

**THE SKELETONS OF SAINT MERCURIUS**

*AZİZ MERCURIUS İSKELETLERİ*

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**ABSTRACT**

The underground city of Saint Mercurius is located in Saratlı, a town in the Gülağaç District of Aksaray Province, in the Cappadocia Region of Turkey. The residual skeletons of 27 individuals in total were discovered in 2012, during rescue excavations conducted by the field personnel of Aksaray Museum, inside the burial chamber of the church located in this underground city. Dating back to the Roman era, 70.37% (n: 19) of these skeletons were of infants and children and 29.63% (n: 8) were adults.

When the teeth and jaws of the individuals were paleopathologically examined, 9.09% dental caries, 1.52% hypoplasia and 21.21% calculus were detected in the permanent teeth. When these skeletons were evaluated in terms of dental wear, fourth grade dental wear was most commonly observed in the permanent teeth, whereas dental wear in the primary teeth was second grade. No pathological evidence was observed, except for dental wear in the primary teeth of the infants and children and abscess in the jaws. It is thought that the abscess formation was caused by advanced dental wear.

When these skeletons were evaluated in terms of other pathological formations, metabolic, infectious diseases and traumas were detected in many individuals of the society. Lesions, such as scurvy, developed due to the lack of vitamin C and iron deficiency anemia, which are symptoms of nutritional deficiency. It was observed in the examined population that infections and insufficient nourishment had more impact on the infants and children. It is also likely that some traumas identified in infants and children had congenital origins. Moreover, the joint disorders observed in adults, such as osteoarthritis and schmorl's nodes, could not just be related to intense daily activities but must also be an indicator of the individual being elderly. These people, thought to have internalized Christianity, must have had to hide in the underground city because of the Roman oppression and evidently lived under unfavorable conditions. Although the number of examined individuals in the population of Saint Mercurius is few, the identified diseases and the life style are of great importance, in terms of providing an insight to the early Christian era in Anatolia.

**Key Words:** Saint Mercurius, paleodemography, paleopathology, scurvy, trauma

**ÖZ**

Aziz Mercurius yeraltı şehri Kapadokya bölgesinde, Aksaray ilinin Gülağaç ilçesine bağlı Saratlı Beldesinde yer almaktadır. Roma Dönemi'ne tarihlendirilen bu yeraltı şehrinde bulunan kilisede yer alan mezar odasında, Aksaray Müzesi tarafından 2012 yılında yapılan kurtarma kazısı sonucunda toplam 27 bireye ait iskelet kalıntısı ele geçirilmiştir. Bu bireylerin % 70,37'si (n: 19) bebek ve çocuklardan, % 29,63'ü (n: 8) erişkinlerden oluşmaktadır.

Bireylere ait dişler ve çeneler paleopatolojik açıdan incelendiğinde, daimi dişlerde diş çürüğüne % 9,09, hypoplasiya % 1,52, diştasma % 21,21 oranında rastlanmıştır. Daimi dişlerde en fazla gözlenen aşınma derecesi 4, süt dişlerinde ise 2'dir. Bütün dişler incelendiğinde, bazı dişlerde ileri derecelerde aşınma mevcuttur. Bu da, incelenen toplumun beslenme sisteminde dişlerde aşınmaya neden olabilecek sert ve iri taneli maddelerin varlığını düşündürmektedir. Bebek ve çocuklarda süt dişlerinde ve çenelerde aşınma ve apse dışında hiçbir patolojik bulguya rastlanmamıştır. Ape oluşumu da ileri derecede aşınmadan kaynaklıdır. Bu yeraltı şehrinde tahıl ambarlarına rastlanmıştır. Bu sonuç bize, incelenen toplumun beslenme sisteminde tarıma bağlı olarak karbonhidratlı besinleri tükettiklerini göstermektedir.

