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Juvenile Reiter's syndrome: a case report

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Reiter's syndrome (RS) is uncommon in children, and the classic triad manifestations of RS usually do not occur simultaneously in children. It is often clinically confused with other childhood illnesses. We report a case of RS in a 7-year-old boy with a family history of ankylosing spondylitis. He had developed intermittent arthralgia of the right knee for about 6 months and occasional bilateral eye pain for several months prior to admission. In the 5 days before admission, he developed multiple oral ulcers, weight loss from 25 to 22 kg and fever. Physical examination showed injected bilateral conjunctivae and the right knee joint with swelling, local warmth, and tenderness over the patellar ligament. Laboratory results revealed positive histocompatibility antigen-B27 (HLA-B27), negative rheumatoid factor (RF) and antinuclear antibody (ANA) and normal urinalysis. RS was diagnosed based on the findings of both arthritis and conjunctivitis. The arthritis was treated with acetaminophen and naproxen. In conclusion, juvenile RS should be considered in children with arthritis and conjunctivitis, positive HLA-B27, negative RF and ANA and a family history of related diseases.

Key words: Arthritis, child, HLA-B27 antigen, Reiter's syndrome

Reiter's syndrome (RS) is characterized by the triad of urethritis, arthritis, and conjunctivitis and is commonly associated with either an antecedent gastrointestinal or genitourinary infection. RS in children most frequently follows gastrointestinal rather than genitourinary tract infection [1]. RS is uncommon in children and may be clinically confused with other childhood illnesses. We describe a case of RS in a child with a family history of ankylosing spondylitis (AS) and review the clinical and laboratory findings of this condition.

Case Report

A 7-year-old boy developed intermittent arthralgia of the right knee 6 months prior to admission. The arthralgia was temporarily relieved after taking herbal medicine. He also complained of occasional bilateral eye pain without treatment in the several months prior to admission. The arthralgia had progressively worsened in the previous 1 week. At that time, he complained of fever and multiple oral ulcers with easy gum bleeding for 5 days. His body weight decreased from 25 to 22 kg. He was admitted with the tentative impression of herpetic gingivostomatitis.

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His family history was as follows (Fig. 1): his elder brother had polyarthritis with herbal treatment for more than 1 year. The laboratory tests showed positive histocompatibility antigen-B27 (HLA-B27), negative rheumatoid factor (RF) and antinuclear antibody (ANA). There was no radiographic abnormality of involved joints. Ophthalmologic examination showed no iridocyclitis. The arthritis temporarily subsided after naproxen and prednisolone therapy. His father had polyarthritis of the lower extremities with involvement of bilateral hip joints at the age of 17 years. He had been treated irregularly. The spine and proximal joints of the lower and upper extremities lost flexibility gradually. His blood tests showed positive HLA-B27 as well. Lumbar radiographs showed ankylosis of bilateral hip joints and poorly delineated bilateral sacroiliac joints. The final diagnoses were AS with sacroiliitis and anterior uveitis. At the age of 28, he developed congestive heart failure. His condition deteriorated progressively. He died of congestive heart failure at the age of 33 years.

Physical examination of this patient showed normal blood pressure and normal vital signs. The bilateral conjunctivae were injected. There were also periorbital swelling and multiple painful ulcers over the buccal mucosa, tongue, lips and uvula. Gingival hyperemia with easy bleeding was noted. The right knee joint showed swelling, warmth, and tenderness over the patellar ligament.

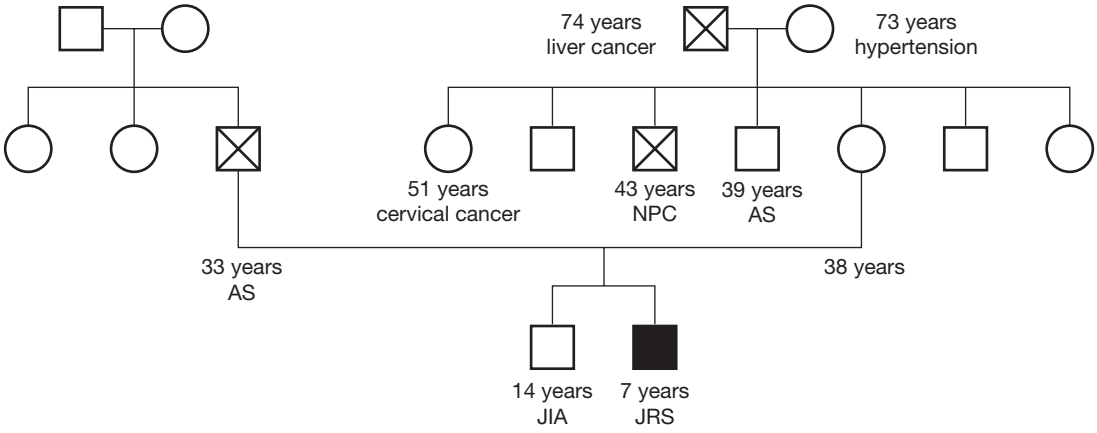

Fig. 1. Pedigree of our patient with juvenile Reiter's syndrome. Closed square represents our patient; cross indicates that the family member is deceased. AS = ankylosing spondylitis; JIA = juvenile idiopathic arthritis; JRS = juvenile Reiter's syndrome; NPC = nasopharyngeal carcinoma.

