ARCHIVES OF MEDICINE | 2009 | Vol. 1 | No. 1:1 | doi: 10.3823/032

Review

Reiter's Syndrome

Digna Llorente Molina, Susandra Cedeño

Facultad de Ciencias Médicas 10 de Octubre. Ciudad Habana, Cuba. E-mail: dignallorente@infomed.sld.cu

Reiter's syndrome is a systemic disorder characterized by ocular conjunctivitis or uveitis, reactive arthritis, and urethritis manifestations. The exact cause of reactive arthritis is unknown. It occurs most commonly in men before the age of 40. It may follow an infection with Chlamydia, Campylobacter, Salmonella or Yersinia. Certain genes may make you more prone to the syndrome. The diagnosis is based on symptoms. The goal of treatment is to relieve symptoms and treat any underlying infection. Reactive arthritis may go away in 3 - 4 months, but symptoms may return over a period of several years in up to a half of those affected. The condition may become chronic. Preventing sexually transmitted diseases and gastrointestinal infection may help prevent this disease. Wash your hands and surface areas thoroughly before and after preparing food.

■ The first description of Reiter's syndrome was attributed in 1916 to the re-known German physician Hans Reiter, linked to Nazi powers, and to his experiments in the concentration camps. In 1918, Junghanns described the first case in a young patient (1), (2).

Due to the syndrome's abnormal immunological reactivity to certain pathogens as a result of the interaction between environmental and genetic factors (antigen HLA-B27), in many studies it is known as Reactive Arthritis.

In literature, it is also known under the pseudonyms Syndrome Polyarthritis Enterica, Waelsch Syndrome, Ruhr Syndrome, Feissinger-Leroy-Reiter Syndrome, Conjunction-Urethro-Synovial Syndrome, Urethro-Ocular- Joint Syndrome, Venereal Arthritis, Arthritis Urethritica, Blennorreal Idiopathic Arthritis, reactive Arthritis, Gastrointestinal Reiter's Syndrome and Enteric Reiter's Syndrome, amongst others.

Initially, Reiter described the condition as secondary to a sexually transmitted infection (STD). Currently, it is identified as a secondary syndrome to known pathogens such as Chlamydia, Shigella, Yersinia, Campylobacter and Salmonella amongst others.

Normally, Reiter's syndrome is a complex featuring a triad that compromises ocular involvement with conjunctivitis and/or uveitis, articular manifestation (reactive arthritis), genital urethral involvement such as urethritis or cervicitis and, occasionally, cutaneous-mucosal lesions such as keratodermia blennorrhagica and balanitis circinata; yellow papule lesions on the soles, palms and with less frequency on the nails, scrotum, scalp and trunk, amongst others (3), (4), (5).. The earliest manifestation of joint disorder is entesitis, normally in the Achilles tendon and in the plantar fascia of the calcaneus, causing shortening or lengthening of fingers and toes resembling "sausage fingers and toes". Arthritis is accompanied by sporadic pain and inflammation in the joints, affecting the large joints in lower extremities in the following frequency order: knees, ankles, feet joints, shoulders, wrists, hips and lumbar spine. Sacroiliitis has also been identified widely.

Ocular fluxion is one of general indications of Reiter's syndrome. The most common ocular manifestation is conjunctivitis, followed in frequency order by uveitis (3), (4), (5) , with eye reddening, pain and photophobia, and in 58% of the cases (6) it is associated with the haplotype HLA - B27 (4),(6). Equally, 24% of patients with this marker have an underlying systemic disorder (4), (7), such as Reiter's Syndrome or Ankylosing Spondylitis. Moreover, HLA - B27 positive patients have been found to suffer from further disorders, such as macular edema, synechia, cataract and glaucoma (8).

Urethritis, manifesting itself as urethral discharge and dysuria, has been described as transitory and anticipating arthritis in months or years (8). Nongonococcal urethritis warns about

the coming of Reiter's syndrome one or two weeks later. A post dysenteric form has also been described, following an infectious gastroenteritis diagnose (9).

It is estimated that there are 3-5 cases of Reiter's syndrome for every 100 000 people. It normally appears as inflammatory polyarthritis in young adults, but it is rare amongst the aged and children. The syndrome is more common amongst 20 to 40 years old males, particularly when manifestations developed after sexually transmitted infections. It is more spread amongst white patients and, when it appears in black patients, they are normally HLA-B27 negative. The yearly recurrence of acute reactive arthritis has been estimated between 4 in 10 000 people in Finland and between 1 in 10 000 people in Norway. In some patients, the infection preceding Reiter's syndrome can be asymptomatic.

Etiology

In Reiter's syndrome, urethritis appears as follow-up to dysenteric infection (gastrointestinal Reiter's syndrome or enteric Reiter's syndrome) or as a sexually transmitted infection (10), (11), (12).

