, with a relative risk of 2.51 ($.05 < P < .10$) in the multiple logistic regression analysis. (*Am J Ophthalmol.* 114: 723-730, 1992). Reprint requests to Tong-Yuan Tai, M.D. No. 7, Chung-Shan South Road, Department of Internal Medicine, College of Medicine, National Taiwan University, Taiwan, Republic of China.

INTRAVITREAL FOSCARNET FOR CYTOMEGALOVIRUS RETINITIS IN A PATIENT WITH ACQUIRED IMMUNODEFICIENCY SYNDROME, MD Llopis, E Chipont, S Sanchez, E Espana, A Navea JL Menezo. One patient with AIDS received intravitreal injections of 1,200 µg of foscarnet. Systemic absorption of the drug was not evident. Vitreous levels remained above the mean 50% inhibition value for cytomegalovirus for approximately 56 hours and above the mean inhibition value for human immunodeficiency virus for approximately 241 hours. The patient's visual acuity improved from 20/30 to 20/25 in the left eye. The retinal lesion had become inactive, and no reactivation occurred in four months. The drug was well tolerated and no retinal toxicity was evident. We suggest an induction treatment regimen of two injections weekly for three weeks, followed by a maintenance treatment regimen of one injection weekly. (*Am J Ophthalmol.* 114: 742-747, 1992.) Reprint requests to Manuel Diaz-Llopis, M.D., Pza. San Agustin 3-D54, 46002 Valencia, Spain. ■■■

PRIMARY SUBJECT INDEX

(Volume 9, January - October, 1993)

Abstracts from Elsewhere 9:22, 9:49, 9:77, 9:102

Anterior segment trauma, in Pakistan 9:35

Blindness, survey of in Punjab 9:43

Book Reviews

Atlas of Fluorescein Angiography (Jalkh, Cicerio, Arzabe) 9:7

Atlas of Optic Nerve Disorders (Spor) 9:21

Cecil Textbook of Medicine (Wyngaarden, Smith, Bennett) 9:76

Cosmetic Oculoplastic Surgery (Putterman) 9:101

Embryology of the Eye and Its Adnexae (Barishak) (Volume 24 of Developments in Ophthalmology Straub) 9:21

Medical Writing (Jawaid and Jaffary) 9:101

Ocular Emergencies (Catalano, Belin) 9:48

Camera Clinicals

Cataract backlog free zone in India 9:15

Congenital upper eyelid eversion and cleft palate 9:47

Flaxseeds for the ocular foreign bodies 9:14

Phthiriasis palpebrarum in Pakistan 9:20

Pseudo-ciliary margin after neglected long-standing orbital implant extrusion 9:72

Retropseudophakic endocapsular hemorrhage after extracapsular cataract extraction with intraocular lens implantation 9:71

Total recovery from central retinal artery occlusion 9:86,100

Toy suction cup subconjunctival hemorrhage in the mentally retarded 9:46

Citations Society's Gold Medal 1992 9:69

Commentary

Reflections: Death of a father

Diabetic retinopathy, Mg in 9:3

Editorials

Medical Meetings in Pakistan 9:1

Rhabdomyosarcoma (orbital), modern therapy and prognosis 9:85

Smoking: The Evil, the Eyesight, and Eye-openers 9:29

Ethics of medical practice 9:87

Extracapsular extraction without microscope 9:67

Eyelid

Reconstruction of 9:63

Malignant melanoma of 9:41

Information

Instructions for the author 9:C3 or C4

SAARC Ophthalmological Congress 9:62

Scholarship Schedules 9:C3 or C4

Manuscript fundamentals, publication preparation 9:7

Obituary, Professor Mahmud Ali Shah, F.P.A.M.S. 9:33

Ophthalmic "Pastpourri"

Eye Makeup and the Meccans 9:

How to Eye for an Eye 9:99

Keller's First Letter 9:59

King's Evil, Eye, and the Royal Touch 9:74

Nudging the Nucleus 9:70

Of Bullheadedness and Epidermolysis Bullosa 9:42

Rhabdomyosarcoma Revolution 9:85

Rhabdomyosarcoma (orbital) in Pakistani infant girl 9:97

Retinal artery, central, occlusion, complete recovery from 9:86,100

Trabeculectomy, A new technique 9:57



AUTHOR INDEX

Adhi, MI: Reconstruction of the eyelid by using semicircular flap 9:63

Ahmad, M.: See Khattak MNK 9:67

Ahmad, N: Rhabdomyosarcoma of the orbit in a Pakistani infant girl 9:97

Ahmad, WI: Rhabdomyosarcoma of the orbit in a Pakistani infant girl 9:97

Ain, Misbah-ul: See Shafique, M 9:3

Ali, SI: The Anterior segment trauma

Ashraf, M: See Sharique, M 9:3

Awan, KJ: Book reviews:

