1990
SURGERY ANNUAL

VOLUME 22

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Series Editor

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0-8385-8735-6

90 91 92 93 94/10 9 8 7 6 5 4 3 2 1

Prentice Hall International (UK) Limited, *London*
Prentice Hall of Australia Pty. Limited, *Sydney*
Prentice Hall Canada, Inc., *Toronto*
Prentice Hall Hispanoamericana, S.A., *Mexico*
Prentice Hall of India Private Limited, *New Delhi*
Prentice Hall of Japan, Inc., *Tokyo*
Simon & Schuster Asia Pte. Ltd., *Singapore*
Editora Prentice Hall do Brasil Ltda., *Rio de Janeiro*
Prentice Hall, *Englewood Cliffs, New Jersey*

ISBN: 0-8385-8735-6
ISSN: 0081-9638

Production Editor: Laura K. Giesman

PRINTED IN THE UNITED STATES OF AMERICA

Editorial Advisory Board

Preface

The purpose of *Surgery Annual 1990* is to present critical discussion of recent developments in the clinical management of surgical diseases, to report advances in the basic sciences as they relate to the practice of surgery, and to discuss social and economic issues important to surgeons and patients.

Surgery Annual 1990 begins with a new feature. Each issue will present an "Overview of Surgery" that encapsulates progress made in the field during the past year. This year we are proud to have Leslie Wise, of the Long Island Jewish Medical Center, as the inaugural author of this feature.

We continue our tradition of emphasizing surgical care inside as well as outside the operating room. This volume contains chapters on the radiology of colorectal cancer, the psychologic aspects of operations on the breast, nutritional therapy for malignant tumors in children, and on surgical diagnosis-related groups as well as chapters on surgical technique, such as Tissue Expansion in Reconstructive Surgery, The Retroperitoneal Approach to Abdominal Aneurysms, Reversed Gastric Bypass Operation for Palliation of Inoperable Cancer of the Esophagus and a chapter on the treatment of hypospadias.

Surgery Annual 1990 will be of particular interest to colorectal surgeons, containing a chapter on radiology in colorectal cancer as well as chapters on rectal motility, incontinence secondary to anorectal malformations, and endorectal sonography.

Surgeons interested in the latest technologic developments will find a chapter on laser angioplasty in addition to the chapter on endorectal sonography. Those interested in basic science will find chapters entitled The Importance of the Enterohepatic Circulation of Glutamine in Surgical Metabolism and Adhesive Interactions Between Malignant Cells and the Intracellular Matrix.

In keeping with the principle that a worldwide exchange of ideas advances surgical care and knowledge, the contributors to this volume represent Great Britain, Germany, and South Africa as well as the United States.

I wish to express my appreciation to the editorial advisory board; to the contributors to *Surgery Annual 1990;* and to Lin Paterson, President, William Schmitt, Vice-President and Editorial Director, and Laura Giesman, Production Editor, Appleton & Lange.

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Contents

Overview of Surgery

Leslie Wise and Benjamin Pace

Surgery is a constantly evolving field. Scientific advances, once thoroughly tested and accepted, are continually incorporated into sound clinical practice. This chapter serves as an overview of the major recent surgical advances. The reader is reminded, however, that the volume of quality surgical research is such that only a selected sampling of current research could be included.

THE BREAST

On May 18, 1988, a "clinical alert" was issued from the National Cancer Institute. Before this alert was made available to most physicians, it had been published by the *New York Times* and many other newspapers with such sensational headlines as "Additional Therapy Can Save Patients with Early Stage Breast Cancer." This entire unfortunate scenario was well summarized by Spratt[1] in an editorial in the *American Journal of Surgery.* The alert reported only a small increase in disease-free survival rates for patients with negative nodes. There was no reported increase in long-term survivorship. Quite clearly, many women may be treated unnecessarily for only a small potential benefit. Spratt concluded that it was "an unacceptable precedent that a government agency would promote an incompletely critiqued scientific conclusion by such sensational—possibly very premature—methods." Another editorial, from the *Archives of Surgery,*[2] also concluded that unfortunately "the incomplete dissemination of the information about these trials and the exaggerated interpretation of the results" led to considerable confusion about the management of

node-negative breast cancer. We also agree that physicians should not follow this sensation-seeking alert but should await peer-reviewed published articles before deciding either to accept or to reject the conclusions.

