

# Developments in Ophthalmology

Vol. 13

Series Editor

*W. Straub*

## Complications in Modern Ophthalmic Surgery

Volume Editor

*I. Stempel*, Marburg a. d. Lahn



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52nd Clinical Afternoon of the University Eye Clinic in the Concert Hall of the  
Ernst von Hülsen-Haus, Marburg a.d. Lahn, January 18, 1986

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# Complications in Modern Ophthalmic Surgery

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## Developments in Ophthalmology

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## Preface

This issue comprehends the lectures of a Symposium performed in Marburg on January 18th, 1986 in honour to Prof. Dr. Dr. h.c. W. Straub, director of the University Eye-Clinic in Marburg, due to the 65th anniversary of his birthday. The theme 'Complications in modern ophthalmic surgery' reflects one of his most consistent scientific and educational efforts: promoting modern ophthalmic surgery techniques as well as being always aware of their risks.

This meeting of colleagues, co-workers, and pupils was an expression of gratitude to Prof. Straub, their unique teacher.

This short symposium which is far from claiming a certain completion of presenting all ophthalmic surgery problems, tries, however, to cover a broad field of complications by competent German authors. Common difficulties of intraocular lens implantation are discussed as well as special problems with silicone oil or gas injections in retinal detachment surgery. The order of the 19 contributions follows anatomical criteria. At the end juridical implications of all such complications are discussed.

*I. Strempel*

## *Acknowledgments*

Prof. Dr. Dr. h.c. W. Straub, the series editor, and S. Karger Publishers deserve special thanks for enabling the publication of this issue.

## Wolfgang Straub 65 Years

Congratulations to  
Prof. Dr. med. Dr. med.h.c. Wolfgang Straub



We are glad that we may celebrate this day. It cannot be taken for granted that a man is able to spend his 65th birthday happily among his friends and disciples. All of us came to congratulate, and to bring their best wishes for you and your family. This year, Prof. Straub has also been in Marburg for 25 years. Therefore, this is the right day to remember common

events and work as well. Clinical and scientific work brought us together and by that we became friends.

Such address should not omit biographical data: Wolfgang Straub was born on December 29th, 1920 in the Swabian town of Möttlingen. At least in 1939 the sunny time of his youth was over. His career in medicine, which is the most prominent feature of his life for us, began during wartime. Instead of enjoying the freedom of student life in the romantic towns of Tübingen or Marburg, he had to wear the uniform of the army, partly at universities already marked by the events of the war, partly on the different theatres of the war operations. Nevertheless, in time he passed his university exams, and in 1945 he was promoted doctor of medicine.

In 1946 Dr. Straub became member of the staff of the Eye Clinic at the University of Tübingen, and by that devoted his life to ophthalmology. In the years after the war, the clinics and institutions of the German universities were rebuilt. Both the time of the national-socialistic regime and the war had brought losses of the human, intellectual and real substance to the formerly famous German universities that nowadays can hardly be imagined. The men and women of that time rebuilt the universities and resumed international scientific relations. Wolfgang Straub was one of them.

From his ophthalmological teacher, Prof. Stock, he learnt not only to do accurate clinical work but also to like histopathological investigations. In these early years, about 20 histopathological studies were published. In a number of clinical and experimental papers, the toxoplasmosis of the eye was investigated from different points of view. At that time already, he suggested that many cases of chorioretinitis were caused by an infection with *Toxoplasma gondii* — an opinion which is generally acknowledged today. A few years later, Straub had published several books and papers on electroretinography. In electroretinography, he was a pioneer and developed this new field of research in visual physiology to be used in clinical ophthalmology. We are aware that this chapter of clinical electrophysiology opened by Wolfgang Straub has not yet been closed. In 1953, Straub left his Swabian home country and followed his 'Oberarzt' Hans Sautter northwards to Hamburg, where Sautter was appointed director of the large eye clinic at the university. This was a good decision, for Sautter was one of the most prominent ophthalmologists of our times. At Hamburg, the young Oberarzt Straub grew to become a great clinician. In 1954 he received the *venia legendi* in ophthalmology, and in 1960 he was appointed associate professor. Many papers and some books gave evidence of his career. In addition to further publications on toxoplasmosis and electroretinography, two books were published. Ap-

plying the newly developed technique of ophthalmological photography to record diseases of the eye, he published together with Rossmann the 'Atlas of the diseases of the anterior segment of the eye' and with his chief Sautter 'The photographed eye fundus'. It is a pleasure to read old papers by Straub, his endowment of observation and his style had already been fully developed.

