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RHEUMATOLOGY BOARD REVIEW MANUAL

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Synovial Fluid Analysis and Synovial Biopsy

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INTRODUCTION

Arthritis results from nearly 100 different diseases, many of which can be readily distinguished based on the appearance of the synovial fluid, or synovia, obtained from affected joints. In certain circumstances, biopsy of the synovium can provide diagnostic information that cannot otherwise be ascertained. Frequently, examination of the fluid or tissue from a joint can confirm a clinical suspicion and lead to important management decisions. Learning when to perform synovial fluid or tissue analysis is critical to appropriate decision making in patients with arthritis.

ACUTE POLYARTICULAR ARTHRITIS

INITIAL PRESENTATION

A 22-year-old student is referred by her primary care physician for evaluation of symmetric polyarticular arthritis.

LABORATORY EVALUATION

The physician had ordered rheumatoid factor (RF) and antinuclear antibody tests, an erythrocyte sedimentation rate (ESR), hepatitis serologies, and a chest radiograph after documenting joint swelling in both wrists and in multiple metacarpophalangeal (MCP) joints for

more than 6 weeks. The RF was positive at a high titer, and the ESR was 88 mm/hr. Results of other tests were within normal limits.

- **What are possible diagnoses in a patient with polyarticular symptoms?**
- **What is the approach to the patient with polyarticular arthritis?**
- **Should synovial aspiration be performed in this patient?**

DISCUSSION

Differential Diagnosis

The diagnostic possibilities with a polyarticular presentation are numerous. In an acute presentation, the gamut of possible causes of polyarthritis must be considered (eg, rheumatoid arthritis, systemic lupus erythematosus [SLE], the seronegative inflammatory arthritides). Although involvement of multiple tendons and/or bursae in the absence of true joint symptoms would be unusual, such involvement could herald the onset of a seronegative arthritis, an overuse syndrome, or quinolone-associated polytenosynovitis. Other disorders that might be considered in the differential diagnosis are disseminated gonococcal infection, inflammatory myopathies or other muscle disorders, the vasculitides, peripheral vascular disease (including in the setting of Raynaud's phenomenon, atherosclerosis, or diabetes), fibromyalgia, diseases of bone, and neuropathies. Chronic pain syndromes, particularly in the