

Material report: Human skeletal remains of the Edo period excavated from the Sugenji Ato site, Shinjuku-ku.

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Abstract This is the material report of the human skeletal remains excavated from the Sugenji Ato site in Shinjuku-ku, Tokyo. This collection has good preservation state, is huge in sample size, and is stored in the department of Anthropology at the National Museum of Nature and Science, Tokyo. Although the anthropological report was published in 2005, it was written only in Japanese and some human skeletal remains were not reported. The purpose of this material report is to present the inventory of human skeletal remains excavated from the cemetery of the Sugenji Ato site in English. The total number of individuals reached to 804, and 170 individuals had well-preserved human skeletal remains.

Introduction

Some huge assemblages of the human skeletal remains from one archaeological site are contained within the collections of the National Museum of Nature and Science Tokyo. The skeletal remains excavated from the Ikenohata-shichikencho site are the samples used most frequently in anthropological researches by both Japanese and foreign researchers because they are well-preserved, have large sample size (at least 391 individuals), and are documented in an excellent inventory created by Nagaoka (2007) that contains the estimated sex and age-at-death in English. However, other skeletal collections are comparable to the Ikenohata-shichikencho site in term of preservation level and sample size. The Sugenji Shokenji Ato site is one such collection.

The Sugenji Shokenji Ato site was located in Minamimotomachi Shinjuku-ku, Tokyo, Japan and excavated in 2003. The area of excavation was the ruins of the Sugenji and Shokenji Buddhist temples from 1653 A.D. to 1909 A.D. (Taisei Engineering Co. Ltd., 2005). Their cemeteries were clearly divided by remnants of the street. The number of burial facilities in these

temples reached 1434, 579 of which were located at the Sugenji Ato site and 855 at the Shokenji Ato site; both were in use from the late 17th century to the middle 19th century.

The anthropological analysis of the human skeletal remains excavated from these sites was reported by Kajigayama *et al.* (2005). This number of individuals reached 661 from the Sugenji temple and 401 from the Shokenji temple and an inventory with estimated sex and age-at-death was also presented in Japanese. However, the number of the unidentified samples, which were not listed in this report, reached 345 due to limited time for analysis.”

The purpose of this material report is to present the inventory of human skeletal remains excavated from the cemetery of the Sugenji Ato site in English. This report will help all researchers to investigate the physical characteristics of those who lived in the Edo city.

Material and Methods

The criteria for the descriptions contained in this inventory are as follows:

“Number”

The numbers refers to those of burial pits

numbered under the excavation process of this site.

“Additional N.” refers to the branch number assigned under the excavation process of this site.

“Grid”

The characters of this column indicate the point where the skeletal remains were excavated and reported in the archaeological report (Taisei Engineering Co. Ltd. 2005).

“Level”

This category indicates the height above sea level and has two subcategories: “Upper”, which is the highest altitude located at the uppermost point of the burial pit, and “Lower”, which is the lowest altitude at the bottom of the pit.

“Burial style”

“Burial style” means the structure of the burial customs, which are used as indicators of social class and status during the Edo period (Tanigawa, 2002). There are seven styles found in this site as follows;

Kamekan in wooden burial chamber: This burial style was adopted among the Hatamoto (the upper vassals of the Tokugawa house), the Koke (noble families of the Hatamoto), and the Omoyaku classes (high ranking samurai as officials and advisors in service to the daimyos). They tended to be buried in a ceramic jar housed in a wooden burial chamber in the earth.

Kamekan: This style was used widely among the samurai class among the Hatamoto, the Gokenin (the lower vassals of the Tokugawa house), and the Hanshi classes (vassals of the daimyos). They tended to be buried in only a ceramic jar after the late 17th century.

Hayaoke: This style of inexpensive circular wooden coffin was widely seen among the Samurai class and townsmen during the Edo period.

Square wooden coffin: This style of square wooden coffin was seen after the late 17th century, and its relationship with social class has also not been confirmed.

Cinerary urn: This style was used for the burial of the cremated bones during the Edo period. Its relationship with social class has also

not been clarified

Earthenware coffin: This was used for the burial of children's remains during the Edo period.

Burial pit and *Secondary burial*: These essentially mean that one (Burial pit) or multiple individuals (Secondary burial) were buried in the earth without any burial facilities.

“Cutting”

This refers to the relationship of cutting and re-cutting of archaeological pits with arrows.