In 1961 Prof. Straub moved to Marburg/Lahn and became chief of the eye clinic at the Philipps University. As a well-trained clinician and a hard-working person, he was exactly the right man in the right place. He took over a well-kept house and managed it easily, but systematically. As Prof. Straub was known to be a specialist in retinology by his publications on clinical electroretinography, some special cases were referred to the university eye clinic in Marburg.

Straub is a devoted academic teacher. His lectures are excellent, and scientific research has been supported. Ophthalmic histopathology was carried on by the unforgotten Joe Henry Rodenhäuser, H.J. Trojan, J. Freund and Ilse Stremmel. Strabismology was investigated by Aust and later by Welge-Lüssen, whereas Reim, Helga Catterpoel, Welge-Lüssen and Turss studied the biochemistry of the eye. Everybody who had worked for some years at the university eye clinic in Marburg, someday was asked by his chief to write a paper on an immediate clinical problem. So, during the years, a number of interesting clinical papers were published.

Some of the important qualities of Prof. Straub are to be mentioned: He is usually present in the clinic, hardworking, and always ready to help. To each member of his staff, he is a loyal and absolutely reliable partner. This attitude was not without rewards. Over the years, a good number of his disciples were brought to an academic career: Rodenhäuser, Barbara Schmidt, Aust, Reim, Welge-Lüssen, Turss, Weder, and Ilse Stremmel. Prof. Straub not only stimulated his staff for scientific work, but was also very active for himself. He usually supervised some students, who worked for their doctoral thesis. He also used to give papers on regional, national and international ophthalmological meetings. In addition to his daily work in the clinic, he wrote more books, for example, the 'Augenspiegelkurs' and the two volumes of 'Die ophthalmologischen Untersuchungsmethoden', and wrote some important chapters for different books. Moreover, for many years Prof. Straub was editor of *Graefes Archives for Clinical and Experimental Ophthalmology*, co-editor of the *Deutsches Ärzteblatt*, and coordinating editor of *Ophthalmologia*. Now he is editor of *Developments in Ophthalmology*. In 1976 and 1977 he was president of the German Ophthalmological Society

and organized, in 1977, a very important congress with the main topic 'Plastics in ophthalmology'. Also, smaller, regional meetings at Marburg, with Prof. Straub acting as chairman, are well remembered for their intelligently selected topics, such as 'Problems of glaucoma' (1970) and 'Diagnostic errors' (1976). Because of his excellent knowledge of foreign languages, Prof. Straub is well known internationally. Every year he has attended the congress of the French Ophthalmological Society in Paris. Since 1980 he is 'délégué étranger', the speaker of the German members of the French society. In 1972 he was awarded the honorary doctor of medicine by the University of Clermont-Ferrand, in 1979 he was decorated with the gold medal Jean Chibret of the French Ophthalmological Society, and in May 1985, Prof. Straub was elected member of the French National Academy of Medicine, which was an honour that could hardly be underestimated. It had only been awarded to a few German personalities, like Bunsen, Helmholtz, Virchow (1867), Robert Koch (1899), Emil von Behring (1900), Hirschberg (1903), Paul Ehrlich (1905) and Marchionini (1965). Likewise in the English-speaking world, Straub is not a stranger. Already in 1954 he gave a talk at the International Congress of Ophthalmology in New York City. In 1978 he was appointed to the International Council of Ophthalmology, and in 1982 was elected its vice-president. Since 1984 he has been a member of the Academia Ophthalmologica Internationalis.

