



SURGICAL ONCOLOGY

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Preface

Oncology is a rapidly expanding field, and most university training programs now have medical and surgical oncology divisions, immunology divisions, and departments of radiation therapy. Useful treatment modalities, particularly chemotherapy, have been developed that result in prolonged palliation and possibly in cure and, given prophylactically, can increase the rate of cure. Better techniques of radiation therapy have reduced the complications from radiation burns, and improved machinery has allowed delivery of large doses of radiation to small areas without extensive damage to neighboring structures. The ability to stimulate the immune system nonspecifically and the discovery of tumor-specific antigens have opened a new research field and possibly have broadened treatment avenues. The importance of rehabilitative medicine and of good nutritional care is now recognized more widely.

The field of surgical oncology exists because of rapid advances made by medical oncology and radiation therapy. Physicians in these specialties feel the need to relate to a surgeon who has a special interest and expertise in oncologic diseases. For many solid tumors, sequential integrated therapy using surgery, chemotherapy, and radiation therapy results in much better cure rates than the use of any one modality alone. Surgeons should know the overall management plan for the patient and the exact part they are to play. Biopsy specimens must be adequate, descriptions of operative procedures must be precise, and, for the primary physician, the adjuvant or palliative use of other treatment modalities must be known. If surgical oncology exists as a specialty in surgery, it is

because oncologists in other specialties have demanded it.

This book has been prepared as an aid to the practicing general surgeon. Its purpose is not to produce surgical oncologists but to serve as a reference for physicians who are called upon to evaluate oncologic diseases. The authors have described specific management programs for those neoplasms most commonly encountered by the general surgeon. They have outlined the benefits of treatment programs aimed at ameliorating complications common to many forms of oncologic therapy and have given specific recommendations that may eliminate post-therapy morbidity and mortality. Emphasis has been placed upon integrated therapy with surgery and radiation therapy used for local and regional control of disease and with chemotherapy and, possibly, immunotherapy used for control of systemic disease.

The book contains chapters on the general principles of the use of radiation therapy and chemotherapy. General axioms are that surgery is the best treatment for macroscopic disease, particularly when localized to the organ of origin, and radiation therapy is best used to eradicate locally microscopic disease that may go unnoticed by the operating surgeon, particularly if the primary malignancy is large and has spread via lymphatics to regional lymph nodes. When a carcinoma is small, well contained within the organ of origin, and manifests no lymphatic spread, radiation therapy, chemotherapy, and immunotherapy usually are not indicated, and surgery alone is the treatment of choice. There are obvious exceptions to this rule. For example, small,

invasive vocal cord lesions may be cured equally well with radiation therapy as with surgery, and the larynx is preserved with the former method of treatment. If the cancer has manifested any potential to spread beyond the confines of the organ of origin, chemotherapy and immunotherapy must be at least considered, since clinical experiments currently underway are indicating that these treatment modalities may reduce the incidence of systemic metastases if they are administered when the tumor burden is small.

I enjoyed editing this book and learned a great deal from having done so. I recommend it to the general surgeon as a reference book on oncologic diseases and hope it will prove to be of value.

Finally, without the tireless efforts of my two secretaries, Helen Herrell and Marcia Glenn, this book would not have been completed. My thanks to them forever.

EDWARD M. COPELAND III

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Preliminary Remarks

Edward M. Copeland III

In exercising the editor's prerogative, and because I have spent my professional career within an oncologic institution, there are several observations I feel justified in making. Some of these statements appear in the respective chapters, and my comments serve as emphasis; other comments I feel deserve attention.

