YEAR BOOK®

YEAR BOOK OF HAND SURGERY® 2001

YEAR BOOK
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RICHARD A. BERGER
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2001 YEAR BOOK OF HAND SURGERY®

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Statement of Purpose

The YEAR BOOK Series

The YEAR BOOK series was devised in 1901 by health professionals who observed that the literature of medicine and related disciplines had become so voluminous that no one individual could read and place in perspective every potential advance in a major specialty. That has never been more true than it is today.

More than merely a series of books, YEAR BOOK volumes are the tangible results of a unique service designed to accomplish the following:

- to *survey* a wide range of journals
- to *select* from those journals papers representing significant advances and statements of important clinical principles
- to provide *abstracts* of those articles that are readable, convenient summaries of their key points
- to provide *informed commentary* about their relevance

These publications grow out of a unique process that draws on the talents of outstanding authorities in clinical and fundamental disciplines, trained literature specialists, and professional writers—all supported by the resources of Mosby, the world's preeminent publisher for the health professions.

The Literature Base

Mosby and its editors survey approximately 500 journals published worldwide, covering the full range of the health professions. On an annual basis, the publisher examines usage patterns and polls its expert authorities to add new journals to the literature base and to delete journals that are no longer useful as potential YEAR BOOK sources.

The Literature Survey

More than 250,000 peer-reviewed articles per year are scanned systematically—including title, text, illustrations, tables, and references—by the publisher's team of literature specialists. Each scan is compared, article by article, to the search strategies that the publisher has developed in consultation with the nearly 200 outside experts who form the pool of YEAR BOOK editors. A given article with broad scientific or clinical implications may be reviewed by any number of YEAR BOOK editors, from one to a dozen or more, regardless of the discipline for which the paper was originally published. In turn, each editor who receives the article reviews it to determine whether it should be included in his or her volume. This decision is based on the article's inherent quality, its relevance to readers of that YEAR BOOK, and the editor's goal to represent a comprehensive picture of a given field in each volume of the YEAR BOOK. In addition, the editor indicates when to include figures and tables from the article to help the YEAR BOOK reader better understand the information.

Of the quarter million articles scanned each year, only 5% are selected for publication within the YEAR BOOK series, thereby assuring readers of the high value of every selection.

The Abstract

The publisher's abstracting staff is headed by a seasoned medical editing professional and includes individuals with extensive experience in writing for the health professions. When an article is selected for inclusion in a YEAR BOOK, it is assigned to a member of the abstracting staff. The abstractor, guided in many cases by notations supplied by the physician editor, writes a structured, condensed summary designed to rapidly communicate to the reader the essential information contained in the article.

The Commentary

The YEAR BOOK editorial boards, sometimes assisted by guest contributors, write comments that place each article in perspective. This provides the reader with insights from authorities in each discipline that point out the value of the article and that often reflect the authority's thought processes in assessing the article.

Additional Editorial Features

The editorial boards of each YEAR BOOK organize the abstracts and comments to provide a logical and satisfying sequence of information. To enhance the organization, editors also provide introductions to sections or individual chapters, comments linking a number of abstracts, citations to additional literature, and other features.

The published YEAR BOOK contains enhanced bibliographic citations for each selected article, including extended listings of multiple authors and identification of author affiliations. Each YEAR BOOK contains a Table of Contents specific to that year's volume. From year to year, the Table of Contents for a given YEAR BOOK may vary, depending on developments within the field.

Every YEAR BOOK contains a list of the journals from which articles have been selected. This list represents a subset of approximately 500 journals surveyed by the publisher and occasionally reflects a particularly pertinent article from a journal that is not surveyed routinely.

Finally, each volume contains a comprehensive subject index and an index to authors of each selected article.

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2001

The Year Book of HAND SURGERY®

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Journals Represented

Mosby and its editors survey approximately 500 journals for its abstract and commentary publications. From these journals, the editors select the articles to be abstracted. Journals represented in this YEAR BOOK are listed below.

