Abstract

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Chairman: J. A.Oosterhuis
1 A New Syndrome with Congenital Cataract
J. R. M. Cruysberg, R. C. A. Sengers, A. Pinchers
Based on our experience of 12 patients from six different Dutch families, a syndrome is discussed which to date has not been described in the ophthalmic literature. The syndrome, which is transmitted as an autosomal recessive trait, can be diagnosed on the basis of clinical, histological and biochemical characteristics and comprises four main symptoms: (1) congenital cataract; (2) hypertrophic cardiomyopathy; (3) mitochondrial myopathy of the voluntary muscles, and (4) lactic acidosis related to exertion. It is important that the ophthalmologist knows this syndrome because congenital cataract is the first symptom in all patients. The later cardiac developments are usually of a serious nature so that the patients often die prematurely. The syndrome is now recognized and registered as a hereditary disorder (21235 in the McKusick register).

2 Going Blind: Can the Ophthalmologist Still Do Something?
M. C. Colenbrander
When going blind, the mourning process proceeds in stages: stage I: shock, ‘doing’ nothing, yet ‘being’ something; stage II: depression. Appraising of and freeing the patient and his family from feelings of guilt. Bringing him into contact with other blind persons who have already found their turn. It opens up new perspectives without being didactic. Stage III: Adaptation. Help from specialists in this field is indispensable. A blind person can do much more than most people assume. He can go independently wherever he wants to: the white cane and the guide dog (my eyes have a cold nose). He can ‘read’: Braille, Optocon and the ‘speaking book’. He can learn to type ‘blindly’. In short: he is a mentally fit person and rightly wants to be treated as such.

3 Amaurosis fugax
Ch.P. Legein
In 90% of the cases, amaurosis fugax is a symptom of severe atherosclerotic disease at the level of the bifurcation of the carotid artery. If untreated, 25% of the patients develop CVA within 5 years and 40% of the untreated patients usually die within the same period as a result of a cardiac infarction. Strict treatment of the risk factors of atherosclerosis, especially normalization of blood pressure and giving up smoking, in addition to treatment of diabetes mellitus and hyperlipidemias. can decrease the likelihood of CVA considerably and reduce mortality to 17%. Treatment with anticoagulants has no visible effects in TIA patients. Since it has become known that thrombo-cytes play an important role in the development of atherosclerosis and in arterial thrombus formation, thrombo-cyte-aggregation inhibitors are being used as medication. Acetylsalicylic acid (Aspirin) is mostly used and is the only agent whose effectiveness has been demonstrated when taken in high doses. Theoretically, a low dosage (30 mg/dd) is attractive. Clinical studies of this in TIA patients have not yet been published. Surgical treatment is being...
discussed. Collaboration of ophthalmologist, internist and vascular surgeon can optimize the treatment.

4 The Hypotonia Syndrome
M. C. Monteyne, J. A. Oosterhuis, R. J. W. de Keizer, J. Budisantoso
By the hypotonia syndrome we understand an intraocular pressure which is too low with a concomitant decrease in visual function. It is generally accepted that a pressure of less than 6.5 mm Hg is abnormal. A fall in pressure is the consequence of reduced production of aqueous humor and/or increased uveoscleral outflow. In the clinic we see various causes for this, both locally and systemically. The hypotonia syndrome manifests itself clinically by a reduction in vision, papillary edema and retinal and choroidal folds; occasionally there is also corneal edema. The abnormalities of the fundus can be clearly shown by means of fluorescein angiography. After diagnosing the hypotonia syndrome, a cause should be sought and, if possible, causal therapy instituted. If no specific cause is found, aspecific therapy should be administered, such as corticosteroids and cycloplegics. Other possibilities include the introduction of SF-6 gas – which produces a rise in pressure – evacuation of the subchoroidal fluid and laser treatment of the chamber angle when detachment of the ciliary body is suspected. 5 patients were discussed in order to illustrate the clinical picture and the respective treatment. The 5 patients all displayed the hypotonia syndrome some time after an eye operation. The occurrence varied from immediately postoperatively to 3 years after surgery. Treatment with SF-6 gas and argon laser, respectively, and sclerotomy gave good results.

5 ‘Utrecht’ and the Development of Tonometry
/ den Tonkelaar, G. K. van Leersum, H. E. Henkes
Von Graefe’s discovery that acute glaucoma can be treated successfully by means of iridectomy gave a tremendous stimulus to the development of tonometry. The first tonometer was designed by von Graefe in 1862. In order to measure intraocular pressure with this instrument, it was necessary to give the patient a general anesthetic using chloroform. From 1863 to 1872, the center of the development of tonometry was situated in Utrecht, where 8 tonometers were developed in that period, under the direction of Donders and Snellen. None of these tonometers eventually proved to be satisfactory. The main problem was that friction of the instrument was too high. To overcome this problem, one resorted to watchmakers for their construction; however, without success. From 1879. the development of tonometers was also underway outside Utrecht. Only at the beginning of this century the development of tonometry was so well advanced that the tonometer (Maklakoff, Schiotz) found acceptance in the ophthalmologist’s practice.

6 Glaucoma and Cataract
P. A. M. Leonard
Since 1982, 62 glaucoma patients have been operated on for cataracts with a Pearce posterior chamber lens. These patients had previously undergone a so-called filtering glaucoma operation. Since in these patients the visual field is often affected by glaucoma, a vision better than 0.5 was achieved in only 75%. The intervention itself, i.e. cataract surgery via corneal incision and implantation of the Pearce lens, had little
effect on intraocular pressure. One patient had to be reoperated on because of recurrent glaucoma. Since there are no particular complications to be reported in this series, the author recommends that patients who suffer from cataract and glaucoma should first be treated operatively for glaucoma and several months later, for cataract. The author is no advocate of the so-called ‘combined operation’ in which cataract extraction, lens implantation as well as glaucoma operation are performed at one session.

7 Papillary Excavation and Loss of Visual Field

L. J. de Heer

To answer the question as to whether there is a relationship between the extent of papillary excavation and of glaucomatous loss of visual field, the width of the nervous tissue rim at the superior or interior poles of the optic disc was measured in 233 eyes with a cup/disc ratio of 0.6 or greater (the minimal rim/disc ratio = MR/D ratio) and the field of vision examined. In 92% of the cases, the MR/D ratio was < 0.1 when there was a loss of visual field. In another group of 26 eyes with incipient loss of visual field, the MR/D ratio was < 0.1 in 85%. In both groups, one case of loss of visual field was found at a MR/D ratio of 0.15 and none at a rim width of 0.2.

8 Diagnosis and Therapy of Parapapillary Hemangioma

A. Deutman, A. L. Aan de Kerk

The diagnosis of parapapillary or juxtapapillary hemangioma is not always simple. In the differential diagnosis, parapapillary subretinal neovascularization (for example, in drusen of the papilla), parapapillary degeneration of Junius and Kuhnt and chronic papillary edema, among others, can be considered. This extremely rare abnormality is also called von Hippel’s disease of the papilla, although more general angioma-tous abnormalities are present in only 25% of cases. Cavernous hemangioma is even rarer and has a clear differential aspect. The arteriovenous shunts (so-called racemose or cirroid hemangiomas or aneu-rysms) are obviously a completely different entity. Therapeutic intervention is not required as long as the macula continues to function satisfactorily. In exudative changes in the macula, light (laser) coagulation is indicated to save central vision. Unfortunately, this treatment leads to unavoidable parapapillary nerve fiber damage and partial loss of visual field so that the patient should be informed of this before treatment takes place. We presented 3 patients treated with the laser. The yellow laser light of the organic dye laser is probably the best method of treatment of this abnormality.

9 Ophthalmological Side Effects of Canthaxanthine Therapy in Light Dermatoses

N. M. Nijman, J. A. Oosterhuis, D. Suurmond, O. P. van Bijsterveld, II. Baart de la Faille

We performed an ophthalmological examination in 32 patients who had been treated for light dermatosis with the canthaxanthine-containing preparation Phenoro. In 8 patients a deposition of gold-glittering fine crystals was found in the superficial retinal layers with a predisposition to an annular region around the macular area. The deposition was not clearly related to the total amount of canthaxanthine taken and the duration of use. Visual acuity, dark adaptation and the electroretinogram were normal. In most patients, the visual field, as determined by means of static perimetry, was also normal. In one patient very mild symptoms of bilateral foveal dystrophy were found with a central dip in the mesopic curve.

10 Bietti’s Crystalline Retinopathy
W. A. M. van der Zee, A. F. Deutman
Two case histories of patients with crystalline retinopathy were presented and slides of the fundus pictures and of fluorescein angiograms were shown. There was a gradual impairment of vision, without loss of the peripheral field of vision. The fundi showed in the inner and outer retinal layers localized white-yellow glittering crystals. Pigmentation in the periphery of the fundus was present. Fluorescein angiography revealed atrophy of the pigment layer and of the choriocapillar-is. The crystals were not visible on the fluorogram. The simultaneously occurring, paralimbal crystalline cor-neal dystrophy described by Bietti was not observed in our patients. Crystalline retinopathy is a rare syndrome. Patients born of consanguineous marriages have been described several times, which makes recessive inheritance likely. A metabolic disturbance probably underlies the syndrome, but thus far it has not been possible to demonstrate it.

11 Effect of O-b-Hydroxyethylrutoside on Diabetic Retinopathy
//. G Jansen
A double-blind randomized trial was conducted at St. Radboud Hospital to assess the effect of O-b-hydroxyethylrutoside (HR) on diabetic retinopathy, as measured by the changes in fluorescein leakage into the posterior pole on the fluorogram. Interim analyses of the outcome after 6 months and 1 year in about 100 patients showed that HR afforded relative protection against worsening of the retinopathy: after 6 months, the number of eyes becoming worse was 15% when using HR; after 1 year it was 16%. In the control group, this number was 25 and 29%, respectively.

