Preface

Plasma cell neoplasms, including plasma cell myeloma, did not start to appear in the medical literature until the 1840s [1]. In 1847, Dr. Henry Bence Jones described the features of a urine precipitate in a patient that likely had plasma cell myeloma [1]. Nearly 100 years later the field was revolutionized by the invention of immunoelectrophoresis (1953) and immunofixation (1964) [1]. These tools improved the way in which plasma cell neoplasms are diagnosed and monitored. In the last 20 years, there have been remarkable changes in the treatment approach to myeloma patients, including bone marrow transplantation and innovative chemotherapy (immunomodulatory drugs and proteasome inhibitors), that have increased the median survival of standard risk patients to greater than 10 years [2].

This book is primarily intending for a pathology audience, including trainees and practicing pathologists. While these neoplasms may comprise a minority cases in our practices, improved patient outcomes means that we are continuously seeing a greater proportion of bone marrow biopsies from patients with a diagnosis of plasma cell neoplasm. Moreover, as new ancillary diagnostic testing is continuously introduced to our practice, it is important for us to be familiar with the right tools to make an accurate diagnosis and to guide our clinician allies on test utilization.

There are multiple pieces of data necessary to render a diagnosis of plasma cell neoplasm and to provide important prognostic and predictive information. These data include clinical findings, laboratory data, morphologic features, immunophenotype, and cytogenetics. The first two chapters of this book approach how we detect and enumerate paraproteins, by electrophoretic and/or immunoturbidimetric/nephelometric methods. Next, we review how a careful bone marrow examination is a key component of the diagnosis, often with the aid of immunohistochemical stains. Building on the first three chapters, we next look at the current 2008 WHO classification of plasma cell neoplasms, including monoclonal gammopathy of undetermined significance, solitary plasmacytoma, primary amyloidosis, and plasma cell myeloma [3]. Chapters 5 and 6 provide an overview of cytogenetic and flow cytometric features of plasma cell neoplasms, and their role in diagnosis and prognosis. The final two chapters may be the most important—while this book is primarily intended for pathology trainees and practicing pathologists, it's important to recognize that patients and clinicians depend on our timely, high quality diagnoses

to guide care. Chapter 7 will give a perspective on how a clinician would approach the treatment of a patient with a plasma cell neoplasm, and Chapter 8 will provide guidelines for how pathologists can most effectively summarize and communicate their findings in a diagnostic report.

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