CASE REPORT

Diagnostic Problem in a Patient with Tuberculosis Arthritis

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ABSTRACT

Extra-pulmonary tuberculosis (TB) remains a big public health problem worldwide. Although TB most commonly affects the lungs, any organ or tissue can be involved. TB arthritis is a rare form of extra-pulmonary TB. TB arthritis usually manifests as mild and non-specific arthritis. A 35-year-old male was admitted to the emergency room of Dr. Soetomo General Academic Hospital Surabaya due to pain of left knee since two days prior to admission. His symptom began on previous six months with the swelling of the left knee that gradually worsened so that he had an antalgic gait. Radiological examination of left knee joint showed inflammatory arthritis, accompanied by joint effusion and soft tissue swelling. USG examination of the left knee showed the presence of non-specific left knee arthritis. Patient underwent debridement. Anatomical pathology examination of the tissue obtained at the time of debridement, showed the TB granulomatous inflammation. The Ziehl-Nielson stain of left knee tissue also showed the TB granulomatous inflammation. Patient was then treated with analgesics and anti-TB drugs. The intensive phase of anti-TB therapy was planned to be 2 month, then evaluated and followed by continuation phase for about 7 months. The knee joint is the third most common site of osteoarticular TB after spine and hip. Insidious onset of pain which, in some patients may be present for years, is the usual presentation. The joint is usually warm, and wasting of the thigh muscles is usually marked. Synovial hypertrophy and effusion are present in most patients. The gold standard for diagnosis of TB arthritis is synovial biopsy, with positive results in 80% of cases. It shows caseating granulomas, lymphocytes, and giant cells with caseation, which are characteristics of TB arthritis. Synovial biopsy is generally recommended in any arthritis where clinical evaluation and routine investigations do not give a clear diagnosis.

Keywords: Extra-pulmonary tuberculosis, Tuberculosis arthritis, Synovial biopsy

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INTRODUCTION

Tuberculosis (TB) is still the second most frequent infectious disease after malaria on a worldwide basis and remains a major cause of joint and skeletal infection. In 2001, the World Health Organization (WHO) reported 2.4 million cases and approximately 2 billion people worldwide have latent TB infection. During 2008, an estimated 9.4 million new TB cases were diagnosed with most cases living in Africa and Asia, among them approximately 8% occurred in HIV-positive individuals. TB remains the major cause of morbidity and mortality worldwide (Tseng et al., 2014).

Extra-pulmonary forms of TB pose a big public health problem, because unlike pulmonary forms that lead patients quickly at health centers, they are commonly unrecognized or late diagnosed, which delay the treatment. This delay in diagnosis is not only due to the delay in the examination, but also due to the diagnostic difficulties related to extra-pulmonary TB (Tchaou et al., 2016).

TB arthritis is a rare form of extra-pulmonary TB. TB arthritis usually manifests as mild and non-specific arthritis. Laboratory and radiological examinations are often non-specific, with only joint inflammation and increase of erythrocyte sedimentation rate are found. In cases in which a diagnosis cannot be reached simply by synovial fluid aspiration, synovial biopsy should be considered in the diagnostic process. The diagnosis and the treatment of TB arthritis are both urgent matters; surgical debridement and strict adherence of anti-TB chemotherapy tend to yield a satisfactory functional outcome (Erdem et al., 2005).

Here we reported a problematic case of young man consulted to our department due to chronic swelling and pain of the left knee, who was suspected as arthritis due to M. tuberculosis infection. Radiological examination and synovial fluid aspiration had not confirmed a specific result. The patient then underwent synovial tissue biopsy and the TB arthritis was finally confirmed. Here we emphasized the difficulties associated with the diagnosis of TB arthritis.

CASE REPORT

A 35-year-old Javanese male, Mr. RL, lived in Margorukun Surabaya, worked as a retailer, was admitted to the emergency room of Dr. Soetomo Hospital Surabaya on December 30th, 2016, due to pain of left knee since two days prior to admission. His symptom began on previous six months with the swelling of the left knee that gradually worsened so that he had an antalgic gait, found it difficult to walk or to climb stairs. The left knee joint was hard to bend. Since last two days, patient was not able to walk because the left limb was painful when moved. The pain did not spread and did not diminish with rest. There was no recent history of trauma, of respiratory, infective, or

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joint disease, or of recent travel. Patient denied complaints of urination or bowel movements, only sometimes feel tingling or thickness in the left thigh and leg.

