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TUBERCULOUS ARTHRITIS IN MISSAN GOVERNORATE

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Summary

In this study ,records of 696 patients with different types of tuberculosis were reviewed. Tuberculous arthritis was recognized in 5.3% of all cases with tuberculosis, a finding that seems to be comparable to or a bit higher than in some other countries. Men were been more affected by tuberculous arthritis than women. Spines were found to be at the top of list of affected joints (43.3%), while , sternoclavicular, wrist, and distal interphalyngeal were found to be the least affected joints (2.7% for each). Pulmonary tuberculosis was found to be the most common associating disease or risk factors for TB of the joint .

Aim of the study

To shed light on the problem and extent of joint involvement in patients with tuberculosis in Missan governorate, so that to consider preventive and therapeutic measures to decrease the impact of this disease on public health.

Introduction

Tuberculosis is an ancient disease but is still a major public health problem in most of the world. Tuberculosis appears to be increasing throughout the world due to various factors like increasing number of immunocompromised patients, aging population, multiple drug resistant strains of the bacillus .Though pulmonary tuberculosis is the most common form, extrapulmonary tuberculosis (EPTB) also contributes to significant morbidity and mortality. [1]. Articular disease often starts as a synovitis progressing to arthritis, with demineralization, marginal erosions, and ultimate joint destruction^[2]Tuberculosis is infectious disease, caused chiefly by the organism Mycobacterium tuberculosis and much





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less by M. bovis and atypical mycobacteria. The bacilli reach the blood stream either by being carried in the lymph to the draining lymph nodes and thence to the thoracic duct, or by erosion of blood vessels in the walls of developing tuberculosis lesions in the lungs. The bacilli that enter the blood stream dississeminate throughout the body, and some are deposited in bones and joints..[3]. Often the body can fight a TB infection, but the bacteria remain dormant in the body.[4]-. There appears to be variation between individuals in their immune response to mycobacteria, which perhaps is genetically determined.(5). Skeletal tuberculosis occurs in approximately 1 per cent of patients with tuberculosis.(6). From the diagnostic point of view, histological studies and cultures of synovial tissue remain the most reliable tests.[7]. Clinically, the diagnosis of osteoarticular tuberculosis can be difficult .(8). Tuberculosis of a joint is usually alow-grade and slowly progressive infection with variable systemic degree of local and a manifestation.(9). It should be considered in the differential diagnosis of monoarticular and pauciarticular arthritic atany age.(10) A positive skin test for tuberculosis is helpful, although a negative test in the presence of anergy dose not rule out the diagnosis. The diagnosis is made by radiographic examination and proved by microscopic confirmation of finding acid fast bacilli in the in synovial fluid, or more readily in caseating granulomas in biopsied synovial fluid or tissue culture are positive 90 % at the time.(11).Of diagnostic modalities, MRI, is considered to be the most sensitive in detecting bnormalities in bone and soft tissue at an early stages, when plain radiography appear normal.(12).

Patients and Methods:

Records of patients with tuberculosis over five years were reviewed, the patients were those attending T.B center in Missan .Records of





1-Radiological picture of the joint should show: Juxtaarticular osteoporosis, marginal erosion and joint space narrowing, also for spine: paraspinal swelling, or destruction of vertebral body.

2-Positive AFB smears from synovial fluid or tissue.

3- Synovial biopsy with evidence of synovial tissue granuloma with or without caseation.

4-Positive synovial fluid for AFB ..

5-For each patient, the fallowing parameters were considered : presenting symptoms or signs, sex, , history of trauma, the joint affected, associating disease, and diagnostic finding.

RESULTS

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Out of 696 patients with tuberculosis, extrapulmonary tuberculosis were been detected in 178 patients (25.6%), [141 with non-arthritic extrapulmonary tuberculosis and 37 with tuberculous arthritis] out of 696 patients, with different types of tuberculosis. (Table-1)

patients		
Туре	No. of patients	Percentage
Pulmonary tuberculosis	518	74.4%
Non-arthritic extrapulmonary	141	20.3%
T.B		
Tuberculous arthritis	37	5.3%
Total	696	100

Table-1-Types of tuberculosis among

Out of the (178) patients with extrapulmonary tuberculosis, 37 (20.8%) patients were been

diagnosed to have tuberculous arthritis. (Table-2).





 Table-2-Tuberculous arthritis among patients with exrapulmonary tuberculosis.

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Туре	No. of patients	Percentage	
Non-arthritis extrapulmonary	141	79.2%	
T.B			
Tuberculous arthritis	37	20.8%	N
Total	178	100	

Regarding the clinical presentation of patients with tuberculous arthritis, only 46.0% of these

patients had systemic symptoms.(Table-3).

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Table-3-Presentation of patients with tuberculous arthritis Total No.=37

Variable	No. of patients	Percent age
Joint pain and swelling.	37	100 %
Systemic symptoms	17	46.0 %

Obviously more men were been found to have tuberculous arthritis than women.(Tab-4).