Acta Anaesthesiologica Scandinavica
Acta Radiologica
American Journal of Physical Medicine & Rehabilitation
American Journal of Roentgenology
Annales de Chirurgie de la Main
Annals of Plastic Surgery
Arthroscopy
British Journal of Plastic Surgery
Burns
Canadian Journal of Plastic Surgery
Chirurgia Degli Organi Di Movimento
Clinical Biomechanics
Clinical Orthopaedics and Related Research
European Journal of Plastic Surgery
Journal of Bone and Joint Surgery (American Volume)
Journal of Bone and Joint Surgery (British Volume)
Journal of Hand Surgery (American)
Journal of Hand Surgery (British)
Journal of Hand Therapy
Journal of Neurosurgery
Journal of Pediatric Orthopaedics
Journal of Reconstructive Microsurgery
Lancet
Plastic and Reconstructive Surgery
Radiology
Rivista di Chirurgia e Riabilitazione della Mano e dell'Arto
Scandinavian Journal of Plastic and Reconstructive Hand Surgery
Skeletal Radiology

STANDARD ABBREVIATIONS

The following terms are abbreviated in this edition: acquired immunodeficiency syndrome (AIDS), cardiopulmonary resuscitation (CPR), central nervous system (CNS), cerebrospinal fluid (CSF), computed tomography (CT), deoxyribonucleic acid (DNA), electrocardiography (ECG), health maintenance organization (HMO), human immunodeficiency virus (HIV), intensive care unit (ICU), intramuscular (IM), intravenous (IV), magnetic resonance (MR) imaging (MRI), ribonucleic acid (RNA), and ultrasound (US).

NOTE

The YEAR BOOK OF HAND SURGERY® is a literature survey service providing abstracts of articles published in the professional literature. Every effort is made to assure the accuracy of the information presented in these pages. Neither the editors nor the publisher of the YEAR BOOK OF HAND SURGERY® can be responsible for errors in the original materials. The editors' comments are their own opinions. Mention of specific products within this publication does not constitute endorsement.

To facilitate the use of the YEAR BOOK OF HAND SURGERY® as a reference tool, all illustrations and tables included in this publication are now identified as they appear in the original article. This change is meant to help the reader recognize that any illustration or table appearing in the YEAR BOOK OF HAND SURGERY® may be only one of many in the original article. For this reason, figure and table numbers will often appear to be out of sequence within the YEAR BOOK OF HAND SURGERY®.

Publisher's Preface

The publication of the 2001 YEAR BOOK series marks the 100th anniversary of the original Practical Medicine Series of Year Books. To commemorate this milestone, each 2001 Year Book includes an anniversary seal on the cover. The content and format of the Year Books remain unchanged from the beginning of the last century—each volume consists of abstracts of the best scholarly articles of the year, accompanied by expert critical commentaries.

The first Year Book appeared in 1900 when Gustavus P. Head, MD, produced the first *Year Book of the Nose, Throat and Ear*, a volume consisting of highlights from the previous year's best literature, enhanced by expert observations. Dr Head assembled a small group of distinguished physicians to serve as editors, and the first series of Year Books was published in 1901. The first volumes of the Year Book series—*General Medicine, General Surgery, The Eye, Gynecology, Obstetrics, Materia Medica and Therapeutics, Pediatrics, Physiology,* and *Skin and Venereal Diseases*—appeared at monthly intervals, with 10 volumes published in 1 year. The entire series was met with critical enthusiasm.

In 1904, Dr Head's brother, Cloyd, assumed responsibility for the management of the Year Books. In 1905, the volumes began to appear at regular intervals during the calendar year instead of on a monthly basis. By World War I, the Year Books had been established as an authority on medical and surgical progress.

The postwar period brought about a significant change in the practice of medicine: specialization. To accommodate the rise of specialization in medicine, the Year Books were now sold as individual volumes rather than only as a complete set. This change brought about a tremendous response and sales of the books increased. In 1922, the Year Books became even more specialized, as the books now had different editors for the different medical specialties covered in each volume. Later, in 1933, the title of the series changed from the Practical Medicine Series of Year Books to the Practical Medicine Year Books to reflect these new designs.