In contrast to this unscientific method, Mueller[3] presented an excellent study on the standard concept that Stage II cancer of the breast is a later version of Stage I breast cancer. From survival data, it was shown that whereas patient mortality begins in both Stage I and Stage II soon after diagnosis, it persists at different annual rates. Local recurrence rates and clinical responses (to tamoxifen in postmenopausal women and to chemotherapy in premenopausal women) were different between these two stages. The conclusion reached was that the two stages represented variants of breast cancer disease and that Stage II was not simply a late diagnosis of Stage I.

There were a number of articles on local excision and radiation therapy for breast cancer. Lindley and co-workers[4] indicated that the pathologic features of an invasive tumor most predictive of local recurrence were the combination of a high proportion of intraductal carcinoma and extensive necrosis (comedocarcinoma). Of 18 patients with these features, 9 had early local recurrence (a risk of 50 percent with these features versus 10 percent without), and 4 died over a 6-year period (a risk of 22 percent against 12 percent). The authors concluded that the "importance of comedonecrosis in the intraductal component as a prognostic indicator in invasive carcinoma of the breast is not widely recognized and might constitute a relative contraindication to conservative treatment."

Kurtz et al[5] analyzed 118 surgically treated mammary recurrences following primary conservative excision and radiation therapy. The cancer-specific survival rates following salvage operations were 72 percent at 5 years and 58 percent at 10 years. Survival rate after recurrence was significantly influenced by the *initial* clinical stage and by the disease-free interval after primary therapy. For recurrences after the 5th year, survival rates following salvage operations were 83 percent and 68 percent at 5 and 10 years, respectively. The survival rate for patients with Stage I disease was favorable regardless of the disease-free interval. These authors concluded, as have previous authors, that local recurrences in the breast after primary treatment with limited surgical intervention and irradiation had a considerably more favorable prognosis than that of local failures after primary radical operations.

Frazier et al[6] studied 87 patients who had undergone mastectomy or reexcision after a previous segmental resection. Of these, 40 had involved margins, 28 had close margins, and only 19 had clear margins at the primary operation. These findings imply that the attainment of clear margins can sometimes be difficult. Our last 100 patients undergoing lumpectomy had a 9.4 percent incidence of clear margins.

Holmberg et al[7] analyzed the cosmetic results of segmental mastectomy in benign and malignant breast disease. Thirty-six percent of patients with invasive cancer found the appearance of their breasts after surgical intervention to be very good, 44 percent found it good, 10 percent found it acceptable, and only 1 percent believed that their residual breast was unattractive. Women with

a benign diagnosis were more apt to be unhappy with the new appearance of their breast than were those with breast cancer.

Skinner et al[8] studied the mammographic features commonly associated with both malignancy and benignity. The features of malignancy included: (1) change from a previous mammogram; (2) distortion of the surrounding architecture; (3) association of a soft tissue density and calcifications; and (4) the presence of more than ten microcalcifications in the lesion. The features of a benign lesion included: (1) well-defined densities without calcifications; (2) asymmetrical densities without calcifications; and (3) abnormalities consisting solely of a focus of mammographic calcifications that had fewer than ten concretions. The incidence of malignancy in lesions having the malignant mammographic characteristics was only 23 percent, whereas it was 5 percent in those with mammographically benign characteristics. On the basis of these results alone, no firm indications for biopsy could be recommended.

Schwartz et al[9] emphasized the frequency of axillary metastases in women with clinically occult cancer. In a series of 167 women with occult invasive ductal or lobular carcinoma, they found that 33 percent had at least one positive axillary node.

