The Study of Clinical Manifestation of Osteoarticular Tuberculosis in Siriraj Hospital, Thailand

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Objective: *To study of clinical manifestations of osteoarticular tuberculosis*
Material and Method: *This study is an observational retrospective study design from the electronic medical record database of Siriraj hospital in 2005-2006.*
Results: *Ninety- nine patients fit in to the inclusion criteria. All were non HIV- infected. There were 44 males (44.4%) and 55 females (55.6%) with a male/female ratio of 8:10. The mean and median age was 50.9 ± 19.8 and 50 years, respectively, with a range from 1-85 years. The most frequent chief complaint was pain (84.8%), followed by functional disability/neurological deficit (47.5%), constitutional symptoms (38.4%), fever (24.2%), localized swelling (21.2%), fistulas and drainage (11.1%) and discovery as a co-morbid disease (1%). The most frequent clinical manifestation was tuberculous spondylodiscitis (66.7%) followed by tuberculous septic arthritis (28.3%), tuberculous osteomyelitis (10.1%), tuberculous tenosynovitis (4.0%), tuberculous bursitis (2.0%) and tuberculous pyomyositis (2.0%). Concurrent pulmonary TB was 30.3%. The mean and median time to diagnosis was 20.4 ± 16.9 and 13 weeks, respectively, with a range from 4 days to 104 weeks. The shortest duration of time to diagnosis was 0-4 weeks (19.2%) followed by 12-16 weeks (14.1%) and 20-24 weeks (13.1%). The longest duration of time to diagnosis was 104 weeks (1%). The diagnosis from histopathology was 46.5%, positive AFB 40.4%, positive PCR 33.3% and positive culture 19.2%. The radiological abnormalities were osteolytic lesion (79.8%), narrowing intervertebral disc space/joint space (54.5%), cold abscess (49.5%) and vertebral collapse (43.4%). Surgery with medical treatment was performed on 72.7% while the percentage of those receiving medical treatment only was 27.3%. The results of treatment were improvement with residual deformities/dysfunction occurring in 97%. Death occurred in 3%.*
Conclusion: *Osteoarticular tuberculosis is common in all age groups. Tuberculous spondylodiscitis was the most frequent clinical manifestation in Siriraj Hospital, Thailand. Although the patients were provided with adequate medical and surgical therapy, osteoarticular tuberculosis was still associated with mortality and morbidity.*

Keywords: *Arthritis, Infectious, Tuberculosis, Osteoarticular*

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In 2006 worldwide there were 9.2 million new TB cases (139/100,000 people), among of whom 4.1 million people were smear positive (44%) and 0.7 million people had HIV as co-infection (8%). TB cases had increased from 9.1 million in 2005 due to increasing worldwide population. In 2006, approximately 1.5 million non-HIV-infected TB cases died and 0.2 million HIV-infected TB cases died. The World Health Organization estimates that in 2006 there were more than 14.4 million people living with TB. Global access to TB treatment is improving but remains low. Those with active TB who receive no treatment can ultimately infect other people[1,2].

Most TB cases occur in Southeast Asia and Africa. One-third of the number of new TB cases occurs in Southeast Asia, but the estimated incidence per capita is highest in sub-Saharan Africa. Both the highest number of estimated deaths due to TB and the

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highest mortality per capita are in Africa, where HIV has led to rapid increases in TB incidence[1,2].

In 2005, the TB per 100,000 of Thailand's population was 204 (Global 217) and the TB death per 100,000 population was 19 (Global 24)[1]. Of the various forms of the disease, TB of the bones and joints, *i.e* osteoarticular tuberculosis, is one of the most common orthopedics and rheumatic problem; in Thailand. The disease has been on the rise since the 1980s, with its spread concentrated in Southeast Asia and sub-Saharan Africa. Much of TB's resurgence is directly connected to the HIV/AIDS pandemic[1], and this includes osteoarticular tuberculosis. The aim of this study is to analyze the clinical manifestations of osteoarticular tuberculosis from a series of cases seen over two years in a large university tertiary referral hospital in Bangkok, Thailand.