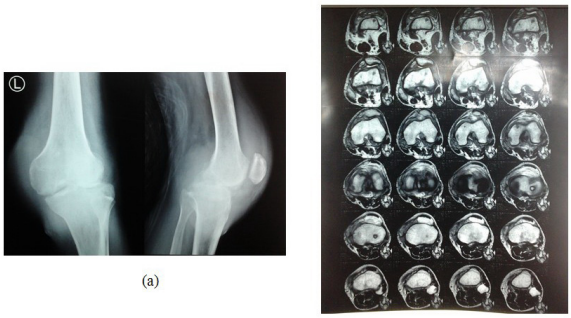
Patient had ever been hospitalized in Rosella 1 Ward, Dr. Soetomo General Academic Hospital, on October 31th until November 23rd, 2016, with the same complaint. At that time, the left knee was painful, swollen, and difficult to move. Patient was diagnosed as left knee septic arthritis with a differential diagnosis of TB of the knee. USG examination of the left knee on September 1st, 2016, showed the presence of non-specific left knee arthritis. On October 3rd, 2016, MRI examination was performed on left knee, and the result showed osteoarthritis, with the presence of bone edema in left distal femur and left proximal tibia, left femorotibial joint edema, and subchondral bone cyst in left lateral tibial condyle. On October 13th, 2016, ICT-TB examination of synovial joint aspiration fluid was negative. USG re-examination of the left knee on November 2016 indicated that knee arthritis progressively increased, with the echo intensity of minimally free fluid, had septa, accompanied by synovial proliferation of the left knee, while osteophyte was not present. On November 14th, 2016, USG-guiding FNAB of the left knee showed the inflammatory process. During the admission in Rosella 1 Ward, diagnosis of TB of the knee was not yet established.

Patient also had a history of epilepsy since childhood. Patient routinely came to Neurology Outpatient Clinic of Dr. Soetomo General Academic Hospital once a month and got Carbamazepine 200 mg, 1.5 tablets once daily in night. Physical examination of the patient showed the awareness was compos mentis, GCS of 456, visual analog scale (VAS) of 4. Vital signs: blood pressure of 130/80 mmHg, heart rate of 96 times/minute, respiratory rate of 20 times/minute. No signs of anemia or dyspnea were found on head and neck examination. Thorax and abdominal examinations were within normal limit. Examination of the upper extremity was normal. Examination of lower extremity (left knee): from inspection (Look) we found tissue swelling, reddish color of skin, and deformity; from palpation (Feel) we found complaint of pain, warmth, and lump which was fixed on its base; and from Movement we found limited range of movement.

On GALS examination, we found: Gait: patient lying in bed, able to stand but difficult to walk; Arms: within normal limit; Legs: edema on the left knee; and Spine: within normal limit. Automated blood count on initial day of admission (December 30th, 2016) demonstrated hemoglobin of 10.8 g/dL, leucocyte count of 7,090/µL, neutrophils of 65.5%, platelet count of 393,000/µL, erythrocyte sedimentation rate (ESR) prolonged to 52 mm/hour (normal 1-10 mm/hour), ALT of 19 mg/dL, AST of 26 mg/dL, random blood glucose of 118 mg/dL, BUN of 10 mg/dL, serum creatinine of 0.96 mg/dL, potassium of 3.9 mEq/L, sodium of 145 mEq/L, chloride of 97 mEq/L, calcium of 7.7 mEq/L, CRP of 6.3 mg/L (normal 0-5 mg/L), procalcitonine of <0.05 (healthy). The HIV rapid test was non-reactive.

Radiological examination of thorax on January 1st, 2017, showed heart and lung were within normal limit. Radiological examination of left knee joint showed inflammatory arthritis, accompanied by joint effusion and soft tissue swelling. MRI examination showed bone and joint edema in the left femorotibial joint.

Patient was treated by Department of Orthopedics and Traumatology in surgical ward. Patient was consulted to Internal Medicine Department and was diagnosed as left knee septic arthritis with differential diagnoses of rheumatoid arthritis and arthritis TB + hypocalcemia. Patient was administered mefenamic acid 500 mg three times daily, calcium carbonate 1 tablet twice daily, and cold compresses for swelling in the left knee.



