

# The Role of Magnetic Resonance Imaging in Early Diagnostic of Rheumatic Disease

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## **Abstract:** Background:

Early diagnosis and treatment have been recognized as essential for improving clinical outcomes in patients with early rheumatoid arthritis. Magnetic resonance imaging (MRI) offers improved sensitivity to early inflammatory and destructive changes in peripheral joints in rheumatoid arthritis (RA) and in other inflammatory joint diseases. However, diagnosis is somewhat difficult in the early stages of the disease because the diagnostic criteria were developed from data obtained in patients with established rheumatoid arthritis and therefore are not readily applicable. MR imaging has demonstrated greater sensitivity for the detection of synovitis and erosions than either clinical examination or conventional radiography and can help establish an early diagnosis of rheumatoid arthritis.

## Objectives:

To systematically evaluate the literature addressing the role of MRI in the diagnosis and prognosis of early undifferentiated inflammatory arthritis and RA.

## Methods:

We performed a systematic literature review of the performance characteristics of MRI for diagnosing and prognosticating RA.

## Results:

Several studies have shown that reliable visualization of the inflamed synovium is dependent upon the enhancement provided by intravenously injected paramagnetic contrast media. This presentation discusses the role of contrast-enhanced MRI in the assessment of inflammatory rheumatic joint disease. It is concluded that the method may aid in early diagnosis, and that it has a great potential in the assessment of disease severity and inflammatory activity. It also allows the detection of bone marrow edema, which is thought to be a precursor for the development of erosions in early rheumatoid arthritis as well as a marker of active inflammation. In addition, MR imaging can help differentiate rheumatoid arthritis from some clinical subsets of peripheral spondyloarthropathies by allowing identification of inflammation at the insertions of ligaments and tendons (enthesitis).

## Conclusion:

Contrast-enhanced MRI seems to have a unique potential in the diagnosis and follow-up of inflammatory rheumatic joint disease. The method allows early detection of the proliferating synovium, and has the potential of assessing disease severity and inflammatory activity. The main obstacles to routine use of contrast-enhanced MRI in clinical practice are the limited availability of MR scanners and scanning time, and the relatively high costs involved.

**Key words:** magnetic resonance imaging, rheumatic disease