Material and Method

We carried out the observational retrospective study using data from the electronic medical record database of Siriraj hospital from January 2005 to December 2006. All patients' diagnoses had either clinically or radiologically, microbiologically or histologically proved osteoarticular tuberculosis and received the ICD10 code of diagnosis whenever primary, secondary or co morbid disease, as A18.0 M90.00-M90.09, A18.0 M01.10-M01.19, A18.0 M49.00-M49.09, A18.0 M68.0 and A18.8 M63.0 was found in the medical record database. This study included all ages of patients, including those with both positive and negative HIV status. We recorded patients' age, gender, HIV status, patients' domicile, patients' nationality, profession, clinical presentation, site of infection according to osteoarticular tuberculosis and other sites of tuberculosis, co-morbid disease, previous history of tuberculosis which included history of contact, time from clinical complaint to diagnosis, type and yield of samples, radiological findings, type/duration of therapies, and the results. This study did not include mycobacterium tuberculosis of the bone marrow.

Results

From January 2005 to December 2006, one hundred and twenty-nine cases of osteoarticular tuberculosis were found from the electronic medical record but only 99 cases are included to the study. Thirty patients which are excluded from the study are shown in Table 1. All ninety-nine patients were tested for HIV status and discovered HIV-negative.

There were 44 male (44.4%) and 55 female (55.6%), with male to female ratio of 8:10. The mean and median age was 50.9 $\pm$ 19.8 and 50 years, respectively, with a range from 1-85 years. In sixty-six cases from the group of tuberculous spondylodiscitis, there were 23 males (34.8%) and 43 females (65.2%). The mean and median ages were 51.5 $\pm$ 20.1 and 55 years, respectively. Conversely, among thirty-three cases from the group having tuberculous manifestation other than spondylodiscitis, which includes tuberculous septic arthritis, tuberculous osteomyelitis, tuberculous tenosynovitis, tuberculous bursitis and tuberculous pyomyositis, there were 21 males (63.6%) and 12 females (36.4%). The mean and median ages were 49.8 $\pm$ 19.0 and 52 years. Age and sex distribution is shown in Fig. 1

Most of the patients came from central part of Thailand, except Bangkok (35.4%), followed by those from Bangkok (31%), the Northeast (11%), the West (6%), the South (6%), the North (5%) and the East (5%) as shown in Fig. 2.

Employee was the most common profession that the patients indicated (28%), followed by housekeeper (26%), farmer (11%), government officer (9%), business man (9%), retired government officer (6%), student (6%), no occupation (4%) and lawyer (1%).

In ninety-nine patients of osteoarticular tuberculosis, there were ninety-eight patients had signs and symptoms of osteoarticular tuberculosis as their chief complaints, only one case had been presented as other problems but then osteoarticular tuberculosis was diagnosed later. The most frequent chief complaint of patients with osteoarticular tuberculosis was pain (84.8%) followed by functional disability and/or neurological deficit (47.5%). Non-specific constitutional symptoms (38.4%) [weight loss, anorexia, coughing and dyspnea], fever (24.2%), localized swelling (21.2%),

Table 1. Thirty patients which are excluded from the study

Exclusion	Patients (No.)
Osteoarticular tuberculosis had been diagnosed before January 2005 and labeled as underlying/ co morbid disease	17
Mycobacterium tuberculosis of the bone marrow	5
Diseases other than tuberculosis (proved later)	3
Non mycobacterium tuberculosis	2
Non osteoarticular tuberculosis	2
BCG vaccination patient	1

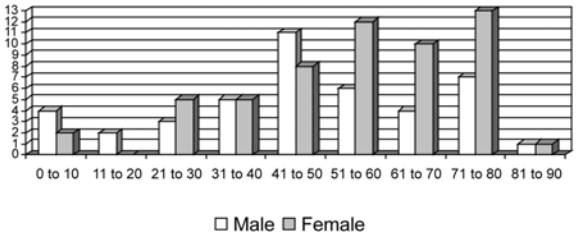

Fig. 1 Distribution of age and sex of the patients

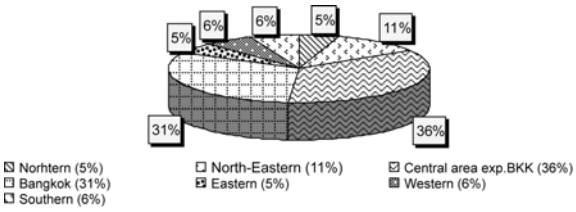

Fig. 2 Regional distribution of the patients

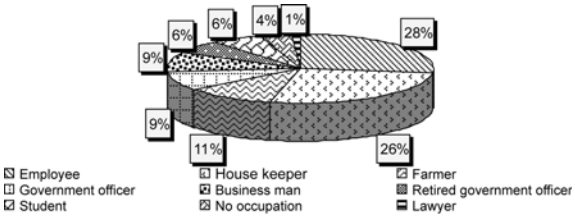

Fig. 3 Occupational distribution

fistulas and/or drainage (11.1%) and being discovered as co-morbid disease (1%) also were found.