(a) (b)

Figure 1. (a) Radiological examination of left knee joint showed inflammatory arthritis, accompanied by joint effusion and soft tissue swelling; (b) MRI examination showed bone and joint edema in the left femorotibial joint.

Progression

Day 4 (January 2nd, 2017)

Patient said the pain had decreased (VAS of 2), however the left knee was still swollen. Left knee was still difficult to move and knee joint still could not bend. The assessment was still the same, septic arthritis with differential diagnoses of rheumatoid arthritis and TB arthritis. We performed synovial aspiration of left knee joint, and the result showed leucocyte of 26,000 cells/µL with PMN ratio of 65%, acid-fast bacilli was negative, and no malignant cell was found. Patient was tested for HIV with 3 methods and the result was non-reactive. Patient was then consulted to the Department of Anesthesiology and was planned to undergo debridement in operation room the next day.

Day 5 (January 3rd, 2017)

Before undergoing debridement, the patient still felt mild pain in the left knee (VAS of 2). During surgery, 100 mL of serohemorrhagic fluid on extra- and intraarticular tissue was obtained. Besides, septal fibrosis in extraarticular tissue, synovitis in intraarticular tissue, and cartilage destruction in femorotibial joint were found. Patient was still assessed as septic arthritis, with the differential diagnoses of rheumatoid arthritis and arthritis TB. After surgery, the left knee joint was immobilized with elastic bandage. Physiotherapy began with passive motion exercise. Patient was administered injection of ketorolac 30 mg three times daily intravenously, ceftriaxone 1 gram twice daily intravenously, and wound care every 2 days. Differential diagnosis of rheumatoid arthritis could be excluded after negative results of ANA test and rheumatoid factor were obtained.

Day 9 (January 7th, 2017)

The complaint of pain was still felt (VAS of 3). Laboratory examination showed hemoglobin of 10.1 g/dL, leucocyte count of 8,000/µL, neutrophils of 69.8%, platelet count of 371,000/µL, ALT of 24 mg/dL, AST of 22 mg/dL, BUN of 9 mg/dL, serum creatinine of 0.96 mg/dL, ESR of 63 mm/hour, and CRP of 17.7 mg/L. The patient got injection of ceftriaxone 1 gram twice daily intravenously, tramadol 1 tablet three times daily orally, and wound care every 2

days.

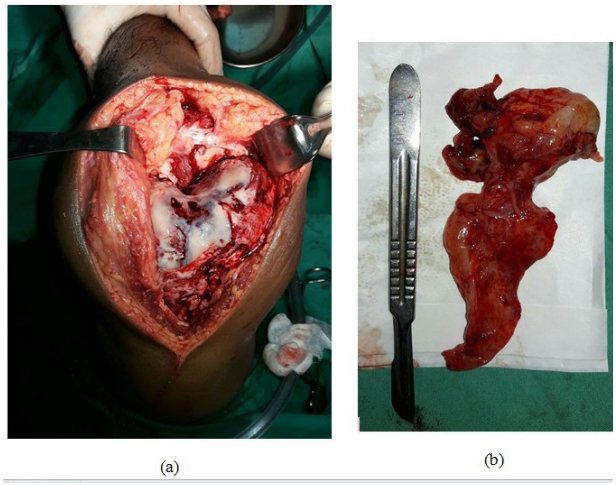


Figure 2. (a) Debridement of left knee joint; (b) Articular tissue obtained during surgery for the pathological examination.

Day 13 (January 11th, 2017)

The complaint of pain was gradually decreased (VAS of 2). Laboratory examination demonstrated hemoglobin of 11.8 g/dL, leucocyte count of 5,560/µL, neutrophils of 53.8%, platelet count of 472,000/µL, BUN of 18 mg/dL, serum creatinine of 0.83 mg/dL, ESR of 106 mm/hour, and CRP of 8.8 mg/L. Anatomical pathology examination of the septum, intraarticular, and extraarticular tissue obtained at the time of debridement, showed the TB granulomatous inflammation. The Ziehl-Nielson stain of left knee tissue also showed the TB granulomatous inflammation.

Based on the result above, patient was eventually diagnosed as TB arthritis. He was then consulted to the Department of Pulmonology and was administered the anti-TB therapy.

Day 15 (January 13th, 2017)

Patient was discharged and planned for administration of paracetamol 500 mg three times daily orally, diclofenac sodium 50 mg three times daily orally, and anti-TB therapy (intensive phase: rifampicin 450 mg/day, isoniazide 300 mg/day, pyrazinamide 1250 mg/day, and ethambutol 750 mg/day). The intensive phase of anti-TB therapy was planned to be 2 month, then evaluated and followed by continuation phase for about 7 months.

