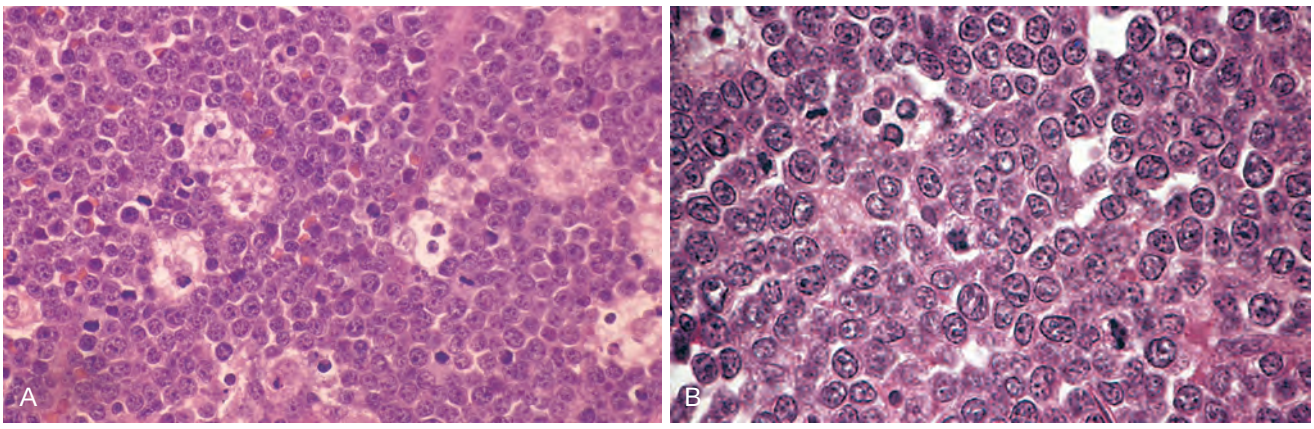

Figure 13-15 Burkitt lymphoma. **A,** At low power, numerous pale tingible body macrophages are evident, producing a "starry sky" appearance. **B,** At high power, tumor cells have multiple small nucleoli and high mitotic index. The lack of significant variation in nuclear shape and size lends a monotonous appearance. (**B,** Courtesy Dr. José Hernandez, Department of Pathology, University of Texas Southwestern Medical School, Dallas, Tex.)

KEY CONCEPTS

Common Forms of Lymphoid Leukemia and Lymphoma

Acute Lymphoblastic Leukemia/Lymphoblastic Lymphoma

- Most common type of cancer in children, may be derived from either precursor B of T cells
- Highly aggressive tumors manifest with signs and symptoms of bone marrow failure, or as rapidly growing masses.
- Tumor cells contain genetic lesions that block differentiation, leading to the accumulation of immature, nonfunctional blasts.

Small Lymphocytic Lymphoma/Chronic Lymphocytic Leukemia

- Most common leukemia of adults
- Tumor of mature B cells that usually manifests with bone marrow and lymph node involvement
- Indolent course, commonly associated with immune abnormalities, including an increased susceptibility to infection and autoimmune disorders

Follicular Lymphoma

- Most common indolent lymphoma of adults
- Tumor cells recapitulate the growth pattern of normal germinal center B cells; most cases are associated with a (14;18) translocation that results in the overexpression of BCL2.

Diffuse Large B-Cell Lymphoma

- Most common lymphoma of adults
- Heterogeneous group of mature B-cell tumors that shares a large cell morphology and aggressive clinical behavior
- Rearrangements or mutations of *BCL6* gene are recognized associations; one third carry a (14;18) translocation involving *BCL2* and may arise from follicular lymphomas.

Burkitt Lymphoma

- Very aggressive tumor of mature B cells that usually arises at extranodal sites.
- Strongly associated with translocations involving the *MYC* proto-oncogene
- Tumor cells often are latently infected by EBV.

Plasma Cell Neoplasms and Related Disorders

These B-cell proliferations contain neoplastic plasma cells that virtually always secrete a monoclonal Ig or Ig fragment, which serve as tumor markers and often have pathologic consequences. Collectively, the plasma cell neoplasms (often referred to as *dyscrasias*) account for about 15% of the deaths caused by lymphoid neoplasms. The most common and deadly of these neoplasms is multiple myeloma, of which there are about 15,000 new cases per year in the United States.

A monoclonal Ig identified in the blood is referred to as an *M component*, in reference to myeloma. Because complete M components have molecular weights of 160,000 or higher, they are restricted to the plasma and extracellular fluid and excluded from the urine in the absence of glomerular damage. However, **neoplastic plasma cells often synthesize excess light chains along with complete Igs**. Occasionally only light chains are produced, and rare tumors secrete only heavy chains. Highly sensitive tests for free light chains in the blood are now available. In patients with plasma cell tumors, the level of free light chains is usually elevated and is markedly skewed toward one light chain (e.g., kappa) at the expense of the second (e.g., lambda). Because free light chains are small in size, they are also excreted in the urine, where they are referred to as *Bence-Jones proteins*.

Terms used to describe the abnormal Igs associated with plasma cell neoplasms include *monoclonal gammopathy, dysproteinemia,* and *paraproteinemia*. These abnormal proteins are associated with the following clinicopathologic entities:

- *Multiple myeloma (plasma cell myeloma)*, the most important plasma cell neoplasm, usually presents as tumorous masses scattered throughout the skeletal system. *Solitary myeloma* (*plasmacytoma*) is an infrequent variant that presents as a single mass in bone or soft tissue. *Smoldering myeloma* refers to another uncommon variant defined by a lack of symptoms and a high plasma M component.
- *Waldenström macroglobulinemia* is a syndrome in which high levels of IgM lead to symptoms related to hyperviscosity of the blood. It occurs in older adults, most commonly in association with lymphoplasmacytic lymphoma (described later).