12 Free-Running Neodymium-YAG Laser Coagulation of the Human Retina
C. A. G. M. Vester, P. T. V. M. de Jong, G. Vrensen, B. Willekens
For the treatment of subretinal neovascular membranes, laser types are still being sought that destroy these membranes, with minimal damage to the retina, thus reducing loss of central vision in the macular region. On theoretical grounds, the Nd-YAG laser with a wavelength of 1,064 nm should be suitable for this purpose. Following extensive information to and consent by the patient, laser coagulation was performed in 7 patients before enucleation for choroidal or conjunctival melanoma. In a number of these patients, coagulation was also performed at the fovea. On the basis of clinical and histological findings, the conclusion could be drawn that the effects of the free-running-Nd-YAG laser are similar, for the most part, to those of the Krypton-red laser. Whether better results in the treatment of subretinal neovascular membranes in the macular region can be expected from the YAG laser than are currently obtained with the Krypton-red laser cannot be concluded from this study.

13 Twin vessels: A Symptom of Retinal Angiomatosis (von Hippel-Landau Disease)?
P. F. V. M. de Jong, A. R. Wiegel,
R. J. F. Verkaart, D. F. Majoor-Krakauer
Retinal arterioles and venules running parallel to one another over a distance of more than one disc diameter, while the space between these two vessels is less than the diameter of an arteriole, is an as yet undescribed phenomenon. We have called it twin vessels. In 7 patients with retinal angiomas (13 eyes: 1 patient was monocular), twin vessels were seen in 9 eyes. In 13 relatives (26 eyes) without retinal angiomas, twin vessels were
observed in 12 eyes. The patients came from two different families. In 20 control patients of the same age and sex, a twin vessel was seen in 1 eye. The conclusion was that in families with von Hippel-Landau disease twin vessels are significantly more common than in control patients. Further prospective research will have to prove whether the presence of twin vessels is a predisposing factor to developing retinal angiomas.

14 Multiple Evanescent White Dot Syndrome
O. Domela Nieuwenhuis
In 1984 and 1985, the clinical picture of the so-called multiple evanescent white dot syndrome was described in the American ophthalmological literature. The syndrome is characterized by a sudden, mildly progressive impairment of vision, a reduction in sensitivity of the central visual field and a decrease in the amplitudes of the electroretinogram. Occasionally there are mild symptoms of uveitis. Multiple white, round dots are seen on specular microscopy of the eye, especially in the midperiphery of the retina. In most cases there are mild macular abnormalities and sometimes there is papillitis. The syndrome has been described as being mainly unilateral, but it can also occur bilaterally. Fluorescein angiography reveals late hyperfluorescence of the pupil. The fluorescein angio-gram shows a spotty hyperfluorescence appearing at an early stage around the posterior pole, which continues until the late phase. There is complete recovery within 4-6 weeks. The patients are predominantly women, aged 20-40 years. A clinical picture was observed in two male patients that meets the criteria of the syndrome. The disorder was bilateral in one patient. There was complete recovery within 6 weeks. No clues were found to an etiologic explanation of this picture.

15 High-Oxygen-Permeable Hard Contact Lenses for Extended Wear
A. J. P. Rouwen
Modern chemistry has invented a number of gas-permeable polymers which are suitable for the manufacture of hard contact lenses. Oxygen transmission of these lenses surpasses that of many soft extended-wear lenses. In a prospective study for the American Food and Drug Administration lasting 3 months, the possibilities of Boston IV contact lenses, with an aspheric base curve, were investigated in 89 experimental subjects. The lenses could be worn all day without causing problems in 94% of the cases. Irreversible corneal pathology was not observed and comfort and vision with the lenses were excellent. The majority of the experimental subjects were myopic and since a mild, but significant, flattening of the corneal radii developed, especially in the vertical meridian, a slight reduction in both the myopia and the astigmatism was usually seen. Subsequently, the lenses were examined for their extended-wear possibilities in an arbitrary number of experimental subjects. There are clear advantages over extended-wear hydrophilic soft lenses. The complications are few and reversible so that the lenses can also be used by aphakins, who cannot handle their lenses themselves. In addition, it was possible to correct postoperative corneal astigmatism.

16 Local Cytotoxic Drugs in the Treatment of Premalignant Lesions of Cornea, Conjunctiva and Eyelid
R. J. W. de Keizer
Cytotoxic drugs can sometimes be used locally. In dermatology, 5-fluorouracil (5-FU), is used successfully for premalignant and, occasionally, malignant lesions of the skin. In ophthalmology, cytotoxic drugs can, under certain conditions, also be administered locally. The reaction of the intact corneal epithelium to 1% 5-FU was studied in rabbits. No toxic or other abnormalities
were observed on biomicroscopic examination. Five patients have thus far been treated. Three patients had oculocutaneous disorders which were treated with 5% 5-FU ointment. In 2 of the 3 patients, ocular premalignant lesions were also present. Instead of the expected complications there was even improvement. Actinic keratosis and carcinoma were therefore treated successfully with 1% 5-FU for 3 weeks. Patients 4 and 5, both with carcinoma in situ of the cornea and conjunctiva, were subsequently treated successfully in the same way. Cytology and biopsy are essential for the diagnosis and are the key to treatment. Spontaneous, partial regression can sometimes occur, as was seen in one of our patients. The use of 5-FU in the eye should be accompanied by intensive ophthalmo-logical follow-up. When using 5-FU for premalignant lesions of the cornea and conjunctiva, the surface of this epithelial tumor is destroyed. Prolonged and intensive treatment with antibiotics and anti-inflammatory therapy with ointments and drops is essential for recovery. Another indication for the local application of cytotoxic drugs is prevention of recurrence after excision of a pterygium. In one of our patients, thiotepa, administered in eye drops, was used successfully.

17 Two Remarkable Cases of Phakoanaphylaxis
A. Hamburg

On histopathologic examination of an eye from a 75-year-old diabetic woman who had repeatedly undergone surgery (vitrectomy, retinal detachment, lens extraction by means of the fragmatome), a remnant of the nucleus of the lens was found, embedded in the retina and surrounded by a typical phakoanaphylactic inflammatory reaction. Other lens remnants, behind the iris, showed only a minimal reaction. The explanation for this difference might be: (a) primarily the nucleus of the lens would give rise to such a reaction, but not the cortex; (b) a possible difference in vascularization: in a poorly vascularized region insufficient antibodies are produced to cause a reaction. The latter is unlikely here because there were many small vessels behind the iris.

In another eye, from a 62-year-old woman with high myopia and operated congenital cataract, the (large) lens remnant had been partly luxated into the anterior chamber for about 1 year and was in contact with the iris at one point. A moderate, yet typical, phakoanaphylactic reaction could be seen at this site only. This shows: (1) that the explanation given under (b) is correct in principle, and (2) that even a very old lens remnant (the operation was performed decades ago) can still cause a phakoanaphylactic reaction.

18 HLA Expression in Uveal Melanomas
M. J. Jager, D. de Wolff-Rouendaal, A. C. Breebaart, D. J. Ruiter

HLA antigens play an important role in immuno-logical recognition and presumably also in the recognition of tumor cells. In order to investigate a possible role of HLA in immunity against uveal melanomas, we wanted to determine in the first instance whether these tumors bring HLA antigens to expression. Paraffin slices of uveal melanomas were, after deparaffinization, treated with monoclonal antibodies against HLA, followed by peroxidase conjugate-labelled anti-human gamma globulin. As a result of a peroxidase reaction, cells, to which the first monoclonal had bound, colored brown and the percentage of colored cells per tumor could be determined microscopically (in 56 tumors). Most tumors were highly positive (70% of the cells) for HLA class I and for the β2m-microglobulin associated with it. Expression
of these two antigens was similar in each tumor. Expression of class II antigens was much more
variable (0-100%) and as a rule less than the expression of class I. No relationship was found
between expression and tumor cell type or tumor size. The variation in expression makes a study
into the relationship between expression and clinical course valuable.

19 Extrascleral Extension of Choroidal Melanomas

and Survival Rate

J. C. Bleeker, H. M. Kakebeeke-Kemme, D. de Wolff-Rouendaal

In the literature, extrascleral extension is regarded as a prognostically unfavorable sign with a
mortality of about 70%. In 237 melanoma patients examined between 1973 and 1980, epi- and
extrascleral extension was observed in 28 patients (11.8%) with a survival rate of 71.5%. This
prognosis is better than that reported in the literature but less favorable than in patients without
extrascleral extension who, in our study, had a survival rate of 88%.

Based on these data, we investigated to what extent extension into vortex veins and other blood
vessels might play a part in this. Other parameters such as tumor size, cell type and mitotic rate
were also compared in the various groups. Tumor extension into the blood vessels was found in
90 of the 237 patients. Both scleral and intravascular extensions were observed in

20 patients on histologic examination. The 5-year sur

vival rate for these two groups was 65%. The patient
group with scleral extension only, without involve
ment of vascular extension, had a survival rate of
87.5%, comparable with growth without scleral exten
sion. It is therefore important to include intravascular
extension in future prognostic considerations when
approaching the problem of extrascleral extension.

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20 NMR and CT-Scanning in Uveal Melanomas

M. F. Hoogesteger, H. J. Boukes, R. G. M. de Slegte

In five patients with an intraocular tumor suspected of being a uveal melanoma. CT and NMR
scans were performed. Scanning was performed in three directions and, following enucleation of
the globe, the intersecting surfaces in one of these three directions were chosen. The CT scans
provided good information about the extension of the process; however, tissue differentiation
was almost impossible. By means of a surface coil, good resolution can be obtained with the
NMR method. By varying the pulse and echo times we observed differences in signal intensity
which are characteristic of pigmented melanomas. NMR examination can become an important
adjunct to the diagnosis of intraocular tumors.