Bireylere ait iskelet kalıntıları paleopatolojik açıdan incelendiğinde, toplum genelinde birçok bireyde, metabolik, enfeksiyonel hastalıklar ve travmalar saptanmıştır. Özellikle enfeksiyonlar ve beslenme yetersizlikleri bebek ve çocukları olumsuz etkilemiştir. C vitamini eksikliğine bağlı olarak gelişen iskorbüt, demir eksikliği anemisi gibi lezyonlar beslenme yetersizliklerini gösteren örneklerdendir. Bebek ve çocuklarda saptanan travmalar da muhtemelen konjenital kaynaklıdır. Erişkin bireylerde gözlenen osteoartrit, schmorl nodülü gibi eklem rahatsızlıkları ağır günlük aktivitelerle ilişkili olabilir. Hristiyanlık dinine geçen bu insanlar Roma baskısı nedeniyle bu yeraltı şehrinde saklanmak zorunda kalmışlar, muhtemelen çok zor yaşam koşullarında yaşamışlar ve birçok olanağa da ulaşamamışlardır. Çok az sayıda birey incelenebilmesine rağmen Aziz Mercurius popülasyonu paleopatolojik açıdan Anadolu tarihinin Erken Hristiyanlık döneminin yaşam biçimine ışık tutması açısından oldukça önemlidir.

**Anahtar Kelimeler:** Aziz Mercurius, paleodemografi, paleopatoloji, iskorbüt, travma

## 1. INTRODUCTION

The paleoanthropological evaluation of residual skeletons in societies that lived in ancient times provided a large amount of information, including the population structure of the relevant societies, the general health situation, oral and dental health, dietary patterns, food preparation techniques and lifestyles.

The aim of this study is to evaluate the skeletons of the individuals who lived in the underground city of Saint Mercurius in terms of paleodemography and paleopathology and reveal information regarding this society. The best indicator regarding the health situations of past societies that is infant and child mortality and a high level has been observed in the society of Saint Mercurius.

Saint, whose name was given to this underground city located in Aksaray Province, Cappadocia Region was a commander lived between 225 and 250 A.D. He was born in the Cappadocia Region, in the era of Roman Empire, and exiled to the Cappadocia Region after admitting that he was a Christian. He was executed in this region and his corpse was sent to Egypt (interview with Yusuf Altın, the Manager of Aksaray Museum, [arkeolojihaber.net/2011](http://arkeolojihaber.net/2011)). The underground city and church of Saint Mercurius, which were commonly used in the era of Saint Mercurius in the 250s CE when Christianity was forbidden, were also used as a sanctuary in this era ([www.cumhuriyet.com.tr](http://www.cumhuriyet.com.tr)). The examined individuals are thought to be the first Christians. It is therefore considered that these individuals had to live in this underground city because of oppression by the Romans. The fact that these individuals could not have most of the opportunities provided to the Roman citizens, whose religion was polytheistic, had a significant impact on their health. The paleopathological evidence identified in the individuals reveals that they lived under very unfavorable conditions. Evidence, such as osteoarthritis, which indicates nutritional deficiencies, infectious diseases, congenital traumas and intense working conditions in adults, has been regularly identified in this society.

## 2. SITE

The underground city of Saint Mercurius is located in Saratlı, a town in the Gulağaç District of Aksaray Province in the Cappadocia Region. It is located 22 km from Aksaray, 50 km from Nevşehir and is on the Silk Road. The city, which dates back to the Roman period in the 250s CE, has especially become well known, due to the rapid increase in the number of tourists since 2011, as well as renovation works and a cleanup (<http://aksarayfx.mekan360.com>).

This underground city was designed in a way that meant very populous groups could live in it for long periods and was very complex. Particular attention is drawn to garners (Fig. 1), ventilation systems, a latrine system and water wells. Food jars have also been unearthed during excavations conducted inside the underground city. There are sliding doors in a shape of circular wheels with a hole at their center, to close the transition between these places (Fig. 2). Generally, underground cities are safe places. An additional security measure is therefore not present; however, in this underground city there is a sliding door system in each corridor and in each room for added security. There were significant security measures with particular attention paid taken to the security in the transitions (The Monthly Report of the Underground City of Saint Mercurius in Saratlı, [www.haberler.com](http://www.haberler.com)).



Figure 1. Garners (The Monthly Report of the Underground City of Saint Mercurius in Saratlı).



Figure 2. Sliding doors (<http://www.haberturk.com>).