The Year Books have grown significantly from the first 10-volume series in 1901 to a diversified series of 32 volumes in 2001. That the Year Book series is the only series of their kind to have survived is a testament to the vision and commitment of its founders. Some minor changes in format and design have occurred throughout the years, but the mission of the Year Book series—to provide a record of exceptional medical achievements distinguished by the reflections of many of the great names in medicine today—has remained constant.

Table of Contents

1 Anatomy and Biomechanics

Kinematics of the Proximal Interphalangeal Joint of the Finger After Surface Replacement

Uchiyama S, Cooney WP III, Linscheid RL, et al (Mayo Clinic and Found, Rochester, Minn)

J Hand Surg [Am] 25A:305-312, 2000 1–1

Background.—A semiconstrained surface replacement prosthesis has been designed to replicate the normal kinematics of the proximal interphalangeal (PIP) joint. The proximal implant consists of cobalt-chromium alloy, and the distal implant consists of high-density polyethylene polymers. The kinematic performance of a surface replacement prosthesis for the PIP joint was investigated.

Methods and Findings.—Nine fresh-frozen normal human cadaveric long fingers were studied. The kinematics of the PIP joint were assessed before and after a resurfacing metal-polyethylene prosthetic replacement using the magnetic Isotrak system. After replacement, the kinematics of the PIP joint were comparable to those of the normal joint. During passive flexion and extension motion, the maximum angular displacement was 5° for lateral deviation and 9° for rotation. The center of rotation after implant insertion and the center of rotation of the normal joint were almost identical.

Conclusion.—This prosthesis was designed to simulate the normal surface contour, with a built-in constraint of bicondylar surfaces to improve stability. The kinematics of the PIP joint after joint replacement were very close to that of the normal joint which approximates that of a hinge joint.

► This study substantiates the fact that the authors have successfully designed a semiconstrained surface replacement prosthesis to replicate the kinematics of the normal PIP joint. In the cadaver finger, the surface replacement prosthesis has a similar center of rotation and similar resistance to lateral deviation as the normal digit, provided the collateral ligaments are intact. Clinical patients with good bone stock and intact collateral ligaments would appear to be the best candidates for this surface replacement. Incor-

rect placement of the components or poor judgment on bone resection will have adverse effects on kinematics.

The study does not address the question of how preoperative deformity or contracture of the PIP joint should be managed during replacement surgery. Only long-term studies will answer questions regarding cement-bone loosening, prosthetic loosening, or subsidence over time. Nonetheless, a surface replacement prosthesis that matches normal kinematics of the PIP joint has promise for long-term good function.

T. L. Mehlhoff, MD

Dynamic Treatment of Displaced Proximal Phalangeal Fractures

Ebinger T, Erhard N, Kinzl L, et al (Ulm Univ, Germany)

J Hand Surg [Am] 24A:1254-1262, 1999 1–2

Objective.—A splint system for nonoperative dynamic treatment of displaced proximal phalanx fractures is described.

Methods.—Two padded custom-molded thermoplastic forearm splints in intrinsic-plus position were fastened around the arm with Velcro fasteners in 45 patients with 48 displaced proximal phalangeal fractures. The volar component extended to the distal palmar flexion crease. The extensor component extended beyond the proximal interphalangeal joints. The injured finger was taped to the adjacent finger in a flexible fashion. Patients were followed up weekly with radiologic and clinical examinations until the splint was removed. Follow-up averaged 24 months.

Results.—All patients had fracture consolidation. Healing was achieved at 6 weeks in most patients. Forty-one patients had full range of motion.

Conclusion.—Dynamic treatment of displaced proximal fractures is safe and effective. Most patients achieve full range of motion and complete healing within 6 weeks.

► The paper describes a custom-molded 2-component plastic splint, allowing motion of minimally displaced fractures or fractures deemed to be stable enough after minimal fixation. This article is a detailed review of rehabilitation using the intrinsic-plus position (James position) of the hand, with the wrist extended and the metaphalangeal joints flexed. The proximal interphalangeal joints are moved early. The authors reiterate the conventional concept of early fracture rehabilitation protocols of the proximal phalanx.

E. Bonatz, MD