

Advances in Ophthalmology

Fortschritte der Augenheilkunde
Progrès en Ophtalmologie

Volume 33

MICROSURGERY OF
CATARACT, VITREOUS, AND
ASTIGMATISM

Microsurgery of Cataract, Vitreous, and Aqueous

Advances in Ophthalmology

Fortschritte der Augenheilkunde
Progrès en Ophtalmologie

Vol. 33

Series Editors

M. J. ROPER-HALL, Birmingham; H. SAUTTER, Hamburg;
E. B. STREIFF, Lausanne



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Advances in Ophthalmology

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Editors – Herausgeber – Rédacteurs

M. J. ROPER-HALL, Birmingham; H. SAUTTER, Hamburg;

E. B. STREIFF, Lausanne

Previous Proceedings of the 'Ophthalmic Microsurgery Study Group'

Vol. 20: Microsurgery of the Eye. 1st Symposium, Tübingen, August 1966.

Ed.: G. MACKENSEN (Freiburg); M. J. ROPER-HALL (Birmingham);

R. C. TROUTMAN (Brooklyn, N.Y.). VI + 152 pp., 91 fig., 6 tab., 1968.

ISBN 3-8055-0211-7

Vol. 22: Microsurgery in Glaucoma. 2nd Symposium, Bürgenstock, June 1968.

Ed.: G. MACKENSEN (Freiburg). VIII + 288 pp., 140 fig., 24 tab., 1970.

ISBN 3-8055-0216-8

Vol. 27: Microsurgery of Ocular Injuries. 3rd Symposium, Merida, Yucatan, Mexico,

March 1970. Ed.: R. C. TROUTMAN (Brooklyn, N.Y.). VIII + 216 pp., 109 fig., 13 tab.,

1972. ISBN 3-8055-1355-0

Vol. 30: Surgery of the Iris and the Ciliary Body. 4th Symposium, Lund, July 1972.

Ed.: E. PALM (Lund). XI + 339 pp., 310 fig., 12 tab., 1975. ISBN 3-8055-1844-7

Cataloging in Publication

Microsurgery of cataract, vitreous and astigmatism/volume editors: Dermot Pierse and H. Jonathan Kersley; associate editor: Sheila Tant. -- Basel; New York:

Karger, 1976.

(Advances in ophthalmology; v. 33)

Proceedings of the 5th symposium of the Ophthalmic Microsurgery Study Group held in London, 1974.

1. Cataract Extraction – congresses 2. Vitreous Body – surgery – congresses

3. Astigmatism – surgery – congresses 4. Microsurgery – congresses I. Pierse, Dermot,

ed. II. Kersley, H. Jonathan, ed. III. Ophthalmic Microsurgery Study Group IV.

Title V. Series

W1 AD686M v. 33/WW 260 M626 1974

ISBN 3-8055-2323-8

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Printed in Switzerland by National-Zeitung AG, Basel

ISBN 3-8055-2323-8

Microsurgery of Cataract, Vitreous, and Astigmatism

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Fortschritte der Augenheilkunde
Progress in Ophthalmology

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Series Editors:
M. I. ROSEN-HALL, Birmingham; H. SAUTTER, Hamburg;
E. B. STREIBER, Lausanne



S. Karger - Basel - München - Paris - London - New York - Sydney

Microsurgery of Cataract, Vitreous, and Astigmatism

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With 170 figures and 26 tables, 1976



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Preface

In the period after World War II prescient ophthalmic surgeons in different countries appreciated the advantage of operating with the benefit of the greatly increased visualization offered by the use of the binocular compound microscope. In the two decades which followed, articles relating to the technique were published in the major journals of our speciality and this led to the first international gathering of eye surgeons for the purpose of discussion of microsurgery being arranged by HEINRICH HARMS and GÜNTER MACKENSEN in Tübingen, Germany, in 1966. This meeting, which included most of the pioneers, led to the formulation of the International Ophthalmic Microsurgery Study Group which has since met biennially and has grown in enthusiasm and stature. The meeting places have been widespread. In 1968 we met in Bürgenstock, Switzerland; in 1970 in Merida, Mexico; in 1972 at Lund, Sweden, and in 1974 for the first time it has been our very great pleasure to welcome the Group to the United Kingdom. London has a very ancient and honourable tradition of medical innovation and progress and despite the prevailing economic recession, a facility for entertainment and hospitality. It is not surprising that free and far ranging discussion took place at the meeting and this book seeks to introduce to a wider audience both the flavour and contents of this interchange of ideas.