The Directorate of Aksaray Museum conducted the first excavations in this underground city in 2011 with the aim of exploration. The underground city discovered in the first excavations was observed to comprise three floors. The entry of the underground city is composed of an inn, which the people called Develik and dates

back to the Seljuk period. Located in a corner of the underground city there is a mausoleum, called Develi Dam, where people make vows. There are transit doors to the different floors from corridors and rooms in this three-floor underground city. There is a church on the third floor and the transit doors are connected to the church. This comprises three naves, in the middle of which there are two arched columns (Fig. 3). There is a burial chamber in the south lateral nave, located at the northern-west of the middle nave, in the church. It can be seen that various cross motifs are embossed on both sides of the entry of the burial chamber. The inn at the entry of the underground city has been used as a home and barn in the recent era. The church had also been used as a barn until recently. People tethered their animals and stored their fodder here (The Monthly Report of the Underground City of Saint Mercurius in Saratlı, interview with Yusuf Altın, the Manager of Aksaray Museum).

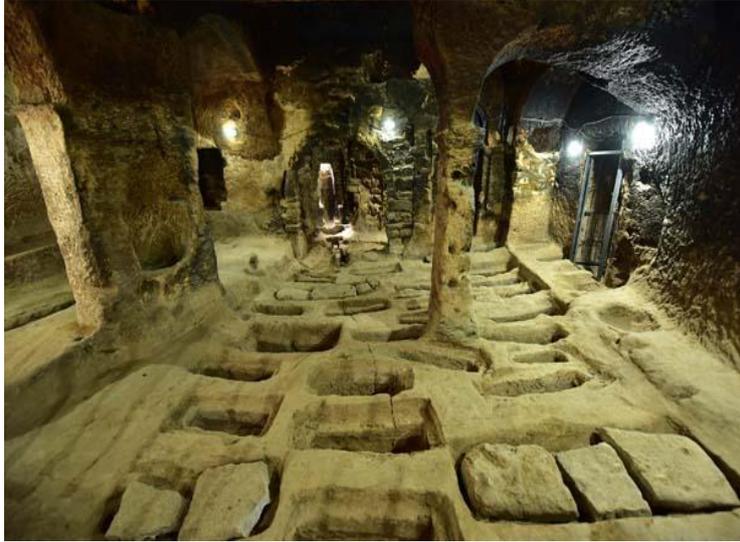


Figure 3. The burial chamber in the church of the underground city of Saint Mercurius (<https://www.haberler.com>).

A rescue excavation was conducted in 2012 by a team managed by Yusuf Altın, the Manager of Aksaray Museum, at the burial site located in the church of the underground city of Saint Mercurius. Altogether, 35 burial chambers were unearthed during these excavations and more than one individual was found in some of the burial chambers. The direction of the burial chambers is east west. Unfortunately, most of the burial chambers were found empty, as treasure hunters had destroyed them. The burial chambers are in a pit grave form, cut into the bedrock. Death gifts were not found in the burial chambers. The only item that can be considered as a death gift was a wreathed glass bracelet, unearthed in a child's burial chamber, numbered 001 (Fig. 4). Two adults, buried consecutively, were found in the burial chamber, numbered 004 (Fig. 5) (The Monthly Report of the Underground City of Saint Mercurius in Saratlı, interview with Yusuf Altın, the Manager of Aksaray Museum). The topic of this study is the skeletons unearthed in the excavations of Saint Mercurius.



Figure 4. A wreathed glass bracelet as a death gift (MN: 001) (The Monthly Report of the Underground City of Saint Mercurius in Saratlı).



Figure 5. Adults buried one after the other (MN: 004) (The Monthly Report of the Underground City of Saint Mercurius in Saratlı).

### 3. MATERIAL AND METHODS

The study material comprises 27 individuals, dating back to the Roman era, the remains of whom were unearthed from 35 burial chambers identified in the rescue excavation, conducted in 2012, inside the burial chamber located in the church of the underground city of Saint Mercurius. In addition to these individuals, two adults buried consecutively were found in the burial chamber numbered 004; however, these adults could not be included in the study, as they were left at the site for display purposes.