21 Ocular and Orbital Metastases of Cutaneous Melanoma

/. A. Oosterhuis, R. J. W. de Keizer,

H. M. Kakebeeke-Kemme, D. de Wolff-Rouendaal

Metastasis of a cutaneous melanoma to the eye or orbit is rare. The case histories of two patients
were discussed. The first patient was a man in whom, at the age of 34 years, a cutaneous
melanoma had been removed from his back. Three years later, two brain metastases were treated
with radiotherapy. Shortly there after, inflammatory symptoms developed in the left eye
followed by discoloration of the iris from blue to brown within 1 week. Cytologic puncture of
the anterior chamber and the surface of the iris revealed melanoma cells. The highly irritated,
painful eye was removed. A few months later, the patient died from cerebral metastases and carcinomatous meningitis.

The second patient was a man in whom a melanoma had been removed from the skin of his left leg when he was 36 years old. One year later, a lymph mass was removed from the left groin; one lymph gland contained melanoma cells. Two months later the patient developed diplopia and a 3-mm exophthalmos of his right eye. On ultrasonography. CT scan and NMR. a tumor was found laterally behind the right eye. A cytologic puncture guided by B scan was performed: the diagnosis was melanoma. It later appeared that the patient had metastases elsewhere.

22 Dimensions of Uveal Melanomas, Determined In Ultrasonography As Compared with Histology
H. M. Kakebeeke-Kemme, D. de Wolff-Rouendaal

Tumor size is an important parameter in the survival statistics of uveal melanomas. The dimensions were determined clinically in 45 tumors by means of echography and, after enucleation, in the histologic preparation. We found a consistent difference between both measurements as regards the prominence of the tumor according to the formulas: \( r = 0.937 \), echographic prominence = \( 1.362 + (1.005 \times \text{histological prominence}) \), and histological prominence = \( 0.504 + (0.837 \times \text{echographic prominence}) \). The diameter was not so nicely correlated (\( r = 0.507 \)) because of identifiable inaccuracies in the two measuring techniques. Conclusion: the tumor size measured clinically and histologically may not simply be compared with each other on the comparative survival statistics of eye-saving therapies and enucleation. A conversion factor is required because of tissue shrinkage in the preparation for histologic examination.

23 Choroidal Melanoma: Evaluation of Published Therapeutic Results
W. A. Manschot, R. van Strik, H. A. van Peperzeel

The doubling time (Td) of uveal melanomas is 30-365 days. Death from metastases ensues 35 Td = 3 years after metastasis. Death from metastases within 3 years following therapy is due to preexisting metastases. Death rates within 4 years are irrelevant to the evaluation of therapy. All postenucleation statistics are > 10 years; after 25 years, death from metastases was 25% [1]. Nearly all postirradiation figures are < 4 years. Gass [2] was the first to publish comparative figures after 5.5-15 years (mean 10 years); average postenucleation survival was > 10 years; after radiotherapy. 3.8 years. Death from metastases after enucleation was 22%; after radiation therapy. 57%. This large difference is understandable: Char et al. [3] reported that uveal melanomas showed 31 % regression after 2 years following heliumion and proton radiation therapy. However, even 75% regression would mean only 2 Td postponement of death from metastases. Histopathologic examination after radiation therapy

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revealed viable tumor tissue in 42 of 43 melanomas and not a single necrosis in 50% of these tumors. Conversation of sight after radiotherapy is rare (Lom-matzsch: 8.8%). Radiation therapy in patients with a satisfactorily functioning fellow eye and with good life expectancy is only justified if the melanoma is completely destroyed and the prognosis is not unfavorably-affected. Enucleation eliminates further spread; it frequently rises exponentially following radiotherapy. Irradiation of a posterior uveal melanoma is not yet a therapeutic treatment but a medical experiment, in which patients are being needlessly exposed to a fatal risk from metastases that have arisen after the experiment.

References
Refractive corneal surgery, and radial keratotomy in particular, has attracted considerable interest over the past few years. Patients with myopia of between 1.5 and 6 dptr can be treated with radial keratotomy. The most common complications are over- and undercorrection, fluctuation in visual acuity during the day and discomfort from dazzling light. The operation is not reversible. An experimental, reversible technique for flattening the center of the cornea was presented in this lecture. An optic disc was marked in human donor eyes. Starting from the edge of the optic center, radial 9-0 nylon sutures, approximately 1.5 mm long, were placed in the cornea. The central flattening of the cornea was measured with a vertically positioned keratometer. As the optic zone became smaller, the central cornea became flatter. When the optic center was 4 mm, a correction of 14.8 ± 2.3 dptr was obtained with eight sutures. Following removal of the sutures, the flattening immediately disappeared and the preoperative corneal curvature returned. On the basis of these findings, flattening of the cornea should be possible by means of radial sutures to treat myopic patients.

Since most suturing material in current use loses its tension with time, one would, however, first have to search for other suturing materials.

Are There Transplantation Antigens on the Endothelium of Human Corneas?

E. Pels, P. Felten

Immunological rejection can give rise to a corneal transplant becoming cloudy. By matching donor and patient as well as possible as far as transplantation antigens are concerned, the transplantation results in high-risk patients can be significantly improved [1]. Transplantation antigens apparently play an important role in rejections directed against the cornea. It has thus far been possible to demonstrate the presence of HLA class I transplantation antigens on epithelial cells and keratocytes in the human cornea but not on endothelial cells. Yet, the rejection is clinically directed especially against the endothelium (Khoda-doust line, Descemet spots). This discrepancy was the reason for further investigating the endothelium of human corneas for the presence of transplantation antigens, using an immunoperoxidase technique after incubation of the cornea in a γ-interferon-containing medium. γ-Interferon is a product of lymphocytes and has been described as being able to increase the expression of transplantation antigens.


The Effect of Silicone Oil on the Human Cornea

J. J. L. van der Want, J. Klooster, W. H. Beekhuis

Silicone oil is being used increasingly often in spite of its (known) adverse effects on the lens, trabecular system and cornea. Corneal slices from 11 patients treated with silicone oil were examined morphologically. A retrocorneal ‘membrane’ was found in 10 cases, consisting of irregularly arranged collagen fibers, an amorphous basal-membrane-like substance and, in some cases, cellular elements. The composition of this ‘membrane’ was further investigated light- and electron-microscopically, using specific stains. Three types of abnormal collagen dispositions could be distinguished: (1) striped, (2) fibrillar, and (3) fibrocellular.

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lar. The mechanism leading to the formation of this extracellular matrix is unknown. The silicone oil may dissolve phospholipids and triglycerides from the endothelial cell membrane, thereby interfering with the polarity of the endothelium (so-called ‘inverted endothelium’). The endothelium would then produce on its anterior surface a normal Descemet membrane and on its posterior surface the collagenous layer described above. Such a posterior collagenous layer is also found under other conditions (for example, Fuchs’ dystrophy) and is therefore not specific to the effect of silicone oil.

27 Corneal Epithelium Antibodies in Corneal Disorders

P. J. Kruit, L. Broersma, R. van der Gaag, A. Kijlstra
Antibodies against corneal epithelium were found in patients with corneal fusion (55%), uveitis (42%), corneal transplantation (42%) and marginal ulcer (20%). These antibodies were not found in herpetic keratitis. In control groups consisting of surgical patients (glaucoma, retinal detachment and cataract) and of subjects without an ophthalmological case history, corneal epithelium antibodies were found in 4%. Three sera from patients with corneal fusion and corneal transplantation, positive for corneal epithelium antibodies, were used to isolate antigens from the corneal epithelium. Two soluble antigens have so far been isolated, with a molecular weight of 17,000 and 54,000 daltons.

28 Strained Accommodation, Exophoria, Asthenopia, Other Ophthalmological Problems and Neurovegetative Dysregulation

J. J. M. Sauter
Seven years of refraction experience in a peripheral hospital has taught me that a large number of my patients there suffered from troublesome asthenopia. It appeared to be caused mainly by strained accommodation and fatigue of binocular vision. In addition, in many patients it contributed to the development of numerous ophthalmological problems and often neurovegetative disturbances as well. It appeared that psychic stress, visual stress (video screen) and an abnormal position of the eyes could have a strong effect on vision and refraction. Consequently, hypermetropia was frequently masked or even manifested itself as pseudomyopia. In both overcorrected real myopia and masked hypermetropia, pseudo-astigmatism was often also involved as a result of asymmetric spasm of the orbicularis muscle. Satisfactory refraction correction in steps by means of a series of spectacle or contact lenses appeared to be the only realizable way of gradually relaxing the muscles of accommodation, which were highly contorted from straining. Correction of the abnormal position of the eye by means of fusion-convergence exercises with a lamp, prisms, or correction of the ocular muscles and relaxation of the contorted orbicularis muscle via massage and exercises was often necessary to achieve optimal vision and refraction correction. Reducing existing psychic and physical stress had a favorable effect on the whole procedure. Apart from being a therapy for troublesome asthenopia, the approach described also had a favorable effect on ophthalmological problems, such as chronic conjunctivitis, squamous blepharitis, recurrent herpes simplex keratitis, episcleritis, iridocyclitis, herpes zoster ophthalmicus, recurrent chalazia and conjunctival lithiasis. Neurovegetative dysregulation in many different fields with the same psychic consequences was frequently positively influenced by the elimination of needless ocular strain.
Both visual perception and auditory analysis improved considerably in all of the more than 100 cases of primary word-picture disturbances.


Peroperative continuous-registration length/tension diagrams were made in patients who were undergoing surgery of the ocular muscles. We found an exponential relationship between length and tension for relaxed ocular muscles. After intravenous administration of succinylcholine, the ocular muscles contracted (multiply innervated muscle fibers), and in most cases the exponential curve changed into a series of straight, parallel lines. The rigidity (= elastic constant)

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stant) of agonist and antagonist was strikingly similar, not only in cases of uncomplicated strabismus but also when only one of the two muscles had initially become more rigid (this is clinically known as secondary contraction of the agonist). In one patient only, in whom the tendon of the lateral rectus muscle had been cut in 1953 (there was thus no longer mechanical connection between agonist and antagonist), did we find a threefold difference in elastic constant between medial and lateral rectus muscles, which is proof of the proposition that the rigidity of agonist and of antagonist is equal, even when, for example from Graves’ disease, only one of the two became initially more rigid. We found in oblique muscles, after contraction by succinylcholine, other length/tension relationship than in rectus muscles, as had been predicted by us in 1984 (thesis). The directly proportional relationship between length and tension (straight, parallel lines in the length/tension diagram) is less pronounced in oblique muscles. Furthermore, we rotated one eye horizontally in volunteers (not under anesthesia) while the fellow eye fixated, thus confirming the findings of Collins et al. [1981]. We found a linear relationship with a constant of 0.6-1.2 g/degree.