“Conditions”

This means the preservation state of human skeletal remains. It is supposed that one burial facility contained one person. If multiple individuals were contained in one facility, one individual comprised the primary burial and the others were thought to have been added later. In this inventory, the first individual of each burial facility is thought to have been the primary burial, based on the preservation of skeletal remains and their morphological traits such as the length, the thickness of long bones, and degenerative changes.

Good: This term is used subjectively to refer to a “good” state preservation, characterized by an almost complete skull and some intact long bones.

Not bad: This is also subjective and means that the shape of the skull can be observed and some variables of the skull are measurable.

Bad: This is also subjective and refers to a wide range of preservation state, including skulls with a few measurable variables to bone fragments that are identifiable.

Burned: This refers to bones that has been cremated, from which sex nor age-at-death can be diagnosed.

Fragments: This category contains a small amount of identified bones (less than five pieces) and unidentifiable bone fragments in one facility.

Contamination: This refers to a small amount of identified bones (less than five pieces) which were apparently from the other person than a person of primary burial.

“Age-at-death”

The estimation of age at death is based on teeth, pubic symphysis and the auricular surface of the pelvis, epiphyseal union, and cranial sutures. An individual's age at death is classified according to eight "age categories."

Infant: This category refers to individuals aged about 0–5 years. Indications for this age group range from "no eruption of deciduous teeth" to "no eruption of permanent teeth." (Ubelaker, 1989).

Child: This category refers to individuals aged about 5–11 years. Indications for this age group range from "eruption of the first permanent molar" to "no eruption of the second permanent molar."

Adolescent: This category refers to individuals aged about 11–20 years. Indications for this age group range from "eruption of the second permanent molar" to "persistence of epiphyseal lines in any bone but the clavicle."

Young adult: This category refers to individuals aged about 20–30 years. Indications for this age group range from the "macroscopic disappearance of epiphyseal lines in all bones but the clavicle" to "persistence of epiphyseal lines of the clavicle." In addition, the pubic symphysis of an individual shows the morphological characteristics of Phases 1–2 in the Suchey-Brooks system (Brooks and Suchey, 1990). There are finely granulations with marked transversely organized billows on the auricular surface (Lovejoy *et al.*, 1985).

Middle adult: This category refers to individuals aged about 30–50 years. Indications for this age group range from the "macroscopic disappearance of the epiphyseal lines of the clavicle" to "no or little appearance of degenerative change in the vertebral body." In addition, the pubic symphysis shows the morphological characteristics of Phases 3–5. There are also coarse granulations or a partially dense irregular surface without transverse organization.

Old adult: This category refers to individuals aged more than 50 years. Indications for this age group are degenerative changes such as "antemortem tooth loss", "lipping of the vertebral

body," and "lipping on the articular facet." In addition, the pubic symphysis shows the morphological characteristics of Phase 6. The auricular surface shows a dense irregular surface of rugged topography with macroporosity and irregular and lipping margins.

Child?: This category is used for individuals without the indicators used to estimate the age-at-death. In this case, however, the size of the bones or the bone surface characteristics such as the smooth area of muscle attachments as well as tooth formation, indicate that the individual was likely a child at his or her time of death.

Adult?: This category is used for individuals without the indicators used to estimate age-at-death. However, morphological characteristics such as size, muscle attachments, and tooth formation, indicate that the individual was likely an adult.
"Sex"

The sex of an individual can be diagnosed based on morphological characteristics comprising the greater sciatic notch and ventral arc of the pelvis, supraorbital ridge, and mastoid process of the skull (Buikstra and Ubelaker, 1994; Sakaue and Adachi, 2009). The following four classifications pertain to this criterion.

Male: All characteristics indicate that the individual is male.

Male?: Any of the above-mentioned characteristics indicates that the individual is male. In case of a discrepancy, the sex is diagnosed according to the characteristics mentioned above in descending order of importance.

Female: All characteristics indicate that the individual is female.

Female?: Any of the above-mentioned characteristics indicates that the individual is female.

