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# REITER'S DISEASE IN CHILDREN

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## ABSTRACT

This article analyzes the modern medical interpretation of the condition historically referred to as Reiter's disease in children, namely the etiopathogenesis of reactive arthritis, its clinical presentation, diagnostic algorithm, principles of differential diagnosis, and treatment approaches. It shows that in pediatric practice this syndrome does not fully correspond to the classic adult urogenital form, that in most cases it develops after enteric infections, most often affects the joints of the lower limbs asymmetrically, and is accompanied by enthesitis, conjunctivitis, and cutaneous and mucosal manifestations. Special attention is paid to terminology: although the term “Reiter's disease” is historically well known, the term “reactive arthritis” is considered more precise and acceptable in contemporary scientific literature. Although the course of the disease in children is usually relatively mild and self-limited, in some patients recurrence, progression to enthesitis-related arthritis, or a tendency toward chronic inflammatory spondyloarthropathy may develop. For this reason, early diagnosis, differentiation from septic arthritis and juvenile idiopathic arthritis, identification of the infectious source, and the selection of a stepwise therapeutic strategy require cooperation among the pediatrician, rheumatologist, ophthalmologist, and infectious disease specialist.

**Keywords:** reactive arthritis, Reiter's disease, children, enteric infection, conjunctivitis, enthesitis, oligoarthritis, differential diagnosis, HLA-B27, pediatrics

## INTRODUCTION

In pediatric rheumatology, joint syndrome is one of the most difficult diagnostic fields. When a child develops pain and swelling in the knee, heel, ankle, or foot, several acute questions arise for the physician: is this a septic process, a consequence of trauma, the onset of juvenile idiopathic arthritis, or a reactive process that developed after an infection? In this context, the syndrome historically referred to as “Reiter's disease” is of practical importance. However, the weak point of the topic is that in many texts the classic adult triad is mechanically transferred to children. This blurs the real clinical picture seen in pediatrics.

According to modern views, it is more appropriate to use the concept of reactive arthritis instead of the term Reiter's disease. This is because the complete triad of arthritis, urethritis, and conjunctivitis is not always observed in children. In practice, by contrast, most patients present several days or several weeks after an infection with asymmetric oligoarthritis of the lower-limb joints, enthesitis, and sometimes inflammation of the ocular mucosa or other mucosal changes. Therefore, the syndrome should be assessed not within a narrow classic framework, but as a model of postinfectious immune inflammation.

One of the most important clinical features of reactive arthritis in children is that it often occurs after enteric infections. In other words, conditions associated with intestinal pathogens such as Salmonella, Shigella, Yersinia, and Campylobacter are of greater practical importance than urogenital triggers. In addition, the infectious episode is not always confirmed in the laboratory. In some children, a brief episode of enteritis with diarrhea or vomiting may pass, and parents may regard it as insignificant. As a result, the connection between the joint syndrome and the infection is recognized late.

The relevance of the topic is explained by another aspect as well: reactive arthritis usually proceeds as sterile synovitis, but clinically it may mimic septic arthritis. If the physician does not clearly distinguish these two conditions, either unnecessary antibiotics and invasive procedures are prescribed, or, conversely, the true septic process is identified too late and may lead to severe complications. Therefore, the diagnosis of reactive arthritis is not merely an etiological investigation, but also a process of excluding dangerous conditions.

The aim of this article is to systematize the modern clinical description of reactive arthritis in children, historically referred to as Reiter's disease, and to bring fragmented information on terminology, pathogenesis, symptomatology, diagnosis, and treatment into a single logical structure. The article is intended for pediatrics, pediatric rheumatology, and medical education and is aimed at early recognition of this condition in children and reduction of the risk of misdiagnosis.

## MATERIALS AND METHODS

The article was prepared in the form of a narrative review. During the analysis, pediatric reviews on reactive arthritis, clinical encyclopedic sources, rheumatologic descriptions, and openly available scientific materials covering postinfectious arthritis in children were studied. The following criteria guided the selection: relevance to childhood, provision of clear information on the etiology, clinical course, treatment, and prognosis of reactive arthritis, and assurance of terminological and diagnostic consistency.

As the conceptual basis of the analysis, the difference between the historical term “Reiter's disease” and the current preference for the term “reactive arthritis” was taken into account. Information characteristic of the adult population was not transferred directly to children; rather, the specific forms encountered in pediatric practice were highlighted. In particular, central attention was given to cases characterized by postenteric oligoarthritis, enthesitis, and ocular manifestations.

Methodologically, the topic was analyzed in four blocks: etiopathogenetic factors, clinical semiotics, differential diagnosis, and treatment strategy. The advantage of this approach is that it does not merely describe the disease, but also forms an algorithm that supports decision-making in practice. During the analysis, the method of comparison was used with related conditions such as septic arthritis, post-streptococcal arthritis, juvenile idiopathic arthritis, and enthesitis-related arthritis.