Considering all the honours, titles and awards Prof. Straub has received, it is surprising that he achieved all these besides his daily clinical work, which we came to know by our own experience. Yet there is an ally in the background who secures his retreat: Mrs. Sybil Straub, his wife, the French-born lady, who has been his companion over the years, thinking and feeling with him, always present. Such a partnership has formed a solid basis, to give intellectual and psychological freedom to do good work.

Prof. Straub has accomplished his personality by serving the ophthalmological science, and accumulated vast knowledge, great skill and experience — an intellectual wealth, that will never vanish. As a good academic teacher he has passed on his knowledge on every occasion, at first and always to his disciples. This generosity created a friendship and admiration which has been full of life over decades. The following scientific papers are dedicated in friendship to him by his disciples.

Aachen

Martin Reim

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## Complications of Lid Surgery

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### Introduction

Usually complications of lid surgery are easily visible and hence may be corrected by secondary interventions, which often give reasonable results, for example, over- or under-correction of ptosis, entropium and ectropium. Also, lid plastic operations to close defects following injuries, excision of scars or removal of tumors give good results in secondary interventions, if performed carefully.

More difficulties emerge when the entropium was surgically overcorrected and resulted in secondary ectropium. In this situation, usually skin was resected from the lower lid in too-large an extent. The surgical repair must include a free transplant of a sufficient amount of skin from the upper lid to release tension from the skin in the lower lid. If necessary, also an ectropium operation has to be added. Healing problems, such as hemorrhages, necrosis or secondary infection may occur, but are not really serious, when the primary intervention followed the rules of lid plastic surgery, as given in the textbooks of Fox [1970], Vörösmarthy [1970], Mustardé [1980], Iliff et al. [1979], Reeh [1976], and Hatt et al. [1984].

Serious complications of lid surgery are recurrences of malignant lid tumors, especially of basal cell carcinoma.

Indeed, the evaluation of lid operations during the last 10 years showed among some hundred lid operations only 2 secondary ectropia following entropium operation and 3 cases of insufficiently operated ptosis. These cases could be corrected by another intervention. As recurrences of lid surgery for malignant tumors remained to be the major problems of complications in lid surgery, the results of 7 years' experience were evaluated.

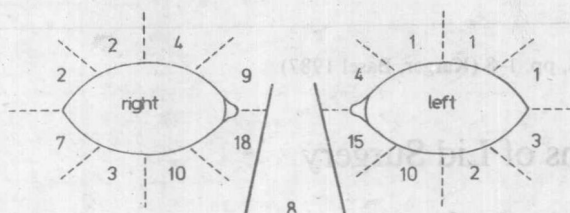


Fig. 1. Distribution of the basal cell carcinomas (n = 57) in the different regions of the eyelids (%).

### Material and Methods

Fifty-seven patients were operated for basal cell carcinoma between 1974 and 1981. In 1984 we could re-examine 42 patients, 9 of the 57 patients were deceased for different reasons. Six patients could not be found during the reevaluation. Thirty-two patients were male, 25 female, average age during surgery was 62 years. 18%, respectively, 15% were located in the lower lid in the region of the nasal angle of the lid. Ten percent of the tumors were found nasal to the center of the lower lid (fig. 1). The size of the tumors is given in table I. In 89% of the cases the lacrimal ducts could be preserved. The lid margin was involved by the tumor in 44%. In 37% the distance from the lid margin was less than 5 mm, and 19% were further distant.

Consequently, the classification of the lid tumors according to Neubauer [1979] resulted in the following distribution.

LT1	More than 5 mm distance from the lid margin Maximum diameter of the tumor 20 mm	19%
LT2	Less than 5 mm distance from the lid margin Location 1: either free lid margin or lateral lid lid angle, maximum diameter 20 mm Location 2: medial lid angle maximum diameter of the tumor 10 mm, minimum distance from the skin of the lid angle 3 mm	68%
LT3	Tumor at the inner lid angle, tear ducts involved	11%
LT4	Tumor invasion in orbita or ethmoid	2%

The applied technique of operation is given in table II.