DISCUSSION

Bone and joint infection may account for approximately 9% of cases of extra-pulmonary TB and, overall, for almost 2% of all cases of TB. Musculoskeletal TB involves the spine in approximately one-half of patients. Sites more frequently affected are peripheral joints, followed by extra-spinal TB osteomyelitis.5 TB arthritis (9%) is reported to be the fifth most common extra-pulmonary location, following lymphatic (27%), pleural (21%), genitourinary (16%), and miliary (27%) location. TB arthritis can affect any joint, but the peripheral joints most commonly involved are the hips (15%), knees (15%), and ribs (5%) (Marquez and Espinosa, 2010).

In endemic areas, children and young adults are most frequently affected; in non-endemic areas, non-white males in their 40s and 50s are the most commonly affected. Typical symptoms consist of slowly progressive joint pain, swelling, and loss of function that progress over weeks to months, rather than days. Constitutional symptoms, fever, and weight loss occur in about 30% of cases. A single joint is usually involved, but multiple lesions can occur (Garcia-Arias et al., 2012). Diagnosis presents clinicians with a number of difficulties, and failure to recognize the disease at an early point in the course of illness occurs frequently (Erdem et al., 2005).

M. tuberculosis infection occurs through inhalation of aerosolized bacteria, ingestion or direct inoculation from infected individuals. Particles less than 5 µm can carry 1 to 5 bacil-li, which is enough to infect an immunocompromized individual. Infection depends on the number of organisms that survive phagocytosis and their ability to escape host defenses, such as alveolar macrophages and delayed hypersensitivity responses (Garcia-Arias et al., 2012). Although TB can involve virtually any area of the musculoskeletal system, the majority of TB arthritis cases (±85%) present with chronic monoarthritis involving large and medium weight-bearing joints, the hip and knee being the most common sites. In persons with TB risk factors, this diagnosis needs to be pursued vigorously with appropriate microbiological and histopathological investigations. A polyarticular or oligoarticular presentation of TB arthritis is uncommon. However, it should be considered in debilitated children in high-burden regions with a background of or close contact with TB, in the elderly, in immunocompromised individuals, in those taking corticosteroids, or after trauma (Malaviya and Kotwal, 2003).

The knee joint is the third most common site of osteoarticular TB after spine and hip. It is predominantly a synovial disease but, in time, most patients develop both synovial and bone involvement. Insidious onset of pain which, in some patients may be present for years, is the usual presentation. Swelling has been described as the initial presentation in about 20%, and stiffness in about 10% (Tuli, 2002). The joint is usually warm, and wasting of the thigh muscles is usually marked. Synovial hypertrophy and effusion are present in most patients (Malaviya and Kotwal, 2003).

The musculoskeletal evaluation must discriminate the anatomic origin(s) of the patient's complaint, whether it is articular or non-articular. Articular disorders may be characterized by deep or diffuse pain, painful or limited range of motion on active and passive movement, and swelling (caused by synovial proliferation, effusion, or bony enlargement), crepitation, instability, or deformity. By contrast, non-articular disorders tend to be painful on active, but not passive (or assisted) range of motion, demonstrate point or focal tenderness in regions adjacent to articular structures, and have physical findings remote from the joint capsule. Moreover, non-articular disorders seldom demonstrate swelling, crepitus, instability, or deformity (Samuel et al., 2011; Tseng et al., 2014). In this patient, the complaint we found led to articular disorder. The duration of complaint was more than 6 weeks, so it could be classified as chronic.

In patients with musculoskeletal complaints, we can use the algorithm below to rule out the differential diagnoses.

