Atlas of EYE SURGERY

Paton · Katzin · Stilwell

EYE SURGERY

R. TOWNLEY PATON, M.D.,F.A.C.S.
Surgeon-Director, Manhattan Eye, Ear, and Throat Hospital
Vice President and Founder, Eye Bank for Sight Restoration
Clinical Professor of Ophthalmology, New York University School of Medicine

HERBERT M. KATZIN, M.D.,F.A.C.S.
Director, Eye Bank Laboratory
Associate Surgeon, Manhattan Eye, Ear, and Throat Hospital

DAISY STILWELL *Illustrator*

McGraw-Hill Book Company, Inc.
NEW YORK TORONTO LONDON 1957

ATLAS OF EYE SURGERY

Library of Congress Catalog Card Number: 57–7240

Atlas of Eye Surgery

Atlas of

THE BLAKISTON DIVISION

Preface

This manual is planned primarily as a guide to the resident surgeon in the department of ophthalmology. Since the authors have long believed that a full set of illustrations is particularly helpful in teaching the fine details of surgical procedures, the largest part of this book consists of drawings. The figures are designed to show each operation step by step; an explanatory legend accompanies each figure. The text, therefore, is brief and is intended only to summarize information which cannot be illustrated.

Eight basic groups of operations are described. Though no two eyes are exactly alike and special conditions may demand modification of techniques, most operations fall into one of these groups. By practicing the fundamental procedures, the surgeon gradually standardizes his approach until it becomes almost automatic and he feels himself in control of every stage of the operation. As he matures further, he becomes increasingly interested in smaller and smaller details, which give smoothness and refinement to his work. As he watches other surgeons, he notes a different method of suturing the conjunctiva, a new instrument, or a new way of handling an old one. Perhaps he modifies some of the techniques described in this book or substitutes others.

The procedures that we present follow no single school, nor do we claim that they are original. We have tried constantly to improve our methods. We have accepted suggestions from all sources and have revised our methods when new instruments have been devised or old ones improved. Our aim has been safety. We believe that the techniques illustrated will offer the resident a sound foundation in ophthalmic surgery, and we hope that the more experienced surgeon may find useful suggestions in the detailed drawings.

We wish to express our gratitude to Leonard Dank, who assisted the artist with some of the drawings; Irene Hughes, secretary of the Eye Bank Laboratory, for her help; and Louise Montgomery Cross for her excellent editorial assistance. We are also deeply indebted to the resident staff of the Manhattan Eye, Ear, and Throat Hospital, whose problems and thoughtful questions prompted us to write this book. We hope that they will be pleased with the result.

The book was made possible by the aid of the Lillia Babbitt Hyde Foundation.

R. Townley Paton
Herbert M. Katzin
Daisy Stilwell

All pictures have been drawn from the surgeon's position above and behind the patient's head.

Contents

1

General Preparation

Before admission to the hospital for an eye operation, patients are requested to have a complete physical examination, including tests for diabetes, hypertension, and bleeding tendencies. The surgeon should also be informed of any other conditions, such as arteriosclerosis, arthritis, asthma, heart disease, chronic cough, prostatism, or gallbladder disease. Before a cataract operation, the patient is also required to have a complete set of dental x-rays and to have any teeth with infected roots extracted.

The ophthalmologist carries out a complete eye examination in his office; this must be especially thorough when an intraocular operation is planned. The reaction of the eye to mydriatics is tested, ocular tension is taken before and after dilation of the pupil, and the patency of the lacrimal passages is ascertained. If the appearance of the conjunctiva suggests that it may be advisable, cultures are taken.

The patient is admitted to the hospital the day before the operation. It is advisable for him to have an adequate bowel movement on that day.

The night before the operation, sedatives are administered. The choice of these drugs is wide, so the authors hesitate to recommend a specific one; at the Manhattan Eye, Ear, and Throat Hospital a barbiturate is used. The newer drugs such as Equanil and Thorazine are very helpful. An antiseptic is also used the night before, and the morning of, the operation. Drops of a local anesthetic are instilled, beginning 1 hour before the operation. The authors have found that 0.5 per cent tetracaine given every 5 minutes for six doses is satisfactory for this purpose. If a dilated pupil is desired, a combination of one of the belladonna series and a drug of the epinephrine group is used. These drugs are also given 1 hour before operation, and the dose is repeated after 5 minutes. From the large number of available drugs, the surgeon should choose a combination that he will use routinely. In this way he will always know what to expect.

2

Preliminary Considerations

BASIC SUTURE TECHNIQUE

The ophthalmic surgeon ties most of his sutures with instruments rather than with his fingers. A method is illustrated which can be used for all purposes and is easy to execute. This elementary procedure must not be neglected because of its simplicity. The success of an entire operation may depend upon the security of a single knot. When the surgeon is quite sure that he has tied a square knot flat, he may in many instances be able to eliminate a third tie.

SUPERIOR RECTUS SUTURE

The superior rectus, or "bridle," suture helps materially to stabilize the eye during an intraocular operation. Care is taken not to bunch the conjunctiva. If the suture is placed well back in the belly of the superior rectus muscle, traction on the suture will pull the eye down and also will help to close the limbal wound. On the other hand, if the stitch is placed in the forward part of the muscle tendon, traction may pull the wound open. Bridle sutures may be placed on any or all of the other rectus muscles, according to the part of the eye to be operated upon.