The most common clinical manifestation was tuberculous spondylodiscitis (66.7%) followed by tuberculous septic arthritis (28.3%), tuberculous osteomyelitis (10.1%), tuberculous tenosynovitis (4.0%), tuberculous bursitis (2.0%) and tuberculous pyomyositis (2.0%). Clinical manifestations are shown in Table 3.

In the tuberculous spondylodiscitis group (66 patients, 159 involved vertebrae) the third lumbar spine was the most dominant site of involvement, followed by the first, second and fourth lumbar spine with an equal rate of occurrence, while the first & second cervical spine as well as the second, third, forth and fifth sacral spines were not involved tuberculosis in our study. The third to seventh cervical spine and the first to ninth thoracic spine were also less often involved.

We found symptoms of spinal cord or nerve root involvement in 38 out of 66 patients (57.6%). Infection usually involved 2 consecutive segments of vertebral body (38 patients, 57.6%), followed by 3 consecutive segments (10 patients, 15.2%), 1 segment (8 patients, 12.1%), 4 consecutive segments (7 patients,

Table 2. Characteristics of chief complaint

Chief complaint	Patients	Percentage
Pain	84	84.8
Functional disability and/or neurological deficit	47	47.5
Nonspecific constitutional symptoms	38	38.4
Fever	24	24.2
Localized swelling	21	21.2
Fistulas and/or drainage	11	11.1
Discovery as a co morbid disease	1	1.0

Table 3. Clinical manifestation of osteoarticular tuberculosis and their frequency

Clinical manifestation	Patients number	Percentage
Tuberculous spondylodiscitis	66	66.7
Tuberculous septic arthritis	28	28.3
Tuberculous osteomyelitis	10	10.1
Tuberculous tenosynovitis	4	4.0
Tuberculous bursitis	2	2.0
Tuberculous pyomyositis	2	2.0

* Note: - Total spinal osteoarticular tuberculosis patients numbered 66 and extra spinal osteoarticular tuberculosis patients numbered 33
- There were 3 spondylodiscitis patients who had concurrent osteomyelitis (only 1 patient had adjacent pyomyositis)
- There were 5 septic arthritis patients who had concurrent osteomyelitis
- There was 1 bursitis patient who had concurrent osteomyelitis.
- There was 1 septic arthritis patient who had concurrent tenosynovitis
- There was 1 patient who had two distant sites of septic arthritis (knee & ankle)
- There was 1 patient who had two nearby sites of osteomyelitis (clavicle & first rib)
- There was 1 patient who had two distant sites of bursitis (wrist & elbow)
- There was 1 septic arthritis patient who had two nearby sits of pyomyositis (knee and ipsilateral calf)

10.6%), 6 consecutive segment (2 patients, 3.0%) and 5 consecutive segments (1 patient, 1.5%).Not only multiple continuous vertebrae were involved, as described above, but also skipped vertebrae. The frequency of site of vertebral spine involvement by tuberculosis and its distribution is shown in Table 4 and Fig. 4.

Extra-spinal osteoarticular tuberculosis (33 patients) included tuberculous septic arthritis, tuberculous osteomyelitis, tuberculous tenosynovitis, tuberculous bursitis and tuberculous pyomyositis. Tuberculous septic arthritis (28 patients, 29 joints) was second in frequency to tuberculous spondylodiscitis. The pattern was monarticular arthritis which most commonly involved knee joints (7/29) and hip joints (6/29) and which included either infected total knee arthroplasty or total hip replacement, followed by the wrist (6/29), ankle (6/29), shoulder (2/29), metacarpophageal joint (1/29) and sacroiliac joint (1/29). Characteristics of patients in the extra-spinal osteoarticular tuberculosis group are shown in Table 5.