Clark et al[10] used abdominal sonography and liver enzyme studies to study 220 patients undergoing mastectomy in an attempt to identify the presence of hepatic metastases. Routine hepatic enzyme determinations had a low accuracy and were not useful in preoperative screening. Preoperative hepatic imaging also was associated with a low yield of metastases, so that its usefulness was also questioned. The authors, therefore, suggested that patients with metastases found on an ultrasonogram should have histological confirmation if treatment is to be altered.

Silverstein et al[11] showed that augmentation mammoplasty with silicone-gel–filled implants reduces the ability of mammography to visualize breast parenchyma. They compared their breast cancer patients with augmentation mammoplasty to their patients without augmentation and concluded that the patients with augmentation presented with more advanced disease, a higher percentage of invasive lesions, and a higher rate of positive axillary nodes.

Norton et al[12] compared the success and cost of needle localization biopsy (NLB) performed under local anesthesia to NLB performed under general anesthesia. Only 78 percent of patients having local anesthesia had the target breast lesion successfully removed. Definite failure occurred in 17 percent of the patients, and results were indeterminate in 5 percent. Ninety-two percent of the patients who had general anesthesia had their lesions removed successfully; 5 percent of the lesions were missed; and 3 percent of the patients had indeterminate findings. The total cost of NLB was $775 when local anesthesia was used and $1,960 for general anesthesia. The authors concluded that the added expense of NLB done in an operating room under general anesthesia can be justified by a high rate of success in removing the lesion, as well as by the added comfort of the patient and the technical ease for the surgeon.

Fentiman et al[13] described the use of tamoxifen for the treatment of

mastalgia. Most of the women experienced pain relief during a 3-month course in which they received 10 mg of tamoxifen daily. Unfortunately almost half of these patients had a relapse of breast pain after discontinuing treatment.

SURGERY OF THE GASTROINTESTINAL TRACT

Stomach

Percutaneous endoscopic gastrostomy (PEG) was compared with surgical gastrostomy in a prospective, randomized study by Stiegmann and co-workers[14], twenty-three patients had sugical gastrostomy and 23 patients had PEG. Procedure-related morbidity occurred in five patients in each group. Tube feeding was initiated within 48 hours in 96 percent of the PEG and in 82 percent of the surgical gastrostomy group ($p < .1$). There were no deaths in the PEG group, but two patients in the surgical gastrostomy group died within 30 days of the operation ($p < .1$). Neither death appeared directly attributable to gastrostomy placement. The cost for a PEG was less than that of a surgical gastrostomy ($757 versus $1446); if, however, endoscopically placed tubes required replacement, as occurred in six patients, the total cost of PEG increased to $1198. Definitive conclusions regarding the superiority of one technique over the other could not be drawn. The trend, however, favored the use of PEG.

In another study, Grant[15] compared the results of PEG (125 patients) with those of surgical Stamm gastrostomy (88 patients). The average procedure time for PEG was 50 minutes shorter than for Stamm gastrostomy. General anesthesia was used for only 13 percent of PEGs compared with 64 percent of Stamm gastrostomies. The average cost of a PEG was about $1000 less than for Stamm gastrostomy. The average time postoperatively until use of a feeding tube was 1.8 days for PEG compared with 3.4 days for Stamm gastrostomy. The overall complication rate after PEGs was 8.8 percent (4 percent major) compared with 23.9 percent for Stamm gastrostomies (10.2 percent major). The results of this study suggested that PEG is the procedure of choice for gastric tube feeding access, lending further support to the current trend.

Gastric carcinoma extending to other organs was studied by Korenaga et al[16] in 281 patients. In 92 patients without incurable factors (peritoneal dissemination, liver metastases, or widespread nodal involvement), the 5-year survival rate was 36.7 percent when treatment consisted of gastrectomy and complete removal of the invaded organs. This was significantly higher than the 17.4 percent 5-year survival rate recorded for patients undergoing gastrectomy alone with incomplete removal of the invaded organs. These data suggest that complete excision of the invaded organs, irrespective of their number or site, should be performed, provided there is no evidence of incurable factors.

Experience with the use of the Garren–Edwards gastric bubble in the management of morbid obesity was reviewed by Ulicny and co-workers[17]. The introduction of this "bezoar" into the gastric lumen has been reported to induce