METASTASES TO REGIONAL LYMPH NODES FROM AN UNKNOWN PRIMARY SITE

Often, the physician is asked to examine a patient with a mass in a regional lymph node area such as the neck, axilla, or groin. Usually, this mass represents one or more lymph nodes enlarged secondary to an inflammatory process originating in the area draining to the regional lymph nodes. These nodes are usually multiple and tender, and the primary area of inflammation is often obvious. If the mass represents a solitary lymph node or several distinct, painless nodes with no obvious etiology, the question of biopsy to diagnose cancer is raised. Biopsy should be avoided until a thorough search for the source of a primary malignancy is made. Excisional biopsy of lymph nodes containing metastatic cancer can release viable cancer cells into the biopsy wound because efferent and afferent lymphatics containing such cells are divided in the process of excising the lymph node. Also, the node or group of nodes containing metastatic disease may be incised, thus increasing the risk of im-

plantation of cancer cells in the wound and violating the surgical principle of en bloc resection of the primary malignancy, regional lymphatic channels, and regional lymph nodes. Once malignant disease is growing free in connective tissue and is no longer contained within the lymphatics or lymph nodes, local eradication of disease becomes difficult surgically because the anatomic limits of dissection that encompass the area containing malignant disease are no longer defined clearly. In this setting, local recurrence rates after adequate lymph node dissection are greatly increased. If the cancer is radiosensitive, such as squamous carcinoma, radiation therapy can be used to lower the recurrence rate, since radiation therapy will eradicate microscopic disease remaining in the skin flap or outside the margins of dissection. Malignant melanoma is much less radiosensitive, and once this disease is free within the connective tissue of the wound, eradication by any treatment modality can be difficult. Local recurrence of malignant melanoma has resulted in major amputation done for palliation alone because regional disease became bulky, painful, and ulcerated.

Regional lymph node metastasis should always be suspected, especially in an adult, when an unexplained mass appears in the cervical, axillary, or inguinal area, and a thorough search for the primary source should be made before biopsy is undertaken. In the head and neck region, the oral cavity, larynx, and pharynx should be thoroughly investigated. If the mass is located in the axilla or groin, the skin of

the corresponding extremity and portion of the trunk should be examined, and the patient should be queried as to previous removal of skin lesions, particularly moles. If a primary lesion is discovered, then possibly en bloc resection can be accomplished and the incidence of regional recurrence minimized. Occasionally, nodal metastases in one of the areas in question, particularly the supraclavicular area, will be from a distant primary source such as the lung, stomach, adrenal gland, or ovary, and such sites should not be overlooked in the search for the primary tumor. If no primary lesion can be found and the nodal enlargement is not inflammatory in origin, then lymph node biopsy is indicated for diagnosis. In this way, the majority of cases of Hodgkin's disease and lymphoma are diagnosed.

GASTROINTESTINAL TRACT

Pancreas

We have not found that an elevated level of bilirubin and alkaline phosphatase in a well-nourished patient with normal hepatocellular function increases the postoperative morbidity or mortality after pancreaticoduodenectomy. A pathologic diagnosis of pancreatic carcinoma is desirable before a pancreaticoduodenectomy is done, and it can usually be made by transduodenal or direct needle biopsy of the pancreas. Pancreatic fistulas do not occur if the biopsy needle avoids the major pancreatic ducts. If the portal or superior mesenteric vein are invaded, a biliary and/or gastric bypass should be done. In the hands of most surgeons, resection and reconstruction of these venous structures in continuity with the pancreas and duodenum have only increased the morbidity and mortality of the procedure without increasing the survival rate or the quality of remaining life.

If the pancreatic duct is obstructed by carcinoma of the head of the pancreas, the body and tail may be hard, making the definition of the medial border of the pancreatic cancer nearest the superior mesenteric vein difficult to determine. Under these circum-

stances, the distal major pancreatic duct can be decompressed by inserting a 22-gauge needle into it and extracting the pancreatic fluid. The body and tail of the pancreas will become more pliable, and the relationship of the pancreatic tumor to the superior mesenteric vein will be made easier. This anatomic landmark is very important in determining the operability of a pancreatic carcinoma.

A surgeon should not operate upon a jaundiced patient unless he is prepared to treat definitively whatever pathologic process is discovered. Nevertheless, a resectable carcinoma of the pancreas is sometimes found by an operating surgeon. He may not wish to do the definitive procedure, nor may there be a surgeon immediately available who can do it. This surgeon should do a simple biliary bypass, refrain from immobilizing the duodenum and pancreas, and avoid biopsy of the pancreas unless the lesion is easily accessible. Often, patients who have had each of these procedures are referred postoperatively to our institution as candidates for pancreaticoduodenectomy. The dissection planes have been destroyed by the previous wide and unnecessary pancreatic mobilization, and if any pancreatitis surrounds the biopsy site, dissection in this area may be very difficult, particularly if the biopsy was done posterior and adjacent to the vena cava.