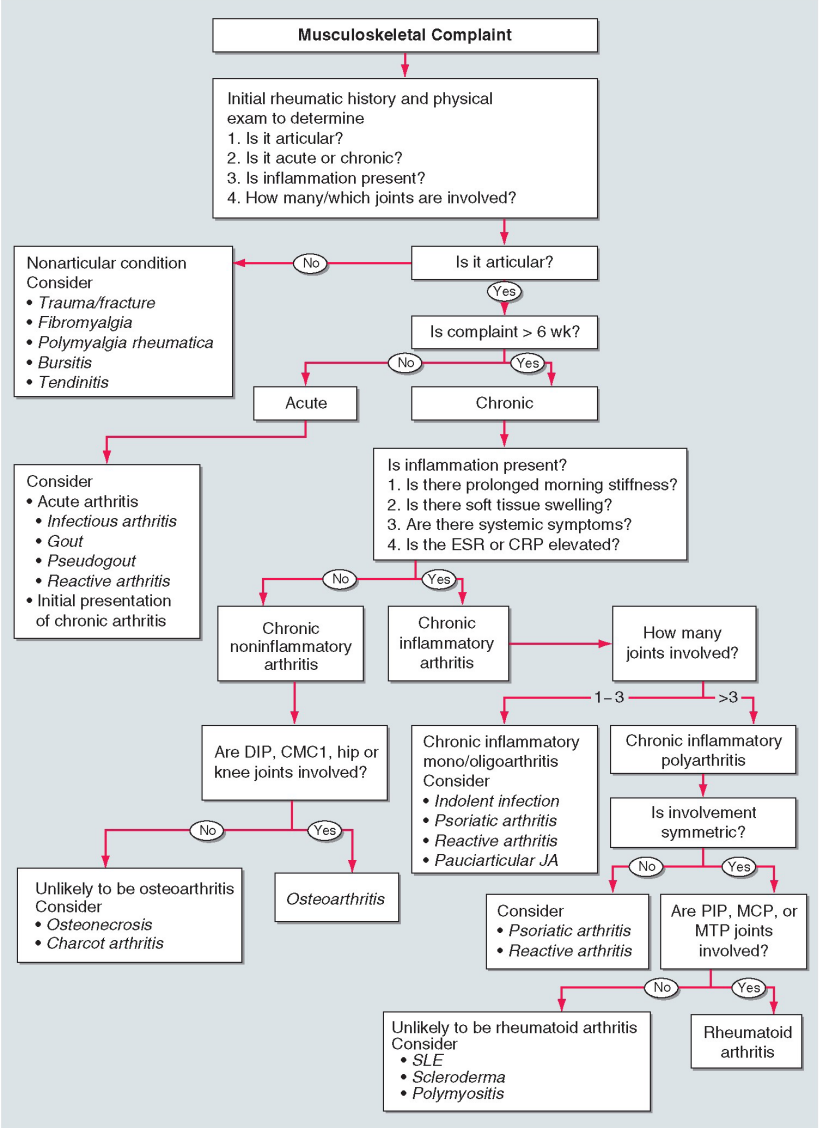


Figure 3. Algorithm for Musculoskeletal Complaints (Cush, 2018)

Inflammatory disorders may be infectious (infection with Neisseria gonorrhoea or M. tuberculosis), crystal induced (gout, pseudogout), immune related (rheumatoid arthritis), SLE, or idiopathic. Inflammatory disorders may be identified by any of the four cardinal signs of inflammation (erythema, warmth, pain, or swelling), systemic symptoms (fatigue, fever, rash, weight loss), or laboratory evidence of inflammation (elevated ESR or CRP, thrombocytosis, anemia of chronic disease, or hypoalbuminemia). By contrast, intermitten stiffness associated with non-inflammatory condition (such as ostoarthritis), is precipitated by brief period of rest, usually lasts <60 minutes, and is exacerbated by activity. Non-inflammatory disorders are often characterized by pain without synovial swelling or warmth, absence of inflammatory or systemic features, or negative laboratory investigation (Samuel et al., 2011; Tseng et al., 2014).

In this patient, physical and complementary examination revealed that the characteristics of articular disorder were inflammatory. Based on the number of affected joints, this patient complained of monoarticular pain, i.e. his left knee joint. According to algorithm above, the possible different diagnoses are indolent infection, psoriatic arthritis, reactive arthritis, or pauciarticular jouvenile arthritis.

Radiographic features are usually noted 2 to 5 months after disease onset. The typical radiographic presentation of TB arthritis is characterized by juxta-articular osteoporosis, peri-pheral osseous erosions, and gradual diminution of joint space, known as the Phemister triad (Samuel et al., 2011). In contrast to the rheumatoid arthritis, the joints space is relatively pre-served in early TB arthritis. In children, there may be enlargement of the epiphysis. Bone scan shows increased uptake, but bone scan finding are non-pathognomonic (Tseng et al., 2014).