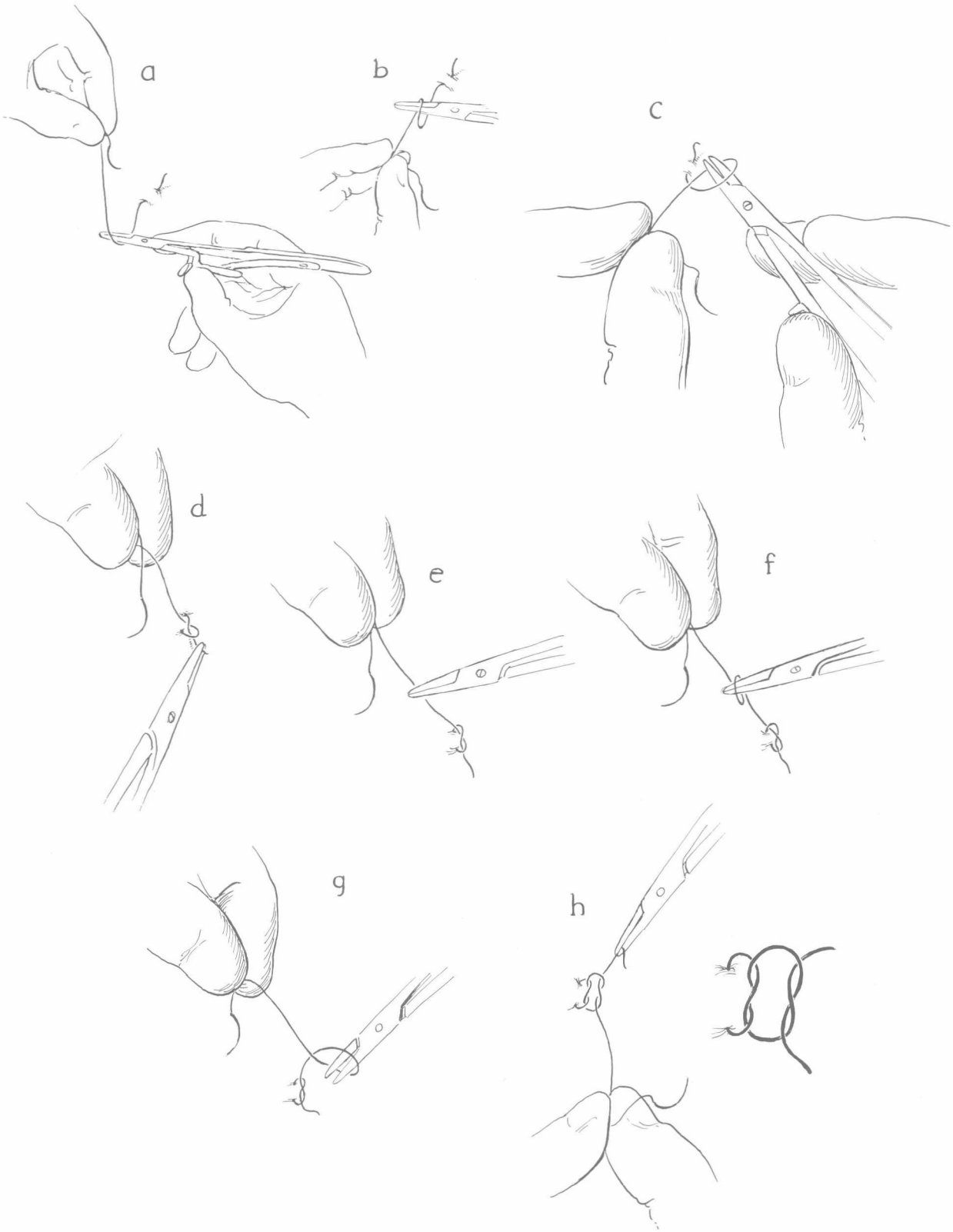
THE SPECULUM

The Arruga speculum is illustrated. It has two screw-controlled levers which act from the bridge of the nose and the cheek and which can be adjusted to elevate the lids away from the globe as well as to spread the lids apart. This is a satisfactory speculum for most purposes. However, no one instrument will suit every need, and the surgeon inevitably adapts his methods to the requirements of a special situation. The suture speculum is also illustrated for this reason. By this method, properly placed sutures can be used to elevate the lids and give good exposure. It should be noted that a much broader base is needed for traction on the upper lid than on the lower.

CANTHOTOMY

Canthotomy produces enlargement of the palpebral aperture through a single radial scissors cut at the external canthus. This procedure improves exposure of the globe in patients who have narrow palpebral apertures. It is harmless and does not require suture. At times it is as useful to the ophthalmologist as episiotomy is to the obstetrician.

Basic Suture Technique


a
b
c
d
e
f
g
h

(*a*) The suture is drawn through the tissue, leaving the short end not more than 1 cm long.

(*b*) The needle holder is placed above the position to be occupied by the knot, and the thread is looped around it.

(*c*) The needle holder is on the inside of the loop, and the jaws are not opened until the surgeon is ready to grasp the short end of the suture.

(*d*) When the short end has been grasped, its direction is reversed. That is, at the beginning the short end projects upward, and after the first tie is completed it points downward.

(*e*) The second knot is tied exactly like the first, except that it is reversed.

(*f*) The needle holder is placed above the first knot, and the thread is looped around it.

(*g*) The short end is grasped.

(*h*) The short end is now drawn upward, reversing the direction of the short end. The result is a flat, square knot.