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CASE REPORT

Juvenile Ankylosing Spondylitis with Uveitis

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SUMMARY A 17-year-old boy had suffered from right ankle arthralgia when he was 13 years old. He also had bilaterally congested conjunctivas and were erythematous around his right ankle joint. A soft tissue echo showed swelling of the right ankle joint. A Ga 67 scan revealed a focal elevated uptake in the right ankle, but a bone scan was negative. Reactive arthritis was suspected due to conjunctivitis, arthritis and a previous episode of watery diarrhea. An ophthalmologic examination showed no evidence of uveitis. Laboratory data were negative for rheumatoid factor, antinuclear antibody and anti-ds DNA. Erythrocyte sedimentation rate (ESR) was 40mm/hr and a histocompatibility test was positive for antigen B27. Based on the diagnosis of cellulitis and reactive arthritis, oxacillin and naproxen were given for 14 days. During follow-up at the OPD, bilateral arthralgia of the ankle joints was noted and a sonography showed bilateral edematous ankle joints. Juvenile ankylosing spondylitis (JAS) was suspected. Two years later, he had lower back pain and arthralgia of the knee joints with uveitis of the right eye. He was treated with naproxen and prednisolone. Because few JAS cases initially present as axial arthropathy or enthesopathy and uveitis is uncommon in children, we presented the case with a review of literature and conclusion that the possibility of JAS should be considered in young adolescent boys with arthritis of the lower limbs, enthesitis, a family history of related diseases and positive HLA-B27, as well as negative rheumatoid factor (RF) and anti-nuclear antibody ANA) results.

Juvenile ankylosing spondylitis (JAS) is an inflammation of the vertebral joints which results in stiffening of the spine. The onset of the disease is before the age of 16. The prevalence of JAS is 13 to 65 per 100,000 in Mexico[1] and is unknown in Taiwan.

Patients demonstrate ocular pain, redness, photophobia and blurred vision, all of which indicate uveal tract involvement. The prevalence of uveal tract involvement in JAS is estimated to be 27%.[2] The characteristics of HLA-B27-associated uveitis are acute, non-granulomatous and anterior in location.[3] A variety of hypotheses have been established for the immunopathology for HLA-B27-related acute anterior uveitis, including T-cell lymphopenia,[4,5] iris autoantibodies,[5] and lymphoproliferative response to chlamydia antigen.[6] We described a boy with reactive arthritis as the initial presentation. The following clinical presentations and laboratory data confirmed the diagnosis of JAS with uveitis.

CASE REPORT

This 17-year- old boy initially suffered from pain over the right ankle for about 30 days when he was 13 years old. He visited our hospital at that time. Under the impression of cellulitis of the right ankle joint, he was admitted for further management. During admission, a physical examination found a mild bilateral congestion of the conjunctivas and an erythematous right ankle which was hot, swollen, tender and limited in its range of movement. The x-ray image of the right

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ankle showed soft tissue swelling at the periarticular region. A muscular echo showed swelling of the right ankle joint with increased blood flow in the periarticular tissue. A Ga 67 scan revealed a focal area of increased uptake in the right ankle, which was compatible with mild arthritis or synovitis. A bone scan was arranged to rule out osteomyelitis of the right distal tibia, which was negative. Reactive arthritis (Reiter's syndrome) was suspected because of the combination of conjunctivitis, arthritis and watery diarrhea about one week before the onset of arthralgia. The ophthalmologic examination showed bilateral chronic conjunctivitis without evidence of uveitis. The laboratory data showed normal CBC, rheumatoid factor, antinuclear antibody and anti-dsDNA levels. However, the ESR was at 40 mm/hr and a positive result was detected for histocompatibility antigen B27 (HLA-B27). Later on the patient also complained about pain in his left ankle. With the diagnosis of cellulitis and reactive arthritis of the right ankle, intravenous oxacillin and oral naproxen were given. He was discharged with a naproxen prescription after a 14 day-course of antibiotics and the result of the needle aspiration of the right ankle turned out to be negative. During follow-up at the OPD, progressive pain over both ankle joints with morning stiffness was noted even under naproxen treatment. The sonography showed edematous change around the peritendinous tissue of both ankle joints but an x-ray image was negative. Juvenile ankylosing spondylitis was suspected and an intraarticular injection of triamcinolone hexacetonide was given. After that, the swelling of the right ankle improved and he did not return to the hospital. Two years later, the patient visited our OPD again due to fever, headache and photophobia with a reddish and painful right eye for one week. The ophthalmologic examination showed marked injection of the right conjunctiva and uveitis of the right eye (Fig. 1). Methylprednisolone eyedrops and oral prednisolone were given, after which the redness of the right eye improved. Subsequent laboratory data showed RF, anti-dsDNA and ANA within normal limits. He also complained of lower back pain and arthralgia of the knee joints. An x-ray image of the lumbosacral spine was negative. Naproxen and prednisolone were given for the arthritis.

