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Preface xi
Luis R. Espinoza

Clinical Applications of the Polymerase Chain Reaction: An Update 735
Raquel Cuchacovich

The development, in the past decade, of nucleic acid amplification and detection methods is useful in the study of the etiopathogenesis, diagnosis, and management of a variety of clinical (including rheumatologic) disorders. An association between infectious agents and rheumatic disorders has been established through such methods as polymerase chain reaction. This article describes the principles behind polymerase chain reaction–based diagnosis and updates its clinical applications. It is beyond the scope of this article, however, to describe other nucleic acid amplification methods or to include a complete list of all polymerase chain reaction assays that have been developed. Other recent reviews offer additional details.

Skin and Soft Tissue Infections 759
Fred A. Lopez and Serge Lartchenko

Primary skin infections (ie, pyodermas) typically are initiated by some breach in the epidermis, resulting in infection by organisms, such as Streptococcus pyogenes and Staphylococcus aureus, that normally colonize the skin. Host-associated factors, such as immunosuppression, vasculopathy, neuropathy, or decreased lymphatic drainage, may predispose to skin infection. The clinical syndromes associated with skin infections are often characteristic and are defined most simplistically by anatomic distribution. Although often mild and self-limited, skin infections can be more aggressive and involve deeper structures, including fascia and muscle. This article discusses skin and soft tissue infections, including impetigo, hair follicle-associated infections (ie, folliculitis, furuncles, and...
carbuncles), erysipelas, cellulitis, necrotizing fasciitis, pyomyositis, septic bursitis, and tenosynovitis.

**Advances in the Management of Septic Arthritis**  
Ignacio García-De La Torre

Bacterial or septic arthritis is an important medical condition and is considered a rheumatologic emergency that can lead to rapid joint destruction and irreversible loss of function. Normal joints, diseased joints, and prosthetic joints are all vulnerable to bacterial infection. The mortality and morbidity of this condition are still considerable. Full recovery is possible, but poor outcome is common among those with pre-existing arthritis, especially rheumatoid arthritis. This article focuses on the risk factors and pathogenesis of nongonococcal bacterial arthritis; gonococcal arthritis and other forms of infectious arthritis, primarily in the context of a differential diagnosis and treatment, are also discussed.

**Imaging of Osteomyelitis: Current Concepts**  
Carlos Pineda, Ángelica Vargas, and Alfonso Vargas Rodríguez

Osteomyelitis frequently requires more than one imaging technique for an accurate diagnosis. Conventional radiography still remains the first imaging modality. MRI is the most sensitive and specific method for the detection of osteomyelitis, it provides more accurate information regarding the extent of the infectious process. Nuclear medicine is a highly sensitive but nonspecific technique, for the detection of osteomyelitis. Ultrasound represents a noninvasive method to evaluate the involved soft tissues and cortical bone and may provide guidance for diagnostic or therapeutic aspiration, drainage, or tissue biopsy. CT scan can be a useful method to detect early osseous erosion and to document the presence of sequestra. Positron emission tomography and single photon emission computed tomography are highly accurate techniques for the evaluation of chronic osteomyelitis, allowing differentiation from soft tissue infection.

**Reactive Arthritis: Defined Etiologies, Emerging Pathophysiology, and Unresolved Treatment**  
John D. Carter

Reactive arthritis (ReA) is an inflammatory arthritis that arises after certain types of gastrointestinal or genitourinary infections. Approximately half of the patients with ReA experience spontaneous resolution of their symptoms within 6 months and half develop chronic ReA. The triggering microbes of ReA are gram-negative bacteria with a lipopolysaccharide component of their cell walls. All of these bacteria, or their bacterial products, have been demonstrated by polymerase chain reaction technology in the synovial tissue or fluid of patients with ReA; however, these findings
have been questioned. Traditional therapies include nonsteroidal anti-inflammatory drugs, corticosteroids, and disease-modifying antirheumatic drugs; the role of antibiotics is not yet fully defined.

