Preface

Novel and significant changes in the area of oncologic imaging have had a positive impact on the ability to non-invasively stage bladder, prostate, penile, testicular, adrenal, and renal tumors. Most of these imaging enhancements are closely related and parallel the clinical impact of these tumors: for example as prostate cancer becomes the most common malignancy in men, there is a push to use imaging for both accurate staging prior to therapy and also as a means to follow patients after therapy. Most of the novel and cutting-edge therapeutic techniques being developed to treat these genitourinary tumors are increasingly more dependent on imaging for better tumor delineation and evaluation. The mainstay for imaging used to be conventional imaging techniques with transrectal and transabdominal ultrasound, angiography, and intravenous contrast studies. Significant improvements in image processing and resolution in cross-sectional imaging with computed tomography, magnetic resonance imaging, and now single photon emission computed tomography have brought dramatic changes in our ability to assess genitourinary malignancies of all types. Improvements in contrast agents and superimposition of functional studies with anatomical studies have now made molecular imaging with radionuclides part of our armamentarium for these neoplasms.

What can the expected impact of imaging be on the future of uro-oncology? Although the current orientation for imaging has been anatomic and organ specific, the striking improvements in imaging related to functional activity are now being combined with the anatomic data to give a more complete assessment of the disease process in all stages. The development of new molecular markers and the incorporation of virtual technology will provide a true fusion of technology that is bound to have an impact on our management of oncological problems. We are currently limited by our inability to detect disease at its earliest stages, follow it closely through a course of therapy, and monitor it after treatment. Imaging is a major key to improvements that may make management of cancer similar to that of other chronic diseases such as diabetes or hypertension. This text presents the state of the art for imaging in urological oncology and gives a glimpse of future directions for research in this exciting field.

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