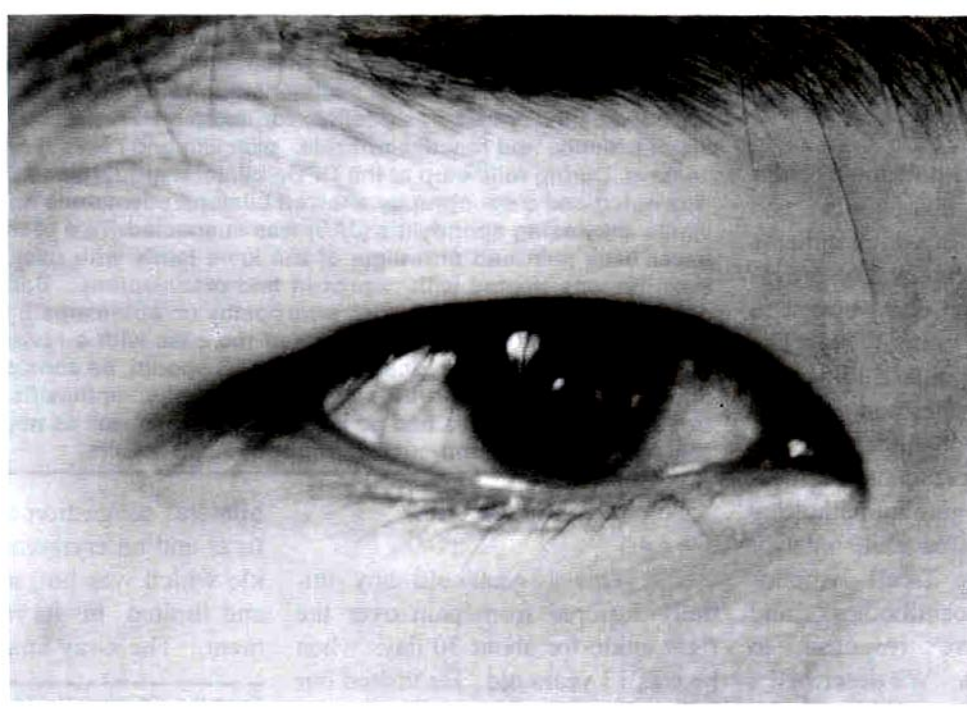

Fig. 1 Ophthalmologic examination showed marked injection of the right conjunctiva.