**Infections in Systemic Connective Tissue Diseases:**

**Systemic Lupus Erythematosus, Scleroderma, and Polymyositis/Dermatomyositis**

Graciela S. Alarcón

Systemic lupus erythematosus (SLE), scleroderma, and polymyositis/dermatomyositis (PM/DM) are autoimmune diseases with high morbidity and mortality. The important role infections play in these diseases has been documented in the literature over the years. This article reviews the role of infections in these three disorders, emphasizing in each (1) the predisposing factors for the development of infections, (2) the effect of infections on mortality, and (3) the most common microorganisms involved in these infectious processes.

**Hepatitis C and Arthritis: An Update**

Aja M. Sanzone and Rodolfo E. Bégué

Extrahepatic symptoms during chronic hepatitis C virus (HCV) infection are common and varied. Arthritis can be seen either as part of autoimmune processes (e.g., associated with cryoglobulinemia) or independently. Whether the manifestation is specifically attributable to HCV infection or rather to the nonspecific result of a chronic inflammatory process is not clear. The literature available at this time is insufficient to guide the most appropriate course of treatment of HCV arthritis. Standard antirheumatic treatment can be considered, but with caution, because some of these medications occasionally may be hepatotoxic and response to therapy seems variable. Treatment decisions should be determined on a case-by-case basis.

**Rheumatic Manifestations of Human Immunodeficiency Virus Infection**

Francisco Medina, Leticia Pérez-Saleme, and José Moreno

Rheumatic complaints such as myalgias, arthralgias, arthritis and reactive arthritis are common in patients with HIV, and HIV positivity confers an increased susceptibility in populations with similar risk factors for HIV infection. With the advent of modern combined antiretroviral treatment, highly active antiretroviral therapy has had a profound beneficial effect on survival in HIV-infected patients, with lifelong control of HIV infection and normalization of life expectancy; but it has also contributed to an altered frequency and a different nature of rheumatic complications now being observed in this population, with new rheumatic complications, such as osteoporosis, osteonecrosis, gout, mycobacterial, mycotic osteoarticular infections, and neoplasia perhaps
more prevalent. Rheumatologists, internists, and general physicians need to be aware of these changes to provide optimal diagnosis and how to disclose the results to their patients. They also need to be familiar with the management of HIV infection and to direct careful attention to the prevention of HIV transmission in health care facilities.

Role of Endogenous Retroviruses in Autoimmune Diseases 913
Ines Colmegna and Robert F. Garry

The human genome sequencing project and similar initiatives for other species have revealed that a large portion of vertebrate genomic DNA consists of genetic elements that are present in multiple copies. Human endogenous retroviruses (HERVs) represent a class of interspersed mobile repetitive elements known as retrotransposons. HERVs are closely related to certain members of the Retroviridae, an important family of human and animal viruses that includes HIV and human T-lymphotropic virus, causes of AIDS and adult T-cell leukemia, respectively. Recent studies have implicated HERVs in a wide variety of pathologic and physiologic processes. This article discusses studies that implicate HERVs in many human autoimmune diseases.

Impact of Biologic Agents on Infectious Diseases 931
Lesley Ann Saketkoo and Luis R. Espinoza

Until recently, inflammatory diseases, collagen vascular diseases, inflammatory bowel diseases, and multiple sclerosis were met with a limited offering for treatment. The introduction of biologic agents has revolutionized the approach to these diseases, offering many patients freedom from disease activity staving off resultant destruction to organs and joints with marked improvement in quality of life and disability. This article focuses on the development of serious infections associated with the use of biologic agents. Presented is a synthesis of case series, reports, and systematic reviews to elucidate implicated pathogens and clinical presentations in patients being treated with biologic agents and to form a cursory backbone for prevention and treatment strategies to which clinicians prescribing these agents or encountering patients already on these agents can readily refer. Maintenance of a high index of suspicion is imperative for the prevention and appropriate treatment of serious life-threatening infections in these patients.

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