

Imaging of Inflammatory Arthritis in Children



Status and Perspectives on the Use of Ultrasound, Radiographs, and Magnetic Resonance Imaging

Nancy A. Chauvin, MD*, Asef Khwaja, MD

KEYWORDS

• Juvenile idiopathic arthritis • MRI • Ultrasound scan • Radiography • Imaging

KEY POINTS

- Imaging is useful to evaluate the extent and severity of inflammation, degree of joint damage, and response to treatment in children with juvenile idiopathic arthritis.
- Ultrasound scan demonstrates subclinical synovitis and enthesitis in children with juvenile idiopathic arthritis and is a useful adjunct to the clinical examination.
- Conventional radiography has a limited role in the assessment of juvenile idiopathic arthritis and in established disease should only be used to evaluate those patients with change in symptoms or management.
- MRI offers the most complete imaging analysis and provides assessment of the extent of synovitis, bone marrow and soft tissue edema and can reliably depict early erosive disease.
- Interpretation of all imaging modalities is hindered because of gaps in knowledge regarding the normal appearance of the healthy growing skeleton, and more information is needed to produce validated scoring systems.

INTRODUCTION

Juvenile Idiopathic Arthritis: Definition and Classification

Juvenile idiopathic arthritis (JIA) is an umbrella term that encompasses all forms of arthritis that begin before the age of 16 years, persist for more than 6 weeks, and are of unknown etiology. JIA is the most common childhood rheumatic entity, with a prevalence of 0.6 to 1.9 in 1000 children.¹ The exact etiology is not fully understood but is thought to include both environmental and genetic factors.¹ JIA encompasses

Disclosure: We have no commercial or financial conflicts of interest or funding sources to disclose.

Department of Radiology, The Children's Hospital of Philadelphia, Perelman School of Medicine at the University of Pennsylvania, 34th Street, Civic Center Boulevard, Philadelphia, PA 19104-4399, USA

* Corresponding author.

E-mail address: chauvinn@email.chop.edu

Rheum Dis Clin N Am 42 (2016) 587–606

<http://dx.doi.org/10.1016/j.rdc.2016.07.002>

0889-857X/16/© 2016 Elsevier Inc. All rights reserved.

rheumatic.theclinics.com

a heterogeneous group of arthropathies that have been defined by the International League for Rheumatology (Table 1).^{1,2}

The hallmark feature of all subtypes of JIA is joint inflammation. This typically begins as inflammation of the synovial lining, the thin layer of soft tissue that lines joint cavities, tendon sheaths, and bursae. If left untreated, synovial inflammation

| Table 1 International League for Rheumatology classification of juvenile idiopathic arthritis | | | | |
|--|---------------|---------|----------------------------------|---|
| Category | Frequency (%) | Sex | Age at Onset | Definition |
| Systemic arthritis | 4–17 | F = M | Throughout childhood | One or more joints affected with or preceded by at least 2 wk of fevers that have been daily for at least 3 d, with at least 1 of the following: transitory rash, generalized lymphadenopathy, hepatomegaly or splenomegaly, or serositis |
| Oligoarthritis | 27–56 | F >>> M | Early childhood, peak 2–4 y | One to 4 joints affected within 6 mo of onset |
| Polyarthritis (RF negative) | 11–28 | F >> M | Early peak 2–4, late peak 6–12 y | Five or more joints affected within 6 mo of onset, with a negative RF test |
| Polyarthritis (RF positive) | 2–7 | F >> M | Late childhood–adolescence | Five or more joints affected within 6 mo of onset, with 2 positive RF test results at least 3 mo apart within 6 mo of disease onset |
| Psoriatic arthritis | 2–11 | F > M | Early peak 2–4, late peak 9–11 y | Arthritis and psoriasis, or arthritis and 2 or more of the following: dactylitis, nail pitting or onycholysis, or psoriasis in a first-degree relative |
| Enthesitis-related arthritis | 3–11 | M >> F | Late childhood–adolescence | Arthritis and enthesitis, or arthritis or enthesitis with 2 or more of the following: presence or history of sacroiliac joint tenderness or inflammatory low back pain; positive HLA-B27 antigen; male over 6 y at onset; acute (symptomatic) anterior uveitis; or a history of ankylosing spondylitis, ERA, sacroiliitis with IBD, Reiter syndrome, or acute anterior uveitis in a first-degree relative |
| Undifferentiated | 11–21 | | | Fits into none or at least 2 of the other categories |

Abbreviations: ERA, enthesitis-related arthritis; IBD, inflammatory bowel disease; RF, rheumatoid factor.

Data from Refs. ^{1,6,33}

Download English Version:

<https://daneshyari.com/en/article/5670335>

Download Persian Version:

<https://daneshyari.com/article/5670335>

[Daneshyari.com](https://daneshyari.com)