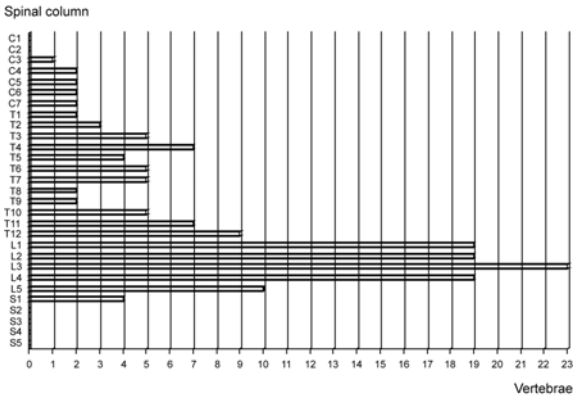

Fig. 4 Distribution of vertebral spine involvement (the digital number shows frequencies of involvement)

Table 4. Frequencies of spinal column involvement

Spinal column	Patients (No.)	Percentage	Vertebrae (No.)	Percentage
Cervical	4	6.0	9	5.7
Thoracic	26	39.4	56	35.2
Lumbar	45	68.2	90	56.6
Sacrum	4	6.0	4	2.5

Thirty-three patients had disseminated tuberculosis (Infected with tuberculosis $\geq$ 2 distant sites), and 30 patients had concurrent pulmonary tuberculosis (30.3%). In extra spinal osteoarticular tuberculosis patients, 15 out of 33 patients (45.5%) had disseminated tuberculosis and 14 out of 33 patients (42.4%) had concurrent pulmonary tuberculosis. Most of the patients in the extra-spinal osteoarticular tuberculosis group had a previous history/condition or co-morbidity which predisposed then to mycobacterium tuberculosis infections such as diabetes, end-stage kidney disease, osteoarthritis, soft tissue rheumatism, rheumatoid arthritis, avascular necrosis, systemic lupus erythematosus, alcoholism, Legg-Calve-Pethes disease, history of articular trauma or fracture, history of prosthesis replacement, or a history of surgical procedure to treat carpal tunnel syndrome. In the spinal osteoarticular tuberculosis group, however, we had found 18 out of 66 patients (27.3%) had disseminated tuberculosis and 16 out of 66 patients (24.2%) had pulmonary tuberculosis. There were 8 patients in whom disseminated tuberculosis involved other organs from the musculoskeletal system and lungs as shown in Table 5.

Table 5. Disseminated tuberculosis patients other than in musculoskeletal and pulmonary system

Age	Sex	Osteoarticular TB	Pulmonary TB	Other organ infected by TB
71	Female	10^{th} thoracic spine	Yes	Splenic micro abscess
49	Male	Infected right THR	Yes	Hemoculture positive for M. tuberculosis
22	Female	Left hip & osteomyelitis	Yes	Tuberculous meningitis
42	Male	4^{th} thoracic spine	No	Tuberculous meningoencephalitis
46	Female	2^{nd},3^{rd},4^{th} thoracic spine	No	Intradural extramedullary tuberculoma, osteomyelitis of iliac bone and right gluteus muscle
63	Male	Left wrist & osteomyelitis	Yes	Bilateral adrenal gland
70	Male	5^{th}, 11^{th}, 12^{th} thoracic and 1^{st} lumbar spine	Yes	Lymph node
31	Male	Left wrist	No	Lymph node

Sixty two patients (62.6%) had a co-morbid or underlying disease. Hypertension was the most common (21/62) followed by diabetes (9/62), anemia (7/62), dyslipidemia (6/62), coronary artery disease (5/62), osteoarthritis (5/62), spondylosis (5/62), old fracture (4/62), previous total knee arthroplasty/total hip replacement (4/62), alcoholism (4/62), seizure disorder (4/62), end-stage renal disease (3/62), adrenal insufficiency (3/62), soft tissue trauma (3/62) and psychotic disorder (3/62).

There were two patients among the following group of co-morbidities which included soft tissue rheumatism, renal calculi, hematological malignancy, endometriosis, stroke, thalasemia, rheumatoid arthritis, lupus, atrial fibrillation, breast carcinoma, gastrointestinal hemorrhage and drug-induced hepatitis.

These co-morbidities had only 1 patient each which included avascular necrosis, s/p cholecystectomy, s/p decompression carpal tunnel syndrome, abdominal aortic aneurysm, Legg-Calve-Pethes disease, inguinal hernia, benign prostatic hyperplasia, nephrotic syndrome, IgA nephropathy, ruptured urethra, deafness, delirium/dementia, ovarian cyst, myoma uteri, mental retardation, chronic otitis media, idiopathic thrombocytopenic purpura, liver cirrhosis, fatty liver disease, parasitic infestation, urinary tract infection, Sjogren syndrome, Cushing syndrome, chronic HBV/ HCV infection and autoimmune hemolytic anemia

There were twenty-six patients (26.3%) who had a previous history of tuberculosis or had had close contact with someone with tuberculosis. We had the recorded times from chief complaint to definite diagnosis which could be classified into intervals as in Fig. 5. The mean and median times to diagnosis were 20.4 $\pm$ 16.9 weeks and 13 weeks, respectively, with a range from 4 days to 104 weeks.