"N. of Measurable" in Cranium and Mandible: This number indicates the number of how many variables (out of a possible 13) that can be measured for the cranium (Maximum length, Basion-Nasion length, Maximum breadth, Basion-Bregma height, Least frontal breadth, Basion-Prosthion length, Bizygomatic breadth, Bimaxillary breadth, Martin's Upper facial

Table 1. Continued

Number	Branch N.	Grid	Level		Burial style	Cutting	Conditions	Age-at-death	Sex	Cranium N. of Measurable	Mandible N. of Measurable	Humerus Length		Radius Length		Ulna Length		Femur Length		Tibia Length		Fibula Length	
			Upper	Lower								right	left	right	left	right	left	right	left	right	left	right	
198							Bad Contamination	Adult?															
199		C4	15.150	14.570	Square wooden coffin	→389	Bad	Adolescent															
200		D4	15.220	14.970	Earthenware coffin		Bad	Child?						○	○	○	○						
202		E3	14.908	14.478	Square wooden coffin	←186	Bad Contamination	Infant															
203		E4-5	15.351	14.801	Hayaoke	←204	Bad	Infant															
204		E4-5	15.374	14.854	Hayaoke	→203	Bad	Middle adult	Female														
206		D3	15.054	14.824	Earthenware coffin	←102	Bad	Child?															
207	E (upper)	C- D3	15.126	14.636	Hayaoke		Bad	Middle adult	Male														
207	↓ (Lower)	C- D3					Not bad	Middle adult	Female	10	3	○	○	○	○	○	○	○	○	○	○	○	○
208		E3	15.148	14.928	Earthenware coffin	→219	Bad	Infant															
209		E3	15.152	—	Secondary burial		Bad Contamination	Infant															
210		E4	15.219	14.719	Kamekan		Bad	Child?															
211		E4	14.987	14.567	Kamekan		Bad	Infant															
212		E4	15.051	14.631	Kamekan		Bad	Adult?															
213		E4	14.760	14.130	Kamekan in wooden burial chamber		Good	Middle adult	Male	13	5	○	○	○	○	○	○	○	○	○	○	○	○
214		E4	15.204	15.121	Earthenware coffin	→215	Bad	Infant															
215		E4	15.302	14.672	Square wooden coffin	←214/→266 · 267	Good	Middle adult	Male	13	5	○	○	○	○	○	○	○	○	○	○	○	○
216		D3	15.020	—	Secondary burial		Good	Young adult Old adult	Male Female	13		○	○	○	○								
							Bad	Adult?	Male	10													
							Contamination																
217		E3	14.926	—	Secondary burial		Fragments																
218		E3	14.829	14.299	Hayaoke		Good	Middle adult	Male	13	5	○	○	○	○	○	○	○	○	○	○	○	○
219		E3	14.938	14.838	Earthenware coffin	←208	Contamination	Infant															
220	a	E3	15.087	—	Secondary burial		Bad Contamination	Middle adult	Male								○						
220	b	E3	15.087	14.547	Hayaoke	←45 · 251/ →259	Good	Middle adult	Male	13	5												○
223		E4	15.151	14.931	Earthenware coffin		Contamination																
224		E4	15.288	—	Secondary burial	→172	Bad	Fragments															
225		E4	15.148	14.708	Kamekan	←226/→316	Bad	Adult?	Male														
226		E4	15.142	14.932	Cinerary urn	→225	Contamination																
							Burned																
228		E5	15.194	14.644	Hayaoke	←227 · 229 · 231/→519	Good	Middle adult	Male	12													
							Good	Middle adult	Female	13	5												
							Contamination																
230		E4	15.322	—	Cinerary urn		Burned																
231	E- F5	E- F5	15.319	14.959	Hayaoke	←229/→228	Bad	Child?															

