

HUMAN SKELETAL REMAINS FROM A SECOND-TEMPLE-PERIOD TOMB IN ARNONA, JERUSALEM

JOE ZIAS

Human skeletal remains from a Second-Temple-period tomb in Arnona (see Billig, this volume) were examined. Three burial patterns were discernible in the tomb: primary burials in *kokhim* and secondary burials in ossuaries and in bone repositories (A and H). The material found in the closed ossuaries, which had not been disturbed in antiquity, provided optimal results, as the preservation in them was excellent in comparison with those human skeletal remains

recovered from the *kokhim*. Mixing of skeletal remains from one or more skeletons, or their incomplete transfer to an ossuary, was noted throughout the tomb.

The Skeletal Population

A minimum of 41 individuals was recovered from the tomb (Table 1), with *kokhim* and repositories having the highest number of individual remains.

Table 1. Provenance of Human Skeletal Remains

Ossuary/ <i>Kokh</i>	No. of Individuals	Sex	Age
1	2	Indet.	2–5
	1	Indet.	18 mos.
	1	Female	35–39
2	1	Female	30 +
3	1	Female	40–50
4	1	Female	40–50
	2	Indet.	10–12
	1	Indet.	NB–6 mos.
5	1	Indet.	7–8
6	1	Indet.	15
	1	Indet.	3–4
	1	Indet.	18 mos.
	1	Female	Adult
7	1	Indet.	9 mos.
	1	Indet.	Adult
8 ¹	+		
9	1	Indet.	12 mos.
	1	Female	15–17
	1	Male	30 +
	1	Indet.	5–7
<i>Kokh A</i> ²	+		
<i>Kokh B</i>	4	Female	Indet.
	2	Indet.	2–3
<i>Kokh C</i>	1	Female	Indet.
	1	Male	Indet.
	1	Indet.	18–24 mos.
<i>Kokh D</i>	+		
<i>Kokh F</i>	1	Indet.	12 mos.
	1	Indet.	18 mos.
	5	Indet.	Adult
<i>Kokh G</i>	1	Female	Adult
	1	Male	Adult
	1	Indet.	18 mos.
	1	Indet.	18–24 mos.
<i>Kokh H</i>	+		
Total	41		

¹ This ossuary was inadvertently destroyed by the trenching machine, and the skeletal remains were redeposited in *Kokh G*.

² The few skeletal remains found in *Kokh A* were non-representative and appear to have been leftover remains from earlier burials that had been transferred to ossuaries. Therefore, while interesting pathology was found in this locus, it was decided not to include these meager remains in the count of individuals buried in the tomb as they are probably included in the ossuary sample.

According to the demographic profile (Table 2), 51% (n = 21) of the population died before reaching the age of 18 years. This percentage is similar to other reported figures from the period (Smith, Bornemann and Zias 1981; Zias 1992) and probably represents the demographic picture in the circum-Mediterranean area (Angel 1972).

Paleopathology

Infectious Disease.— A fragmentary portion of the proximal end of a right femur, recovered from the repository, presented a large cavitating abscess on the greater trochanter with minimal reactive bone (Fig. 1).

The lesion observed here, which eroded the greater trochanter is, after tuberculosis of the spine, the most identifiable tuberculosis bone lesion in the adult (Ortner and Putschar 1985). Unfortunately, the specimen was recovered from a locus which contained the fragmentary, commingled remains of several individuals, making it impossible to determine the relationship between this femur and the other associated skeletal remains interred there.

Ossuary 1 (which contained the poorly represented remains of four individuals, perhaps indicating that little care was taken in the internment process), provided a right radius and ulna with pathological changes (Fig. 2). The osseous changes observed here are both destructive and proliferative, indicating a chronic, rather than an acute, infection, a

process of long duration. The destructive phase resulted in exposure of the subchondral porotic spongiosa of the joint surfaces along with one cavitory lesion on the lateral condyle of the humerus. As the lateral condyle of the humerus is the site most frequently involved in skeletal tuberculosis (Ortner and Putschar 1985:158) this specimen may represent an additional case of tuberculosis or alternately, septic arthritis.

Trauma.— One individual (male?) from a repository presented bilateral osteological changes associated with Osgood-Schlatter disease (Fig. 3). This condition is usually

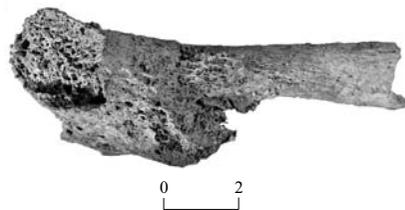


Fig. 1. Chronic tuberculosis of the greater trochanter with fistulating abscess exposing porotic cancellous bone.



Fig. 2. Septic arthritis of the right radius and ulna, showing subchondral porotic spongiosa along with productive periosteal reactions. Note cavitating lesion on the lateral condyle of the humerus. Differential diagnosis: tuberculosis.



Fig. 3. Osgood-Schlatter disease. Lateral view of two tibiae presenting bony spurs in the region of the proximal/anterior portion of the tibia.

Table 2. Age Breakdown

Age	MNI
0-1	4
1-5	11
5-10	2
10-17	4
18-30	-
30-40	3
40+	2
Adult	9
Indeterminate	6
<i>Total</i>	<i>41</i>

traumatic in origin and results in a bone spur projecting from the proximal/anterior portion of the tibia in the area of the tibial tuberosity (Ortner and Putschar 1985). Though common today, the condition has rarely been reported in the osteoarchaeological record.

Conclusions

While both the architecture of the tomb and its human skeleton population are typical of burial complexes found in the Jerusalem area from the end of the Second Temple period (Kloner 1980; Rahmani 1981; 1982), the pathology contained therein is unique in that it represents the first reported incident of tuberculosis in an ancient Jewish population. The skeletal lesions presented in two individuals are of the variety that is considered pathognomonic for tuberculosis (Ortner and Putschar 1985), so the diagnosis of the disease represented here is fairly certain.

The extremely low incidence of tuberculosis amongst Jews has been noted for over a century (Tostivint and Remlinger 1900; Cockburn 1963). The paucity of archaeological evidence of tuberculosis among Jews suggests that the high resistance toward the disease may have existed since antiquity. While bone and joint lesions appear only in one percent of those having the disease (Daniel 1981), the large number of Jewish skeletons examined by the anthropological community mirrors the epidemiological evidence both in the Old and

New Worlds. The low occurrence in North African communities, such as Tunis, where the Jewish community has existed for millennia, therefore argues for a genetically determined resistance during or prior to the Second Temple period. This suggests an inherited immunity amongst those Jews who are genetically related, having been acquired through repeated exposure to the disease in antiquity (Zias 1998).

The unusual inscription found on Ossuary 1 (see Billig, this volume: Fig. 1), implying that the deceased wished to be buried alone, may be related to the illness of one of the individuals found therein. The nature of the lesions encountered here, due to their chronicity, would certainly have been noticeable within the confines of the family and would inevitably have been fatal. Since tuberculosis was a disease known to be highly infective, separation of diseased and healthy individuals within the extended family may have been sought. Disease in antiquity was regarded as divine punishment for sin ('the wages of sin is death', Romans 6:23), whereas burial in ossuaries was equated with expiation from sin (Meyers 1971; Rahmani 1981; 1982). Thus, the injunction for separation in death as in life may express the negative attitudes held by society toward disease in both the Old and New Testament periods. If this interpretation is correct, then the fact that additional skeletal remains were found in the ossuary suggests that the family did not accede to the wishes of the deceased.

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