The skeletons were brought to the Paleoanthropology Laboratory of the Faculty of Letters, Cumhuriyet University, in order to be examined. Following the cleaning and repair of the skeletons, individual distinctions, gender and age were determined. The general morphological structures of the bones, especially skulls and gender criteria in the pelvis were taken into account when determining the sexes of the individuals; the dental aging method, developed according to the tooth eruption times of the infant's and child's teeth, fusion grades of the epiphyses in young adults, root closures of the permanent teeth, bone corrosion in the adults, losses caused by spongiosis, symphyseal corrosion and dental erosion methods in age determination, were taken into account (WEA, 1980; Ubelaker, 1978; Hillson, 1990; Brothwell, 1981; Szilvassy and Kritscher, 1990; Brooks and Suchey, 1990; Todd, 1920). The studies conducted by Ortner and Putschar (1985), Ortner et al. (1998, 1999, 2001), Brothwell (1981) and Bouville (1983), were used in the determination of the paleopathological evidence. The adults were evaluated in three age groups: young (20-35 years old), middle-aged (35-50 years old) and elderly adults (50+ years old) (Buikstra and Ubelaker, 1994).

### 4. RESULTS

#### 1. Paleodemographical Structure

It has been identified that the skeletons unearthed from the burial chamber at the church located in the underground city of Saint Mercurius belonged to a total of 27 individual. The individuals comprised 10 infants (37.04%), 9 children (33.33%), 2 females (7.41%) and 4 males (14.81%); while the sexes of two individuals (7.41%) could not be determined (Table 1). Of the examined individuals, 70.37% were infants and children, whereas 29.63% were adults. As can be seen, the majority of the society comprised infants and children. It was identified that a 52.63% of the 19 infants and children died at birth or by the time they were 2.5 years old and 47.37% of them lost their lives between three and 12 years old.

Table 1. Paleodemographical distribution of the individuals of Saint Mercurius

Sex	n	%
Infant	10	37.04
Children	9	33.33
Female	2	7.41
Male	4	14.81
Sex Unknown	2	7.41
Total	27	100

n: Number of Individuals

## 2. Paleopathological Evaluation

Pathological formations provide information about what kind of diseases a society had in the past. Thus, the skeletons of Saint Mercurius were evaluated in terms of dental and jaw health and body pathology.

### a. Dental and Jaw Pathologies

When the permanent teeth and jaws of the individuals of Saint Mercurius were paleopathologically examined, the individuals were observed to have 9.09% dental caries, 1.52% hypoplasia (medium level), 21.21% calculus (low level) in general (Table 2). Alveolar loss was observed in two adults. This lesion was at low level in the lower and upper jaw of a middle-aged female adult and was at medium level in the lower jaw of a middle-aged male adult. These pathological results could not be statistically evaluated due to the insufficient number of individuals and teeth. When the teeth of the examined skeletons were evaluated in terms of dental wear, wear was observed in 72.73% of the permanent teeth (66/48) (Fig. 6). Dental wear in permanent teeth mostly concentrates at the fourth grade, according to the dental wear scale developed by Bouville (1983).

Table 2. Dental and jaw pathologies observed in permanent teeth of the individuals of Saint Mercurius

	Female			Male			Sex Unknown			Children			TOTAL		
	E	O	%	E	O	%	E	O	%	E	O	%	E	O	%
Dental Lesions															
Dental caries	31	5	16.13	12	1	8.333	5	0	0	18	0	0	66	6	9.09
Hypoplasia	31	0	0	12	0	0	5	1	20	18	0	0	66	1	1.52
Calculus	31	6	19.35	12	8	66.67	5	0	0	18	0	0	66	14	21.21
TOTAL	31	11	35.48	12	9	75	5	1	20	18	0	0	66	21	31.8

E: Examined, O: Observed

When the primary teeth and jaws of the infants and children were paleopathologically examined, dental wear of 39% was observed in primary teeth (100/39). The dental wear grade most observed, according to the dental wear scale developed by Bouville (1983) is 2. A periapical abscess was observed in the mandible of a 10-year-old child unearthed from the burial chamber numbered 22. This was caused by the advanced level of dental wear in line with the first molar of the left primary (Fig. 7). Apart from wear and abscess, no pathological formation in the teeth and jaws of infants and children was observed.