In areas where TB is endemic, clinical and radiographic findings may be sufficient to make the diagnosis. In other areas, the diagnosis may be suspected with the appropriate clinical history, including questions about country of origin, previous exposure to tuberculosis and prior positive tuberculin skin test. Patients with risk factors for TB, such as immunocompromised individuals, the elderly, and patients taking corticosteroids and/or immunosuppressive and biological agents, deserve special attention and should undergo microbiologic or histologic studies (Garcia-Arias et al., 2012).

Computerized tomography (CT) and magnetic resonance imaging (MRI) are helpful in defining the disease further. MRI defines soft tissues better, while CT is good for bony lesions. The MRI features of TB arthritis include synovitis, effusion, central and peripheral

erosions, active and chronic pannus, abscess, bone chips, and hypo-intense synovium. MRI is the investigation of choice to reveal both extent and severity of damage. An MRI is also non-specific but evaluates the extent of the lesion better than X-rays. These imaging features in an appropriate clinical setting maybe helpful in the diagnosis of TB arthritis (Tseng et al., 2014). In this patient, X-rays, USG, and MRI of the left knee showed the presence of arthritis, but could not determine specifically the cause.

A definitive diagnosis of TB can only be made by culturing M. tuberculosis organisms from a specimen obtained from the patient. However diagnosing extra-pulmonary TB remains challenging because clinical samples obtained from relatively inaccessible sites may be paucibacillary, decreasing the sensitivity of diagnostic tests. Since the conventional smear microscopy has a low sensitivity with a range of 0%–40%, negative results cannot exclude the presence of TB. The reported yields of mycobacterial culture vary from 30% up to 80%, but it usually takes 2 to 8 weeks to receive the results, which is too slow to help treatment decisions (Lee, 2015).

About 10%–50% of extra-pulmonary TB patients have concomitant pulmonary involvement. Therefore, all suspected cases of extra-pulmonary TB should be assessed for concomitant pulmonary TB to determine whether the case is infectious and to assist with diagnosis. Some extra-pulmonary TB patients have positive sputum culture results despite normal chest radiography findings (Lee, 2015).

Synovial fluid aspiration is often performed in cases of suspicion of TB arthritis because the synovial fluid is relatively easy to reach. Interpretation of synovial fluid aspiration can follow the algorithm below (Figure 2).

As body fluid can show atypical features, the absence of typical findings cannot rule out TB arthritis (Lee, 2015). Synovial fluid is usually non-hemorrhagic and turbid with moderate elevation of white blood cell, ranging between 10,000 and 20,000 cells/µL with predominance of polymorphonuclear leukocyte. Culture for M. tuberculosis is also to be planned. Joint fluid aspiration from the affected joint for standard/routine investigation and TB culture is recommended when possible for at-risk patients, even where previous cultures have been negative. Synovial fluid culture is positive in roughly 20-40% of cases. PCR analysis in synovial fluid, tissue samples, bone marrow aspirate, and peripheral blood is faster and more specific, but less sensitive and less widely available (Tseng et al., 2014).

