

TUBERCULOSIS OF THE SKELETAL SYSTEM IN İZMİR: 28 Cases from the western part of Turkey

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In this study, we present 28 cases of tuberculous osteomyelitis. tuberculosis had been very rare for the past several years in Turkey, but its incidence has been increasing recently. This is also true for skeletal tuberculosis. Skeletal tuberculosis has its own clinical and pathologic features which are clearly observed in our series. We could find rare previous reports on the subject emphasizing clinical aspects of the disease. Here, we reviewed the clinicopathologic features of the cases examined in our institution, considering it to be a reference study reflecting the condition in our geographic location, considering it to be a reference study reflecting the condition in our geographic location and the socioeconomic status of the people living in the area.

Key Words: Tuberculous osteomyelitis, vertebral tuberculosis.

INTRODUCTION

Tuberculous osteomyelitis is a nonsuppurative infection of all ages but predominantly of adolescents and young adults, secondary to a primary focus, especially in the lungs. Most common site is the vertebral body followed by the upper end of femur and the regions of long bones neighboring large joints (1).

The infection is a chronic one with slow onset. resistant to therapy, it is destructive and causes deformities.

Vertebral tuberculosis is a combination of tuberculous arthritis and osteomyelitis. The infection is commonly localized to the medullary cavity with cortical necrosis and forms large multiple sinuses through the soft tissues and skin. Not confined to vertebral body, it spreads to intervertebral discs, spinal canal, and eventually to the neighboring soft tissues (2).

The studies in Turkey on this subject are rare and of those, the ones on pathologic features are none to the best of our knowledge (3, 4).

Considering the decreasing frequency of tuberculosis and even smaller number of cases of skeletal tuberculosis, we reviewed our material and studied the pathologic features of this interesting entity.

MATERIALS AND METHODS

The hematoxylin and eosine slides and

clinical features such as age, sex and localization of 28 tuberculous osteomyelitis cases (Table 1) in the Department of Pathology of Dokuz Eylül University Medical Faculty (DEUTF) are reviewed.

Table 1: Age, sex and localization of lesions of the 28 cases

No	Biopsy number	Name	Age	Sex	Localization
1.	32/1980	AE	12	M	Right femur
2.	717/1981	LÖ	34	F	Right foot navicular bone
3.	1535/1986	FS	42	F	T ₄ -T ₇
4.	936/1987	SÇ	5	M	T ₉ -T ₁₁
5.	1416/1987	AY	11	F	L ₁ -L ₃
6.	1437/1987	FY	52	F	T ₁₂ -L ₂
7.	2131/1987	VA	65	F	T ₄
8.	2193/1987	MK	27	M	L ₄ -L ₅
9.	4270/1987	HK	10	M	T ₉ -L ₁
10.	4513/1987	RK	83	F	C ₇ , T ₂ -T ₃
11.	491/1988	FA	61	F	T ₁₀ -T ₁₂
12.	605/1988	AA	8	M	T ₂ -T ₄
13.	643/1988	NT	3	M	T ₁₁ -T ₁₂
14.	1570/1988	İS	61	M	T ₆ -T ₇
15.	1814/1988	AK	51	M	T ₁₀
16.	1858/1988	NT	23	F	L ₃
17.	2045/1988	MG	11/12	M	Right hip joint
18.	2799/1988	FD	18	M	L ₅ -S ₁
19.	4863/1988	HY	36	F	Lumbosacral joint
20.	1883/1989	BA	57	M	Left femoral head
21.	2896/1989	CA	35	M	T ₁₁ -T ₁₂
22.	5050/1989	ZÇ	8	F	Left hip joint
23.	2658/1990	MA	35	F	T ₆ -T ₇
24.	3695/1990	ŞS	22	F	T ₁₀
25.	5676/1990	HÖ	48	M	T ₈ -T ₉
26.	3011/1992	TŞ	59	F	L ₃ -L ₄
27.	4520/1994	TA	50	F	L ₅
28.	4522/1994	MÇ	63	F	T ₅

