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# SERONEGATIVE RHEUMATOID ARTHRITIS: A CASE STUDY OF CHRONIC INFLAMMATORY SYMMETRICAL POLYARTHRITIS WITH BONY DEFORMITY AND SUBCUTANEOUS NODULES

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**ABSTRACT**

**Background:** Rheumatoid arthritis (RA) is a persistent inflammatory condition marked by inflammation in the joints, resulting in gradual joint damage and reduced functionality. The absence of autoantibodies in SNRA presents diagnostic problems, emphasizing the need of prompt intervention for its diagnosis. This example exemplifies the intricacy of identifying SNRA and underscores the need of a thorough clinical evaluation and a multimodal therapeutic strategy. **Objective:** To determine the diagnostic assessment, clinical presentation, and approach to managing seronegative rheumatoid arthritis (SNRA) in an elderly individual. **Case Findings:** 65-year-old man with 7-year progressive, symmetrical polyarthritis of large and small joints developed hand/foot deformities (ulnar deviation, boutonnière/zig-zag thumbs, hammer toe) and subcutaneous elbow nodules. Morning stiffness improved with exercise/heat. Imaging showed rheumatoid changes with nodules; synovial fluid had acute suppurative inflammation. RF and anti-CCP were negative; Hb 9.4 g/dL (normocytic), leukocytosis, high ESR/CRP; ultrasound abdomen showed chronic kidney disease. He met ACR/EULAR criteria (score 6): extensive joint involvement, raised acute-phase reactants, chronicity. Treated with methotrexate, hydroxychloroquine, indomethacin, folic acid, pantoprazole, telmisartan, and calcium, achieving ~50% symptom reduction. Case emphasizes seronegative RA diagnosis and early DMARD-based, multidisciplinary care with monitoring. **Conclusion:** case highlights the importance of considering autoimmune diseases in differential diagnoses and customizing treatment strategies to accommodate the unique needs of elderly Despite negative serology, clinical and investigative findings supported the diagnosis, highlighting the need for a multidisciplinary approach in optimizing patient care and outcomes.

**KEYWORDS :** Rheumatoid arthritis, Seronegative, Polyarthritis, Bony deformity, Subcutaneous nodules

## INTRODUCTION:

Rheumatoid arthritis (RA) is the second most common rheumatic disease after osteoarthritis, but it is the most destructive to synovial joints.[1] Rheumatoid arthritis (RA) is a chronic, systemic, connective tissue disease that worsens over time and is characterized by pain, weariness, and inflammation of the synovial membrane in the joints.[2] The diagnosis is challenging and frequently postponed since the onset can be either abrupt and severe or gradual and subtle. Worldwide annual incidence and prevalence rate of RA is 3 cases per 10,000 population and 1%, respectively.[3] Diagnosing seronegative rheumatoid arthritis (SNRA) is difficult because it lacks antibodies against cyclic citrullinated protein (ACPA) and rheumatoid factor (RF). There are still no clear characteristics that set apart SNRA from seropositive RA (SPRA), despite differences in genetic background, epidemiology, and response to treatment. Missing SNRA can delay treatment initiation, affecting prognosis.

## Case:

A 65-year-old male presented with a 7-year history of pain and swelling in bilateral lower limb joints, including the knees, ankles, and metatarsophalangeal joints. Additionally, he experienced similar episodes involving small joints, such as the proximal interphalangeal joints, metacarpophalangeal joints, and wrists, bilaterally for the past 1.5 years. Deformities in the hands and feet, along with nodular swelling over the elbows, were noted for the past year. The patient also reported having shoulder pain for the previous seven or eight days. Morning stiffness of the joints was prominent, with no improvement noted with activity due to established deformities. Symptoms were alleviated with exercise, hot water fermentation, and medications. There was no history of exacerbation of symptoms with daily activities or systemic features suggestive of connective tissue disorders.