Figure 6. Dental wear (SM'12 M22-5).



Figure 7. Periapical abscess (SM'12 MN22-3).

### b. Skull and Body Pathologies

The residual skeletons of the individuals of Saint Mercurius were paleopathologically examined, in order to understand the general health situation of the society, and various disease traces were commonly identified (Table 3). Infants and children in particular were significantly affected by these lesions. No statistical analysis could be conducted because of the small number of individuals and as a result the results are only based on individuals.

Table 3. Paleopathological lesions observed in the skulls and body bones of the individuals of Saint Mercurius.

Paleopathological lesions	Infant	Children	Female	Male	Sex Unknown	Total
Porotic hyperostosis	1	1				2
Cribrra orbitalia	2	3			1	6
Porosity (general)	5	3	1	1	1	11
Periostitis	10	4		1	2	17
Trauma	2	1		2		5
Scurvy	2					2
Rachitism	1					1
Button Osteoma				1		1
Osteoarthritis			1	2	2	5
Schmorl's node				1		1

**SM'12 MN001: Child, 8 years old.** Porotic hyperostosis on the area close to coronal suture in the right and left parietals of the skulls of this individual, porotic structure on the left lower region of the parietal and cribrra orbitalia on the roofs of orbita are observed. These lesions are thought to have developed because of iron deficiency anemia.

**SM'12 MN003: Child, 6 years old.** Porotic structures have been observed in the skull and mandible of this individual.

**SM'12 MN007: Infant, 18 months.** This individual was observed to have had an infection on the endocranial surface of the occipital and calcification problem on the first molar of the upper left permanent tooth.

**SM'12 MN11-1: Child, 5 years old** (Fig. 8). This individual has cribrra orbitalia on both roofs of orbita. Porotic structures have also been observed in the parietals of the skull, (a) temporal side of the occipital, outer alveolar area of the maxilla and palate and mandible. Porosity in the metaphyses of the long bones and periostitis (b) in the tibiae have also been observed. These lesions are thought to have developed because of iron deficiency anemia. This individual was also identified as having experienced trauma. There is a fusion of fractionated bone (c) at the vertebral end of the costae. This trauma can be associated with a blow to the back or falling on the back.



a



b



c

Figure 8. The individual numbered SM'12 MN 11-1 has porotic structure (a) in the skull, porosity in the metaphyses of long bones, periostitis (b) in tibiae, fractured fusions in costae (c).

**SM'12 MN11-2: Child, 3 years old.** Irregular concavities have been observed inside the frontal surface in the skull of this individual. There are tibiae in leg bones and periostitis in fibulae.

**SM'12 MN14-1: Infant, 6 months** (Fig. 9). A jaw dislocation has been identified on the temporomandibular area of this individual (a). This lesion has formed an extra articular surface on the mandibular condyles (b). Identification of this formation especially in infants and children is both very interesting and exciting. Temporomandibular joint disorders in individuals of Ancient Anatolia have generally been identified in adults. Identification of this lesion in an infant in the society gives rise to the thought that this formation occurred probably as a result of a congenital trauma. This individual has also been observed to have infection in temporal and active infection in the endocranial surface of the occipital. There are incurvation and porotic structures at the sternal ends of the ribs. Active periostitis in diaphyses, especially in tibiae and fibulae and porosity in both ilia has been observed.



a



b

Figure 9. The individual numbered SM'12 MN14-1 has jaw dislocation (a) in temporomandibular area and extra articular surfaces in mandibular condyles (b).

**SM'12 MN14-2: Infant, 6 months** (Fig. 10). Porotic structure in parietals in the skull of this individual and porotic structure and infection in temporals were observed (a), particularly in the mental ridge of the mandible and maxilla (b). The sternal ends of the ribs are incurved and have a porotic structure. There is intense porosity in the metaphyses of long bones. There is periostitis in the clavicolae (c). The lesions in the skull and long bones correspond to the skeletal lesions of scurvy and rickets. This infant also has recovered fractures at the distal ends of both ulnae (d) and radius stems (e). A congenital trauma is thought to have caused this. The infectious formations in this individual can be associated with post-trauma.



a



b



c



d



e

Figure 10. The individual numbered SM'12 MN14-2 has porotic structure and infection in temporal (a) and maxilla (b), periostitis in clavicularae (c), recovered fractures on distal areas in right and left ulna (d) and right and left radius.

