A young man with multiple joint pains and fever: A case with the importance of accurate history taking

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1 | CASE

A 38-year-old Japanese man presented to the outpatient department of orthopedics with sudden onset of back pain without radiation for 4 days followed by a 3 week history of multiple joint pains. The joint pains were involved with the major joints, including left ankle, left wrist, right knee, and right second proximal interphalangeal joint of the foot. The pains became worse with movement. Due to increased joint pains along with plantar pain, he gradually developed difficulty in walking. During this period, the patient also had intermittent fever with a range of 37-38.6°C at daily maximum temperature. He had no significant past medical history such as diabetes, hypertension, hyperlipidemia, asthma, trauma, or major surgery. He worked as a system engineer. For 17 years, he had been smoking one pack of cigarettes and drinking two cans of beer a day. He had no known drug or food allergy.

Multiple etiologies should be considered for multiple joint pains and fever. These include infectious diseases, crystal-induced arthritis, endocrine disorders, collagen vascular diseases, or seronegative spondyloarthropathies. Regarding infectious diseases, viral, bacterial, fungal, or parasitic diseases can cause multiple joint pains and fever. Crystal-induced arthritis includes gout or pseudogout, although these diagnoses at this age are not common. Endocrine disorders include hyperthyroidism, hypothyroidism, or hyperparathyroidism. For collagen vascular diseases, rheumatoid arthritis, systemic lupus erythematosus, various vasculitis, or adult Still’s disease are possibilities. Seronegative spondyloarthropathies include psoriatic arthritis, ankylosing spondylitis, enteritis-associated arthritis, or Behcet disease. Among these extensive causes, infectious diseases, such as bacterial arthritis, should be considered first, as they may cause sepsis, or rapid joint destruction. Thus, taking detailed history is necessary, focusing especially on exposures to potential pathogens, including sexual history. Review of systems is mandatory for gathering additional important information.

The patient lives in Kanto area with his parents. Family history showed the absence of collagen vascular diseases or traits of hereditary diseases.

He denied any contacts with animals, people with tuberculosis, sick people, or sexual contacts in the past half year. He had no recent travel history or exposure to wildness. In review of systems, chills, night sweat, or weight loss were negative. The patient also claimed that he did not have a sore throat, rhinorrhea, a headache, chest pain, abdominal pain, cough, dyspnea, vomiting, diarrhea, dysuria, or skin rash.

Negative exposure history cannot exclude infectious diseases. Concrete sexual history should be included into social history especially for adolescent men with suspected infectious diseases. Absence of skin rash cannot eliminate collagen vascular diseases. Physical examination should differentiate between inflammatory arthropathy and noninflammatory arthropathy by inspection and palpation on the entire joints. Presence of swelling, redness, local heat, or tenderness of the points indicates inflammatory arthropathy.

He was alert and oriented, and vital signs were normal, including the blood pressure of 112/66 mm Hg, the pulse of 95/min, the respiratory rate of 18/min, and the temperature of 36.1°C. There were no skin rash, conjunctival injection, or superficial lymphadenopathies. Heart sounds were normal without murmurs, gallops, or rubs. The lungs were clear to auscultation. Abdominal examination was normal. Examination of joints showed mild swelling and tenderness of left ankle, left wrist, right knee, and right second proximal interphalangeal joints. Although there was no tenderness over the spinous processes in the cervical, thoracic, and lumbar spines, the...
The patient received nonsteroidal anti-inflammatory drugs with appointment after a week for follow-up visit waiting for collagen vascular serological test results. Blood cultures and joint fluid examination were not obtained. On the next visit, the number of painful joints increased, although the extent of joint swelling had not changed. Additional tests revealed the following results: positive antinuclear antibody (ANA) with a titer of 640 times (speckled type), elevated MMP-3 of 228.3, TSH of 0.52 μIU/mL, and free T4 of 1.22 ng/dL. Serum anti-CCP antibody level was within normal limits. The patient was referred to the department of medicine under a tentative diagnosis of rheumatologic arthritis.