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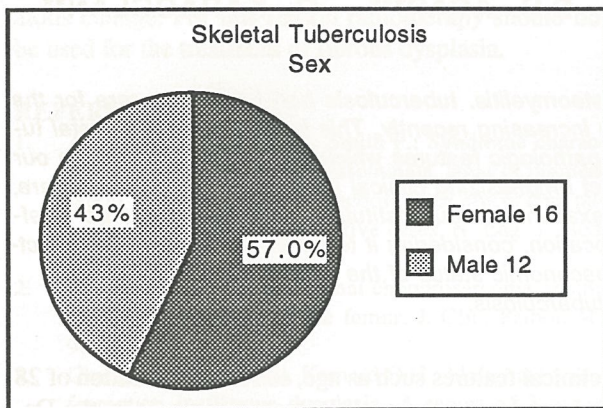
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RESULTS

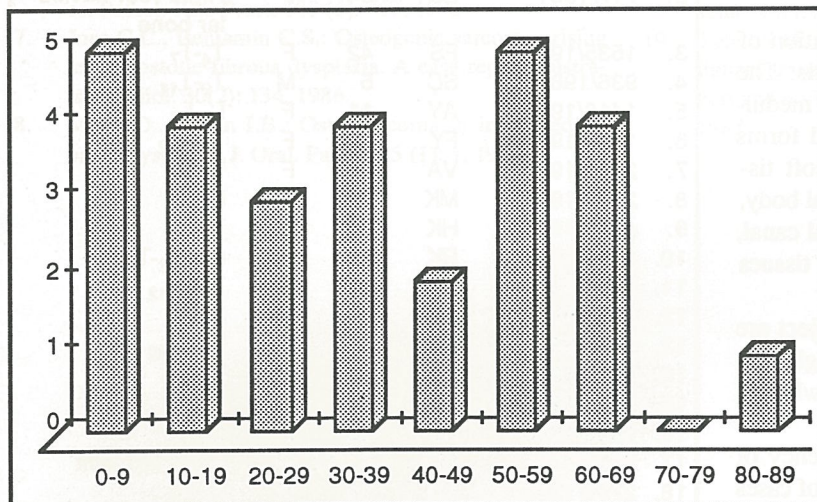
Of 28 cases reexamined, 12 are male (43.0%) and 16 are female (57.0%) (Figure 1).

Figure 1. Sex distribution of patients



Mean age is 35 with a range of 11 months to 83 years (Table 1). There are no significant features in the frequency of the patients according to age groups (Figure 2).

Figure 2: Frequency of cases in age groups: 28 cases



In 82% of cases, the lesion is located in one or more vertebrae with the most common (61%) site being thoracal vertebrae (Figure 3).

In most cases the lesion is present in 1, 2 or 3 vertebrae (Table 2).

Figure 3: Localization of lesions.

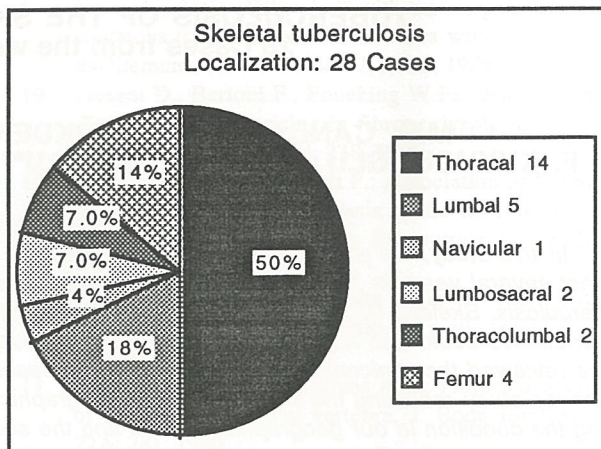


Table 2: Extension of the lesion in cases with vertebral tuberculosis.