Atlas of Fluorescein Angiography (Jalkh, Cicerio, Arzabe) 9:7

Atlas of Optic Nerve Disorders (Spor) 9:21

Cecil Textbook of Medicine (Wyngaarden, Smith, Bennett) 9:76

Cosmetic Oculoplastic Surgery (Putterman) 9:101

Embryology of the Eye and Its Adnexae (Barishak) (Volume 24 of Developments in Ophthalmology, edited by Straub) 9:21

Medical Writing (Jawaid and Jafary) 9:101

Ocular Emergencies (Catalano, Belin) 9:48

- Awan, KJ:** Congenital upper eyelid eversion and cleft palate 9:47
Awan, KJ: Eye makeup and the Meccans 9:5
Awan, KJ: Flaxseeds for the ocular foreign bodies 9:14
Awan, KJ: Fundamentals of preparing a manuscript for publication 9:7
Awan, KJ: How to eye for an eye 9:99
Awan, KJ: Intraprofessional and socioeconomic ethics of medical practice 9:87
Awan, KJ: Keller's first letter 9:59
Awan, KJ: King's evil, eye, and the royal touch 9:74
Awan, KJ: Medical meetings in Pakistan 9:1
Awan, KJ: Modern therapy and prognosis of orbital rhabdomyosarcoma 9:85
Awan, KJ: Nudging the nucleus 9:70
Awan, KJ: Obituary: Professor Mahmud Ali Shah, F.P.A.M.S. 9:33
Awan, KJ: Of bullheadedness and epidermolysis bullosa 9:42
Awan, KJ: Pseudo-ciliary margin after neglected long-standing orbital implant extrusion 9:72
Awan, KJ: Reflections: Death of a father 9:73
Awan, KJ: Retropseudophakic endocapsular hemorrhage after extracapsular cataract extraction with intraocular lens implantation 9:71
Awan, KJ: Rhabdomyosarcoma revolution, 9:85
- Awan, KJ:Smoking:** The evil, the eyesight, the eye-openers 9:29
Awan, KJ: Total recovery from central retinal artery occlusion 9:86, 100
Awan, KJ: Toy suction cup subconjunctival hemorrhage in the mentally retarded 9:46
Chaudhri DN: See Malik, SR 9:15
Halepota, FM: Malignant melanoma of the eyelid in a Pakistani woman 9:41
Humayun, M: Total recovery from central retinal artery occlusion 9:86, 100
Humayun, M: Phthiriasis palpebrarum in Pakistan 9:20
Jahangir, S: A survey of blindness in eye patients from the province of Punjab, Pakistan 9:43
Khan, AJ: Phthiriasis palpebrarum in Pakistan 9:20
Khan, IA: See Shafique, M 9:3
Khattak, MNK: Safety and efficacy of extracapsular cataract surgery without operating microscope 9:67
Malik, M: See Shafique, M 9:3
Malik, SRK: Cataract backlog free zone in India: a pilot project in datia district 9:15
Parthasarathy, TK: See Malik, SRK 9:15
Shafique, M: Magnesium levels and diabetic retinopathy 9:3
Shaikh, SM: Malignant melanoma of the eyelid in a Pakistani woman 9:41



ABSTRACT INDEX

- Acyclovir,** for herpes zoster ophthalmicus, 9:78
Alport syndrome, ophthalmological assessment, 9:54
Anesthetic abuse, endothelium alterations, 9:51
Aspirin, cataract effect in diabetics, 9:24
Cat scratch disease, neuroretinitis association, 9:50
Cataract
 congenital, good eye vision 9:77, surgery 9:105
 extraction after irradiation, 9:25
 intravitreal lens fragments, after 9:80
 national outcome, 9:81
 nuclear, and contrast sensitivity, 9:27
 nuclear fragments, retained 9:108
 sterile endophthalmitis, in surgery, 9:56
 surgery, 9:52
 sutureless, surgical sterile endophthalmitis, 9:83
 uveitis, with IOL, 9:79
Choroidal neovascularization, hemangioma, 9:26
Cocaine abuse, retina in 9:103
Contrast sensitivity, cataract, nuclear, 9:27
Corneal ulceration, cyclosporine therapy, 9:49
Corneal microcystic band-shaped dystrophy 9:102
Cyclotherapy, with sympathetic ophthalmia, 9:56
Cytomegalovirus retinopathy, treatment with foscarnet in AIDS patients 9:109
Disposable contact lens wear, with epithelial alterations, 9:79
Duane's retraction syndrome, muscle surgery in 9:105
Endophthalmitis, caused by streptococcal species, 9:26
Epithelial alterations, with disposable contacts, 9:79
Epithelial ingrowth, block incision, 9:23
Exfoliative, low tension, 9:23
Fine-needle aspiration, iris, 9:27
Giant Papillary Conjunctivitis, meibomian gland function in 9:104
Glaucoma 9:104
 intravitreal silicone oil, retinal detachment, 9:82
 iridocorneal endothelial syndrome, 9:24
 laser gonioplasty for angle-closure 9:102