Sex	No. of patients	Percentage
Male	27	73.0%
Female	10	27.0%
Total	37	100

Table-4-Sex distribution of tuberculous arthritis

Diagnostic findings among patients with TB arthritis were different .In 54.1% of patients, granuloma and caseation were been detected by synovial biopsy. .(Table-5)

Table-5-Diagnostic findings among patients with tuberculousarthritis

Finding		No. of patients	Percentage
Granuloma	with	20	54.1%
caseation			





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	Radiological features	9	24.3	
	Therapeutic trail	6	16.2	
	Positive synovial fluid	2	5.4	
	culture			
	Total	37	100	

Among the 37 patients with tubercullous arthritis, TB of spine was the most frequent one

(43.3%) in comparison with other joints involvement.(Table-6).

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Joint affected	No.of patients	Percentage
Spine	16	43.3%
Hip	8	21.6%
Knee	6	16.2%
Ankle joint	2	5.4%
Elbow	2	5.4%
Sternoclavicular	1	2.7%
Distal	1	2.7%
interphalyngeal		
Wrist	1	2.7%
Total	37	

Table-6-Joints involvement in tuberculous arthritis

Lumbar spine tuberculosis was found to be the most frequent one, it was recognized in 68.8% of patients with spinal TB.(Table-7).

Spinal region	No. of patients	Percentage
Lumbar spines	11	68.8%
Dorsal spines	4	25.0%
Cervical spine	1	6.2%
Total	16	100

Table-7-Distribution of spinal joints tuberculosis.

Different comorbidities were recognized among patients wit tubercullous arthritis with coexisistant pulmonary tuberculosis forming the highest percentage.(Table-8)

Table-8-Associating comorbidities in patients with tubercullous arthritis.

Comorbidity	No. of patients	Percentage			
Pulmonary	15	40.6%			
tubercullosis					
Previous trauma	10	27.0%			
Diabetes mellitus	7	18.9%			





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Rhe	umatoid	3	Ante-Apic Dige			8.1%	
arth	ritis						
Scle	eroderma	2				5.4%	
Tota	al	37	1			100	
		57				100	

DISCUSSION

In our study, out of 696 patients with tuberculosis, only (37), 5.3% were found to have tuberculosis arthritis.(table-1).In other study, tuberculous (TB) arthritis accounts for approximately 1-3% of all cases of tuberculosis[16]. Such an prevalence of tuberculosis arthritis among our patient, although it seems to be comparable to that in some other countries, may reflect, still high prevalence of tuberculosis in our country province .Tuberculous arthritis was found to be in 20.8% of cases of exrapulmonary tuberculosis in our study-(table-2) .In a study, tubercullous arthritis is present in approximately 10-11% of extrapulmonary cases.[16]. Other study shows that osteoarticuar tuberculosis comprises 1-4.3% of all tuberculosis cases and 10-15% of all extrapulmonary tuberculosis cases [1].

Exrapulmonary was been recognized in 25.6% of all patients with tuberculosis in our study (table-1), in a study, extrapulmonary tuberculosis involves 11.3 percent of the total TB cases.[13]. Other study showed that the proportion of extrapulmonary tuberculosis cases in the United States has increased from 16% of tuberculosis cases, in 1991, to 20%, in 2001.[14]. In 2009 almost а fifth of TB cases in the United States were extrapulmonary.[30].One study in a rheumatology center in Pune in India, showed that during the period 2005-2009., one third of all cases of tuberculosis (TB) are extrapulmonary (EP) and less than 5% of these are associated with musculoskeletal (MSK) system.[31]. These epidemiologic differences in tuberculosis of different sites are unexplained.((15)). In France in 2012 the most frequent clinical presentations of extrapulmonary tuberculosis were lymphadenitis, pleuritis and osteoarticular TB.[30].

Regarding the clinical presentation of TB arthritis, we found through our study that, only 46.0% of these patients had systemic symptoms while all of them presented with joint pain and swelling.(Table-3). A history of insidious onset of pain, especially if accompanied by pulmonary symptoms or a history of contact with a tuberculous person, should alert the clinician to the possibility of this diagnosis. [19]. Symptoms of tuberculous arthritis are quite indolent; the diagnosis may be delayed for several years.

In our study, tuberculous arthritis was found to be more common among men than women,(table-4),in a study, women , non-Hispanic blacks ,and HIVpositive persons have a significantly higher risk for extrapulmonary tuberculosis than men, non-Hispanic whites, and HIV-negative persons, this study expands





Misan Journal for Academic studies 2016 2016 30 مجلة ميسان للدراسات الاكاديمية and enhances our understanding of the relative contribution of host-related factors to the pathogenesis of tuberculosis.((14)).

Higher prevalence of TB joints among men than women in our study, may reflect higher number of tuberculosis, in general, among men in our governorate. In a study, a retrospective survey of extrapulmonary tuberculosis has shown that it differs from pulmonary tuberculosis with regard to sex and race distribution. ((15)).