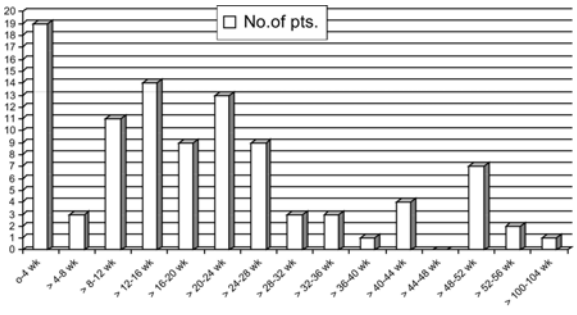

Fig. 5 Time from chief complain to diagnosis and number of diagnosed patients in each group

In our cohort the probable diagnosis of osteoarticular tuberculosis was made base on clinical setting and laboratories confirmation. Forty-six patients (46.5%) had compatible histological features on biopsy. Forty patients (40.4%) had positive acid fast smears. Thirty-three patients (33.3%) had positive polymerase chain reaction (PCR) for DNA detection of M. tuberculosis. Only nineteen patients (19.2%) had positive cultures for the definite diagnosis of osteoarticular tuberculosis. Twenty-six patients' diagnosis (26.3%) of possible osteoarticular tuberculosis were made base on the clinical setting alone. Laboratory tests are shown in Table 6.

Imaging studies were generally done which included conventional radiography (80.8%), computerized tomography (CT) (10.1%) and magnetic resonance imaging (MRI) (60.6%). Various appearances on imaging studies (whatever they had been found in which studies) were shown in Table 7.

Seventy-two patients (72.7%) had received both medical and surgical therapy, e.g. incision and drainage, arthrotomy for debridement/synovectomy/ osteotomy, vertebral decompression/ fusion; while twenty seven (27.3%) had received only medical treatment. Various regimens of chemotherapeutic agents for osteoarticular tuberculosis were given in

Table 6. Laboratory tests for Mycobacterium tuberculosis

Test	Test results
AFB staining	+ + + + - - - + - + + - - -
PCR for TB	+ + + - + + + - - + - + - -
Culture for M. tuberculosis	+ + - + + - + - + - - - + -
Granulomatous histology	+ - + + + + - + + - - - - +
Patients No.	5 2 3 4 2 8 1 11 2 6 9 6 3 11

Table 7. Percentage of specific appearances on imaging studies

Osteolytic lesion	79.8%
Narrowing joint/ intervertebral disc space	54.5%
Cold abscess/ paravertebral soft tissue abscess	49.5%
Vertebral collapse	43.4%
Juxta articular osteoporosis	24.2%
Soft tissue swelling	22.2%
Bony sclerosis	11.1%
Osteomyelitis	9.1%

which 2IRZE 10IR was 34.3%, 2IRZE 4IR was 4%, 2IRZE 7IR was 3% and in those with the other regimens was 33.3%. Most of the other regimens group used second line drugs instead of standard drugs because of various conditions such as drug-induced hepatitis, drug resistance, relapsed disease, and drug-drug interaction. For twenty-five percent of patients the data of chemotherapy could not be collected due to late referral to primary hospital or incomplete medical records. Mean and median duration of chemotherapeutics treatment was 12.8 $\pm$ 4.3 and 12 months, respectively, with a range from 6- 35 months. In our study most of the patients (97%) showed improvement with some residual deformities or dysfunction, whereas the death rate was 3%.

Death in 3 patients could be classified as follows. A 75 years old male with tuberculous septic right wrist, right 4th MCP and pulmonary tuberculosis died from bacterial pneumonia and cerebral cryptococcosis; he also had multiple other co-morbidities including as end-stage renal disease with regular hemodialysis, diabetes, essential hypertension, triple vessels disease and anemia. The second patient was a 49 year-old male infected with disseminated tuberculosis (tuberculous septic right hip prosthesis and pulmonary tuberculosis) who also had the underlying disease of peripheral T cell lymphoma and was receiving ongoing systemic chemotherapy. He died 2 years later after he received a diagnosis of disseminated tuberculosis from septicemia. The last patient was a 59 year-old female with a tuberculous septic left hip and pulmonary tuberculosis. She had autoimmune hemolytic anemia as her co-morbidity and it was treated by long-term oral prednisolone and azathioprine. She died from septicemia and septic shock seven months after she received a diagnosis of disseminated tuberculosis.