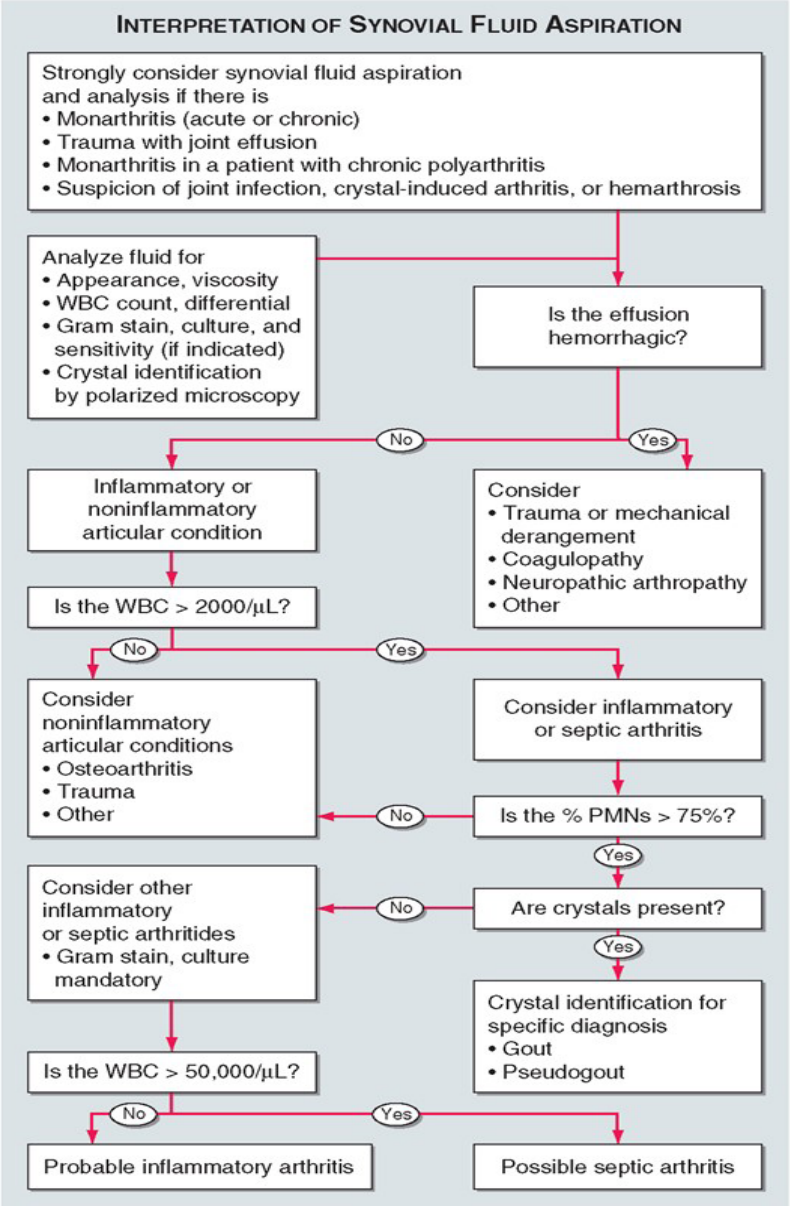


Figure 4. Algorithm of Interpretation of Synovial Fluid Aspiration (Cush, 2018)

Measurement of adenosine deaminase (ADA) activity is one of the most studied and widely used biomarkers in body fluids for the diagnosis of extra-pulmonary TB. ADA is an enzyme involved in purine metabolism that is found in many tissues, particularly in T-lymphocytes from the lymphoid tissue. Activity of this enzyme increases in TB patients because of the stimulation of T-cell lymphocytes by mycobacterial antigens. The sample can be obtained from body fluids, such as synovial, pleural, pericardial, cerebrospinal, or peritoneal, depends on physical examination. Different cut-off values for ADA activity have been suggested, depend on the source of fluid sample. Interferon gamma (IFN-γ) assay can be the choice for the synovial fluid, however it is not commonly used in clinical practice compared with ADA, because it is expensive to acquire and complicated to use, and because there is lack of evidence that IFN-γ is more useful than ADA (Lee, 2015).

In this patient, the synovial fluid aspiration test showed the increase in leucocyte count (26,000 cells/μL) with PMN dominance, negative acid-fast bacilli, and no malignant cells were found. These results had not been able to confirm the diagnosis of TB arthritis as suspected at the initial time.

The gold standard for diagnosis of TB arthritis is synovial biopsy, with positive results in 80% of cases. It shows caseating granulomas, lymphocytes, and giant cells with caseation, which are characteristics of TB arthritis (Arthanari et al., 2008). Synovial biopsy is generally recommended in any arthritis where clinical evaluation and routine investigations do not give a clear diagnosis. In general, tissue biopsy yields positive culture results more often than fluid aspiration, however tissue biopsy is more invasive. A chronic inflammatory monoarthritis where synovial fluid examination, including microbiological studies, has failed to reveal the diagnosis, is an absolute indication for synovial biopsy. With a strong clinical suspicion, even an oligo- or polyarthritis may require synovial biopsy to clinch the diagnosis of TB (Erdem et al., 2005; Malaviya and Kotwal, 2003). The diagnostic accuracy could increase further when the results of the biopsy histology is combined with PCR assays (Lee, 2015). In this patient, a synovial biopsy was performed with an open biopsy during wound debridement. Synovial biopsy revealed granulomatous inflammation which is identical with tuberculosis, so that the patient's arthritis could be established as TB arthritis.