Reiter's syndrome is normally preceded by an infection. Currently, there is disagreement between two theories: On the one hand, the epidemic theory defends that the syndrome follows a diarrheic acute condition secondary to the infection by certain pathogens, such as Salmonella enteritidis, Salmonella typhimurium, Shigella dysenteriae, Shigella flexneri, Yersinia enterocolitica and Campylobacter jejuni. On the other hand, the endemic theory considers it to be a follow-up to a sexually transmitted infection by pathogens such as Chlamydia trachomatis, or Ureaplasma urealyticum.

The development of Reiter's syndrome in more than one family member and its high association with HLA - B27 histocompatibility has demonstrated individual genetic predisposition to this entity.

The symptoms of negative rheumatoid factor arthritis identify the syndrome with seronegative arthritis.

Clinical course

Each individual patients experiments Reiter's symptoms differently (13), (14) . However, within the range of signs, it is possible to identify them as below and in different locations (15), (16), (17) . When patients present partial symptoms, the condition is known as Partial Reiter's Syndrome (13)
Risk factors related to Reiter's syndrome include:

-A history of sexually transmitted infections.
-Patients aged between 20 and 40 years old.
-Family relatives affected by Reiter's syndrome.
-Genetic traces associated with HLA-B27 Reiter's Syndrome.
-Digestion of contaminated foods.
-Male patients.
-Frequent change of sexual partners.

Clinical description

Ocular symptoms: Several ocular lesions, such as conjunctivitis have been identified, mostly of mild degree, although these become acute in the case of Keratitis and uveitis. These lesions can precede or follow other clinical symptoms. The patient can complain about a painful sensation or discomfort before light, conjunctival discharge, blepharitis and even anterior acute uveitis. Around 5% of the patients develop iritis, a pathology that can seriously damage sight functioning if not treated. Watering, ocular suppurative discharge and edema on the upper eyelid can be present. Conjunctivitis has been identified as part of the classic triad of Reiter's syndrome. Nonetheless, patients may experience it on its own; it might be a conjunctival reaction such as uveitis on its own or a combination of both conditions. It is well-known that 30 or 50% of patients visiting the ophthalmologist with anterior uveitis are suffering from an underlying rheumatologic condition. The ocular disorder can become the most important problem seriously compromising the patient's health.

Arthritis symptoms: An asymmetric and oligoarticular condition, mild or acute, has been described in numerous cases, affecting large joints in the lower limbs and the lumbosacral region, with pain on the lower back. Equally, it affects foot tendons, causing tenosynovitis on the Achilles tendon and dactylitis on the toes. This can cause tearing, heel spurs, deformity of the affected joints, ankylosis, and sacroiliitis, the latter occasionally confused as ankylosing spondylitis. In children, the manifestations appear on peripheral joints and they can be wrongly diagnosed as rheumatic fever. Arthritis linked to Reiter's syndrome was until 1970 considered acute, transitory and of brief duration. Although patients presented a self-limiting process, often they have been found to have a degenerative or recurring, rather than transitory, joint condition. Arthralgia, monoarthritis, polyarthritis, endonitis, tenosynovitis, fasciitis and spins symptoms appear on the joints bearing weight. In particular, the knees and the ankles are the most affected, but Reiter's syndrome affecting mainly the Achilles tendon, the plantar fasciitis, the ankle and subplantar joints remains unidentified. 20% of HLA - B27 positive patients affected by Reiter's syndrome present unilateral or bilateral sacroiliitis and a full diagnose of ankylosing spondylitis.

Genitourinary symptoms: Urethritis and cervicitis in women are normally mild or asymptomatic, making it difficult to diagnose and contrary to gonorrhea, which is more painful and presents an intensified purulent discharge (14). They can appear within three weeks after the infection, followed by febricula, arthritis and conjunctivitis. Urinary symptoms are transitory, causing pain and difficulty when urinating in both sexes, with urethral discharge in males and cervicitis in females; hemorrhagic cystitis and proctitis can also be present. A painful and burning sensation on the penis is common, as well as increased urinary output.

Skin and cutaneous-mucosal symptoms: The most commonly described is keratodermia blennorrhagica, featuring maculopapulous lesions on the palms and soles on a diffusely

reddened background, and developing into blistering lesions that, when bursting, cause a lesion resembling psoriasis. These lesions worsen with stress and the use of antiarrythmic and antimalarial medication. They have been observed in 15% of patients. In extreme cases and when the disorder has been associated with HIV infection, the keratodermia may extend widely in the body and present itself as posterior chronic psoriatic arthritis.