Discussion

In our cohort all of the ninety-nine osteoarticular tuberculosis patients were unexpectedly HIV- negative. This phenomenon could be explained by (1) the HIV positive patients were unintentionally in the group of exclusion and (2) low estimates of HIV prevalence in adult incident TB cases in Thailand 2005 (aged 15- 49 years) which was 8% (Global 11%)[1]. It is understood well that HIV increases the risk of TB through reactivation of latent infection as the immune system declines or by acceleration of the progression of recently acquired infection; thus the epidemic of HIV infection was recognized as an influence on the increasing occurrence of tuberculosis[3,4]. It is probably a reflection of the higher prevalence of HIV infection in the general population in those earlier mentioned regions. In Delhi, HIV prevalence was 0.7% in adult with tuberculosis[5] whereas Mumbai and Pune had HIV prevalence of 5.89% and 20.17%, respectively[6,7]. Jain SK et al. had studied prevalence of HIV infection among tuberculosis patients in Delhi and there were only 5 HIV- positive/250 patients, who had both pulmonary and extra pulmonary tuberculosis[5] Thailand's population in 2005 was 65,444,371, of which were 580,000 HIV/AIDS and 131,023 had tuberculosis. The estimated percentage of adults (aged 15- 49) living with HIV/AIDS was 1.4% by the end of 2005[8,9]. Pertuiset E et al had studied 103 Parisian adults with spinal tuberculosis from 1980-1994 and had found that all of the patients in their cohort were HIV-negative despite 68% of this population being foreigners[10].

In our study we had slightly more female patients than male. There were many studies that indicated gender did not always exhibit the same phenomenon. Yoon HJ et al had reviewed clinical manifestation of 312 extra pulmonary tuberculosis patients aged from 13 to 87 years, of which 52.5% were female and 47.8% were male[11]. On the other hand, Gonzalez-Gay MA et al had found male osteoarticular tuberculosis patients more often than female[12]; so did, Mateo et al[13], Youssef et al[14], Alothman et al[15], Yagi et al[16] and Belzunegui et al[17]. The explanation with regard to our study might be because the total Thai female population is more than the male and females have a greater average age than male too (average age of Thai female is 75.9 years while male is 67.9 years in 2002). Forssbohm M et al, in German national surveys conducted from 1996-2000 revealed 26,302 tuberculosis cases with 21.6% having extra pulmonary involvement, which was most likely among female, children aged < 15 years and persons originating from Africa & Asia. He also found that females tended to be more likely to have more varied forms of extra pulmonary tuberculosis than male, except for pleural involvement; the strength of this association was strongest in the age range 25-64 years and was less pronounced amongst the oldest patients[18].

The mean age of patients in our study was consistent with those of previous studies and was around fifty years[13,15,16]. The patients' age in our extra spinal osteoarticular tuberculosis group seemed to be younger than the patients in the spinal osteoarticular tuberculosis group, as well as, a study of extra spinal tuberculosis from Lertsrisatit et al[19].

Most of patients in our cohort came from central part of Thailand (and included Bangkok) that reflected the referral area of Siriraj hospital. With regard to occupation, we cannot conclude which occupation is at greater risk for osteoarticular tuberculosis because of the retrospective nature of this designed study.

It is well known that pain is usually a non-specific clinical manifestation, often accompanied by constitutional symptoms and low-grade fever; this is in common with our study. Considering neurological deficit, there were 38 out of 66 spinal osteoarticular tuberculosis patients (57.57%) in our cohort. There were reported 13.9-50% with neurological deficit which occurred in tuberculous spondylitis[10,15,20,21].

The spine is the dominant site of involvement in skeletal tuberculosis, accounting for 50-60% of cases [22], which finding in common with our study (66.7%). In the study of Jellis JE, 48-67% of lesions which occurred in the lower thoracic and thoracolumbar spine in HIV- negative patients, whereas the lumbar spine was most commonly involved in HIV- positive patients[4]. In our study the lumbar spine was most commonly involved, although the patients were all HIV- negative. This may be the natural history of this disease in Thai patients. Owing to the distribution of the vertebral arterial blood supply, involvements of adjacent vertebrae are possible. When large vertebral segments or multiple segments with intervening normal vertebrae are present, as is found in ours, the paravertebral venous plexus of Batson is implicated.