30 Treatment of Restricted Abduction by Means of Nasal Tenotomy of the Vertical Rectus Muscle
M. H. Gobin

We used to treat restricted abduction by placing the vertical recti in a temporal position combined with recession of the internal rectus muscle. The insertion of the vertical recti was displaced temporally so that the muscle obtained an abducting effect.

The average improvement in abduction thus achieved was 20.6°. There is, however, one great disadvantage: cutting loose three recti together with their ciliary blood vessels can give rise to ischemia of the anterior segment of the eye. To reduce the risk of this ischemia, we decided to provide the vertical recti with an abduction effect by means of nasal tenotomy: we cut the nasal part of the insertion so that the tendon remained fixed to the sclera with only its temporal end over a width of 1-2 mm. We made an incision in the tendon beneath the ciliary vessels. Recession of the ipsilateral rectus muscle was performed during the same surgical session and also of the contralateral internal rectus muscle when there was obvious esode-viation in the primary position. This nasal tenotomy resulted in an average improvement in abduction of 10° so that this intervention must be reserved for cases with mildly restricted abduction.

31 Grease Gun Damage to the Orbit
R. J. Boukcs, J. S. Stüma, R. G. M. de Slegte
A perforating injury to the orbit with grease from a high-pressure gun was discussed. Three days after a wound toilet performed elsewhere, there was a 25-mm proptosis of the left eye. Vision was reduced to 1/60 and motility was almost completely eliminated. Exact localization by means of CT scan, as well as tissue differentiation with NMR, made puncture, aspiration and drainage possible without damaging the optic nerve. Lateral orbitotomy could thus be avoided. Six months after the accident, vision was 1.0, motility was fully restored, and a proptosis of 2 mm remained.

32 Ultraviolet A and Its Harmful Effect on the Retina in Pseudophakia
E. Bouma, Ch. P. Legein

Intraocular lenses (IOLs) that absorb UV-A light are frequently used in artificial lens implantations (pseudophakia) in the US. The reason for this is that UV-A radiation may damage the retina (wavelength 320-400 nm). Since in an adult the lens absorbs much UV-A, and most spectacles, contact lenses and IOLs transmit UV-A, the retina will be exposed to more UV-A after lens extraction.

Animal experimental research has shown that UV-A destroys photoreceptors and the pigment epithelium, and macular edema and white exudates are observed in the fundus. It is presumed that this damage arises from absorption of UV-A quanta by breakdown products of rhodopsin. Free radicals are produced in subsequent reactions, which oxidize membrane structures with consequent cell degeneration. In man, too, such degenerative phenomena have been reported in aphakia and pseudophakia, although a causal link has not yet been substantiated. The suspicion of UV-A is so serious that protection of the retina must be ensured in aphakia and pseudophakia by UV-A-absorbing lenses. In the case of IOLs there is the additional risk that the UV-A-absorbing additives are toxic. Apart from the fact that safe IOLs and contact lenses must be developed, one must consider using a UV-A filter in operation lamps, sunglasses, etc., while sunlamps are sources of risk.

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33 Long-Standing Elevated Intracranial Pressure as a Result of Radical Neck Dissection
W. A. E. J. de Vries-Knoppert, A. J. M. Balm, R. W. Tiwari

A 54-year-old man developed long-standing elevated cerebrospinal fluid (CSF) pressure following radical neck dissection (jugular gland toilet) because of jugular gland metastases of a pavement cell carcinoma of the tongue. In a radical neck dissection the internal and external jugular veins are ligated, causing the venous pressure in the head and thereby the CSF pressure to rise when no adequate collateral circulation has developed. As is evident from several recent studies, long-standing elevated CSF pressure leads to permanent visual disturbances in over one quarter of the patients. Because of anatomical differences in the venous drainage system from the head, increased intracranial pressure can also develop after unilateral neck dissection. This has to date been described in 9 patients. However, in a modest prospective study on 14 patients who underwent radical neck dissection we found postoperatively no signs of raised CSF pressure.

34 Two Years of Keratorefractive Surgery
O. Lopes Cardozo

The results of two surgical techniques for correcting refractive abnormalities were presented. Technique 1: radial keratotomy. By means of radial incisions in the cornea, myopia was corrected to about -6 dptr including a possible cylinder. Result: 85% attained a refraction of
between +1 and -1 dptr. 95% between +2 and -2 dptr and all between +3 and -3 dptr. Size of
groups was 160 eyes. Follow-up was from 2 weeks to 2 years. Conclusion: reasonably reliable
technique, no serious complications, short procedure, rapid recovery. Disadvantages: results are
not precisely predictable, 13% of the patients required further surgery, irreversible.
Technique 2: epikeratophakia. A contact lens made out of human donor cornea was sutured to
the patient’s cornea and grew together with it, but not irreversibly. Suitable for powers of
between -5 and -40 dptr and between +5 and +40 dptr. Very suitable for correction of high plus
(aphakia) and high minus powers. Size of groups was 22 eyes, including 13 with a
follow-up of more than 3 months. Seven of these 13 eyes ended up between +1 and -1 dptr. Four
myopes were undercorrected with irregular astigmatism due to a technical defect, so that further
surgery was necessary. Since the introduction of technical improvements these problems no
longer arise. The first reoperation was successful. Two aphakes were overcorrected, including
one deliberately. One eye went blind as a result of retrobulbar hematoma due to local anesthesia.
Conclusion: after the technical correction in the surgical protocol, the technique proved to be
very reliable. Disadvantages: the procedure is time-consuming with a long convalescent period,
high cost of the lens.
35 Deoxycytidine Eye Drops for the Prevention of Toxic Keratitis following Systemically
Administered Cytarabine in Rabbits
W. Swart, R. J. W. de Keizer, J. L. van Delft, E. R. Burthen, L. P. Colly
Toxic keratitis following intravenous administration of cytarabine (Ara-C) has repeatedly been
described. Prophylaxis with corticosteroid eye drops does not give full protection. Cytarabine is
an antimetabolite, the analogue of deoxycytidine, one of the building blocks of the DNA
molecule. The competition that appears to exist between these two substances can perhaps be
shifted in favor of the latter in the eye by means of an excess of deoxycytidine. In an animal
experimental study using rabbits who received high doses of cytarabine intravenously, a
favorable effect of deoxycytidine eye-drops prophylaxis could be demonstrated. To our
knowledge, this is the first report of such a favorable effect in vivo.
36 Keratitis within the Framework of the EEC Syndrome
M. J. van Schooneveld, J. W. Delleman, R. Hulsman
The EEC syndrome has three components: ectodermal dysplasia, ectrodactyly (congenital
absence of one or more fingers or toes) and cleft lip/palate. The syndrome is inherited as an
autosomal dominant trait and displays a variable degree of expression. This
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varying expression is seen in the 21-year-old female patient described by us: her mother has
ectrodactyly of the hands and feet in addition to the other chief symptoms of the EEC syndrome:
however, our patient has no ectrodactyly. But she does have obvious congenital deformations:
syndactyly, a double thumb and deformed toes. In addition, there are hypotrichosis, dental
abnormalities, mammahypoplasia. nail dystrophy (symptoms found in ectodermal dysplasia),
mild mental retardation, hearing impairment and cheilopalato-schisis. However, most
troublesome to the patient, are the ophthalmological abnormalities: dacryostenosis (for which she
had been operated on several times as a child) and aplasia of the Meibomian glands resulting in
an unstable lacrimal film. The patient has severe keratitis/keratopathy with vascular ingrowth
and stromal disturbance which are practically therapy-resistant. This ophthalmological
complication is frequently seen in the EEC syndrome. It appears from the literature that corneal
transplantation is almost impossible, probably because of both the disturbed lacrimal film formation and the disturbed epithelialization of the transplant as a result of ectodermal dysplasia. It is therefore advisable to treat this keratitis/keratopathy as well as possible conservatively.

37 Experience with Molteno Implants
C. A. Eggink, F. Hendrikse, A. F. Deutman
An artificial drainage system developed by Molteno for the treatment of therapy-resistant glaucoma was used in 8 patients at the ophthalmologic department in Nijmegen. All our 8 patients had undergone several surgical treatments and had, in spite of optimal medical anti-glaucomatous treatment, too high an intraocular pressure, which threatened vision or caused chronic pain. In seven of the eight patients, with a follow-up of 2.5-14 months, intraocular pressure had postoperatively returned to normal values. Mature cataract developed in the female patient in whom the intraocular pressure could not be controlled. In one of the patients with well-controlled intraocular pressure, solution of the choroid arose postoperatively, necessitating surgical treatment. Although the follow-up period was short and only a small number of patients was involved, we are under the impression that there is certainly a place for a Molteno implant in the treatment of highly therapy-resistant cases of glaucoma.

38 Prevention of a Postoperative Rise in Intraocular Pressure after Nd-YAG-Laser Capsulotomy with Timolol Eye Drops and Oral Acetazolamide
T. N. Boen-Tan, J. S. Stilma
Nd-YAG-laser capsulotomy has become a common procedure for the treatment of after-cataract, especially in pseudophakia. There are, however, several complications which can arise from the treatment. Only if we take care to avoid as many of these complications as possible the YAG laser can be considered a safe adjunct to the improvement of vision in after-cataract. Our investigation in 1985 indicated that the most common complication, which moreover is caused specifically by YAG-laser treatment, is a transient rise in intraocular pressure, which can assume considerable proportions. It is therefore of the greatest importance that a rise in intraocular pressure be prevented. A previous study by Stilma showed that pre-operative timolol eye drops prevented the rise in intraocular pressure, although not in all cases. The present study was conducted in order to investigate whether the combination of timolol eye drops and one 250-mg tablet of acetazolamide could provide an even better protection against the postoperative increase in intraocular pressure. Intraocular pressure was measured in 10 pseudophakic patients prior to and 2 and 4 h following capsulotomy, after the patients had received 1 drop of timolol and 1 tablet of Diamox; the fellow eye served as a control. Instead of a postoperative increase in intraocular pressure, we found a fall in intraocular pressure, except for 1 patient in whom the pressure has risen by 1 mm Hg after 4 h. We are of the opinion that administering timolol drops preoperatively combined with 250 mg Diamox serves as an effective prevention of any postoperative rise in intraocular pressure after Nd-YAG-laser capsulotomy.

