Nonrheumatoid Inflammatory Arthroses of the Hand and Wrist

Alexander D. Choo, MD,* Gregory Middleton, MD,*† Robert Lee Wilson, MD*‡

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Disclosures for this Article

Editors

Ghazi M. Rayan, MD, has no relevant conflicts of interest to disclose.

Authors

All authors of this journal-based CME activity have no relevant conflicts of interest to disclose. In the printed or PDF version of this article, author affiliations can be found at the bottom of the first page.

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Ghazi M. Rayan, MD, has no relevant conflicts of interest to disclose. The editorial and education staff involved with this journal-based CME activity has no relevant conflicts of interest to disclose.

Learning Objectives

- Describe the most common nonrheumatoid inflammatory arthritic conditions and the distinctions from rheumatoid arthritis and from each other.
- Provide information about the epidemiology of nonrheumatoid inflammatory arthritis.
- Discuss the pathophysiology of the most common nonrheumatoid inflammatory arthritis.
- Assess the clinical presentations of the different nonrheumatoid inflammatory arthritic diseases.
- Review the treatment options for each of the nonrheumatoid inflammatory arthritic conditions.

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Various inflammatory and autoimmune conditions affecting joints of the hand and wrist can present with symptoms similar to those of rheumatoid arthritis. The most common of these nonrheumatoid arthroses are psoriatic arthritis, systemic lupus erythematosus, and systemic sclerosis. Management of these and several other conditions is typically medical in nature and continues to evolve with the development of biologically targeted medications. Surgical

*From the *Department of Orthopedic Surgery, University of California, San Diego, San Diego; the †Department of Medicine, University of California, San Diego, La Jolla; and the ‡Department of Orthopedics, Veterans Administration Hospital, San Diego, San Diego, CA.*

Received for publication May 15, 2015; accepted in revised form May 28, 2015.

No benefits in any form have been received or will be received related directly or indirectly to the subject of this article.

Corresponding author: Alexander D. Choo, MD, Department of Orthopedic Surgery, University of California, San Diego, 200 W Arbor Drive, MC 8894, San Diego, CA 92103; e-mail: alchoo@ucsd.edu.

0363-5023/15/4012-0029$36.00/0
http://dx.doi.org/10.1016/j.jhsa.2015.05.029

treatment is not frequently used but can be efficacious for severe cases to alleviate symptoms and correct deformities. *(J Hand Surg Am. 2015;40(12):2477–2487. Copyright © 2015 by the American Society for Surgery of the Hand. All rights reserved.)*

Key words Inflammatory arthroses, psoriatic arthritis, systemic lupus erythematosus, systemic sclerosis.

NONRHEUMATOID ARTHRITIC DISEASES constitute a group of rheumatoid variant autoimmune inflammatory conditions that are encountered infrequently in the upper extremity, but when they occur they can present diagnostic or therapeutic challenges for the hand surgeon. Although many of these conditions can develop deformities similar to those seen in rheumatoid arthritis (RA),[1] each entity is distinctly different from RA and from each other. The most common of these nonrheumatoid diseases are psoriatic arthritis (PA), systemic lupus erythematosus (SLE), and systemic sclerosis (SSc). Other, less common conditions presenting with hand symptoms include Sjögren syndrome, mixed connective tissue disorder, polymyositis (PM)/dermatomyositis (DM), and Lyme arthritis. Aspects of each of these conditions will be discussed including clinical presentation, diagnosis, and medical and surgical treatments. A summary (Table 1) is included to provide rapid review of salient clinical features as well as diagnostic and treatment options of each.

PSORIATIC ARTHRITIS

Psoriatic arthritis is a seronegative spondyloarthropathy characterized by scaly cutaneous erythematous plaques, asymmetric destructive arthritis, and enthesopathy. The prevalence of arthritis in patients with psoriasis ranges from 6% to 48%[2] but in 15% to 20% of cases, patients will present with arthritis before demonstrating the characteristic skin rash.[3]

Psoriatic arthritis often presents with autofusion of the small hand joints and diffuse fusiform swelling of the digits. This psoriatic dactylitis or sausage digit is caused by inflammation of periosteum, tendon, and tendon insertions. As opposed to RA,[4] tendon ruptures in PA are rare. Each patient typically has a predominantly osteolytic or ankylosing phenotype. Nail deformities are common and include pitting, leukonychia, and nail crumbling.

Early deformities develop in the hand with PA and are most common in the distal interphalangeal (DIP) joints. The proximal interphalangeal (PIP) joints typically present with a flexion contracture that is often severe, and with secondary metacarpophalangeal (MCP) joint hyperextension. Rarely, the PIP joint becomes autofused in extension, in which case the MCP joint may develop a corresponding flexion deformity. The thumb typically has MCP flexion and interphalangeal (IP) extension deformities with trapeziometacarpal (TMC) joint stiffness and a first web space contracture. The wrist may fuse spontaneously with deformities similar to those seen in RA.

Early radiographic changes include soft tissue swelling, osteoporosis, joint space narrowing, and marginal bone erosions (Fig. 1A). Late radiographic findings include joint space widening, pan-articular erosions, and areas of new bone formation with flaring and telescoping, also known as pencil-in-cup deformity (Fig. 1B).

In severe cases, bone loss can result in arthritis mutilans, which may be seen in up to 5% of patients with PA.[5] The characteristic appearance in arthritis mutilans is digital shortening with telescoping of the fingers, a condition termed "opera glass hand."[6]

No consensus has been reached regarding the diagnostic criteria of PA as in RA, but the diagnosis can be established clinically by the presence of both psoriatic skin lesions and inflammatory arthritis. The most commonly used diagnostic criteria are the classification criteria of PA, which include skin psoriasis, nail lesions, dactylitis, negative rheumatoid factor, and juxta-articular bone formation.[7] Laboratory findings are nonspecific but can include anemia of chronic disease, elevated inflammatory markers (erythrocyte sedimentation rate and C-reactive protein), hyperuricemia, hypergammaglobinemia, and hypercomplementemia, which reflect elevated serum complement levels.

Moll and Wright[5] described the original classification for PA in 1973, which consisted of 5 broad groups of patients, only 3 of which were relevant to the hand surgeon. The more commonly used classification by hand surgeons was originated by Nalebuff.[8] In this classification, patients are divided into 3 groups: ankylosing, osteolytic, and RA-like deformities with stiffness.

First-line treatment of PA is nonsurgical and has been revolutionized by the advent of biologic disease-modifying antirheumatic drugs, including tumor necrosis factor antagonists, interleukin-12/23 antagonists,