



# Prostate Pathology

*Peter A Humphrey, MD, PhD*



*To my wife Kay, with love, for her tolerance of stolen time  
and for allowing transformation of rooms in our house into rooms dedicated to the book,  
and to my wonderful children Tom and Jen.*

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# Prostate Pathology

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“Prostatic cancer is a rare affection”

—Sir Henry Thompson in *The Diseases of the Prostate*, 1883

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## Preface

No longer. Prostate cancer is now the most common noncutaneous malignancy diagnosed in men in the United States. Worldwide it is the third most common male cancer. Prostate diseases are common afflictions of men: clinical prostatitis and benign prostate hyperplasia (BPH) are especially prevalent disorders. In the last 15 years, due in part to demographic shifts and public awareness, and also to widespread clinical use of serum prostate specific antigen in efforts to detect prostate cancer early, there has been an astonishing increase in the number of prostate needle biopsies performed to assess for prostate cancer presence. Indeed, it is estimated that in 2002 some 750,000 prostate needle biopsies were performed in the United States. In this context the concept for a genuinely comprehensive book on pathology of the prostate originated.

This book presents a practical histopathologic approach to diagnosis of prostatic disease. It also should provide a ready repository of information on prostatic diseases. We hope it will prove useful for practicing pathologists, pathology residents and fellows, urologists and genitourinary oncologists, radiologists, and clinicians and researchers interested in diseases of the prostate. The coverage extends from basic anatomy throughout embryology and developmental diseases through tissue sampling considerations, to the diagnosis of benign and malignant diseases (both common and uncommon) in the prostate. We explore diagnosis of prostatic disease in all tissue sample types, including fine needle aspirates (special thanks to Richard M. DeMay, MD), needle core biopsy, transurethrally resected prostatic chips, open (simple) prostatectomy tissues, radical prostatectomy tissue, and metastatic prostatic cancer samples. The emphasis in the book is on surgical pathology diagnosis and differential diagnosis, using gold standard H&E-stained sections as the foundation for diagnosis. As such, the book contains many hundreds of H&E images, in an effort to portray the diversity, heterogeneity, and spectrum of disease within the prostate gland. Particular attention has been paid throughout the book to pseudoneoplastic and pseudobenign conditions, which are frequently misdiagnosed but infrequently discussed adequately in pathology texts. Clinical presentations, gross findings, and the role of special studies, including relevant molecular biologic and genetic testing, are all integrated into the discussion of each disease entity. And while few molecular genetic tests are currently used in the diagnosis or prognostic stratification of prostate diseases, the useful possibilities of molecular medicine will be felt within the book; indeed, a full chapter (Chapter 21) discusses the molecular biology of prostate cancer.

Readers learn in many different ways, so the presentation comprises images, text, figures, quick reference tables and data-rich, larger tables. Quick reference tables allow for capture, at a glance, of essential facts—the book is “prehighlighted” in a very real sense. The larger tables are designed to satisfy those want more about specific studies culled from the world literature on specific diseases. We hope the book will be a resource for “reference mining”: a compendium of key references from all of the last century, and also for the years 2000–2003 of the new. Thus, both classical, historical papers, and the most recent, important publications are gathered (alphabetically) at the end of each chapter. Reference updating finally stopped only in February of 2003, one month prior to going to print. The ASCP Press deserves real praise for this often overlooked commitment to currency. We were able to incorporate numerous references from the year 2002, and several from the year of publication itself. We sought to impart the latest diagnostic information, including typing, Gleason grading, and staging of prostate cancer.

We will have succeeded when the book serves as an asset in the daily practice of diagnostic surgical pathology of the prostate, and again when it serves as the necessary consolidated source for otherwise difficult-to-find knowledge on the many diseases that affect the human prostate gland.

Peter A. Humphrey, Author

Joshua Weikersheimer, Consulting Publisher, ASCP Press



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Prostate Pathology | IHC. particularly Gleason scores can be markedly altered, e.g. by an assignment of Gleason pattern 4 to areas that had been Gleason 3 prior to therapy. Treated prostate carcinomas tend to show some loss of AMACR expression, limiting its value in a post-treatment situation. prostate pathology pathology in outline format with mouse over histology previews. T2: prostate confined (including capsule). T2a: unilateral,  $\leq$  half of the involved side. T2b: unilateral,  $>$  half of the involved side. The article presents information about the prostate's zonal structure, prostate preparation after radical prostatectomy, cancer incidence in different prostate areas. This provides an overview of the WHO classification (2016) of prostate tumors, the changes are noted, approaches to the diagnosis of cancer variants Prostate Pathology. Return to the tutorial menu. The Prostate Gland. The male prostate gland is located below the bladder. The normal prostate is composed of glands and stroma. The glands are seen in cross section to be rounded to irregularly branching. These glands represent the terminal tubular portions of long tubuloalveolar glands that radiate from the urethra. The glands are lined by two cell layers: an outer low cuboidal layer and an inner layer of tall columnar mucin-secreting epithelium.