39 Application of Local Chloramphenicol in Ophthalmology and the Occurrence of Blood Dyscrasias
F. W. M. Besamusca, L. A. K. Bastiaensen
The incidence of blood dyscrasias resulting from the use of chloramphenicol-containing eye drops and ointments (O-CAP) is unknown. Six cases – with or without fatal outcome – have been ascribed to O-CAP in the literature, partly on insufficient grounds. More
cases of aplastic anemia or other forms of blood dyscrasias can possibly be ascribed to O-CAP: the relevant question is systematically omitted from the case history of patients with blood dyscrasia.

In the region of Midden-Brabant a pilot study was conducted into the relationship between O-CAP use and the occurrence of blood dyscrasias over a 4-year period. We found 12 patients with aplastic anemia. This number is in line with the number to be expected for Western Europe (1 : 75,000 to 1 : 140,000/year). In addition, 190 patients with another form of blood dyscrasia were found. After excluding all cases in whom the cause could be conclusively established, not including O-CAP use, a total of 59 patients remained. The use of O-CAP in these patients was checked retrospectively in the relevant period. Seven of these patients took O-CAP but in none could its use be indicated unequivocally as the cause of the dyscrasia. The use of O-CAP was also investigated in the regional population and compared with that of the dyscrasia patients. In the relevant period, 1 : 7.2 persons used O-CAP, and 1 : 8.4 in the dyscrasia group. This too does certainly not point to an increased risk from the ophthalmologic use of chloramphenicol.

40 Complications from Retrobulbar Alcohol Injections
K. Klop

The complications that occur following the administration of retrobulbar alcohol injections (3 ml alcohol 70% preceded by 1 ml Lidocaine 2%) were discussed on the basis of two female patients. The globe was located according to Atkinson. Serious, but transient, motility disturbances developed in patient A in the form of a frozen eyeball. There was in addition conjunctival chemosis, ptosis and anesthesia of the cornea. The picture recovered completely within 3 months. In patient B, in whom 1/100,000 adrenaline had been added to the Lidocaine 2%, a necrotic cutaneous ulcer developed nasal to the point of insertion of the needle in the lower eyelid, reaching as far as the orbicularis muscle, probably as a result of regurgitation. The last complication makes us conclude that adrenaline should be omitted from retrobulbar alcohol injections.

41 The Eye As the Organ First Affected by a Recurrence of Acute Lymphoblastic Leukemia
P. Hardus, W. van Berkel

Acute lymphoblastic leukemia T cell type developed in a 24-year-old man in May 1983. He obtained complete remission. In January 1984, a reduction in vision developed with cells in the aqueous humor and infiltrations of the pupils. A recurrence in CSF or bone marrow was not detected. When, in May, vision had further deteriorated, CSF recurrence was demonstrated, for which intrathecal cytotoxic drugs were administered in combination with radiation therapy. Pupillary infiltration decreased significantly. Second-line drugs in combination with radiotherapy were given during later recurrences. The pupillary infiltrates had disappeared shortly before his death in December, while there was a recurrence in bone marrow and CSF. We drew the following conclusions:

Intrathecal cytotoxic drugs gave a slight improvement in our patient. According to Ellis [1], they would not penetrate the optic nerve head.

Radiation therapy has been reported as being very effective by Ridgway [2]. In our case there was an effect only after a second treatment with radiation.

It is likely that in this case a combination of radiotherapy and intrathecal cytotoxic drugs should have been used at an early stage.

References
How Does a ‘Ganzfeld’ Illuminate the Retina?

A. C. Kooijman, F. K. Witmer

A Ganzfeld light source is used in a number of research techniques for adapting or stimulating the entire retina (perimetry, dark-adaptometry, electroretinography). In order to illuminate the retina uniformly, high demands are made on the homogeneity and the absolute value of brightness. We made calculations on the distributions of light across the retina of a theoretical eye model. It did not surprise us that the size of the pupil proved to be decisive for the total amount of light.

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entering the eye. However, it was surprising to find that the size of the pupil did not appear to have an effect on the distribution of the light across the retina. The calculated retinal illumination was homogeneous up to the very periphery of the retina (80 degrees) when the retinal surface was spherical. The shape of the optical surfaces (spherical or aspherical) did not alter so much. When the eyeball was somewhat flattened, as is usually the case in reality, the illumination intensity decreased towards the periphery to approximately 50% of the value in the center.

Measurements made by us in ‘in vitro’ eyes of man and rabbit produced light distribution curves that are comparable to the calculated results. This calculation method can also be applied to study whether the use of electroretinographic lenses influences the retinal light distribution in Ganzfeld stimulation. It showed that lenses with a diameter of 12 mm had no or hardly any influence on retinal illumination. In a few widely used lens types (Henkes and ERG-jet) the diameter of the lens is smaller, so that less or no light falls on the peripheral parts of the retina. Retinal stimulation is then no longer homogenous and the distribution of light moreover appears to have become dependent on pupil size. If the aperture of these lenses is increased to at least 12 mm, this defect can be remedied. To what extent the reduction in retinal illumination influences the ERG measured is not known, but the use of non-optimal ERG lenses is certainly not in line with the efforts and the high expenditure involved in making Ganzfeld bulbs with a homogenous brightness.

Fluorophotometry of Cataract

J. P. Kappelhof, J. A. van Best, J. A. Oosterhuis

Photographic techniques are almost exclusively available for quantifying the extent of cloudiness of the lens in cataract. In this investigation an attempt was made to relate the results of slit-lamp photography obtained in various forms of cataract to the measurements of light (390-420 nm) transmission by means of fluorophotometry. The measuring technique is rapid, simple and scarcely troublesome to the patient. The calculated transmission in nuclear cataract and anterior cortical cataract was much reduced with respect to the normal values. This method did not appear to be suitable for evaluation of posterior cortical cataract.

Permeability of the Blood-Aqueous Barrier, Determined by Means of Fluorophotometry

J. P. Kappelhof, J. A. Oosterhuis

A method for determining fluorophotometrically the permeability of the anterior chamber of the eye to fluorescein was presented. Permeability was calculated from the values of the fluorescein concentration in the anterior chamber after intravenous injection, the reduction in the nonprotein-bound fluorescein concentration in plasma and the volume of the anterior chamber. These three values were determined with the fluorophotometer. Permeability values were determined in 58 healthy volunteers, aged between 13 and 72 years. The values were independent of the time.
elapsed after injection and the average was 44 ± (SD) 17 nm/s. The increase in permeability with age was linear and significant (0.6 nm/s per year; p < 0.0001); the standard deviation likewise increased linearly with age. In 56 of the 58 volunteers, the permeability of the blood-retina barrier was also determined. No correlation was found between the permeability values of the blood-retina barrier and those of the blood-aqueous barrier (p = 0.4).

45 FM 100-Hue Test and Brightness Discrimination Test
A. Pinckers, J. R. M. Cruysberg
Tests become easier by using the covers of the FM 100-Hue test, for instance a Panel D-15 test. If one buys another 16 gray test covers, then sensitivity to brightness can also be determined. The life of a color sample is doubled if a small ring is inserted into the cover.

46 The Rod Pigment in Congenital Stationary Night Blindness: A Clinical Densitometric Investigation
J. E. E. Keunen, on behalf of G. J. van Meel, D. van Norren
The formation of rod pigment can be studied with a retinal densitometer. Four patients with CSNB who were examined densitometrically have thus far been described in the literature. These patients all had a normal rhodopsin concentration. In our study, however, we found in 7 patients with CSNB both (subnormal rhodopsin concentrations and absence of rhodopsin. In one patient only did we find a completely normal rhodopsin concentration, but in this case the regeneration rate was again delayed. When rhodopsin was absent we found no A and B waves in the ERG at low flash intensities. Conclusion: CSNB patients can be divided into a group with (sub)normal rhodopsin kinetics, and a group with disturbed rhodopsin formation.

J. W. Hilbers); it is supported by a grant from the Netherlands” Cancer Foundation – Koningin Wilhelmina Fonds.


47 Acoustospectroscopy and NMR Spectroscopy of Ocular Tissues
J. M. Thijssen, R. L. Romijn
Acoustospectrography is a meaningful method for diagnosis because the interactions of ultrasound with tissues are frequency dependent. The spectra, corresponding with the echo signals received from the insonated tissue are compared to a reference spectrum, and, in addition, the logarithmic spectra obtained from different depths are subtracted. The former method yields the frequency dependence of the back-scattering coefficient of the tissue, the latter the attenuation coefficient as well as its frequency dependence. These two parameters as well as the sound velocity and specific acoustic impedance of healthy ocular tissues were estimated. The results will be employed in a further study of the differential diagnosis of intraocular tumors [1]. Nuclear magnetic resonance (NMR) spectrography is based on the measurement of the magnetic moment of the spinning nuclei of 31P. The tissue is placed in vitro in a strong magnetic field (4.7 T) and the free induction decay after a radiofrequency pulse is analyzed. The spectrum of this ‘RF-echo’ displays a fine structure according to the localization of the 31P atoms in the biomolecules, like α-, β-, γ-ATP, sugar phosphate, or anorganic phosphorus. The area of the peaks is proportional to the number of nuclei and the exact location is influenced by the acidity
of the tissue. It will be investigated whether NMR spectrography may contribute to the detection and differentiation of intraocular tumors.