Table 1. Continued

Number	Branch N.	Grid	Level		Burial style	Cutting	Conditions	Age-at-death	Sex	Cranium N. of Measurable	Mandible N. of Measurable	Humerus Length		Radius Length		Ulna Length		Femur Length		Tibia Length		Fibula Length	
			Upper	Lower								right	left	right	left	right	left	right	left	right	left	right	left
384		F6	15.150	14.970	Cinerary urn	←55/→512	Burned	Middle adult	Male		5					○							
385		E5	15.006	14.576	Square wooden coffin	←142/→474	Bad										○						
386		E7	14.463	14.263	Earthenware coffin		Fragments																
387		E3	14.263	13.633	Kamekan		Bad	Middle adult	Female														
388		F6	14.999		Cinerary urn	←199	Burned																
389		C·D4	14.706	14.306	Square wooden coffin	←408	Good	Young adult	Female														
391		C·D3	14.667	14.417	burial pit		Good	Old adult	Male	13	5		○		○		○						
392		E6	14.297	—	Secondary burial		Good	Middle adult	Female	13													
393		E5	15.034	—	Secondary burial		Bad	Middle adult	Female	13			○										
394	a+b	E6	14.778	—	Secondary burial		Contamination			13					○								○
397		F6	14.641	—	Kamekan		Good	Middle adult	Male														
398		F6·7	15.133	—	Secondary burial	←133	Contamination	Old adult	Male?	11	5												
							Good	Adult?	Male?		5												
							Bad	Adult?	Male?		5												
							Bad	Adult?	Male?														
							Bad	Adult?	Female?														
							Bad	Adolescent															
							Bad	Child															
399		E7	15.230	15.080	Hayaoko	→474	Bad	Infant															
400		E7	14.979	14.469	Kamekan		Contamination	Child															
401		E7	15.056	14.536	Hayaoko	→403	Contamination	Middle adult	Male	13	5		○		○		○		○		○		○
402		F6·7	15.086	14.516	Hayaoko	←402	Good	Young adult	Female	11													
403		E·F6·7	14.916	14.586	Square wooden coffin	←71	Not bad	Middle adult	Male	7													
							Contamination																
404		F6	15.218	14.588	Square wooden coffin		Bad	Middle adult	Female														
405		F6	14.504	13.854	Kamekan		Contamination	Young adult	Female														
406		F7	15.528	14.818	Kamekan	←370	Not bad	Young adult	Female	13	5		○		○		○		○		○		○
407		F6	14.374	13.764	Kamekan	←58b/→390	Good	Young adult	Female	13	5												
408		E6	14.759	14.599	Square wooden coffin	←434/→410 · 468	Contamination																
							Bad	Adolescent	Female		5						○						
							Bad	Old adult			2												
409		E7	15.166	14.716	Hayaoko	←409 · 434	Good	Middle adult	Male	13	5												
							Bad	Old adult	Female														
							Contamination	Young adult	Male														
410		E·F7	15.124	14.654	Hayaoko		Fragments																
411		E7	14.945	14.295	Kamekan		Good	Middle adult	Male	13	5		○		○		○		○		○		○

Table 1. Continued

Number	Branch N.	Grid	Level		Burial style	Cutting	Conditions	Age-at-death	Sex	Cranium N. of Measurable	Mandible N. of Measurable	Humerus Length		Radius Length		Ulna Length		Femur Length		Tibia Length		Fibula Length	
			Upper	Lower								right	left	right	left	right	left	right	left	right	left	right	left
443		D4	14.580	13.870	Kamekan		Bad	Adult?	Female	10		○						○	○				
444	b	E4	14.570	13.970	Square wooden coffin	←444a→440	Good Contamination	Adolescent	Female														
445		C4	14.605	13.955	Square wooden coffin		Good	Young adult	Male	13	5	○						○	○				
447		F6	14.435	13.885	Kamekan		Good	Middle adult	Male	13	5	○	○	○	○	○	○	○	○	○	○	○	○
							Bad	Middle adult	Male	2	5							○	○				
448		E3-4	14.248	13.738	Square wooden coffin		Good	Middle adult	Female	13	3			○				○	○				
							Contamination																
							Good	Young adult	Male	13	5							○	○	○	○	○	○
449		E3	14.315	13.825	Hayaoko		Good	Young adult	Female	13													
							Not bad	Middle adult	Male	6													
							Contamination																
450		E3	14.373	14.063	Hayaoko		Bad	Infant															
451		E3	14.298	13.748	Hayaoko		Good	Old adult	Female	12	5	○		○	○							○	○
453	a	E3	14.233	13.930	Kamekan	→453b	Good	Adolescent	Female	13	5	○	○	○	○	○	○	○	○				
453	b	E3	13.923	13.323	Kamekan	←453a	Contamination	Young adult	Female	13	5	○	○										
454		F7	14.873	14.343	Kamekan		Good	Adolescent	Female	13	5	○	○	○	○	○	○	○	○	○	○	○	○
455		F6	14.697	14.547	Cinerary urn		Burned																
456		F6	14.512	14.112	Kamekan		Good	Infant															
457		E6	14.939	—	Secondary burial		Bad	Middle adult	Female	13													
458		E7	14.714	—	Hayaoko	→459 · 460	Good	Adult?															
459		E7	14.832	14.302	Hayaoko	←458→460	Bad	Middle adult	Female	5	4		○	○	○	○	○	○	○				○
460		E7	14.628	14.002	Kamekan	←458 · 459	Bad	Middle adult	Male	2	5			○	○	○	○	○	○				○
462		E7	14.759	14.229	Hayaoko	←30	Good	Adolescent	Female	12	4			○	○	○	○	○	○				○
463		F7	14.633	13.993	Kamekan		Good	Old adult	Male	10	5	○	○	○	○	○	○	○	○	○	○	○	○
464		E7	14.638	14.028	Kamekan	←465	Bad	Adult?															
465		E7	14.684	14.184	Square wooden coffin	→464	Good	Middle adult	Male	11	5		○			○	○	○	○	○	○	○	○
466		E7	14.653	13.983	Kamekan		Contamination																
467		E7	14.680	14.370	Hayaoko		Good	Old adult	Male	11	5	○	○	○	○	○	○	○	○	○	○	○	○
468		E7	14.926	14.636	Square wooden coffin	←141 · 409/→486	Bad	Infant															
469		E7	14.640	14.260	Square wooden coffin	←474	Bad	Middle adult	Female														
470		F6-7	14.488	13.868	Kamekan		Fragments																
							Good	Old adult	Female	13	5	○	○	○	○	○	○	○	○	○	○	○	○
471		F6	14.554	13.924	Square wooden coffin		Good	Adult?	Male	13	5												
							Bad	Middle adult	Male?	13	5	○		○									
							Contamination																
473		E·F5	14.880	14.620	Hayaoko	←350	Bad	Adult?															
474		E7	14.453	14.363	Square wooden coffin	→469/←142 · 386 · 400	Bad	Middle adult	Male														
							Contamination																
							Good	Adolescent	Male	13	5		○					○	○	○	○	○	○
475		E5	14.751	14.221	Hayaoko		Good	Middle adult	Male	13													
							Good	Middle adult	Male	13													
							Contamination																
477		E·F5	14.823	14.613	Square wooden coffin		Bad	Middle adult	Female					○	○								

