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Human Skeletal Remains from Tomb 80 in the 'En Esur Cemetery

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The human skeletal remains, uncovered in the EB IB–EB II burial cave (T80) in the 'En Esur cemetery (see Gorzalczany and Sharvit, this volume), were examined in the field and the bones were immediately sent for reburial. The bones were fragmentary and in a very poor state of preservation. The anthropological study focused on reconstructing major demographic parameters of the individuals buried in the cave.

Locus 170.— Remains included a fragmentary skull, teeth and postcranial bones of an adult individual. The bones were found in anatomical articulation, indicating primary burial. The body lay in a flexed position, on its right side, with the head to the south. The skull and mandible morphology indicate a male (Bass 1987:81–82) aged, based on tooth attrition stages, between 25 and 35 years (Hillson 1993:176–201).

Locus 175.— Remains included three fragmentary skull vaults, 18 teeth and a few small fragments of postcranial bones. The bones were found scattered and the original burial posture could not be determined. Age estimation was based upon tooth development and attrition rates (Hillson 1993:176–201; Nagar and Winocur, forthcoming). The teeth represent at least seven individuals ranging in age from 1 to >60 (Table 1).

Table 1. Locus 175: Age Estimations

Tooth Type	Side	Development Stage/Attrition Rate	Age Estimation (yrs)
Deciduous upper central incisor	?	Root tip still open, no attrition	1–1.5
Deciduous lower incisor	?	Root ¾ developed	1–1.5
Upper central incisor	Left	Dentine exposure	20–30
	Left	Dentine cup	30–40
	Left	Less than half crown height	40–50
	Right	Less than half crown height	40–50
Upper premolar	?	Dentine exposure in one cusp	18–30
	?	Dentine exposure in one cusp	18–30
	?	Dentine exposure in one cusp	18–30
	?	Dentine exposure in one cusp	18–30
	?	Dentine exposure in both cusps	25–40
	?	Dentine exposure in both cusps	25–40
Upper first molar	?	Crown nearly fully developed	1–2
	Left	Fully developed crown	3–5
	Left	Enamel attrition or no attrition, root is broken	5–10
Lower first molar	Right	Deep dentine cup in all cusps	30–40
	Right	Attrition of over half crown height	>50
Lower third molar	?	Attrition of over half crown height	>60

Locus 177.— Remains included a fragmentary skull, 19 teeth and postcranial bones. The bones were found scattered, and the original burial posture could not be ascertained. Sex determination was not possible for any of the individuals. The teeth represent at least ten individuals aged between 1 and 50 years (Table 2), based on tooth development and attrition rates (Hillson 1993:176–201; Nagar and Winocur, forthcoming). One tooth of an adult individual (upper third molar, not included in the table) was found burnt.

Locus 178.— Remains included a fragmentary skull, teeth and postcranial bones. The bones were found scattered and the original burial posture could not be established. Sex determination was not possible for any of the individuals. Description of tooth development and attrition rates is fully detailed in the anthropological report. Age estimations based upon tooth attrition rates were made using the upper central incisors, upper premolars and lower first molars (Table 3; Hillson 1993:176–201; Nagar and Winocur, forthcoming). Age estimations based upon

Table 2. Locus 177: Age Estimations

Tooth Type	Side	Development Stage/Attrition Rate	Age Estimation (yrs)
Deciduous canine	?	Root ¾ developed	2
Deciduous lower second molar	?	Root ¼ developed	1
Upper central incisor	?	Fully developed crown	3–4
	Right	Dentine exposure	20–30
	Right	Dentine exposure	20–30
	?	Deep dentine cup	30–50
Canine	?	Crown nearly fully developed	4–6
Upper premolar	?	Crown partially developed	4–6
	?	Slight dentine exposure	18–25
	?	Slight dentine exposure	18–25
	?	Dentine cup in both cusps	40–50
	?	Attrition of half crown height	>40
Lower first molar	Left	Dentine exposure in three cusps	20–30
	Right	Deep dentine cup in all cusps	30–40
Lower first molar	Right	Root <¼ developed	3–4
	Right	No attrition, root broken	5–6
	Right	Enamel attrition, root closed	6–10
	Right	Deep dentine cup in all cusps	30–40
Lower second molar	?	Root 1/3 developed	7–9

Table 3. Locus 178: Age Estimations: Number of Teeth in Age Group

Tooth Type	Side	Age Group (yrs)						
		10–14	15–19	20–29	30–39	40–49	50–59	>60
Upper central incisor	Right	1	5	10	9	4	3	1
	Left	1	3	6	13	2	6	1
	?			1	1	1	1	3
Upper premolars	?	1	29	25	16	25	3	10
Lower first molar	Right	5	6	7	8		1	
	Left	4	15	10	10			
	?						1	

deciduous and permanent-tooth development stages (Hillson 1993) were also conducted to assess the number of children in this locus (Table 4). The results from both assessments indicate that the teeth represent at least 76 individuals.