This project is carried out in cooperation with the Department of Ophthalmology, University of Leiden (Prof. Dr. J. A. Oosterhuis) and the Department of Biophysical Chemistry of our University (Prof. Dr.

48 Immune Response of Uveitis Patients to a Soluble Retinal Antigen (S-Antigen)
R. van der Gaag, L. Broersma, J. Zaal,
G. Doekes, Y. van Kooyk, A. Rothova, P. J. Kruit,
A. Kijlstra
The systemic administration of S-antigen to experimental animals leads to experimental allergic uveitis with serious injury to the retina and choroid. The part played by S-antigen in the pathogenesis of uveitis in patients is, however, still unclear. Antibodies against S-antigens are found in both uveitis patients and normal control subjects. We have recently begun to investigate the cellular reaction to human S-antigen in uveitis patients and controls, using the migration inhibition assay (MIF). None of the normal controls (n = 9) reacted to S-antigen. Of the uveitis patients, 3 did not react with a polyclonal stimulator (Con A) and no conclusion could be drawn as to the reaction to S-antigen. The reaction pattern to S-antigen was as follows: anterior uveitis 0% positive (n = 2), posterior uveitis 78% (n = 9) and panuveitis 28% (n = 7). This shows that reactivity against S-antigen is only found in those uveitis patients in whom primarily the anterior segment of the eye is affected. Its significance in the pathogenesis of uveitis is still unclear, however.

49 Toxoplasma Serology in Ophthalmology
A. Rothova, F. van Knapen, A. Kijlstra
The diagnosis of ocular toxoplasmosis is based on a typical clinical picture and on a number of laboratory assays. Antibody titers are of limited value in ocular toxoplasmosis (usually congenital infection) because the Dutch population aged between 30 and 40 years is already 60% positive for antibodies against toxoplasma (acquired infection). Antibody titers against toxoplasma were determined in the serum from over 300 uveitis patients. There was no relationship between the height of the titer and the clinical diagnosis of ocular toxoplasmosis. The titer fluctuations found in longitudinally followed patients with toxoplasmosis and with nontoxoplasmic posterior uveitis were not characteristic. In 25% of toxoplasmosis patients and in 20 control subjects, IgG and IgM antibodies, circulating Ag, as well as circulating immunocomplexes with IgG and IgM were determined by means of an ELISA technique. All toxoplasmosis patients (clinical diagnosis) were positive for IgG antibodies and 30% had immunocomplexes with IgG.

One of the 8 patients with proven toxoplastic infection and ophthalmologic abnormalities had a negative Sabin Feldman titer. However, this patient appeared to be positive for IgG antibodies with an ELISA test. In summary, it can be stated that the presence of antibodies against toxoplasma does not prove the diagnosis of ocular toxoplasmosis while the absence of antibodies does not exclude this diagnosis.

50 Ophthalmologic Abnormalities in AIDS
O. H. E. Visse ; P. J. M. Bos
The number of AIDS patients is still increasing. Ophthalmologic abnormalities, which are of diagnostic and prognostic significance, are present in 30-50% of these patients. When AIDS patients have a longer life expectancy, adequate treatment of the ocular disorders will become more and more important. The two most important ophthalmologic manifestations of AIDS are cytomegaloivirus (CMV) retinitis and Kaposi sarcoma of the conjunctiva. DHPG, a new virostatic for human CMV, looks promising in the treatment of severe CMV retinitis, which rapidly leads to blindness. Kaposi sarcoma of the conjunctiva in AIDS is of a relatively benign nature and can be treated satisfactorily with surgical excision, radiotherapy, cryotherapy or local injection of cytostatics.

51 Allergic Conjunctivitis: An Infinite Problem, Which Can Eventually Often Be Solved
C. C. Kok-van Alphen, C. van Roon-Meeuwsen
In 1984 and 1985 we saw over 200 patients with chronic allergic conjunctivitis annually. Many of these patients had already used unsuccessfully a long list of medicines prescribed to them by their family doctor or an ophthalmologist. The persistence of symptoms led us to attempt, together with the patients, to detect the causal allergen. Of the patients, 70.7% were women and 29.3 were men. In women aged under 45 years, cosmetics did not play an important part, but the allergens were usually work-related. Suntan creams were an important cause in spring and summer. In women aged over 45 years, skin-care products were by far the most important cause of allergic conjunctivitis, but also: clothing, suntan creams, hand creams and plants. In men aged under 45 years most causal allergens were found in ointments for skin disorders elsewhere, as well as work- and hobby-related allergens. The men over 45 years had as the most common cause skin-care products, especially aftershave lotions and creams, as well as work- and hobby-related causes. In 70% of the cases the etiology of allergic conjunctivitis could be found with some detective work and thereby the disorder was cured at once. The remaining 30% had to be treated palliatively. Of this group, in whom the cause could not be found, 30% benefitted from steroid drops (cave tension!), 20% from opticrom eye drops and 20% from vasoconstrictive eye drops. No adequate therapy could be found for 30% of the patients.

52 Ligneous Conjunctivitis
D. Cohen Tervaert, J. R. M. Cruysberg, A. F. Deutman, W. A. Manschot
‘Ligneous conjunctivitis’ is a rare form of chronic pseudomembranous conjunctivitis, characterized by woody sclerosis of the eyelids, membrane formation on the tarsal conjunctiva, and occasionally corneal complications. The case history of a 65-year-old (1973) female patient with granulomatous inflammation of the conjunctiva of the right eye and chronically recurring polyps of the vocal cords was discussed. Granulomatous tissue was removed from the conjunctiva of the right eye several times, invariably resulting in a recurrence after increasingly short intervals. Seven years after the onset of the inflammation in the right eye, the left eye also became affected. All kinds of both systemic and local therapy were tried without success. It was only in 1981 that ‘ligneous conjunctivitis’ was diagnosed. Imuran (azathioprine) treatment was initiated late in 1984. The patient has since been practically free from recurrent granulomatous tissue of the conjunctiva and vocal cords.

Abstract

53 Role of Radiotherapy in the Treatment of Conjunctival Melanomas
D. de Wolff-Rouendaal, J. A. Oosterhuis
The national follow-up study on conjunctival melanomas included almost full data on 83 patients, of whom 37 survived the first 5 years following initial treatment and 22 patients the first 10 years. Twenty patients died from metastases and 14 from other causes. The follow-up period of 12 patients is less than 5 years. Sixteen patients received radiation therapy. Nine of these patients were irradiated because of a primary tumor, in 3 patients excision and radiotherapy were combined and in 4 patients a melanoma recurrence was irradiated after several excisions. In 6 patients, all with a primary tumor, no local recurrences developed. One of these patients has died from metastases. In the remaining 10 patients, treatment of the tumor was only partially successful or a recurrence developed in the irradiated field or elsewhere in the conjunctiva. Orbital exenteration had to be performed in 5 patients of this group; 7 patients have died from metastases. This is an unfavorable outcome compared with the investigations by Lederman [1984] and Lom-matzsch [1978], who reported a mortality rate of 26% and 6.2%, respectively. The more favorable results obtained by Lommatzsch can be partially ascribed to selection of the patients, because 88% of the melanomas were localized at the limbus or in the bulbar conjunctiva. Occlusion of the central retinal vein occurred in 1 of our patients, and hemorrhage of the aqueous humor led to bulbar atrophy in another patient. Curative radiotherapy alone can replace local excision only in melanomas of the limbus or the bulbar conjunctiva. Recurrences cannot be prevented, not even with radiotherapy. In melanomas with an unfavorable prognosis, radiotherapy is only of importance as a palliative treatment, for example, in the presence of regional metastases.

54 Lateral Epiphora
B. W. Ensink
A weeping eye, in which tears run down the lateral margin of an eyelid, with intact lacrimal passages and without obvious en- or ectropion, causes symptoms of skin irritation and other discomfort. The cause will usually be found in the anatomy of the corner of the eye, in which capillary forces get a chance to suck lacrimal fluid over the margin of the eyelid and function as a siphon. Its treatment is very simple because almost any anatomic change disturbs this capillary system. Microtarsorrhaphy is simplest but a small incision at the inner side of the corner with cauterization is often also effective. In addition, application of zinc ointment can rapidly eliminate the skin irritation.

55 A Patient with Riley-Day Syndrome
D. H. Galema, P. Kraus
A 12-year-old Jewish youth attended the polyclinic with a completely painless corneal erosion, resulting from slight trauma. There was total loss of pain sensation in both corneas and there was otherwise a considerably reduced pain threshold. The patient was small for his age and displayed pronounced scoliosis. Data from his early childhood revealed swallowing and sucking difficulties, recurrent infections of the airways and diarrhea. Ulcerative colitis was later also diagnosed.

56 Radical Vitrectomy and Silicone Oil in Proliferative Vitreoretinopathy
J. S. Stilma, R. Koster, R. Zivojnovic
Eighteen consecutive patients with proliferative vitreoretinopathy consequent on retinal detachment surgery were treated with radical pars plana vitrectomy and silicone oil injection. A follow-up of at least 6 months showed a fully attached retina in 12 patients, partial attachment in 3 patients, and a completely detached retina in 3 patients. A well-attached retina is not the same as a functional success. The field of vision exhibited serious defects in 50% of the patients with an attached retina. The well-known complications of cataract, glaucoma, corneal
Decompensation and subretinal oil were also observed in this small series, but their frequency decreased with the introduction of newer surgical techniques, such as peripheral iridectomy at the 6 o’clock position. Providing the patient with full information is essential because 2-5 operations may be required.