Tuberculous septic arthritis, in our study was second in frequency to vertebral infection and is consistent with others[23]. Most commonly found in the knee, hip, wrist and ankle, this is in agreement with other studies[12-14,17,19]. Monarticular involvement was the main feature. Interestingly, we had found that in the extra spinal osteoarticular tuberculosis group most of the patients usually had preexisting conditions which predispose them to infection, such as localized fracture, internal fixation/prosthesis, surgery, intra articular or intra regional corticosteroids injection, systemic corticosteroids/immunosuppressive drugs, chronic arthritis/osteoarthritis, avascular necrosis, diabetes, etc. Since this study was retrospective, we cannot conclude that those preexisting conditions are risk factors to tuberculous infection.

In most studies, it was found that concurrent pulmonary tuberculosis was from 19-42.6%[11,12,19]. In our cohort, concurrent pulmonary TB was found in 30.3%. Most chest radiographs indicated reticulonodular interstitial infiltration of upper lungs (56.7%), followed by military infiltration (30%), and infiltration of lower lungs (13.3%). We conclude that osteoarticular tuberculosis with concurrent pulmonary tuberculosis of upper lungs was probably reactivated. In cases with active bone/joint TB, military TB was sometimes caused by bacillemia originating from the infected bone/ joint lesions. In four patients in whom pulmonary infiltration was in the lower lobes, it was sometimes the primary infection. The first patient was 75 years old with a tuberculous septic wrist, and a 4th MCP joint male with diabetes and end-stage renal disease. The second patient was 25 years old female with 12th thoracic spine thorough 3rd lumbar spine tuberculous spondylodiscitis and psoas abscess. The third patient was 2.5 a years old boy with 6th & 7th thoracic spine tuberculous spondylodiscitis and cord compression. The last patient was a one year old girl with 10th thoracic spine tuberculous spondylodiscitis.

Hypertension was the most common co-morbid condition found in this study, and it may be because of the many aged patients in this cohort. Mean time from chief complaint to diagnosis had varied from other studies, and ranged from 3 weeks to 52 weeks[11-14,16,17,19,20]. In our study, most patients (78.8%) were diagnosed within 28 weeks; the mean time to diagnosis was 20.4 ± 16.9 weeks. Tuberculosis typically manifests with chronic indolent localized involvement of the bones, spine, peripheral joints, or soft tissue that produces a focus of nonspecific pain and, less often, swelling, so that diagnosis may be delayed for months to years, in part because of minimal early symptoms and also through attribution of the problem to a noninfectious disorder, until severe disease progression. This might explain why osteolytic lesion, narrowing joint space/intervertebral disc space and cold abscess were frequently found as well as neurological deficit, with the need for surgical treatment in our cohort. Yields from samples in our study were less than 50%, because osteoarticular tuberculosis is pauci-bacillary and it is often difficult to demonstrate, or culture, the organism from those lesions even in the endemic area[24].

Death was reported by another study[10], but neither the disease nor a therapy was thought to be responsible in our study.

Conclusion

Osteoarticular tuberculosis was common in all age groups and often posed a diagnostic challenge. The most frequent chief complaint was pain followed

by functional disability and/or neurological deficit and nonspecific constitutional symptoms. Tuberculous spondylodiscitis was the most frequent clinical manifestation. Concurrent pulmonary infection was probably reactivated, or there was hematogenous spreading. Including this infectious condition in the differential diagnosis of long standing progressive musculoskeletal complaints is recommended.

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การศึกษาอาการทางคลินิกของโรค วัณโรคในระบบ กระดูก และข้อของโรงพยาบาลศิริราช ประเทศไทย

ชยวี เมืองจันทร์, สุรศักดิ์ นิลกานุวงศ์

วัตถุประสงค์*: เพื่อศึกษาลักษณะทางคลินิกของโรค วัณโรคในระบบ กระดูก และข้อ ของโรงพยาบาลศิริราช*

วัสดุและวิธีการ*: การศึกษานี้เป็นการศึกษาแบบย้อนหลังจากฐานข้อมูลเวชระเบียน ทั้งผู้ป่วยนอกและผู้ป่วยใน ของโรงพยาบาลศิริราช ประจำปี พุทธศักราช 2548 - 2549 เพื่อรวบรวมข้อมูลทางคลินิกหลาย ๆ ด้านของโรควัณโรคในระบบ กระดูก และข้อ*