The condition also has been found to present painless ulcers in oral mucus, tongue, palate and genital glands. Balanitis circinata or painless mild balanitis is the most frequent skin lesion, over the glands and appearing in 36 % of patients. Onychodystrophy has also been described, as well as weight loss, lack of appetite, fatigue and fever, all being common. The manifestations beyond the joints in these patients resemble those in autoimmune disorders such as in uveitis, kidney-related amyloidosis and alterations in the conduction system of the heart.

Complications

Generally, complications are rare (13), (18), (19). Nonetheless, they have been found in several organs (20), (21), (22).
Pulmonary: Pneumonia, pleurisy.
Nervous system: Neuropathy, malfunction.
Cardiac: Aortic malfunction, pericarditis, arrhythmia and aortic necrosis, this being secondary to the treatment.
Ocular: Uveitis, cataract.
Joints: Persistent arthritis, chronic arthritis or sacroiliitis, ankylosing spondylitis.

Diagnosis

There are no specific examinations for Reiter's syndrome (16), (18), (20), making conclusions difficult (21), (22), (23).

A diagnose can be drawn using risk factors, a history of enteric or sexually transmitted infections, as well as symptoms and physical examination. The American College of Rheumatology draws a diagnose when a patient presents a peripheral joint dysfunction over a period of a month, accompanied by urethritis, cervicitis or one of the manifestations beyond those in the joints.

Other methods that can be used are:

-Erythrocyte sedimentation or increased ESR, particularly if reactive arthritis is present.
-Chlamydia testing.
-Arthrocentesis - where a sample of synovial fluid is obtained from the joint in order to examine it.
-X-rays, showing spondylitis, sacroiliitis, arthritis of damage to the joints.
-Nuclear magnetic resonance (NMR) and computerized axial tomography (CAT) scan to register bone and internal organ imaging.
-Leukocyte count, looking for signs of infection where leukocytosis and neutrophilia may be present. In a chronic phase, hemograms can show anemia.
-C-reactive protein: positive.
-Genetic factor studies associated with the HLA-B27 entity.
-Bacterial culture, ultrasound, urinary sedimentation where hematuria and leukocyturia may be found.

Differential diagnosis[11], [10], [24]

Characteristics.	Reiter Reactive arthritis	Psoriatic arthritis	Ankylosing spondylitis	Spondyloarthropathy in young patients
HLA Marker	HLA- B27 and HLA- B7	HLA- B27 HLA- B57 HLA- Cw6 HLA- B13	HLA-B27	85% HLA-B27
Age	*from 2 to 40 years old*	Young adult	*from 30 to 40 years old*	*from 8 to 10 years old*
Gender	Ration 3.1 male/female	any	60% male	80% male
Development	Progressive	Variable	Acute	Variable
Sacroiliitis	100%	20%	Less than 50%	Less than 50%
Cardiac manifestations	1 to 4 %	3 to 4 %	50%	20%
Ocular manifestations	Up to 29%	Up to 20%	Up to 75%	Up to 20%
Skin manifestations	Marked	Marked	No	0,01%

Treatment

Most researchers agree that Reiter's syndrome has no cure. Even if symptoms may disappear in two to six months (13), (14), (16) , most patients present recurrent symptoms for several years (18), (19), (22), (25), (26) . It is worth noting several aspects of the syndrome, including joint inflammation during infection and the prevention of recurrent arthritis attacks (27), (28), (29).

Generally, recommended treatments include resting whilst the joint inflammation persists, the use of crutches when the knee is swollen. This should be followed by physiotherapy, with moderate exercises to ameliorate flexibility and to strengthen muscles in order to improve joint support, and occupational therapy.

Medical treatment is prescribed to couples suffering from Chlamydia inflection, with the administration of 100 mg doxiciline twice a day for at least 3 months. Tetracycline has been known to be successful when the infection is caused by Chlamydia Trachomatis.

Anti-inflammatories and painkillers: Aspirin, Iboprofen (MotrinTM, AdvilTM). Some researches recommend Indometacin and Tolmecin to control the disorder within a few weeks or months.

Corticosteroid treatment is not recommended, and only when swelling persists these should be administered via injection. Local glucocorticoid injections are recommended for entesitis or resistant oligoarthritis. Atrophy of the vastus medialis

quadriceps may surface a few weeks later. Preventive measures such as isometric exercises, frequent high doses of non steroidal anti-inflammatory medication plus the use of coolants and corticoid injections in the joints are normally most beneficial. The use of corticosteroids is exceptionally recommended only in patients with severe polyarthritis or with malfunction of the conduction system of the heart.

If the condition is severe, therapy with immunosuppressant medication may be considered, such as Azathioprine (ImuranTM), Metotrexate, particularly suitable for long-term patients in a serious condition. Auronofin, aurothimalate, azathioprine and metotrexate have all been used to treat chronic reactive arthritis.