Summary and Conclusions

The skeletal remains from T80 at 'En Esur were studied on-site. Although the bones from the Early Bronze Age were poorly preserved, carefully sieving of the soil yielded a relatively large sample of teeth for the study. The results summarizing the age estimations are presented in Table 5, from which a mortality curve was constructed (Fig. 1). The anthropological study indicates that a minimum number of 94 individuals were buried in the cave during EB I and their life expectancy was calculated

Table 4. Locus 178: Age Estimation of Children

Tooth Type	Side	Age Estimation (yrs)
Deciduous lower second molar	Left	NB–0.5, NB–0.5, 0.5–1, 0.5–1, 0.5–1, 0.5–1, 0.5–1, 1, 1, 1, 2
Permanent lower first molar	Right	1.5–2, 2–3, 2–3, 2–3, 2–3, 2–3, 3–5, 3–5, 3–5, 3–5, 5–7, 5–10, 5–10
	Left	1.5–2, 1.5–2, 1.5–2, 1.5–2, 2–3, 3–5, 3–5, 3–5, 3–5, 5–7, 5–10

Table 5. Age Distribution of the Skeletal Population.

Locus	Minimum Number	Age Group (yrs)								
		NB–4	5–9	10–14	15–19	20–29	30–39	40–49	50–59	>60
170	1					1	1			
175	7	2	1			1	1	1		1
177	10	4	2		1	1		1	1	
178	76	17	3	5	15	10	10	7	6	3
Total	94	23	6	5	16	12	11	9	7	4

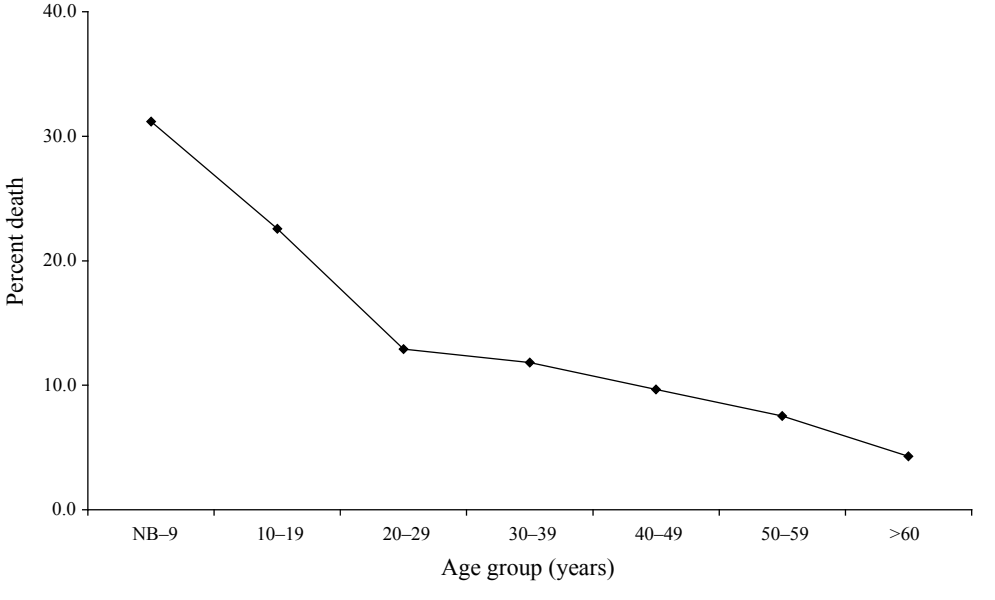

Fig. 1. Mortality curve of the T80 skeletal population.

as 24 years at birth, 22 years by the age of 10 (following Ubelaker 1974).

Tomb 80 was located in proximity to other, previously excavated burial caves of the Bronze Age cemetery of ‘En Esur and probably represents the same population. Studies of the skeletal remains from ‘En Esur Tomb 3 (Nagar and Winocur, forthcoming), using the same methodologies, yielded slightly different results. Life expectancy of the population buried in Tomb 3 was 28 years by the age of 10, six years higher than that of those interred in T80. This figure is a better indicator for a comparison of life expectancy than life expectancy at birth, as it is not biased by the probable under-representation of infants in the sample. These results, revealing a six-year drop in life expectancy in the T80 sample, seem to support the hypothesis put forth by Gorzalczany and Sharvit (this volume), that this cave contained a population of lower socio-economic status than in the other excavated tombs, based on the distance of the cave from the settlement (Yannai, forthcoming) and the relatively few and poor quality of the burial artifacts.

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