## RESULTS

The results of the analysis showed that the most accurate term for the clinical condition historically called Reiter's disease in children is reactive arthritis. The complete classic triad is uncommon in the pediatric population. Therefore, it is incorrect to make the diagnosis only on the basis of the coexistence of urethritis, conjunctivitis, and arthritis. A more reliable practical approach is to recognize sterile inflammatory arthritis that appears after a recent enteric or urogenital infection, is asymmetric, and more often involves the joints of the lower limbs.

Etiologically, important causative agents in children include Salmonella, Shigella, Campylobacter, Yersinia, and in some cases Chlamydia. Some sources also note cases associated with Clostridium difficile. The triggering infection is most often observed from several days up to four weeks before the onset of joint symptoms. In practice, however, this “free interval” is not always clear: in some patients arthritis begins when diarrhea or dysuric symptoms have almost resolved, whereas in others the infectious episode may be subclinical.

The core of the clinical picture is asymmetric oligoarthritis. The most frequently affected joints are the knee, ankle, heel region, and foot. Sometimes only one joint is involved; in other cases, two or three joints are affected. The child may develop changes in gait, limping, nighttime

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restlessness, morning stiffness, swelling over the joint, and increased local temperature. Although the hand joints are affected less often, clinical examples show that they may also be involved.

Among the extra-articular signs, conjunctivitis is the best known, but it is not always vividly expressed. The child may have redness of the eyes, burning, sensitivity to light, and tearing. Uveitis may develop in less frequent cases. Keratoderma-like rashes on the skin and mucous membranes, small oral ulcers, and sometimes mild genitourinary symptoms may also be noted. In pediatric practice, actively searching for these extra-articular manifestations helps to clarify the diagnosis.

The pathogenetic analysis supports the view that reactive arthritis should be understood not as direct microbial invasion, but as a disturbed immune response. Synovial fluid is often sterile, yet signs of immune activation are present. T lymphocytes, cytokines, molecular mimicry, and genetic predisposition associated with HLA-B27 play a central role. At the same time, a positive HLA-B27 result is not sufficient for diagnosis, but rather provides additional information about the likelihood of a more severe or recurrent course.

In the diagnostic algorithm, history taking comes first. The patient and parents should be asked about diarrhea, vomiting, abdominal pain, dysuria, fever, recently used antibiotics, and episodes resembling food poisoning during the preceding weeks. A complete physical examination is then performed, assessing not only the painful joint, but also the enthesis sites, heel, Achilles tendon, sacroiliac region, eyes, oral cavity, and skin. Laboratory evaluation includes inflammatory markers, a complete blood count, urinalysis, stool and urine microbiology when necessary, as well as tests used to exclude other forms of arthritis.

Among imaging methods, ultrasonography is of particular value in pediatrics because it can demonstrate synovitis, intra-articular fluid, periarticular inflammation, and enthesopathy at an early stage. MRI is useful in unclear cases, in sacroiliac involvement, or when deeply located joints are affected. Radiography may provide little information in the acute stage, but in prolonged or recurrent cases it helps exclude alternative pathology.

Regarding treatment outcomes, the sources lead to a general conclusion: most children respond well to nonsteroidal anti-inflammatory drugs. If an active infection persists, etiologic antibiotic therapy is indicated for the infection itself, but the idea of “treating” sterile arthritis with antibiotics is not always justified. In some patients, if joint swelling is pronounced, local glucocorticoid injection may be used. In persistent, recurrent, or chronic enthesitis-associated forms, an immunomodulatory approach under rheumatologic supervision may be required.

The prognosis is favorable in most cases. In the majority of children, symptoms subside within several weeks to several months. Nevertheless, in some patients the disease may flare again, morning stiffness and enthesitis may persist, or the condition may evolve into the spectrum of enthesitis-related arthritis. Therefore, even after clinical recovery, not merely short-term observation but dynamic monitoring for at least several months is considered appropriate.

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**Figure 2.** Example of clinical swelling associated with reactive arthritis. Source: PMC open scientific image.