Liver

If primary or metastatic cancer within the liver is unresectable, hepatic arterial devascularization and/or chemotherapy infusion may be done. The infusion catheter is inserted through the right gastroepiploic artery into the common hepatic artery via the gastroduodenal artery. This route is circuitous but reduces the hazard of hemorrhage if the catheter gets dislodged from the vascular tree. Once the catheter is in place, fluorescein dye is injected into it to ensure that both hepatic lobes are being infused and that other structures supplied by branches of the celiac axis will receive little drug. In the immediate postoperative period, the catheter is attached to a pump infusion apparatus. Chemotherapeutic infusion is begun when the patient has recovered from the sur-

gical procedure. To ensure that the catheter has not been dislodged from the common hepatic artery during this interval, a liver scan is obtained by injecting macroaggregates of radioiodine-labeled serum albumin directly into the catheter. Most investigators have reported a slight but significant improvement in length of survival (measured in months) in patients undergoing chemotherapy by direct hepatic infusion when compared to systemic treatment. This slight improvement, however, does not warrant a major abdominal surgical procedure to insert an infusion catheter. If the patient is not a candidate for resection, as shown by preoperative test results, then chemotherapy is administered systemically or by percutaneous catheterization of the hepatic artery via the proximal brachial or femoral arteries.

Colon

Good surgical judgment is necessary when operating upon any part of the colon but is most definitely required when dealing with carcinoma of the rectum and rectosigmoid. The surgeon should provide the patient with the best opportunity for cure and local control of disease combined with the least chance of postoperative morbidity, mortality, and loss of function. Sphincter-saving procedures are now taught in most surgical residency programs, but these operations should not be done if the chance for local control is the least bit jeopardized. A properly con-

structed and functioning sigmoid colostomy is acceptable to almost every patient. Malignant lesions located within 6 cm of the dentate line that invade into the muscularis externa should be removed by abdominoperineal resection. Large lesions in the 10-cm range that have obviously invaded the pericolic fat and/or have lymph node metastases should also be considered for removal by abdominoperineal resection, particularly in men. A pelvic recurrence in a man can be a more difficult problem to treat than in a woman because the recurrent cancer has easier access to the urinary tract. For example, a suture line recurrence is usually much easier to ablate surgically by dissecting the colon off the posterior wall of the vagina (or including a portion of the vagina in the specimen) than is dissection of a similar lesion off the prostate. The posterior approach (Kratsky) to colon anastomoses is seldom used; the wide female pelvis makes low anterior anastomoses easy, and the low lesions in men, with a narrow pelvis, are usually treated by abdominoperineal resection, particularly if the disease is located outside the bowel wall.

Carcinoma in situ within a colonic polyp can be treated by total removal of the polyp. This procedure can be accomplished by local excision of most villous or adenomatous polyps in the distal colon. If total removal is not ensured by local excision, then colon resection is indicated. Our group does sphincter-saving procedures most frequently for invasive carcinoma limited to the muscularis mucosae or the stalk of a pedunculated adenomatous polyp.

excised and the bounding sigmoid colon is accepted as almost every patient. Malignant lesions located within 5 cm of the cecum line first invade into the mesocolic vessels, then the mesocolon, and finally the peritoneum. Extensive resection of the 10-cm incision, therefore, involves the peritoneum and the fat and/or have lymph node metastases should also be considered for removal by abdominal resection. In a patient particularly in men, a pelvic recurrence in a man can be a more difficult problem to treat than in a woman because the recurrent cancer has easier access to the urinary tract. For example, a future ureteric resection is usually much easier to split surgically by dissecting the colon off the posterior wall of the vagina (or including a portion of the vagina in the specimen) than is dissection of a similar lesion of the colon. The posterior approach (Kruskal) to colon cancer is seldom used; the wide female pelvis makes low anterior resection easy, and the low lesions in men with a narrow pelvis are usually treated by abdominal resection. Partially if the disease is located outside the bowel wall.

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