There is now almost general acceptance of microsurgery as a method of our specialty but the frontiers of the technology are not yet reached and so the need for a small international group to discuss future development is valid. As an innovation at the London meeting a session was devoted to an exploration of the role of television in ophthalmic microsurgery and it may be that important new operating methods may arise from this discussion.

Since our last meeting GÜNTER MACKENSEN, who has been General

Secretary since the inception of the Group, decided that this post should rotate throughout the world and SAM MCPHERSON, jr. is the new General Secretary. GÜNTER remains behind the scenes, a continuing tower of strength and a wise councillor.

The support and advice of many colleagues and friends made my task a light one. MICHAEL ROPER-HALL and the other Session Chairmen conducted the scientific sessions smoothly and informally so that the available time was utilized to the full.

The organization and management of the meeting and the social programme fell almost entirely on my colleague JONATHAN KERSLEY, and my personal secretary SHEILA TANT, who indeed had the bulk of the work of preparing this publication.

DERMOT PIERSE
London 1976

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Officer of the day: DERMOT PIERSE, London

Chairman: MICHAEL ROPER-HALL, Birmingham

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Session One

Technical Session

Officer of the day: DERMOT PIERSE, London

D. PIERSE: A large part of this session is being devoted to a discussion of the place of television in ocular microscopy and we have enlarged the group for this session to include experts in other technical fields. For their help and co-operation we are most grateful and on your behalf I have much pleasure in welcoming them.

But first we have the reports of the technical sub-committees on instruments, microscopes and sutures.

Instrument Sub-Committee Report

There does not seem to me to have been any completely new development since our meeting 2 years ago, but there has been very considerable progress in the further development and refinement of projects that were at that time reported in an early stage of development.

I propose to divide this report into a consideration of (1) small instruments, (2) mechanized instruments, (3) vitreous cutters, (4) phacoemulsification instruments and (5) cautery development.

Small Instruments

I reported last time upon the use of new materials in the manufacture of small instruments, in particular titanium alloys and whilst no new major change in design of small instruments has occurred, further development of the use of titanium by a number of different manufacturers has continued that this may be the material of choice for the future.

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Small Instruments

I reported last time upon the use of new materials in the manufacture of small instruments, in particular titanium alloys, and whilst no new major change in design of small instruments has occurred, further development of the use of titanium by a number of different manufacturers has confirmed that this may be the material of choice for the future.

Its advantages of lightness, combined with tensile strength, its ability to withstand corrosion and its non-reflecting finish when anodized, make it most suitable for microsurgical use. Figures 1-3 show typical instruments manufactured in titanium alloy and anodized a deep purple.

The other development in relation to new materials is the use of gem quality diamond for cutting purposes and we found that many surgeons around the world have been pleased with the use of a diamond as a cutting tool and this has now been extended into other types of cutting device.

Mechanized Instruments

There has been a tremendous development in motorized and mechanized instruments for use in anterior segment surgery. DRAEGER's mechanized trephine, through which it is possible to look down (through the microscope) and see the cornea while it is being trephined, is but one of a whole range which he has now developed. These include very small trephines for glaucoma surgery, a rotating knife blade and a very small drill for producing atraumatic stab wounds of the anterior chamber.

Various other motor-driven corneal trephines may have their speeds and direction of cut altered at will. CROCK, in Melbourne, has designed an oscillating knife for corneal incisions.

Vitreous Cutters

Whilst the development of mechanical vitreous cutters and associated instruments has been proceeding in different centres for at least 5 years, the past 2 years has seen the emergence of several instruments as fully developed commercial products. Dr. HENNIG has been much involved in the development of these devices in Europe and Dr. DOUVAS in the United States, so I will ask them to present a review of the current models.

Vitrectomy Instruments

J. HENNIG: In 1968, KASNER recommended vitrectomy to remove vitreous opacities. Beginning with CROCK and MACHEMER in the following years, instruments were designed to remove the vitreous via the pars plana. So it was possible to avoid disturbance of the anterior segment. In addition to the instruments of the first generation, there are now published several technically different devices. Here is a review of the published constructions.