Table 1. Continued

Number	Branch N.	Grid	Level		Burial style	Cutting	Conditions	Age-at-death	Sex	Cranium N. of Measurable	Mandible N. of Measurable	Humerus Length		Radius Length		Ulna Length		Femur Length		Tibia Length		Fibula Length	
			Upper	Lower								right	left	right	left	right	left	right	left	right	left	right	left
534	a	E·F5	14.271	14.051	Secondary burial		Bad	Middle adult	Male			○	○	○	○	○	○	○	○			○	
534	b	E·F5	14.271	13.741	Hayaoko		Good	Old adult	Female	12	5		○	○	○	○	○						
534	c	F6	14.222	13.792	Kamekan	←500	Bad	Child															
535	a	E·F5	14.436	14.006	Square wooden coffin	←507	Good	Young adult	Male	13	5	○	○	○	○	○	○	○	○	○	○	○	○
535	b	E5	14.334	13.884	Hayaoko	→538	Bad	Middle adult	Male	3	5		○	○	○	○	○						
536		E4	14.271	13.841	Kamekan		Bad	Infant															
537		E·F5	14.356	13.806	Hayaoko	←524	Bad	Child															
538		E4·5	14.386	13.886	Hayaoko	←535b	Good	Old adult	Female	12	1												
540		F7	13.643	13.213	Kamekan		Bad	Adult?															
541		F7	13.160	12.800	Cinerary urn	Burned	Good	Middle adult	Male	12	4		○	○	○	○	○						
542		E3	14.014	13.604	Hayaoko		Good	Middle adult	Male	13	5		○	○	○	○	○					○	
543		E7·8	15.209	14.709	Hayaoko		Contamination																
544	a	E3	13.841	13.631	Cinerary urn	Burned	Bad	Infant															
544	b	E3	13.627	13.427	Cinerary urn		Burned																
544	c	E3	13.484	13.284	Cinerary urn		Burned																
544	d	E3	13.484	13.284	Cinerary urn		Bad																
545		E3	14.140	13.790	Hayaoko	→546	Contamination																
546		E3	14.227	13.577	Kamekan	←545	Good	Middle adult	Male	12	5		○	○	○	○	○						
547		E3	14.045	13.785	Hayaoko	←260	Bad																
548		E3	13.850	13.360	Hayaoko		Good	Young adult	Male	13	5		○	○	○	○	○				○		○
549		E4	13.831	13.331	Hayaoko		Contamination																
560		E3	14.267	13.867	Hayaoko	→565	Good	Young adult	Male	13	5		○	○	○	○	○				○		○
561		E4	13.931	13.431	Hayaoko		Good	Middle adult	Male	13	5		○	○	○	○	○				○		○
562		E3	13.938	13.708	Square wooden coffin		Bad	Young adult	Male	13	5		○	○	○	○	○				○		○
563		E3	13.919	13.489	Hayaoko		Good	Old adult	Female	12	5		○	○	○	○	○				○		○
564		E3	14.276	13.936	Hayaoko		Good	Young adult	Female	12	5		○	○	○	○	○				○		○
565		E3	13.917	13.517	Hayaoko	←560	Good	Middle adult	Male	13	5		○	○	○	○	○				○		○
566		E3	13.854	13.654	Cinerary urn		Contamination																
567	内 (inside)	E3	13.295	13.065	Cinerary urn	Burned	Burned																
567	外 (outside)						Burned																
569		C4	14.287	13.777	Kamekan		Bad	Middle adult	Male												○		
571	E·F6		13.380	12.700	Kamekan		Contamination																
572	E7·8		14.730	14.100	Square wooden coffin	←573	Bad	Adult?															
							Bad	Young adult	Male		5		○	○	○	○	○					○	○