Regarding the diagnosis of tuberculous arthritis in our study, granuloma with caseation was detected in 54.1% of patients.(table-5).In a study, a caseous granuloma was present in 57.5% of cases and non-specific synovitis in 12%..[29]. .Radiological features were detected in 24.3% of patients and the least finding was positive synovial fluid culture for AFB.(table-5). In a study, of the twenty-five patients studied, all but three had joint abnormalities on roentgenograms.[21]. Imaging modalities should be supplemented with fine needle aspiration cytology or open biopsy to confirm the diagnosis.[26].

Therapeutic trail was tried in 6 patients (16.2%) of our patients. I is said that, tuberculosis of the joints is not a clinical oddity and a diagnosis of tuberculous infection must be considered in all joint lesions if diagnosis is to be made early.[19]. Tuberculous septic arthritis should be considered in patients who present with acute or chronic monoarthritis, and who have an abnormal chest radiograph or eosinophilia. [29]. Only two patients (5.4%) in our study, were diagnosed to have TB arthritis by positive synovial fluid culture. In another study, synovial fluid and synovial tissue staining for acid-fast bacteria were positive in 30 and 40% of cases, respectively. [29]. In a study of 25 cases of TB arthritis, cultures of synovial fluid and tissue were positive in seventeen of eighteen patients. Histologic examinations demonstrated granuloma in nineteen of twenty patients and so culture and histologic examination are of equal importance in the definitive diagnosis of tuberculous arthritis.[21].

Also we found that T.B of the spine is the most common type of joint tuberculosis (43.3%).(table-6).In a study it was found that, in tuberculosis of the bones and joints ,the spine, hips and knees are the most likely sites of infection. [20].This is to some extent comparable to our findings . In a study regarding the epidemiology of bone and joint tuberculosis (TB) in Denmark ,The spine was affected in half of the cases.[22]. Timely diagnosis and treatment of multicentric tuberculosis will prevent further complications including paraplegia or deformity because of spinal tuberculosis or compression.[26]. In our study, lumbar spines were found to be the most commonly involved spines, (68.8%) (table-7). In a study, Although both the thoracic and lumbar spinal segments are nearly equally affected, the thoracic spine is frequently reported as the most





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common site of involvement. Together, these comprise 80 - 90% of spinal tuberculosis sites. The remaining cases correspond to the cervical spine.[24].Cervical spines are involved in 6.2% of patients with TB arthritis in our study.(table-7).Involvement of the spines by tuberculosis is quite risky because it may be associated with neurologic deficits caused by impingement of the spinal cord, nerve roots or nerves. Patients with thoracic spine disease are at particular risk for paraparesis or paraplegia.[23].

Regarding the association of tubercullous arthritis with other diseases, we have found that pulmonary tuberculosis is the most common coexisistant problem,(40.6% of cases).(table-8). Other study, showed that , evidence of pulmonary infection can be found in the majority of adults suffering from bone or joint tuberculosis.[25]. A physician needs to be aware that patients with pulmonary tuberculosis need to be investigated or screened for presence of skeletal involvement if they have any swelling in the neck or neck and back pain and should not be passed off as malaise.[26].Trauma ranks number two as an associating problem, 27% of cases of TB joints in our study had history of trauma to the affected joint.(table-8). In a study, trauma as a causative factor is debatable, but cases following trauma have been reported.[33]. Another study revealed that, trauma to the joint, is a known predisposing factor especially in high-risk groups.[2]. Diabetes mellitus was found to be the third associating disease with joint tuberculosis in our study, it was recognized in 18.9% of patients with TB of joint .(table-8). According to a study, and because of growing epidemic of diabetes mellitus worldwide, it is necessary to add diabetes mellitus prevention and control strategies to TB control programmes and vice versa and to evaluate their effectiveness. [27]. Many critical questions regarding the association between diabetes mellitus and TB remain unanswered because of either poorly conducted studies or no studies at all.[28]. Rheumatoid arthritis was been detected in 7.7% of patients with tubercullous arthritis in our study.(table-8).One study ,revealed that the risk of TB infection is 8.9-fold higher in Korean patients with RA, compared with the general Korean population.[17]. Scleroderma was found to be the least comorbidity with joint tuberculosis in our study. Tuberculosis is not an autoimmune disease, however when it spreads outside the lungs, it can affect any part of the body and thus it can imitate many autoimmune diseases, especially other systemic diseases such as scleroderma and lupus. In a nationwide study, the incidence of TB infection was significantly higher among patients with scleroderma than in controls without Scleroderma. Special care should be taken in managing patients with scleroderma who are at high risk for TB, especially those aged ≥ 60 years .[32]). The contributory role of tuberculous infection in the morbidity and mortality of patients with SLE must be emphasized, especially in areas endemic for TB.[18].





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Conclusion :The prevalence of tuberculous arthritis is still considerable in Missan governorate and because tuberculosis is still common in our country, physicians should be aware of the signs and symptoms of extrapulmonary TB particularly musculoskeletal infection. Tuberculous infection must be considered in all joint lesions if diagnosis is to be made early and if the negative impacts of

this disease are to be decreased or avoided..

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