ผลการศึกษา*: ผู้ป่วยที่ได้รับการวินิจฉัยเป็นวัณโรคในระบบ กระดูก และข้อ ตั้งแต่ปีพุทธศักราช 2548-2549 ทั้งสิ้น 99 ราย เป็นผู้ป่วยชาย 44 ราย (ร้อยละ 44.4) ผู้ป่วยหญิง 55 ราย (ร้อยละ 55.6) คิดเป็นสัดส่วนชายต่อหญิง 8:10 ราย อายุเฉลี่ย 50.9 $\pm$ 19.8 ปี ค่ากลาง 50 ปี อายุตั้งแต่ 1-85 ปี ผู้ป่วยชายพบมากที่สุดในช่วงอายุ 41-50 ปี และผู้ป่วยหญิงพบมากที่สุดในช่วงอายุ 71-80 ปี อาการที่นำผู้ป่วยมาพบแพทย์ คือ อาการปวด ร้อยละ 84.8 สูญเสียสมรรถภาพ และ/หรือ มีอาการแสดงทางระบบประสาท ร้อยละ 47.5 อาการทั่วไป ได้แก่ น้ำหนักลด เบื่ออาหาร ไอ หายใจหอบเหนื่อย คลำพบก้อน ร้อยละ 38.4 อาการไข้ ร้อยละ 24.2 อาการบวมเฉพาะที่ ร้อยละ 21.2 มีฝหนองแตกออกทางผิวหนัง ร้อยละ 11.1 และพบเป็นโรคร่วม ร้อยละ 1 ลักษณะทางคลินิกเป็น กระดูกสันหลังอักเสบวัณโรค ร้อยละ 66.7 ข้ออักเสบวัณโรค ร้อยละ 28.3 กระดูกติดเชื้อวัณโรค ร้อยละ 10.1 เส้นเอ็นและปลอกหุ้มเส้นเอ็นอักเสบวัณโรค ร้อยละ 4.0 ถุงน้ำอักเสบวัณโรค ร้อยละ 2.0 และกล้ามเนื้ออักเสบวัณโรค ร้อยละ 2.0 ผู้ป่วยเป็นวัณโรคปอดร่วมด้วย ร้อยละ 30.3 ระยะเวลาตั้งแต่มีอาการจนได้รับการวินิจฉัย เฉลี่ย 20.4 $\pm$ 16.9 สัปดาห์ ค่ากลาง 13 สัปดาห์ ระยะเวลาตั้งแต่ 4 วัน - 104 สัปดาห์ เร็วที่สุดคือ 0-4 สัปดาห์ ร้อยละ 19.2 รองลงมาคือ 12-16 สัปดาห์ ร้อยละ 14.1 และ 20-24 สัปดาห์ ร้อยละ 13.1 ตามลำดับ ระยะเวลาที่นานที่สุดคือ 104 สัปดาห์ ร้อยละ 1 การวินิจฉัยได้จากผลชิ้นเนื้อทางพยาธิวิทยา ร้อยละ 46.5 การย้อมสีทนกรดพบเชื้อวัณโรค ร้อยละ 40.4 การตรวจด้วยเทคนิค Polymerase Chain Reaction (PCR) ให้ผลบวก ร้อยละ 33.3 และเพาะเชื้อ ขึ้นเชื้อวัณโรค ร้อยละ 19.2 ความผิดปกติจากการศึกษาทางรังสีวิทยาพบ osteolytic lesion มากที่สุด ร้อยละ 79.8 รองลงมาได้แก่ narrowing intervertebral disc space/ joint space ร้อยละ 54.5 cold abscess ร้อยละ 49.5 และ vertebral collapsed ร้อยละ 43.4 ตามลำดับ การรักษาโดยการผ่าตัดร่วมกับการรับประทานยา ร้อยละ 72.7 การรักษาด้วยยาเพียงอย่างเดียว ร้อยละ 27.3 ผู้ป่วยส่วนมากมีอาการดีขึ้นแต่มีการสูญเสียสมรรถภาพบ้าง ร้อยละ 97.0 และเสียชีวิต ร้อยละ 3.0

สรุป*: วัณโรคในระบบ กระดูก และข้อ พบได้ในผู้ป่วยทุกอายุ กระดูกสันหลังอักเสบวัณโรคเป็นลักษณะทางคลินิกที่พบได้บ่อยที่สุดในโรงพยาบาลศิริราช ถึงแม้ว่าผู้ป่วยจะได้รับการรักษาทั้งการรับประทานยาและการผ่าตัดแล้วก็ตาม ผลของการรักษาก็ยังพบมีการสูญเสียสมรรถภาพและสูญเสียชีวิตได้*