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57 Primary Treatment of Retinal Giant Tears with Silicone Oil
F. Hendrikse, A. F. Deutman
Since silicone oil has been used in the treatment of retinal tears, the prognosis of this serious ocular disorder has considerably improved. The long-term prognosis depends on the interval between onset and surgery. The aqueous humor should be removed as completely as possible. The purpose of this is not only to make room for the silicone oil, but especially also to eliminate traction and remove migrated pigment cells. It is important that the traction is eliminated as completely as possible and peripherally as far forward as possible. It is often not possible to do this satisfactorily without removing the lens at the same session. We are of the opinion that it is very important, before introducing silicone oil, to approximate the retina by continuous insufflation of air under constant pressure (35-40-mm Hg) as well as using Charles’ needle. Removing residual traction is often more satisfactorily performed under air than in oil. Indenting the sclera is often not necessary in giant tears with superior localization. Adhesion along the defect is brought about by means of endogenous or exogenous cryocoagulation and, if required, supplemented postoperatively with laser coagulation.

58 Treatment of Detachments with Large Bullae and Defect(s) in the Superior Sector
N. M. J. Schweitzer, J. M. M. Hooymans, F. K. Witmer
The usual treatment of detachments – cryocoagulation, possible drainage of subretinal fluid followed by plombage or banding – poses problems when there are large bullae and one or more defects in the superior half of the fundus. These problems are caused by the great difficulty experienced in localization and in the need for excessive cryocoagulation. Poor localization can result in the retinal defect and the plombage not being satisfactorily approximated. Excessive cryocoagulation results in pigment dispersion in the aqueous humor and in an increased risk of primary retraction of the aqueous. If one starts with drainage followed by the introduction of an air bubble into the anterior chamber, then the retina will become attached before cryocoagulation and plombage are started. Localization is easier, one does not have to work on a weak eye and cryocoagulation can be minimized. All this leads to the operation being shorter. In a series of 40 consecutive detachments thus treated between 1980 and 1984 (mean follow-up 1.9 years), no unexpected complications arose. At the end of the follow-up period, the retina was attached in 34 patients (85%), although in 5 of these patients a second operation was necessary to achieve this effect.

59 Irradiation Retinopathy
B. C. P. Polak, R. Wijngaarde
After irradiation of the head-neck area, complications can arise in the retina and the optic nerve from damage to the retinal and choroidal vessel walls. Exudates, hemorrhages or ischemic optic nerve neuropathy are observed in the acute phase, with fluorographic signs of retinal ischemia, leakage of the vessel walls and neovascularization; aqueous humor hemorrhages and retinal detachment may occur in the chronic phase, or atrophy of the optic nerve develops. The likelihood of these complications arising is greater in the case of diabetes mellitus and/or...
concomitant chemotherapy. In the past few years we saw 9 patients with complications of the posterior segment of the eye, in 5 patients in both eyes, occurring 1-15 years after radiation therapy. Three patients were treated with oral prednisone and 2 patients with laser coagulation. Bilateral atrophy of the optic nerve developed in 2 patients, and 1 patient had aqueous humor hemorrhage; the retinopathy remained stationary in the remaining patients.

60 Punctate Inner Choroidopathy
L. E. Spencer, A. F. Deutman
Ten patients with punctate inner choroidopathy were described in 1984. They were young women with moderate myopia and in good physical health. The chief symptoms were acute visual impairment and seeing spots. On examination, the media were strikingly undisturbed; the fundus picture showed multiple yellow spots at the posterior pole. The etiology is unknown, but a previously unknown form of myopic chorioretinal degeneration or atypic chorioiditis might have been involved. Two young women with the clinical picture described were seen at the ophthalmologic clinic of the Radboud Hospital. They were discussed.

61 Ocular Abnormalities in Polymyositis and Dermatomyositis
A. H. Veltman, J. E. Winkelman, D. A. Houwert
Polymyositis and dermatomyositis are systemic diseases of unknown etiology, in which changes in striated muscles and skin occur. They are usually included in the collagen diseases. In a 44-year-old female patient in whom polymyositis was diagnosed we saw a transient, unilateral reduction in vision developing 5 months after onset of the disease, based on impending occlusion of the central retinal vein. Funduscopy revealed very dilated veins with a tortuous course and central and peripheral hemorrhages. The fluorescein angiogram showed delayed arteriovenous circulation and, in the late phase, pathologic coloring of the venous wall with slight leakage of fluorescein. Complete recovery ensued after oral corticosteroid therapy. A number of ocular symptoms have been described in the literature, mainly in dermatomyositis. The violet, also called heliotrope, discoloration of the upper eyelids is characteristic. Conjunctivitis, sclerouveitis, secondary glaucoma, blepharoptosis-sis, pareses of the ocular muscles and nystagmus have also been reported. Cotton wool exudates, venostasis, variations in the thickness of arteries, retinal edema and hemorrhages as well as disorders of the optic nerve leading to optic nerve atrophy have been described as abnormalities of the fundus of the eye. Permanent, serious loss of vision can develop. The frequency of ocular symptoms in polymyositis and dermatomyositis is low and the abnormalities found are not specific except for heliotrope discoloration of the eyelids.

62 Choroidal Neovascularization following Indirect Choroidal Ruptures
/. C. van Mewis, A. F. Deutman
In blunt ocular trauma, choroidal ruptures can arise at the posterior pole (‘contre-coup’ position). Immediately posttraumatically, there is usually poor vision as a result of subpigment-epithelial and/or sub-retinal hemorrhage. Eighteen cases have been published with choroidal neovascularization as a complication after resorption of the blood, including 9 who were treated with laser coagulation. We discussed 14 cases, including 4 women, with an average age of 26 years (11-46 years). A tennis ball was the cause of the blunt ocular trauma in 7 cases. Follow-up
was on average 5.5 years (2-11 years). The interval between trauma and neovascularization varied from 2 weeks to 3 years. In the first year we saw this complication in 80%, and in the first 6 months in 50% of the patients. Final vision was > 0.4 in 9 patients; in 3 it was 0.1, and 1/60 in 2. The 3 patients not treated with the laser had a final vision of 0.54+, 0.4 and 1/60. Striking was that the vasoproliferation progressed slowly. Two patients had recurrent neovascularization after laser treatment. Our data on laser coagulation, interval and course are in line with the 18 cases already published. Choroidal neovascularization in an indirect choroidal rupture is not a rare complication; it is important to arrange proper vision/metamorphopsia (self)control with the patient.

63 Optic Disc Vasculitis
M. F. Bienfait, G. S. Baarsma, R. Wijngaarde
Optic disc vasculitis is a syndrome that has been described under various names. Its unilateral occurrence in young, healthy individuals is typical. The picture in the fundus varies from papillary edema (type 1) to occlusion of the central vein (type 2). The prognosis is generally good: the abnormalities disappear within a few months and the slightly impaired vision returns to normal. In this lecture an overview of the literature was given. The clinical aspects, based on 10 patients who visited the Eye Hospital in Rotterdam, were discussed. In the differential diagnosis one should consider causes of unilateral papillary edema on the one hand, and vascular factors on the other. Extensive ophthalmologic, internal and neurologic examination is essential, so that subsequently the diagnosis can be established on the basis of age, picture, course and, occasionally, by exclusion.

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64 Optimal Timing in Research into Retinopathy of Prematurity
K. E. W. P. Tan, B. P. Cats
Screening for retinopathy of prematurity is now well-established. There is no unanimity as to the best time. The recommendations given vary widely and are scarcely founded on clinical data. For this reason, all premature infants who had been admitted to the neonatal ward of the Wilhelmina Children’s Hospital were examined weekly from the age of 3 weeks for a period of 1 year. It appeared that the abnormality can hardly be expected before the 3rd week, that there is a very strong increase at around the 6th and 7th weeks of life and that there is a clear maximum 8-10 weeks after birth. A once-only screening in the period between the 8th and 10th week can detect some 80% of all cases. To detect any early developing, rapidly progressive forms, an examination during the 5th week is also advisable.

65 Opsin-Induced Experimental Autoimmune Uveoretinitis in Monkeys
R. M. Broekhuysen, H. J. Winkens, A. H. M. van Vugt, E. D. Kuhlmann
Opsin in Freund’s complete adjuvant and Hemo-philus pertussis adjuvant was injected into 9 macaca monkeys (Macaca arctoides). After 6-11 weeks, severe experimental autoimmune uveoretinitis (EAU) (mostly chorioretinitis) developed in 3 animals. Three other animals received booster injections and developed EAU 3-5 weeks later. These booster injections augmented both the cellular and humoral immune responses to opsin. However, no correlation was found between the intensity of the immune response in the group as a whole and the manner in which or the intensity with which EAU manifested itself. In the majority of the animals the
anterior segment of the eye was only briefly and mildly affected. Choroid and retina were strongly infiltrated by mononuclear and polymorphonuclear leukocytes within a few days. The picture of severe chorioretinitis in monkeys corresponds to that described by us for Lewis rats as regards opsin-EAU [Curr. Eye Res. 3: 1405, 1984; 5: in press 1986]. It differs from S-antigen-EAU and interphotoretinoid-binding protein (IRBP)-EAU, in which uveitis also assumes serious proportions anteriorly and in which a more severe EAU develops with lower doses, even without pertussis adjuvant.

66 Immunologic Examination of Patients with Retinal Disorders


The cellular and humoral responses to retinal proteins in patients with retinal disorders were investigated by means of lymphocyte stimulation, leukocyte migration inhibition and enzyme-immunoassay. Purified S-antigen and opsin from bovine retina were used as test antigens. No immunoreactivity was found in dominant and recessive forms of retinitis pigmentosa and in placoid pigment epitheliopathy (APMPPE). In serpiginous chorioiditis, however, we found sensitization to S-antigen in 5 out of 10 patients (50%) with the lymphocyte stimulation test and in 8 out of 11 patients (73%) with the leukocyte migration inhibition test. The frequency of a stimulation index SI 3 and of a migration index MI 75 had increased significantly as compared with all other patients. Only one of 10 controls was positive for S-antigen, while the measured frequency of sensitization to opsin was low both in the patients and in the control group. Serum antibodies against the two test antigens were demonstrated in none of the three retinal disorders. These findings suggest damage to photoreceptor cells and blood-retina barrier in serpiginous choroiditis, so that the released pathogenic S-antigen can migrate to the blood vessels and can stimulate the immune system to measurable values.