The major advantage of NAAT such as polymerase chain reaction (PCR) is rapid diagnosis. The greatest promise is the early diagnosis of life-threatening disease such as TB meningitis (Lee, 2015). However, PCR tests cannot differentiate living bacilli from dead bacilli. Thus, these tests continue to give positive results even after successful treatment. The PCR tests are positive in 95% to 100% of culture positive cases and in 50% to 60% of culture negative cases (Kim et al., 2011).

Considering that approximately one-third of the world's population is infected with M. tuberculosis and that approximately 3 million people died from the disease annually, improved diagnostic methods with rapid results are urgently needed. M. tuberculosis is a fastidious, tough-walled, slow-growing pathogen that takes at least 6 weeks to grow in culture or 2-3 weeks with the new culture techniques. However, PCR-based tests are not yet recommended for clinical screening due to its high cost (Bloemberg et al., 2013; Malaviya and Kotwal, 2003). In this patient, PCR test was not done because the open biopsy had demonstrated positive result for infection of M. tuberculosis of the synovial tissue.

Anti-TB treatment is the mainstay in the management of extra-pulmonary TB, however the treatment regimen is still controversial. Most current guidelines recommend the same regimen for both extra-pulmonary and pulmonary TB. The optimal duration of therapy is also debatable. Although 6 months of standard anti-TB medical therapy is generally considered adequate for most forms of extra-pulmonary TB, longer treatment is suggested for TB meningitis and for bone and joint TB. Some guidelines recommend 9-12 months of treatment for bone and joint TB (Erdem et al., 2005; Lee, 2015).

The mainstay of treatment of musculoskeletal TB is still three or four-drug antimicrobial therapy based on current guidelines. First-line drugs include 8 weeks of oral daily treatment with isoniazid, 5 mg/kg or 300 mg; rifampicin, 10 mg/kg or 600 mg; pyrazinamide, 15 to 30 mg/kg and ethambutol, 5 to 15 mg/kg; or streptomycin, 15 mg/kg or 1 g intramuscularly. Patients should then undergo 28 to 36 weeks of treatment with isoniazid plus rifampicin for 5 days per week to complete 9 to 12 months of treatment. Moreover, pyridoxine, 25 to 50 mg daily, may be added to daily regimens that include isoniazid. Patients generally recover full joint function if adequate chemotherapy is initiated in the early stage of the disease (Garcia-Arias et al., 2012).

Surgery may be indicated to improve symptoms and quality of live in patients affected by joint infection. Surgical management options include obtaining a biopsy and performing open or arthroscopic debridement, incision and drainage of abscess, synovectomy, arthrodesis, amputation, and primary joint arthroplasty (Al-Qattan et al., 2011). Surgery appears to be beneficial and may be indicated. Such situations include failure to respond to chemotherapy with evidence of ongoing infection, the relief of cord compression in patients with persistent of recurrence of neurological deficits, or instability of the spine. Surgical procedures should be restricted to joints with severe cartilage destruction, joint deformity, large abscesses, multiple drug resistance or atypical mycobacteria. Physiotherapy may also be necessary to maintain or restore joint function. Splints may be used for a short time to relieve acute symptoms and for a long time in specific cases of tuberculosis of joints to prevent deformities of infected extremities (Tseng et al., 2014).

For patients with extra-pulmonary TB, bacteriological evaluation of the response to treatment is often limited by the difficulty in obtaining follow-up specimens. Response often must be judged on the basis of clinical and radiographic findings. The frequency and kinds of evaluations will depend on the sites involved, severity of disease, and the ease with which specimens can be obtained. In contrast with pulmonary TB, cure for extra-pulmonary TB is difficult to define. Moreover, there are no established criteria for the end of treatment (Lee, 2015).

SUMMARY

Here we had reported a young man with complaint of chronic swelling and pain of one-side of knee joint. The arthritis was initially diagnosed as septic arthritis, with the differential diagnoses of rheumatoid arthritis and TB arthritis. Radiological examination and synovial fluid aspiration were not able to find specific cause of the arthritis. The patient then underwent debridement and synovial tissue biopsy. This biopsy revealed TB granulomatous

inflammation, so that the diagnosis of TB arthritis could be established. On 15th day of care, the patient was discharged and planned for administration of anti-TB therapy for 9 to 12 months.

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CONFLICT OF INTEREST

The authors declare there is no conflict of interest.

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This research was self funded.

AUTHOR CONTRIBUTION

All author have contributed to all procss in this research, including preparation, data gathering and analysis, drafting and approval for publication of this manuscript.

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