## Clinical Findings:

On examination, the patient was conscious, cooperative, and oriented. Vital signs were within normal limits, with a blood pressure of 160/90 mmHg and pallor noted on the lower palpebral conjunctiva and nails. The patient exhibited characteristic musculoskeletal manifestations such as subcutaneous nodules were palpable near the elbow joint. In the upper extremities, there was evident ulnar deviation of the metacarpophalangeal joints. Additionally, deformities such as boutonnière and zigzag deformities were observed, contributing to functional impairment and decreased dexterity. Moving down to the lower extremities, the patient presented with a hammer toe deformity affecting the index toe, indicative of chronic joint involvement and structural damage. Symmetrical polyarticular involvement was evident, affecting large joints (ankle, knee, elbow, shoulder, hip) and small joints (proximal interphalangeal joints, metatarsophalangeal joints, distal interphalangeal joints, metacarpophalangeal joints, thumb interphalangeal joints).

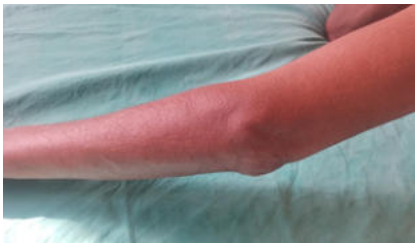

**Figure 1:** Subcutaneous Rheumatoid Nodule

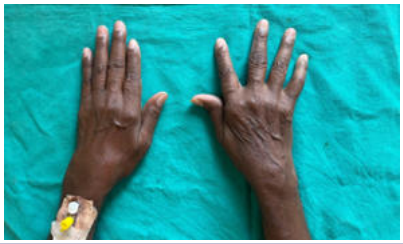

**Figure 2:** Ulnar deviation of metacarpophalangeal joint, boutonniere deformity thumb, zig zag deformity thumb

**Investigations:**
The investigations revealed evidence of chronic illness with multiple systemic involvements. X-ray and ultrasound suggested rheumatoid changes with nodules, but serology (RA, CCP antibody) was negative. Synovial fluid showed acute suppurative inflammation. Hematology indicated anemia (Hb 9.4 g/dl, normocytic normochromic), leukocytosis, high ESR, raised CRP, normal platelets. Abdominal ultrasound showed chronic kidney disease.

**Diagnosis:**
Based on the clinical presentation, radiographic findings, synovial fluid analysis, and laboratory results, a diagnosis of seronegative rheumatoid arthritis was established. The patient met the classification criteria for rheumatoid arthritis, scoring 6 points, including joint involvement (5 large and 6 small joints), negative RF and negative ACPA, abnormal acute phase reactants (ESR and CRP), and chronicity of symptoms (≥6 weeks).

**Management:**
The patient was initiated on a multidrug regimen consisting of methotrexate (7.5 mg once a week), hydroxychloroquine (200 mg twice daily), indomethacin (25 mg thrice daily), folic acid (25 mg once daily), pantoprazole (40 mg once daily), telmisartan (40 mg once daily), and calcium supplementation. Significant improvement, approximately 50% reduction in symptoms, was noted following treatment initiation.

## DISCUSSION:
Clinical features of rheumatoid arthritis characterize seronegative rheumatoid arthritis despite the absence of anti-CCP antibodies and rheumatoid factor. In this case, the absence of signs of infection in standard blood tests increased the suspicion of an autoimmune disease. Seronegative RA presents unique diagnostic and therapeutic challenges due to the absence of conventional autoantibodies. However, clinical evaluation, radiographic imaging, synovial fluid analysis, and laboratory investigations aid in establishing a diagnosis. Early initiation of DMARD therapy is crucial in mitigating disease progression and improving long-term outcomes. This case underscores the importance of a comprehensive approach to managing atypical presentations of RA.

## CONCLUSION:
This case illustrates the diagnostic evaluation and management of seronegative rheumatoid arthritis in a patient presenting with chronic inflammatory symmetrical polyarthritis, bony deformities, and subcutaneous nodules. Also. this case highlights the importance of considering autoimmune diseases in differential diagnoses and customizing treatment strategies to accommodate the unique needs of elderly Despite negative serology, clinical and investigative findings supported the diagnosis, highlighting the need for a multidisciplinary approach in optimizing patient care and outcomes.

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