Number of involved vertebrae	Number of cases
1	6
2	9
3	6
4	1
5	1

Microscopically, chronic and granulomatous inflammatory reaction consisting of Langhans' giant cells and epithelioid histiocytes in a background of caseous necrosis is encountered among the destroyed bone trabeculae (Figure 4).

DISCUSSION

In developing countries, pulmonary and gastrointestinal tuberculosis are still common as is commensurately destructive tuberculous osteomyelitis in prepubertal period (2, 5). A pulmonary focus must be present for extrapulmonary

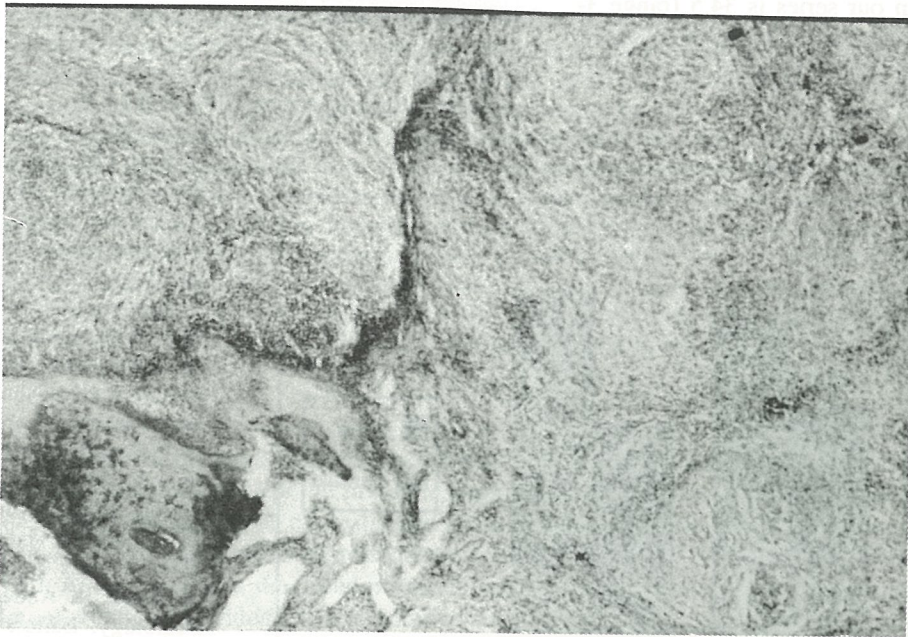
infection to occur (6). It is also common in Turkey.

All of the bones can be involved but the most common site of localization is the spine, followed in frequency by proximal end of femur, ends of long bones adjacent to large joints.

Mostly it is accompanied by tuberculous arthritis but it is impossible to determine the primary origin of infection.

produce a psoas abscess. Sometimes these infections present as cold fluctuating abscesses in the inguinal regions and medial thigh. If it is not contaminated with

Figure 4: Granulomatous lesions, some with necrotic foci among destructed bone trabecule (DEUTF, Department of Pathology, 717/81, 100X).



pyogenic microorganisms, it is left as a circumscribed area where calcium compounds precipitate (1).

It is most commonly encountered in distal thoracal and lumbal spines. 21 of our cases show thoracal and lumbal vertebral involvement. Multiple vertebral involvement is present in 23 cases. Mean number of vertebrae involved is 2.73. Thoracal vertebrae were also the most common site in the study of Domaniç et

Clinically it is divided into 4 groups (1): 1) Vertebral tuberculosis, 2) Combination of tuberculous arthritis and osteomyelitis, 3) Diaphyseal tuberculosis, 4) Tuberculoid reaction of the bone.