Table 2. Number of individuals with of each condition and estimated age category of the human skeletal remains

	Adolescent	Young Adult	Middle adult	Old adult	Others	Total	(%)
Good	14	46	84	24	2	170	(21.1)
Not bad	2	5	24	2	0	33	(4.1)
Bad	29	40	64	17	228	380	(47.3)
Burned						38	(4.7)
Fragments						14	(1.7)
Contamination						169	(21.0)
Total						804	(100.0)

Table 3. Summary of the age at death and Sex

	Male	(%)	Female	(%)	Total	(%)
Infant					65	(8.1)
Child					13	(1.6)
Adolescent	12	(5.4)	16	(10.7)	45	(5.6)
Young adult	45	(20.4)	46	(30.9)	91	(11.3)
Middle adult	121	(54.5)	51	(34.2)	174	(21.7)
Old adult	15	(6.8)	24	(16.1)	43	(5.4)
Child?					25	(3.1)
Adult?	29	(13.1)	12	(8.1)	125	(15.4)
Total	222	(100.0)	149	(100.0)	581	(100.0)

"Male?" and "Female?" in Table 1 were included in "Male" and "Female" respectively.

height, Orbital breadth, Orbital height, Nasal breadth, and Nasal height) and five variables of mandible (Bicondylar breadth, Bigonial breadth, Projective length of mandible, Height of mandibular ramus, and Minimum width of ramus).

"Long bone Length": "○" in these columns means that it was possible to measure the maximum lengths of all long bones. If multiple individuals were contained in one burial facility and have difficulty to be assessed the attribution of long bones, the long bones that were able to be measured at their maximum length were not assigned to "Measurable" in this inventory.

Results and Discussion

Table 1 shows the inventory of the human skeletal remains excavated from the Sugengi Ato site. This inventory clarified in this report that 500 out of the 579 burial facilities excavated contained human skeletal remains. The total number of individuals was 804, and 170 individuals have well-preserved skeletal remains, as seen in Table 2. The number of individuals who could be assigned to the eight age categories

reached to 581; of these, 371 were able to be estimated their sexes (222 males, 149 females). The availability of these data points that this skeletal collection is well-preserved and has great value for anthropological research.

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Reference

- Buikstra J. E. and Ubelaker D. H. (1994) Standards for Data Collection from Human Skeletal Remains. Research Series, no. 44. Arkansas Archaeological Survey, Fayetteville.
- Lovejoy C., Meindl R.S., Pryzbeck T.R., and Mensforth R.P. (1985) Chronological Metamorphosis of the Auricular Surface of the Ilium: A New Method for the Determination of Adult Skeletal Age at Death. *American Journal of Physical anthropology* 68:15–28.
- Nagaoka T. (2007) Demographic Structure of the Human Skeletal Remains from the Ikenohata-Shichikencho Site, Tokyo. *Bulletin of National Museum Nature and*

- Science, Tokyo, Ser. D vol. 33: 21–38.
- Sakaue K. and Adachi N. (2009) Evaluation of sexing methods using cranial traits in the Japanese population (In Japanese with English summary). *Nihon Houigaku Zasshi*, 63: 125–140.
- Taisei Engineering Co., Ltd (2005) *Kensyutusareta Ikuo to Ibutu (Detected relics and remains)* In: Taisei Engineering Co., Ltd. (ed.), *Sugenji Syoukenji Ato*, Meiji-Jingu, Tokyo, pp. 22–143. (in Japanese)
- Tanigawa A. (2002) Excavating Edo's Cemeteries: Graves as Indicators of Status and Class. *Japanese Journal of Religious Studies* 19: 271–297.