In general, ANA is useful for screening of systemic lupus erythematosus (SLE) based on its high sensitivity for this disease. However, many healthy persons have positive ANA, and thus, its specificity is low. Therefore, positive ANA does not directly lead to a diagnosis of SLE unless there are other characteristic symptoms, signs and laboratory test abnormality suggestive of cutaneous, mucosal or organ involvements. Additionally, reactive arthritis and other etiologies remain possibilities. Therefore, these clues should be sought at first by repeated history taking and physical examinations.

At the time of visiting the department of medicine, further sexual history was taken, after explaining the relationship between sexually transmitted diseases and arthritis. Eventually, the patient confessed his past medical history of Neisseria gonorrhoeae and Chlamydia trachomatis infections. He also admitted his sexual activity including sexual contacts with commercial sex workers twice, 2 months prior to the development of illness. Urinalysis showed no organisms but some neutrophils in the sediment. Urine polymerase chain reaction test for N. gonorrhoeae was negative, but that for C. trachomatis was positive. Treatment of oral azithromycin was initiated. After 2 weeks, all the symptoms resolved. HLA typing was obtained, showing positivity in HLA-A11, HLA-A24, HLA-B62, HLA-B39, HLA-Cw9, and HLA-Cw7. Human immunodeficiency antibody was negative, but sexual counseling was provided for the prevention of future sexual transmitted diseases.

Sexual intercourses with commercial sex workers are strong risk factors for sexually transmitted diseases including C. trachomatis infection, especially if they were unprotected. A syndrome of reactive arthritis secondary to C. trachomatis infection, formerly Reiter syndrome, may not have associated conjunctivitis and urethritis. Patients with reactive arthritis lacking the HLA-B27 antigen may have a shorter duration or arthritic symptoms, affecting fewer joints, and a lower incidence of a sacroiliitis and iritis than their HLA-B27 positive counterparts. An HLA-B27-positive man appears to be 10 times more likely to develop sexually acquired reactive arthritis than one who lacks the antigen.

2 | DISCUSSION

Reactive arthritis is an aseptic inflammatory arthritis that occurs subsequent to an extra-articular infection, most typically of the
gastrointestinal or genitourinary tracts. In the former tract infections, the key pathogens are *Salmonella typhimurium*, *Yersinia enterocolitica*, *Shigella flexneri*, *Campylobacter jejuni*, and *Clostridium difficile*. In the latter infections, these are *C. trachomatis*, *N. gonorrhoeae*, *Ureaplasma urealyticum*, and *Mycoplasma genitalium*.4

Chlamydia species are obligate intracellular bacterial parasites and pathogenic to their various hosts.5 *Chlamydia trachomatis* and *Chlamydia pneumoniae* are human pathogens. *Chlamydia trachomatis* is the etiologic agent for trachoma and sexually transmitted disease. Only a small proportion of all Chlamydia-infected individuals experience reactive arthritis.5 Studies on sexually acquired reactive arthritis suggest that approximately 1%-3% of patients with chlamydia urethritis will experience arthritis.6-8 However, about a half of patients with reactive arthritis are considered to be caused by *C. trachomatis* infection.6,7 This organism can reach joints from the urogenital system via circulating monocytes, and these monocytes/macrophages become its hosts during long-term infection of synovial tissue.8

The cornerstones of treatment for reactive arthritis secondary to *C. trachomatis* infection are antibiotics effective against this organism and nonsteroidal anti-inflammatory drugs as a measure for pain control of arthritis and frequently associated enthesopathy.

Regarding the diagnosis in this case, the importance of accurate history taking should be emphasized. At the time of the first visit, the patient denied his sexual contact in the past half year, but in the next visit, he admitted the sexual contact after we explained the relationship between STDs and arthritis. Before asking a sexual history, it is crucial to provide the explanation of the reason why this private history should be obtained. It is surely important to ask appropriate questions for an accurate diagnosis, but we should not forget the importance of building rapport with patients. Taking a sexual history is very difficult even for experienced physicians, and we all should continue to train our interviewing skills. To learn more about this, I highly recommend “A Guide to Taking a Sexual History,” provided by Centers for Disease Control and Prevention.

**CONFLICT OF INTEREST**

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

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