67 IRBP-Induced Experimental Autoimmune Uveoretinitis: A New Autoimmune Disease

R. M. Broekhuyse, R. M. Winkens, E. D. Kuhlmann

Interphotoreceptor retinoid-binding protein (IRBP) was isolated in very pure form from the soluble fraction of bovine retina. It did not contain (rhod)opsin or S-antigen, as was shown by electroimmunoblotting. Bovine IRBP appeared to cross-react with IRBPs from several other animal species, including that of rat. Microgram quantities of bovine IRBP in Freud’s complete adjuvant injected into rats and rhesus monkeys caused experimental autoimmune uveoretinitis (EAU) and inflammation of the epiphysis. Lewis rats, in particular, were very sensitive. The onset of the disorder was characterized by hyperemia of the iris, followed within 1 day by persistent miosis and dense cell infiltration and a large amount of protein in the anterior chamber of the eye. Histologically, we found severe iridocyclitis, followed the next day by severe uveoretinitis. A large proportion of the photoreceptor cells was destroyed within 1 week, after which the inflammation subsided. Simultaneous injection of Hemophilus pertussis bacteria intensified the response and the severity of the illness. EAU caused by IRBP developed more rapidly and more intensely than that elicited by retinal S-antigen or opsin. Cyclosporin A prevented each of the three experimental uveites, which indicates that they are T-cell-mediated disorders.

68 Experimental Autoimmune Uveoretinitis in Rat Induced by Rod Visual Pigment: Rhodopsin Is More Pathogenic Than Opa
Experimental autoimmune uveoretinitis (EAU) is a model in which an uveitis-like syndrome can be induced in several species by means of extraocular injection of retina-specific proteins. One of these proteins is the rod visual pigment rhodopsin. In this study we compared the pathogenicity of the nonilluminated form of the pigment, rhodopsin, with that of the illuminated form, the apoprotein opsin. Rhodopsin proved to be much more pathogenic than opsin. It induced a severe, bilateral nongranulomatous inflammation in all injected rats, 10-11 days after injection. Opsin induced severe uveitis with a frequency of 70%. 11-12 days after injection. The way in which the severe form of rhodopsin-induced EAU developed shows many similarities with the severe EAU induced by opsin. However, rhodopsin produced a more intense inflammation, with increased involvement of the anterior segment of the eye. In rhodopsin-induced EAU, the first inflammatory cells were observed in the ciliary body and the pars plana. Subsequently, the inflammation spread rapidly to the anterior chamber of the eye, iris and retina. Choroiditis was observed only during the severe inflammatory phase. The uveoretinitis ultimately led to complete destruction of photoreceptor cells.

**Measurement of Corneal Epithelium Permeability and Tear Production by Means of Fluorophotometry**

J. P. Boot, J. A. van Best, G. A. den Haan, J. A. Oosterhuis, L. Vrij

Fluorophotometry is a technique for measuring fluorescence stemming from fluorescein. The permeability of corneal epithelium to fluorescein and tear production were determined with this technique; the method for measuring permeability has not yet been described before in the literature. After instilling 1 µl of 1.5% fluorescein in 15 volunteers, the concentration gradient in lacrimal film and cornea was measured for 1.5 h. The permeability of the corneal epithelium was calculated from the concentration measured in the cornea, the concentration in the lacrimal fluid immediately after the instilling of fluorescein and the concentration gradient in the lacrimal film. Tear production was determined from the concentration gradient in the lacrimal film and the volume of lacrimal fluid. The permeability of the corneal epithelium was, on average, 0.047±(SD) 0.022; this value is small with respect to the permeability of the blood-aqueous and blood-retinal barriers, being 44 and 5.5 nm/s, respectively. Average tear production was 1.39±(SD) 0.42 µl/min; a significant decrease with increasing age was noted (0.017 µl/min/year;p<0.005). The effect of 5 drops of oxybuprocaine 0.4% (Novesine®) was studied in 3 volunteers; the permeability of the eye containing oxybuprocaine was at least 3.5 times greater than that of the control eye. Diffuse abnormalities in the corneal epithelium can be quantitatively assessed by this method. In addition, decreased tear production can be quantified.

**Morphological Changes Caused by Photodynamic Therapy in Melanomas Implanted in the Anterior Chamber of the Rabbit Eye**


The morphologic changes in Greene’s melanoma implanted in the rabbit eye were examined following photodynamic therapy by means of light and electron microscopy. Photodynamic therapy consists of the intravenous administration of 10 mg/kg body weight of a solution of hematoporphyrin derivative (HpD; 5 mg/ml); the tumor is irradiated 24 h later with red laser light (λ=630nm; 60 mW/cm2). Untreated tumors, tumors treated with HpD
only and tumors 0, 0.5, 1, 4 and 24 h after photodynamic therapy were examined. Untreated tumors and tumors treated with HpD only looked completely viable on light-microscopic examination. Light-microscopic examination of tumors fixed 0, 0.5, and 1 h after treatment showed blood vessels entirely filled with erythrocytes. The tumor cells themselves appeared completely viable. This confirmed our findings that the blood circulation is arrested following photodynamic therapy. Tumors fixed 4 h after treatment were 50% necrotic. Tumors fixed 24 h following photodynamic therapy displayed subtotal necrosis. Electron-microscopic examination revealed that in 10% of the mitochondria in untreated tumors the inner and outer membranes were fused and that several mitochondria were slightly swollen. In tumors treated with HpD only. 30% of the mitochondria were affected. Half the mitochondria were damaged immediately after photodynamic therapy. No healthy mitochondria were observed in tumors fixed 0.5 anci 1 h after treatment. Moreover, nuclear membranes, Golgi apparatus and endoplasmic reticulum were swollen and endothelial cells were damaged. This morphological study shows that photodynamic therapy attacks the mitochondria, but that arrest of the blood circulation following treatment will certainly contribute to tumor destruction.

71 Relationship between Retinal S-Antigen and Induced Proliferative Vitreoretinopathy in Rabbits
A. J. J. M. Rademakers, R. M. Broekhuysen, H. J. Winkens, A. H. M. van Vugt
A cellular immune response to retinal proteins in patients in whom retinal detachment had been present for some time was previously shown in our laboratory and also elsewhere. In the present study, we investigated whether there is a correlation between the development of proliferative vitreoretinopathy (PVR) and sensitization to retinal S-antigen in rabbits, by means of the lymphocyte stimulation test. We compared two groups of animals: group 1 rabbits, which were injected with a nonpathogenic dose (5 µg) of S-antigen, and group 2 rabbits, which were not presensitized. After 21 days, both groups were injected intravitreally with homologous skin fibroblasts in both eyes in order to induce PVR. We obtained the following results: (1) Group 1 (sensitized with S-antigen) appeared to attain PVR stages IV and V significantly more rapidly (Ge-han test; p = 0.02). (2) Group 2 (not sensitized with S-antigen) exhibited a slow increase in the stimulation index for this antigen to being just positive. This can mean that in these animals autoimmunization occurred as a result of PVR. This phenomenon could be in keeping with the sensitization found in retinal detachment patients. Our findings suggest that retinal detachment can be complicated by an autoimmune response to retinal proteins.

72 The Use of Intravitreous Healon® in Retinal Detachment Surgery
R. Koster, J. S. Stilma
The introduction of Healon® intravitreously during retinal detachment surgery to eliminate hypotonia and/or to smooth retinal folds or to bring about displacement of defects is already being applied by several authors. The results and complications of intravitreous Healon administration were evaluated in a retrospective study on 40 eyes (out of a total of 317 eyes: June 1982 to September 1985). Eyes with large retinal detachments, in particular, were involved. Fifteen of the forty eyes exhibited complicating proliferative vitreoretinopathy to a greater or lesser extent. The usual procedure – cerclage, implantation of plombs, exodrainage and cryopexy under a binocular funduscope – was used. From 0.4 to 3.6 ml of Healon was introduced via pars plana sclerotomy. Satisfactory recovery of the hypotonia was achieved in all cases; Healon appeared to vitalize the retina well. No postoperative cataract developed. A serious rise in intraocular pressure occurred in some cases, which was rapidly and completely cured with
Timoptol and Dia-mox. Corneal edema developed in 2 eyes, which soon disappeared. The retina was attached in 84% of the eyes without proliferative vitreoretinopathy (PVR) and in 53% of those with PVR, in an early stage. When using Healon, intraocular pressure should be properly monitored postoperatively. Healon can be a valuable agent in these complicated retinal detachment operations.

Abstracts

73 Cells on Intraocular Lenses
In the past 2 years, a few dozen intraocular lenses were presented to the Department of Morphology of the IOI. The implant had been present from 1 week to 12 years and the reason for removal was mostly related to corneal problems. All lenses were examined by scanning electron microscopy. Membrane fragments and various types of cells were found, adhering to the surface of the lens. In addition, damage of diverse nature to perspex (polymethyl methacrylate) and polypropylene was observed.

74 Treatment of Ocular Aniline Intoxication with Fluorescein
K. T. Diep, A. M. Verbeek, J. R. M. Cruysberg
Injuries to the eye from aniline-containing pencils or color pencils can lead to loss of the eye after relatively mild trauma. The highly toxic methyl violet diffuses rapidly through the tissues and produces a purple discoloration, edema and rapid necrosis. In 1965, a young patient from our clinic presented with necrosis in the orbital roof, dura mater and cerebrum [1]. Therapy consists of the immediate removal of the pencil point and remaining dye, without sacrificing essential structures. The eye should also be rinsed every 10 min with a 2% solution of sodium fluorescein until a blue-black precipitate no longer arises. Rinsing with fluorescein should then be repeated every 30 min for 12-14 h. A patient presented in whom, after external contact with an aniline-containing pencil, a purple discoloration of the conjunctiva and iris had developed, with extensive edema of the eyelids, conjunctiva and cornea. After rinsing the eyes with 2% sodium fluorescein and an intravenous injection of 20% sodium fluorescein, the symptoms disappeared completely. By using fluorescein in fluorescein angiography, this antidote is now within reach of the ophthalmologist.


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