**SM'12 MN17: Infant, 2 months.** This individual has been observed to have porotic structure in the skull bones, cribra orbitalia in the roofs of orbita and infection in the mandible.

**SM'12 MN20: Infant, 1 year old** (Fig. 11). This individual has porotic hyperostosis and cribra orbitalia (a) in the skull. This infant can also be seen to have had scurvy, due to a lack of vitamin C. These lesions were diagnosed based on the study conducted on Old Native Americans by Ortner and others (2001). There is intense porosity in the skull (b) of the individual, in the large wings of the sphenoids (c) and temporals. There are infection, porotic structure and periostitis in maxilla (d) and mandible; hematoma (e) estimated to have occurred as a result of haemorrhage in the alveolar area in the mandible; active infection (f) on the endocranial surface of occipital; porosity and active periostitis (g) on the metaphyses areas in long bones, especially in tibiae; incurvation and periostitis (h) at the sternal ends of ribs. In general, porotic structure is significantly common in the whole body skeleton (e.g., calcaneus, vertebra, ilium, ischium). These lesions indicate scurvy when all of them are evaluated together.



a



b



c



d



e



f



g



h

Figure 11. The individual numbered SM'12 MN20 has cribra orbitalia (a); porotic structure (b) in the skull; porotic structure (c) in the large wing of sphenoid; porotic structure and infection (d) in maxilla; infection, porotic structure, periostitis and hematoma (e) in the mandible; active infection (f) on the endocranial surface of occipital; porosity and active periostitis (g) on the metaphyses areas of tibiae; incurvation and periostitis (h) at the sternal ends of costae.

**SM'12 MN22-4: Male, 33-45 years old** (Fig. 12). This middle-aged male has been observed to have trauma in both parietals in the skull. A blunt trauma (a) in the left parietal and cutting trauma (b) in the right parietal was identified and a porotic structure was observed in these regions. This male individual must have developed button osteoma (c), a benign tumor in the skull. There is also a recovered fracture (d) in one rib of the individual. The individual has osteoarthritis in one lumbar, two cervical vertebrae (e), on the articular surface at the vertebral end of one costa, in the right shoulder and elbow joints (f) and in the right patella (g). A recovered periostitis has also been identified in the left femur.



a



b



c



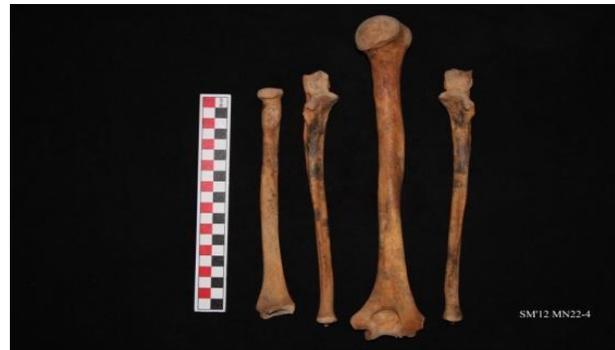
SM'12 MN 22-4

d



SM'12 MN22-4

e



SM'12 MN22-4

f



SM'12 MN22-4

g

Figure 12. The individual numbered SM'12 MN20 has blunt trauma (a) in the left parietal in the skull, cutting trauma (b) in the right parietal, button osteoma (c) in the skull, recovered fracture (d) in costae and osteoarthritis in one lumbar and two cervical vertebrae (e), right shoulder and elbow joints (f) and right patella (g).

**SM'12 MN22-5: Female, 33-45 years old.** There is a porotic structure in the skull of this middle-aged female. Osteoarthritis has been also observed in the sacroiliac joint in sacrum of the individual (Fig. 13), in the left fourth and fifth metatarsal bones of the foot bones and on the proximal surfaces in the right fifth metatarsal bone.



