

Genitourinary Cancer

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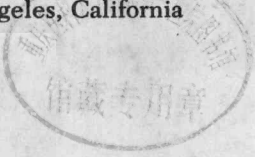
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Foreword

WILLIAM F. WHITMORE, JR., M.D.
Memorial Sloan-Kettering Cancer Center

Urology and urologists have shared in the veritable explosion of scientific knowledge and technology that has occurred in the past thirty years. Included in this expansion have been the progressive development of chemotherapy and radiation therapy and at least the promise of immunotherapy as variously useful modalities in the management of patients with cancer. Demonstrations of the relevance of such therapies to the optimal treatment of patients with different urologic neoplasms are already sufficient to establish that surgical measures provide only a part of the optimal management of a number of such problems. Urologic neoplasms, accounting for almost 20 per cent of the deaths from cancer in males and almost 4 per cent of those in females, have become increasingly important. This prominence exists in part because an increasing life expectancy permits an ever increasing proportion of the population to reach the higher risk age groups (that is, since medical progress is providing better solutions to problems posed by many of the other diseases), and in part because of an apparently increasing incidence of some urologic cancers. These considerations have, in sum, brought the urologist face to face with a steadily increasing body of pertinent knowledge on subjects of equally increasing importance.

Although the organ site of origin of these oncologic problems is within the traditional domain of the urologist, it is clear that a single modality oriented approach to therapy—surgery versus irradiation versus chemotherapy versus immunotherapy—is outmoded. Of the various possible treatment modalities, surgery and irradiation are best suited for the local or regional control of neoplasms, whereas chemotherapy and immunotherapy are better adapted to the control of systemic dissemination. Advances in the knowledge of the natural history of various neoplasms and of the reasons for treatment failure clearly emphasize the importance of both local and systemic control.

A book such as this is a natural evolutionary response to these considerations; an attempt to bring the various components of medical information covering an important and special group of related problems into focus in a single volume. Although the subject matter of urologic oncology has been variously dealt with in volumes on bladder

tumors, kidney tumors, testicular tumors, etc., as well as in texts devoted to surgery, irradiation, or chemotherapy, this book represents a first venture in addressing the clinical problems of urologic oncology in a single comprehensive and authoritative volume. It may be anticipated to have relevance for any and all physicians concerned with the diagnosis and treatment of urologic neoplasms.

WILLET F. WHITMORE, JR., M.D.

Memorial Sloan-Kettering Cancer Center

Preface

Malignant tumors of the genitourinary tract are a major cause of death in the United States, yet only in recent years has interest in the prevention, diagnosis, and treatment of these tumors reached a level commensurate with their medical and economic importance. Urologists are first and foremost surgeons, and surgery remains the mainstay of therapy for urologic neoplasms. Refinement in surgical technique continues to improve survival, but the greatest potential for more effective management of these tumors is in the area of adjuvant therapy. Radiation therapy has occupied an increasingly important role as an adjuvant to surgery and has secured a prominent place in the primary treatment of prostatic cancer. The use of intensive chemotherapy (and in some instances, radiotherapy) in support of surgery has resulted in dramatic improvements in survival for patients with Wilms' tumors, germinal tumors of the testis, and pelvic sarcomas. Recognition of the importance of host immunity in malignant disease has stimulated the current clinical trials of immunotherapy in the treatment of malignant urologic tumors.

However, as innovative adjuvant therapy has developed, whether it be new anti-cancer drugs or drug combinations, immunotherapy, or the use of radioisotope implantation techniques, the problem of acquiring, storing, and retrieving the relevant information for clinical use has grown enormously. Faced with this rapidly expanding complex body of information, urologists and oncologists must seek out and synthesize data from multiple sources when faced with a patient with a malignant genitourinary tumor. It is our purpose to present the spectrum of urologic oncology and to focus upon the proven therapeutic modalities, as well as the most prominent controversies regarding therapy, where such specific controversies occur.

This text is intended to provide a reference for urologists, oncologists, and, indeed, all practitioners of medicine who deal with problems in urologic cancer. The book attempts to update the methods of diagnosis and to provide a synthesis of currently available data on the results of therapy. Since no individual can be thoroughly familiar with every aspect of urologic oncology, recognized authorities in various

phases of urologic oncology have contributed their knowledge, personal experience, and skill to produce this volume. Timeliness is the most important ingredient of this text, and each author has incorporated his own recent experience with the latest available results of diagnostic and therapeutic methods. Finally, it is the most sincere ambition of the authors that innovative advances in therapy, discovery of etiologic factors, and thus prevention, will render the need for this type of book obsolete.

The editors would like to acknowledge their mentors, the late Wyland F. Leadbetter, and Lester Persky, Joseph J. Kaufman, and Willard E. Goodwin. These outstanding leaders of modern urology have made major personal contributions to the field of urologic oncology, but in addition have recognized the limitations of surgery alone and have stimulated the search for and application of suitable adjuvants to the treatment of malignant urologic neoplasms. This book represents a token of our appreciation to these individuals and reflects, in part, their teachings and philosophy toward urologic cancer.

We would also like to thank Erica Brookes for her invaluable assistance in preparing the manuscripts, and, finally, we would like to express our gratitude to all the participating authors for their outstanding contributions and their willingness to accept the strict time constraints involved in the preparation of this book.

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The Status of Tumor Immunotherapy in Genitourinary Cancer

JEAN B. DEKERNION, M.D.*

The observation that animals previously immunized against a methylcholanthrene-induced sarcoma could reject subsequent inoculations of the same tumor established the importance of tumor-associated antigens and provided the impetus for investigations into tumor immunology. Since that time, tumor-associated antigens have been extensively studied, and such antigens have been identified in every adequately studied animal tumor. Human tumor-associated antigens are not as specific as those found in animal tumors, and their antigenicity is weak and variable compared with other cell surface antigens such as transplantation antigens. Many different antigens are expressed by the tumor cell, some of which are unique to that tumor, and some of which may be common to other tumors of the same histologic type (Reif, 1975). A bladder tumor cell might contain multiple tumor-associated antigens on its cell surface, and some of

these same antigens may be present on bladder tumor cells from another patient. Furthermore, recent evidence suggests that at least some tumor-associated antigens may be found in more than one tumor type (Erie et al., 1976). Although the isolation and chemical characterization of tumor-associated antigens is the subject of continued exhaustive investigation, the hosts' responses to these "non-self" or foreign proteins has provided the impetus for the early studies in human immunobiology.

The character and magnitude of the host immune response to tumor-associated antigens has been extensively studied in recent years, and sophisticated tests to measure the multiple aspects of host immunity have been developed. The current understanding of immunity to tumor-associated antigens is based on the interrelationship between the humoral and cellular aspects of immunity.

The macrophage is probably the cell that initiates the immune process by recognizing the tumor-associated antigens and responding in one of two

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