INDICES

- laser trabeculoplasty, 9:25
 low tension, 9:23
 malignant, laser treatment, 9:51
 nerve fiber preservation, 9:49
 normal tension, 9:25
 normal tension, reduction, 9:81
 ocular surface alteration with long-term
 optic disc evaluation, 9:50
 optic disc examination, 9:49
 pigmentary, and jogging, 9:54 and cataract 9:106
 surgery, retinal hemorrhages, 9:27
 treatment, long term, surface alterations 9:54
- Glioma**, chiasmal, spontaneous improvement 9:104
Glomerulonephritis, retinal changes in 9:108
Hemangioma, choroidal, neovascularization 9:26
Hemorrhages,
 retinal, with glaucoma surgery, 9:27
 suprachoroidal, management, 9:82
- Herpes zoster ophthalmicus**, acyclovir, 9:78
Hodgkin's disease, Optic neuropathy in 9:108
HypHEMA, with intraocular lenses, 9:27
Hypotony, maculopathy in trabeculectomy 9:107
Inferior oblique, transposition, anterior, 9:24
Intraocular lenses
 in diabetic proliferative retinopathy 9:106
 multifocal, power calculation in 9:105
 hyphema, 9:27
- Iridocorneal endothelial syndrome**
 corneal involvement in 9:103
 glaucoma in 9:24
- Iridocyclitis**, not associated with toxoplasmosis
 9:26
- Keratitis**, ciprofloxacin resistant 9:105
Keratoconjunctivitis sicca, topical fibronectin
 in treatment of 9:105
Keratoconus, contact lens failure, 9:55, 9:78
- Laser**, failure in proliferative
 diabetic retinopathy, initially, 9:84
- Macular degeneration**, age-related 9:106
Macular traction and edema, diabetic,
 associated with posterior hyaloidal traction,
 9:52
- Magnetic resonance imaging**, melanoma,
 malignant, 9:28
- Medical Practice**, ethics 9:87
- Melanoma**,
 choroidal, mortality 5-year rate, 9:24
 malignant, in smoking, 9:51
- Methotrexate therapy**, ocular inflammatory
 disease, 9:81
- Multifocal intraocular lens**,
 contrast, 9:27
 monofocal, low contrast acuities, 9:84
- Myokymia**, superior oblique, surgery for 9:108
Ofloxacin, versus tobramycin, 9:28
Optic nerve, pseudotumor cerebri, 9:26
Orbital decompression, miniplate reconstruction,
 9:56
- Orbital fracture repair**, alloplastic implant
 complications, 9:83
- Orbital rhabdomyosarcoma**, 9:85, 97
- Parapapillary atrophy**, occurrence 9:23
- Pars plana vitrectomy**,
 related cystoid macular edema, 9:56
 diabetic retinopathy study, 9:80
- Phacoemulsification**, with vitreous, 9:52
- Photorefractive keratectomy**, excimer, 9:79
- Portwine stains**, laser, 9:26
- Povidone-iodine**, effect on perilimbal flora, 9:82
- Pseudotumor cerebri**,
 cranial venous obstruction, 9:52
 optic nerve neuroimaging, 9:26
- Pterygium**
 postsurgical complications with mitomycin-C 9:83
 risk analysis, 9:77
- Ptosis surgery**, visual fields improved, 9:22
- Rectus muscle**, superior, overaction after cataract
 extraction 9:103
- Retinal artery**, central, occlusion prednisolone 9:49
- Retinal detachment**, macula-off surg. results 9:109
- Retinal pigment epithelium**, with familial
 polyposis, 9:53
- Retinal tear**, giant, management, 9:50
- Retinitis pigmentosa**, Rhodopsin gene
 association, 9:22
- Retinoblastoma**, trilateral, therapy 9:102
- Retinopathy**,
 cancer management and monitoring, 9:22
 diabetic, risks in NIDD patients 9:109
 diabetic, with alcohol consumption, 9:53
 prematurity, diode laser treatment for 9:107
- Retinopathy of prematurity**,
 correlation of visual acuity, 9:28
 laser treatment, 9:22
 visual function, 9:25
- Scleral buckling**, outcome, cost, 9:55, 9:80,
- Scleritis**, systemic infection and 9:102
- Silicone oil**, intraocular in US, 9:78
- Strabismus**
 adjustable sutures and vasovagal attack 9:104
 surgery, with subconjunctival cysts, 9:28
- Subluxated lenses**,
 surgical treatment in children, 9:53, 9:77
- Superior oblique palsy**, laxity, 9:53
- Sympathetic ophthalmia**, after cyclotherapy, 9:56
- Syndrome**, enophthalmos, 9:50
- Therapy and Prognosis**, orbital
 rhabdomyosarcoma, 9:97
- Tobramycin**, versus ofloxacin, 9:28
- Toxoplasmosis**, in AIDS 9:103
- Tumors**, anterior segment, 9:55
- Uveitis**, cataract extraction results 9:108
- Visual field loss**, improvement by ptosis repair
 9:22
- Vitreous loss**, in phacoemulsification, 9:52



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