Figure 13. The individual numbered SM'12 MN22-5 has osteoarthritis in the sacroiliac joint.

**SM'12 MN22-6: The individual whose sex is unknown, 20-30 years old.** This young adult can be seen to have recovered periostitis in both tibiae and osteoarthritis in scaphoid bone.

**SM'12 MN23-2: Child, 4 years old.** This individual has been observed to have infection around the nose and under zygomatic bones in maxilla, active infection on the endocranial surface of occipital, cribra orbitalia in the roofs of orbita and periostitis in long bones.

**SM'12 MN27: Infant, 1 year old** (Fig. 14). This individual has been observed to have infection on the endocranial surface of occipital in the skull; porosity in ectocranial; cribra orbitalia (a) in the roofs of orbita; infection in the mandible; hematoma (b) in maxilla; porosity and periostitis in the metaphyses in long bones; porosity in scapulas; active porosity and infection in calcanei; infection at the sternal ends of the costae. Even though these lesions give rise to the notion that this individual had scurvy, which developed as a result of the lack of vitamin C, a definitive diagnosis could not be achieved, since this bone could not be examined principally because of the lack of a sphenoid bone.

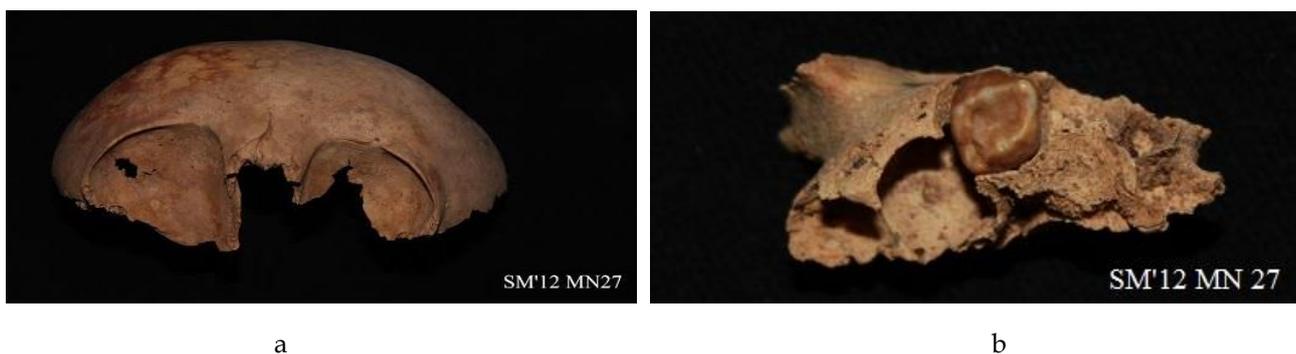


Figure 14. The individual numbered SM'12 MN27 has cribra orbitalia (a) and a hematoma (b) in the maxilla.

**SM'12 A.İ.Ç. 2: Male, 33-45 years old.** This middle-aged adult has osteoarthritis in the right elbow joint and in the trochlea of the right humerus.

**SM'12 A.İ.Ç. 3: Male, Middle-aged adult** (Fig. 15). This individual has been observed to have a recovered fracture (a) in the distal of the left ulna and a schmorl's node (b) in the vertebrae.



Figure 15. SM'12 A.İ.Ç. The individual numbered 3 has recovered fracture (a) in the distal of the left ulna and schmorl's node (b) in vertebrae.

**SM'12 A.İ.Ç. 4: The individual whose sex is unknown, Adult.** This individual has recovered fracture in the distal of the left ulna and eburnation formation (Fig. 16) occurred as a result of osteoarthritis on the distal articular surface of the left ulna.



Figure 16. SM'12 A.İ.Ç. The individual numbered 4 has eburnation formation on the distal articular surface of the left ulna.

## 5. DISCUSSION AND CONCLUSION

The skeletons unearthed from the burial site at the church of the underground city of Saint Mercurius represent 27 individuals in total. Of these individuals, 70.37% (n: 19) comprise infants and children, and 29.63% (n: 8) of them adults. Adults generally belong to the middle-aged group. Although the number of burial chambers unearthed and skeletons discovered is very few, many pathological formations have been identified. However, a statistical evaluation could not be conducted because of the insufficient number of individuals.