Conjunctivitis does not require medical treatment. Nonetheless, ophthalmic glucocorticoids can be used to treat iritis or uveitis. Cutaneous-mucosal lesions can be treated with topic glucocorticoids or keratolitic agents such as balms and salicylic acid.

Sulfasalazine can benefit patients with chronic disorders. It should be prescribed as 0.5 to 1 gram per day, and progressively increased. Sulfasalazine can be beneficial against spondyloarthropathy, either by reducing the mucosal inflammation or acting directly on the arthritic joint against bacteria and modifying intestinal flora. ■

Bibliography

1. Reiter's Syndrome, available at www.taringa.net
2. Foster CS, Vitale AT. Diagnosis and treatment of uveitis. W.B.Saunders Company, Philadelphia, 2002.
3. Lee DA, Barker SM, SU D, Allen GL, Liesegang TJ, Ilstrup DM. The clinical diagnosis of Reiter's syndrome. Ophthalmology 1986; 93:350.
4. Nussenblatt RB, Whitcup SM. Uveitis. Fundamentals and clinical practice. Mosby Ed., 2004.
5. Ostler HB, Dawson CR, Schachter J, Engleman EP. Reiter's syndrome. Am J Ophthalmol 1971; 71:986?
6. Tay-Kearney M, Schwam BL, Lowder C, Dunn JP, Meisler DM, Vitale S, Jabes DA. Clinical features and associated systemic diseases of HLA B27 uveitis. Am J Ophthalmol 1996;121:47?
7. Wakefield D, Montanaro A, Cluskey PM. Acute anterior uveitis and HLA B27. Survey of Ophthalmology 1991; 36:223.
8. Linssen A, Meenken C. Outcomes of HLA B27-Positive and HLA B27-Negative acute anterior uveitis. Am J Ophthalmol 1995; 120:351?
9. Schumacher HR. Primer on the rheumatic diseases. 10 ed. Atlanta: Arthritis Foundation, 1993:158-61.
10. Lavalle C. Reumatología clínica. México, DF: Editorial Noriega, 1990:273-83.
11. Khamashtha MA. Enfermedades autoinmunes del tejido conectivo. Barcelona: Doyma, 1991:1-8.
12. Keat A, Rowe I. Reiter´s syndrome and associated arthritides-rheuma. Med Clin North Am 1991; 17:25-42.
13. Carter JD. Reactive arthritis: defined etiologies, emerging pathophysiology, and unresolved treatment. Infect Dis Clin North Am. 2006; 20 (5): 827-47.
14. Kasper DL, Ed: Reactive arthritis. In: Harrison's Online. Part 13. Section 2. Chap 305. McGraw Hill; 2004.
15. Cecil Textbook of Medicine, 21st ed. W.B. Saunders Co., 2000.
16. Textbook of Primary Care Medicine, 3rd ed. Mosby Inc., 2001.
17. Tiny LM, Mc-Phee SJ, Papadakis MA. Diagnóstico Clínico y Tratamiento. 35° edición. México: Editorial El Manual Moderno, 2000: 829-830.
18. Kelley's Textbook of Rheumatology, 6th ed. W.B. Saunders Co., 2001.
19. Primary Care Medicine, 4th ed. Lippincott Williams & Wilkins, 2000.
20. Farreras Rozman. Medicina Interna. Madrid: Editorial Mosby/Doyma Libros Modernos, 2000: Vol 1; 1034-1035.
21. Hatem CJ, Ketyle WM, Pinals RS. Mksap 12 Reumatología. Buenos Aires: Copyright 2000 AP Americana de Publicación, 2000: Vol 1; 31-32.
22. 9. Vitanem AM, Veale DR, Rhaman MU. Reumatología N°8.Buenos Aires: Editorial copyright, Americana de Publicación, 2001: Vol 2; 33.
23. Harrison's Principles of Internal Medicine, 14th Ed. The McGraw-Hill Companies, 2000.
24. Rosadilla A. Atlas de reumatología del adulto. Barcelona: Edika-Médica, 1993:60-6.
25. Fauci AS, Braunwald E, Wilson JD, Martin JB, Kasper DL, Isselbacher KJ. Harrison´s Principles of internal Medicine, 14° edición. Nueva York: Editorial Mc. Grawl-Hill, 1999: vol. 2; 1906-1907.
26. William NE, Harris- Kelley D. Medicina Interna. 2° edición. Buenos Aires: Editorial Panamericana, 1995: Vol. 1; 1022-1023.
27. Inman, R, D. And Scofield, R. (1994). Etiopathogenesis of ankylosing spondylitis and reactive arthritis. Current Opinion in Rheumatology, 6, 360-70.
28. Khan, M. A. (1997). Spondyloarthropathies: Editorial review. Current Opinion in Rheumatology, 9, 281-3.
29. Calin A., and Taurog J (1998). The Spondyloarthritides. Oxford University Press.