Laboratory data were as follows: white blood cells, 8700/μL; hemoglobin, 12.2 g/dL; platelets, 255000/μL; C reactive protein, 9.7 mg/L (normal, <5 mg/dL); erythrocyte sedimentation rate, 25 mm/h (normal, <15 mm/h); positive HLA-B27; negative ANA and RF; and negative herpetic simplex virus immunoglobulin M. Urine analysis showed negative findings.

After admission, acetaminophen and antihistamine (cyproheptadine) were given initially. Bilateral chronic conjunctivitis without uveitis was diagnosed by an ophthalmologist consultant. RS was diagnosed. Due to the patient's stable condition, he was discharged. Two weeks after discharge, his oral ulcers disappeared, and arthritis of the right knee joint had improved under treatment with acetaminophen. However, arthralgia of the toes of the left foot developed, and naproxen at 10 mg per kg daily was added to the treatment.

Discussion

RS may be considered a reactive process to an infection. The clinical triad of RS is arthritis, conjunctivitis and urethritis, though the symptoms usually do not occur simultaneously in children [2]. Cuttica et al [3] reported that only 35% of RS patients had the full triad within 1 week of the onset of diarrhea. Moreover, the full triad of RS appears to be rare in childhood and particularly in young children [4]. Previous studies found that 42% of HLA-B27-positive patients had features suggestive of RS but lacked the complete triad [5]. Our patient presented with only arthritis and conjunctivitis, and his parents could not recall whether he had a history of gastrointestinal or genitourinary infection prior to the onset of arthritis.

Among the classic triad symptoms, arthritis may be present for several weeks before the onset of other signs and symptoms. Lockie and Hunder [6] reported that a few RS patients had articular complaints for more than 2 months before diagnosis. Oligoarticular arthritis is the most frequent joint manifestation in RS and usually affects the large weight-bearing joints of the lower extremities, but the upper extremity joints can also be involved. The arthritis is usually asymmetric, and the knees are the most frequently affected joints. Enthesitis is a characteristic feature of RS [6,7]. In most patients, the arthritis is self-limited and lasts only a few months. But the joint symptoms can persist for 2 to 4 months, leading to the development of chronic arthritis [8,9]. In adults, the prevalence of positive HLA-B27 in RS patients is 81%, and the presence of HLA-B27 is associated with a higher incidence of sacroiliitis and iridocyclitis [10]. As in adults, more than 90% of children with RS have positive HLA-B27 [2,11]. Sacroiliitis frequently occurs in HLA-B27-positive adults, but less often in children [3]. Friis [9] noted that the pathogenesis of chronic recurrent RS in HLA-B27-positive children seemed to be linked to HLA-B27. In an animal study, HLA-B27 was itself involved in the pathogenesis of spondyloarthropathies [12]. HLA-B27 is an excellent antigen-presenting molecule in both spondyloarthropathy patients and healthy individuals. In HLA-B27 positive individuals, the function of HLA-B27 is to present pathogen-derived antigenic epitopes to T cell receptors of cytotoxic T lymphocytes

either more rapidly or more effectively than other HLA class I alleles. This feature likely predisposes to the development of spondyloarthritis [13]. The patient's elder brother had polyarthritis with positive HLA-B27. His father was diagnosed with AS. Because of the strong family history and positive status of HLA-B27, our patient had a very high risk of developing spondyloarthritis in the future.

The treatment of arthritis in children with RS usually consists of anti-inflammatory agents such as nonsteroidal anti-inflammatory drugs and sulfasalazine. In our patient, more joint involvement developed later and was treated with naproxen.

The conjunctivitis in patients with RS is bilateral and mucopurulent. The severity of conjunctivitis may range from mild to severe inflammation. It usually resolves within 2 weeks, but severe complications may occur — such as iritis, keratitis, corneal ulceration and optic neuritis [2]. The conjunctivitis can be treated with corticosteroid eye drops or antibiotic eye drops [6]. In our patient, bilateral chronic conjunctivitis was diagnosed, and no treatment was given due to the absence of pain. Dysuria is the major genitourinary manifestation associated with RS, but symptoms may be mild or absent [6,8]. The urethritis in young children may be difficult to diagnose by clinical signs and history. There was no associated symptoms or pyuria in our patient. Mucocutaneous manifestations may occur in RS, such as balanitis circinata and circinate vulvitis, but these lesions are rare in children. Other nonspecific manifestations, including oral ulcers, fever, anorexia, body weight loss, pleuritis, aortic root dilation, leukocytosis, elevated erythrocyte sedimentation rate, and negative ANA and RF can occur in children [8]. Our patient complained of fever, body weight loss and oral ulcers. These symptoms all subsided before discharge. Stool culture, if performed soon after the onset of diarrhea, may test positive for enteric pathogens such as *Salmonella* and *Shigella* spp. Urine culture is usually negative. In our patient, both stool and urine cultures tested negative.

In conclusion, because the classic triads of juvenile rheumatoid arthritis usually do not occur simultaneously, juvenile Reiter's syndrome should be considered in children with arthritis, conjunctivitis, positive HLA-B27, negative RF and ANA, along with a family history of related diseases.

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