When the permanent teeth were examined, 72.73% dental wear (66/48) was identified. A wear grade of 4. was observed in these teeth and 39% dental wear was identified in primary teeth (100/39). The wear grade observed in these teeth the most is at the level of 2. When all teeth are examined, an advanced level of wear is present in some teeth. This gives rise to the thought of the existence of the firm and coarse-grained materials that may lead to wear in teeth in the nutritional system of the society. Any pathological evidence has not been found except for the dental wear in the primary teeth and jaws of infants and children and the abscess. The abscess formation was caused by an advanced level of dental wear.

The percentages of dental caries (9.09%) and hypoplasia (1.52%) identified in permanent teeth are low. However, the small number of adults and teeth might have been effective for the study. The percentage of the calculus formation identified in the permanent teeth is 21.21. Two of the five adults have alveolar losses. Cereal barns were found in this underground city. This result shows us that agricultural products were important in the nutritional system of the society examined and they consumed starchy food. Today, wheat, barley and chickpeas are the products mostly grown in this region ([www.gulagac.gov.tr/ekonomik-durum](http://www.gulagac.gov.tr/ekonomik-durum)). If the climate back then did not change drastically until now, it is likely to presume that these people also consumed similar food.

The residual skeletons of the individuals were paleopathologically examined in order to understand the general health situations and life styles of the individuals and metabolic, infectious diseases and traumas were found in many individuals in the whole society. Especially infections and nutritional deficiencies had an impact on infants and children. Infant and child mortality is one of the best criteria that reflect the health situation of a

society. The fact that many factors play a role together in mortality is effective in that infant and child mortality is significantly important. These parameters are discussed in four factors which are biological environment (virus, bacterium, parasite), physical environment (use of clean water, sufficient nourishment, living conditions, etc.), social environment (number of pregnancies of the mother, socio-economical structure of the society, traditional applications, etc.) and characteristics of children (including congenital anomalies, chronic diseases and gender) (Erdal and Özbek, 2010).

When the lesions are generally evaluated based on society, porotic structure and periostitis considered as the indicators of physical stress in skeletons can be said to be significantly common. The identified cribra orbitalia and porotic hyperostosis might have developed due to iron deficiency anemia that occurs during growth period. Scurvy that occurs due to the lack of vitamin C is another disease that indicates nutritional deficiency. Scurvy and rachitism identified in an infant are a good example for these two diseases occurring together and provide direct evidence for nutritional deficiency and insufficient sunlight exposure. The metabolic diseases give rise to the idea that this small population, which lived under the oppression of the Roman Empire and had to take refuge in an underground city, probably fed unidirectionally.

The traumas found in the bodies of the individuals examined, generally occurred in the skeletons. The traumas observed in the infants and children can be associated with birth. As living under limited conditions in an underground city made it impossible to benefit from the health amenities provided by the Roman Empire, the problems that occurred while giving birth might have caused these traumas. However, the recovered traumatic lesions in very young infants are similar to fracture patterns that in the literature are indicators of infant/child abuse (Byers, 2002). Even so, we do not have any other evidence or document that may prove child abuse and we consider that the traumatic lesions we identified in the infant and child bones occurred during birth.

The joint disorders we identified in the adults, such as osteoarthritis and schmorl's node, must be related to daily activities; especially from those such as the sliding doors made of stones, which must have put a great deal of stress on the arms and spine. Trauma resulting from violence was only found in one male individual. There again, the cutting and blunt traumas recovered; however, it is not possible to identify how much of the brain these blows affected. Other examples of traumas are mostly recovered fractures, caused by accidental falls.

As a result, it is recognized that the infants and children, who lived in the underground city of Saint Mercurius, were exposed to a very significant amount of environmental stress. Since these people, who internalized Christianity, had to hide in the underground city due to the Roman's oppression, they could not have had the opportunities provided to the polytheistic Roman citizens. Although the number of the individuals examined was very few, as a result of the paleopathological data they provided, in terms of providing insights to lifestyles in the Early Christian Era, the population of Saint Mercurius has been of great significance for the history of Anatolia.

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