DISCUSSION

Among the patients with clinically diagnosed juvenile ankylosing spondylitis (JAS), 79% to 89.4% have peripheral arthropathy or enthesopathy that predominantly involve the lower limb joints and entheses, but seldom affect the small joints of the hands. In JAS, the arthropathy or enthesopathy may cause intermittent periods of slight or mild symptoms for months or years.[1]

The uveitis in JAS, which is nongranulomatous, occurs within 10 years after the onset and may involve both eyes but seldom simultaneously.[1] The cause of this HLA-B27-associated uveitis is unknown.[7] Patients with HLA-B27-associated acute anterior uveitis have a high possibilities of associated sacroiliitis and/or peripheral arthritis.[3,8,9] Eighty-four percent of the patients with HLA-B27-associated uveitis have associated joint disease.[10] In an animal study, HLA-B27 was itself involved in the pathogenesis of spondyloarthropathies.[11] 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 spondyloarthritis.[12] Ninety-six percent of patients have a unilateral uveitis at the initial episode.[10] The uveitis lasts from 4 to 6 weeks and does not leave sequelae in most cases,[1] although some suffer a permanent damage.[13,14] In some patients axial disease becomes evident 3 years after disease onset but most patients have axial disease 5 to 10 years later. Radiographic changes of the sacroiliac joints can be seen in patients older than 12 years, however, the spinal changes seldom occur in patients with less than 15 years of disease or those younger than 25 years of age.[1]

In conclusion, this report presented a case of JAS initially with nonspecific symptoms like diarrhea, conjunctival congestion and peripheral arthritis, without lumbar pain or anterior uveitis. The involvement of the lumbar spine and uveal tract usually occur many years after the onset. The possibility of JAS should be considered in young adolescent boys with arthritis of the lower limbs, enthesitis, a family history of related diseases such as AS, Reiter's syndrome and positive HLA-B27 lab results, negative rheumatoid factor and antinuclear antibody.

REFERENCES

1. Burgos-Vargas R, Petty RE. Juvenile ankylosing spondylitis. Rheum Dis Clin North Am 1992; 18:123-42.
2. Ansell BM. Juvenile spondylitis and related disorders. In: Moll JMH, ed. Ankylosing spondylitis. Edinburgh, Churchill Livingstone, 1980; pp. 120-36.
3. Mapstone R. Woodrow JC. HL-A 27 and acute anterior uveitis. Br J Ophthalmol 1975; 59: 270-5.
4. Byron NA, Campbell MA, Hobbs JR, *et al.* T and B lymphocytes in patients with acute anterior uveitis and ankylosing spondylitis and in their household contacts. Lancet 1979; 2: 601-3.
5. Wakefield D, Easter J, Robinson P, Penny R. Immunological features of HLA-B27 anterior uveitis. Austr J Ophthalmol 1983; 11: 15-9.
6. Wakefield D, Penny R. Cell-mediated immune response to chlamydia in anterior uveitis: role of HLA-B27. Clin Exp Immunol 1983; 51:191-6.
7. Rosenbaum JT. Acute anterior uveitis and s pondyloarthropathies. R heum Dis Clin North Am 1992; 18: 143-51.
8. Beckingsale AB, Davies J, Gibson JM, Rosenthal AR. Acute anterior uveitis, ankylosing spondylitis, back pain and HLA-B27. Br J Ophthalmol 1984; 6 8: 741-5.
9. Moller P, Vinje O, Olsen EG. HLA B27, sacroiliitis and peripheral arthropathy in acute anterior uveitis. Scand J Rheumatol 1980; 9: 234-6.
10. Rosenbaum JT. Characterization of uveitis associated with spondyloarthritis. J Rheumatol 1989;16: 792-6.
11. Hammer R E, M aika S D, R ichardson JA, Tang JP, Taurog JD. Spontaneous inflammatory disease in transgenic rats expressing HLA-B27 and human beta-2 microglobulin: an animal model of HLA-B27-associated human disorders. Cell 1990; 63: 1099-112.
12. Bowness P. HLA B27 in health and disease: a double-edged sword? Rheumatology 2002; 41: 857-68.
13. Huang JL, Hung IJ, Hsieh KH. Sulphasalazine therapy in chronic uveitis of children with chronic arthritis. Asian Pacific J Allergy Immunol 1997; 15: 71-5.
14. Kanski JJ, Shun-Shin GA. Systemic uveitis syndromes in childhood: analysis of 340 cases. Ophthalmology 1984; 91: 1247-52.

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