### Results

The immediate complications of the surgical removal of the tumors and the following lid plastic surgery are listed in table III. Table IV shows the

Table I. Size of the tumors (n = 57)

< 5 mm	< 10 mm	< 15 mm	< 20 mm	> 20 mm	Not defined
44%	30%	5%	10%	2%	9%

Table II. Surgical method applied (n = 57)

	%
Advancement	38
Rotation flap	17
Cheek rotation (Mustardé)	3
Free skin transplant (from upper lid)	30
Straight suture	12

Table III. Immediate complications following lid plastic surgery (n = 57)

	%
No complication	63
Infection	8
Superficial necrosis	14
Hematoma	12
Dehiscence of wound	3

Table IV. Occurrence of complications after different surgical techniques

	Advance- ment flap	Rotation flap	Cheek flap rotation	Free skin transplant	Straight suture
Infection	4	-	-	1	-
Necrosis	4	4	-	-	1
Hematoma	4	1	-	-	2
Dehiscence	1	-	-	-	1
Total	23	10	2	18	7

Table V. Permanent defects following lid surgery after removal of basal cell carcinomas - summarized from 57 cases

Lid closure incomplete	4
Step in upper lid margin	2
Step in lower lid margin	7
Ectropium	3
Entropium	1
Exenteratio orbitae	1
Partial loss of cilia	17
Trichiasis	1

Table VI. Percent evaluation of cosmetic long-term results after lid surgery following removal of basal cell carcinomas (n = 55)

Good — scars hardly visible, no color differences	71
Moderate — smooth scars, some color difference	22
Bad — irregular scars, prominent skin flaps	4

distribution of the immediate complications related to the different surgical methods. These complications did not result in permanent defects as can be seen from table V, which showed that only 4 out of 57 cases showed badly visible scars from the ocular plastic surgery following tumor excision (table VI).

Major difficulties were brought about by recurrences of the tumors. The histological examination of the excised tumors from 57 patients reported 49% complete removal of the tumor, and 51% revealed tumor cells in the margin of the excision. Therefore, in these 51% the tumor could not be assumed to be removed completely. In total, we saw only 4% of patients with recurrences. One patient suffered from a new basal cell carcinoma in a different location, when she was re-examined. Table VII gives the outcome of the 57 patients with basal cell carcinoma over the years. At the end of the evaluation in 1984 no further recurrences appeared. Therefore, the last cases from 1981 were controlled for only 3 years. The histories of the recurrent cases of basal cell carcinoma are summarized in table VIII. Two of them were previously treated with X-rays. Three of these recurrences were found in the medial lower lid or in the medial lid angle. Only one of the recurrences appeared in the upper lid.

Table VII. Outcome of patients with basal cell carcinoma after lid surgery

Surgery	Healed	Recurrence	Deceased	Unknown
1974	1	-	-	-
1975	5	-	1	-
1976	4	-	1	-
1977	2	1	1	1
1978	6	1	2	-
1979	-	1	2	1
1980	15	1	-	2
1981	5	-	2	2
Sum	38	4	9	6

Table VIII. Review of data from patients with recurrence of basal cell carcinoma after lid surgery

	Case No.			
	1	2	3	4
Age, years	66	40	64	75
Sex	M	F	M	M
Location of tumor	medial lower lid	center upper lid	medial lower lid	nasal lid angle
Pretreated	X-rays	not	X-rays	not
Interval from pretreatment	4 years		2 years	
Interval from first symptoms		1.5 years		4 months
Size of tumor at surgery, mm	4 × 3	8 × 4	15 × 5	20 × 12
Histological typing	lobular cell strands	ulcerating	cribriform basal cell carcinoma	multicentric basal cell carcinoma
Removed completely	doubtful	not	yes	not
Interval from surgery to recurrence, years	5	2	4	2