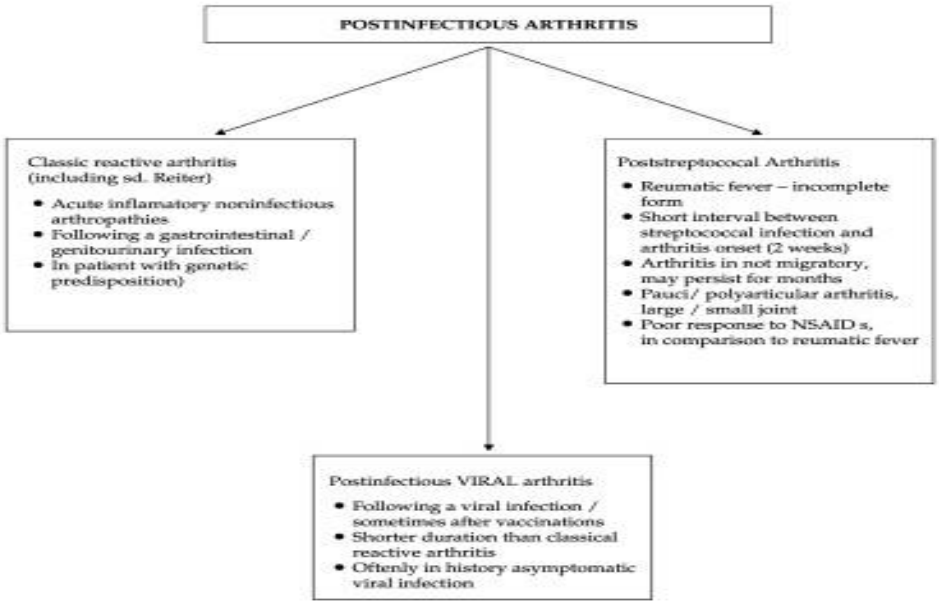


**Figure 3.** Classification of types of postinfectious arthritis in pediatric practice. Source: PMC open scientific image.

## DISCUSSION

The obtained data lead to one important conclusion: although the expression “Reiter's disease” may still be used in children, the concept of “reactive arthritis” is more precise, broader, and biologically better grounded from both practical and educational perspectives. Terminological precision here is not merely a lexical matter. If a physician imagines the syndrome only within the framework of the classic triad, many pediatric cases will not be recognized at all. In pediatric patients, it is often not the full triad, but postinfectious asymmetric oligoarthritis and enthesitis that predominate.

The second important point is the differentiation of reactive arthritis from septic arthritis in children. The greatest mistake here is to interpret the word “reactive” as a sign of safety. In fact, in a child presenting with a single red, hot, painful joint with restricted movement, septic arthritis must first be excluded. Especially if there are signs such as high fever, severe intoxication, very intense pain, inability to move the joint at all, and a sharp increase in inflammatory markers, arthrocentesis and urgent orthopedic assessment should not be delayed. The diagnosis of reactive arthritis becomes reliable only after a dangerous infectious process has been ruled out.

The third problem concerns borderline cases with juvenile idiopathic arthritis. If joint swelling persists for more than six weeks, recurs, new joints become involved, or the connection with infection is unclear, the physician should not cling excessively to the diagnosis of reactive arthritis. Sometimes the first episode looks like a reactive process, but over time it becomes clear that it is chronic juvenile idiopathic arthritis or enthesitis-related arthritis. Thus, the time criterion and dynamic follow-up are part of the diagnosis itself.

Data on pathogenesis show that the immune response to infection in children depends greatly on individual characteristics. Why one child recovers uneventfully after the same enteric infection while another develops reactive arthritis does not yet have a complete answer. However, predisposition associated with HLA-B27 and the interaction between microbial antigens and cellular immunity are regarded as the main mechanisms. This indicates the need for future studies on biomarker discovery and early risk stratification.

Oversimplification is also dangerous in treatment strategy. For example, the idea that “if it happened after an infection, prolonged antibiotics must be given” is not always correct. It is necessary to determine whether an active bacterial focus is present in the child. If active infection exists, antibiotics are necessary. But the effect of antibiotics on sterile immune arthritis itself is limited. More important here are control of pain and inflammation, proper management of physical activity, prevention of contractures and limping, and the addition of ophthalmologic evaluation when ocular signs are present.

The discussion also showed that although reactive arthritis in children often has a good prognosis, it is wrong to regard it as completely harmless. If recurrent episodes, persistent enthesitis, sacroiliac symptoms, or a family history of spondyloarthropathy are present, the patient should be monitored as belonging to a high-risk group. This approach allows the disease to be controlled at an early stage and reduces long-term functional limitations.

## CONCLUSION

From the modern medical point of view, it is correct and appropriate to regard the condition historically referred to as Reiter's disease in children as reactive arthritis. In pediatric practice, it manifests primarily as asymmetric oligoarthritis arising after an infection and involving mainly the joints of the lower limbs.

For early recognition of the disease, it is necessary to actively search for an episode of enteric or urogenital infection during the preceding weeks, pay attention to enthesitis and ocular signs, and clearly exclude septic arthritis as well as juvenile idiopathic arthritis.

Although the prognosis is favorable in most cases, some children remain at risk of recurrence and transition to the chronic spondyloarthropathic spectrum. Therefore, treatment should include not only symptom control, but also staged follow-up, functional recovery, and multidisciplinary supervision.

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