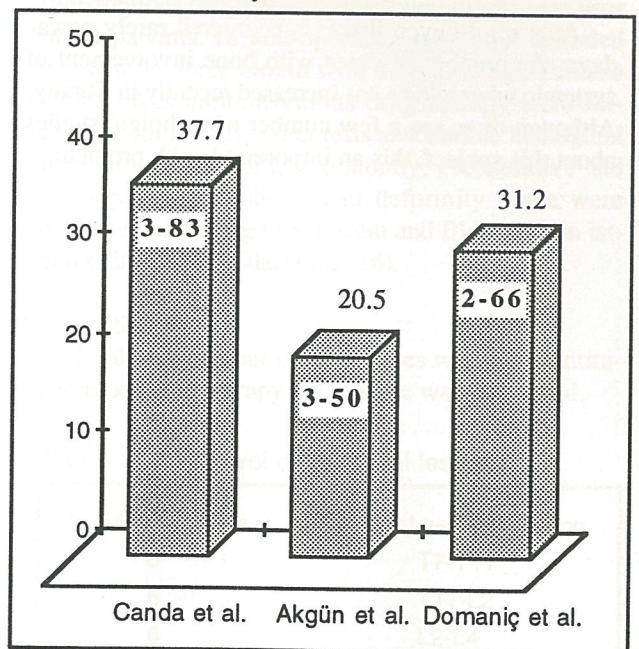
Age distribution of our cases reflects slight predominance in children and young adults and site of localizations is accordant with classic localisations of bone tuberculosis. The most common sites are vertebrae (82%), followed by femur (14%).

Vertebral tuberculosis was first described by Percival Pott. The agent (*Mycobacterium tuberculosis*) reaches the joints or spongious layer of vertebral corpus hematogenously from the primary focus.

Anterior portion of the vertebral corpus is the most intensely involved site. Involvement causes necrosis, kiphotic angulation and finally kiphosis (1).

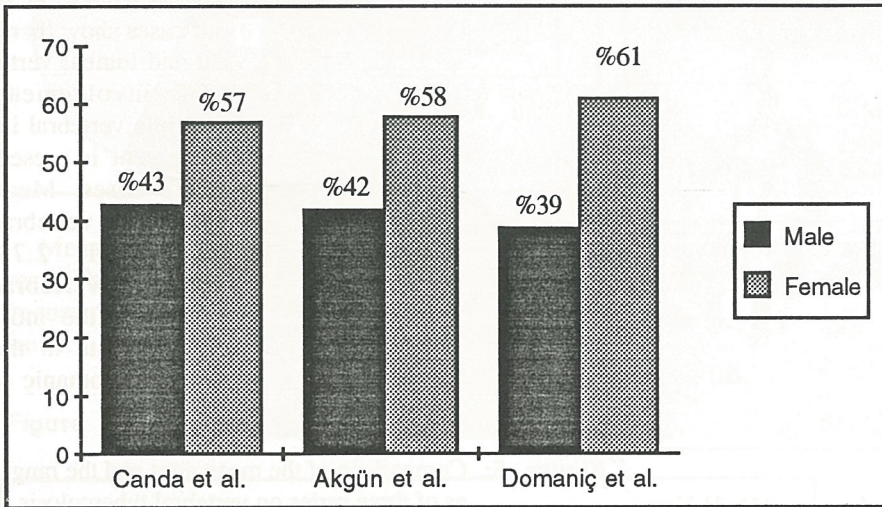
Slow growing infection is not only confined to the vertebral body but also may extend through adjacent discs, spinal canal and soft tissues, and eventually fistulizes (5). The tuberculous exudation extends along the sheath of the psoas muscle to

Figure 5: Comparison of the mean ages and the ranges of three series on vertebral tuberculosis in Turkey.



al. on 33 cases (3). Of the studies we could reach in Turkey, the study of Akgün et al. about clinical features of tuberculous spondylitis on 12 cases has a mean age of 20.5 (range 3-50)(7), while the series of Domaniç et al. has a mean age of 31.2 (range 2-66)(3). For comparison purposes, when only the cases with vertebral involvement in our series is 34.5 (range 3-83)(Figure 5). Sex distributions of those three series are concordant and are depicted in Figure 6.

Figure 6: Sex distributions of three series.



As a result, even if it is encountered rarely nowadays; the number of cases with bone involvement of systemic tuberculosis has increased recently in Turkey. Although there are a few number of pathologic studies about this subject, this an important health problem.

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