

TUBERCULOUS ARTHRITIS: A REVIEW OF 27 CASES

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Mycobacterial infections of the joints are chronic, slowly progressive and usually monoarticular.¹ In the United States, a general increase in the incidence of tuberculosis has been reported since 1985. This may be partly explained by patients living longer, increasing use of immunosuppressive drugs, the appearance of the acquired immunodeficiency syndrome and the changing pattern of immigration. But despite these, musculoskeletal TB is still uncommon and accounts for only 1%-5% of all cases of TB.²⁻⁹ Prior to the era of anti-tuberculous medications, skeletal TB was considered a disease primarily of children, and continues to be so in underdeveloped countries. However, in developed countries, the highest incidence of skeletal lesions is to be found in older adults rather than children.^{10,11}

The signs and symptoms are usually nonspecific, leading to delay in diagnosis and prompt therapy.¹² Added to this is the occasional co-existence of TB arthritis with other conditions such as gout and other rheumatic non-infectious arthritis.¹²⁻¹³

In Saudi Arabia, the notification for pulmonary TB dropped from 240/100,000 in 1978 to 15/100,000 in 1991 and 11/100,000 in 1994.¹⁴ The latest figure represents perhaps an undernotification, as various workers estimated from direct counts of hospital records that incidence of pulmonary and extrapulmonary TB is around 28/100,000.¹⁴ Our study focused on the clinical pattern and outcome of peripheral tuberculous arthritis in Saudi Arabia.

Patients and Methods

We reviewed the charts of all patients with a discharge diagnosis of tuberculous arthritis in three tertiary hospitals in Riyadh (total beds, 1600) for the period 1983-1994. For study purposes, TB arthritis was considered if one of the following criteria was fulfilled: 1) positive TB culture of synovial fluid or tissue biopsy; 2) positive AFB smear from

synovial fluid or tissue; and 3) evidence of synovial tissue granuloma with or without caseation.

For each case, the following information was recorded: age, sex, occupation, trauma, joints affected, regular TB culture, AFB smear, Mantoux test, and response to treatment.

Results

All of the patients had insidious onset of joint pain commonly associated with swelling, and other signs of inflammation. Fourteen of our patients (52%) had systemic symptoms, like loss of appetite, weight loss and night sweating or fever. Twenty-seven patients fulfilled the criteria for tuberculous arthritis. Their ages varied from 8-73 years old (mean 39.7 years). The female to male ratio 13:14. *Mycobacterium tuberculosis* had been isolated in seven patients (26%). Twenty-two patients (81%) showed granuloma with caseation. Twenty-four patients were followed up for two years or more. Three patients were lost to follow-up. Six of the 24 patients (25%) received medical treatment only, while 18 of the 24 patients (75%) required surgical intervention in addition to medical treatment. Surgical therapy consisted of open drainage in eight patients, drainage and debridement in five patients, total knee replacement in one, supracondylar osteotomy in one and arthrodesis in one. AFB smear was positive in four patients, AFB culture in seven patients, and synovial tissue granuloma with or without caseation in 22 patients. All of the patients had monoarticular joint involvement. All but two were Saudi patients.

The affected joints were the knee in 11 patients (41%), hips in four patients (15%), elbows in four patients (15%), sternoclavicular joints in three patients (11%), and ankle in two patients (7.4%). The sacroiliac joint was affected in one patient (3.7%), and shoulder in two patients (7.4%). The total weight-bearing joints constituted 63%. All patients but one had positive Mantoux test with 5 tuberculin units, all of them more than 12 mm in diameter, and four of them more than 25 mm. The patient with negative Mantoux test had hip involvement with discharging sinuses and evidence of granuloma on histological examination. All patients responded to a medical regimen for a minimum of one year and a maximum of 18 months. The drugs used in varying

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Accepted for publication 6 May 1998. Received 31 December 1997.

combinations were INH, streptomycin, rifampin, pyrazinamide, and ethambutol.

Eight patients (29.6%) had evidence of old pulmonary tuberculosis on chest x-ray, which was performed on all patients. Two (7.4%) had tuberculous cervical lymphadenitis. No patient had concomitant spine involvement. Previous history of trauma was positive in eight patients (29.6%) and diabetes mellitus in two patients (7.4%). Eight patients (29.6%) were known to have osteoarthritis of the knees prior to tuberculosis of the knee. Two of the patients (7.4%) had rheumatoid arthritis.

Discussion

In this study, the most commonly affected joints were the weight-bearing joints (63%). This is similar to other studies, averaging 58% with a range of 50%-73%.^{1-9,15,16} The disease was monoarticular in all of our patients. Others had slightly lower percentages of 80%-91%.^{1,4,8,15,16} There was no spinal involvement in our patients, in contrast to the findings of Garrido, in whose study spinal infection constituted 20%.¹ Although the clinical presentation in our patients varied, only 52% had constitutional symptoms, which contrasts with the 80% reported by Berney et al.⁴

The weight-bearing joints were the most affected, constituting nearly two-thirds of the total joints. This is also similar to results of other reported studies.^{1-8,15} The knees were affected in 11 out of 27 patients (40.7%). The predilection for knee tuberculous arthritis may be due to the vulnerability of the knees to trauma, and the wide prevalence of knee osteoarthritis.¹⁷⁻¹⁹ Eight of our patients had evidence of osteoarthritis of knees prior to tuberculous arthritis of those same knees.

Local trauma has been found by others to precede tuberculous arthritis, both experimentally and clinically.^{1,20,21} In our study, 10 out of 27 patients (37%) had preceding local trauma. This is comparable to other findings.¹ The most popular theory regarding TB arthritis is reactivation of latent foci seeded in the primary illness, either hematogenously, or through the lymphatic system, and very rarely due to direct inoculation.⁸ About 30% of our patients had evidence of old pulmonary TB on chest x-ray, but none of them had active pulmonary TB. None of our patients had clinical symptoms of active pulmonary TB during musculoskeletal manifestation. In developing countries, TB arthritis tends to occur in the younger age group than in Western societies. This is borne out by our study, in which the age of the patients was younger than that reported from developed countries.

The AFB smear was positive in four out of twenty-five patients (16%). However, the TB culture of synovial fluid was positive in 7 out of 23 patients (30.4%). The diagnostic yield was increased by the inclusion of histological diagnosis, namely, granuloma with or without

caseation. The biopsy was positive in 22 out of 23 (95.6%) patients in whom it was done. The patient with negative biopsy result had positive synovial fluid culture. This emphasizes the importance of combining the different diagnostic modalities in searching for tuberculous arthritis, as reported by others.^{1,22}

In conclusion, tuberculous arthritis is an uncommon condition which needs vigilance for its diagnosis, utilizing a combination of AFB smear, culture and histology and a combined medical and surgical approach.

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