DENTAL PATHOLOGIES IN POPULATIONS FROM A 4TH CENTURY A.D. NECROPOLIS AND A MEDIEVAL NECROPOLIS (14TH-17TH CENTURIES) FROM SĂBĂOANI, NEAMŢ DISTRICT

Robert-Daniel SIMALCSIK
Romanian Academy – Iași Branch, Department of Anthropological Research,
Str. Th. Codrescu, no. 2, Iași, Romania, antropologie.iasi@yahoo.com

Abstract. This paper concerns the paleopathological dental analysis of the skeletal series coming from two necropolises found on the territory of Săbăoani village (Neamț County, Romania). The first necropolis is chronologically ranked in the 4th century A.D., Sântana de Mureș culture. The anthropological analysis in this case was made on 57 skeletons only from inhumation graves (16 men, 19 women and 22 of indeterminate gender). The second necropolis is chronologically included in the late medieval period, the period between the middle of the 14th century and the 17th century. The anthropological analysis in this second case was made on 937 skeletons (405 men, 290 women and 242 of indeterminate gender). Dental wear appears as a physiological result (attrition), produced during the functioning of the mastication process. Among the dental pathologies, we have identified in the two necropolises the following: the dental caries (decay), intra vitam tooth loss, paradontosis, partial or total edentation, apical granuloma and dental calculus. The presence of dental pathologies is in between low and moderate for the skeleton series coming from the necropolis in the 4th century and from moderate to increase for the late medieval necropolis. The highest values are recorded by intra vitam tooth loss and by dental caries. Paradontosis is present only in the medieval series. The apical granuloma exhibits lower frequencies in both necropolises. The dental calculus records lower values compared with caries. It is deposited on the mastication as well as the frontal teeth area. All these observations suggest a preference for cariogenic nutrients (rich in carbohydrates) to the disadvantage of animal nutrients (diary products, meat), and the possible nutrient deficiencies.

Keywords: Săbăoani, 4th century A.D., 14th-17th centuries, paleopathological dental analysis

Introduction

Săbăoani village is part of Neamț County (Fig. 1) and it is considered the biggest as well as one of the oldest Moldavian villages in Romania.
The climate in this area is transitional-continental, as in the whole Central Moldavian Plateau. The altitude and the neighbourhood to Siret and Moldova Rivers include the area in the high plateau category, with average temperatures of 8-6°C and rainfall of 700-1000 mm/year (Bojoi & Ioniță, 1974). The Scandinavian climate influence is rarely felt, during the winter, depending on the circulation of the polar air masses (Amăriucăi, 2000).

The soil in the confluence terraces of Moldavia with Siret River and the high terraces of Siret are fertile and generally known as Chernozem soils. The alluvial plains and inferior terraces are covered with alluvial and soils and protosoils of south-western confluence and only on the right side of Siret River there are present bogs on small areas. The higher hills of the Central Plateau present brown luvic soils (Andone & David, 1992).

Săbăoani village is among the oldest communities of Catholics in Moldavia. There are two theories related to the oldest core of the village. The first says that it is approximately 3 kilometres away to the east from the present day position, on the edge of the upper terrace, on the side of the hill, on the way to Răchiteni nowadays, the place being called Berindești. The second theory disagrees with the first, as it states that part of Berindești later became Săbăoani, a new village (Doboș, 2002).

Material and Methods
The osteological material which was the basis for this study is represented by the human skeleton series coming from the two necropolises found on the territory of Săbăoani village (Neamț County). The first necropolis, chronologically ranked in the 4th century
A.D., Săntana de Mureș culture (Ursachi, 2010), was studied during 10 campaigns of systematic diggings coordinated by Vasile Ursachi, an archaeologist from the History Museum in Roman, Neamț County. The second necropolis from Săbăoani, chronologically included in the late medieval period, the period between the middle of the 14th century and the 17th century (Hordilă, 2000), was studied during 1986-2000. The diggings were coordinated by archaeologist Domnița Hordilă, from the History Museum in Roman (Neamț County).

In the biritual necropolis from the 4th century A.D. (Săntana de Mureș culture) from Săbăoani, there were discovered a total of 102 graves, out of which 88 inhumation and 14 incineration graves (Ursachi, 2010). The anthropological analysis was made on 57 skeletons only from inhumation graves (16 men, 19 women and 22 of indeterminate gender), complete or incomplete. In the late medieval necropolis from Săbăoani (14th-17th centuries) there were discovered 1455 inhumation graves in all (Hordilă, 2000), out of which we have received 937 for analysis, complete or incomplete.

The conservation state of the osteological material is satisfactory, generally speaking; still there are some cases of advanced fragmentation or lack of bone regions which made it quite difficult to strictly follow the analysis stages. The latter situation applies mostly to the osteological material from the necropolis from the 4th century A.D. We mention that we have excluded the skeletons from which we could not gather data on the health state of the masticatory system.

For the estimation of the age at death for those who died under 20 (infans I, infans II and juvenis) we have considered the following aspects: evolution of the temporary and permanent dentition, the stages in development of the tooth buds, degrees of intergrowth of the long bone epiphysis in their diaphyses and the epiphyseal disks of the vertebrae in their bodies. We have used the methodology proposed by Maresh (1955, 1970), Moorrees et al. (1963), Trotter & Peterson (1969), Fazekas & Kosa (1978), Ubelaker (1978), Jeanty (1983), Scheuer & Black (2000), Schaefer et al. (2009). For the subjects who overpassed the growth period, namely those who had more than 20 years (adultus, maturus and senilis), the traits which acted as instruments for the estimation of the age at death were the following: evolution of the symphyseal surface of pubis and the surface of the sacroiliac joints, the changes in the spongiosal tissue of the humerus and thigh bone, the degree of tooth wear (in the mastication surface of the teeth), some phenomena of skeletal degeneration due to aging and cranial suture obliteration. We used as guide the methodology recommended by Nemeskéri et al. (1960), Ferembach et al. (1979), Ubelaker (1978), Brothwell (1981), Buikstra & Ubelaker (1994), Mays (1998), White & Folkens (2005), Schmitt (2005).

Gender was established considering a complex of morphoscopic traits, as follows: shape and width of the pelvis, the aspect of the greater sciatic notch, the curving degree of the sacrum, the massiveness and the robustness of the skeleton, the development of the joints and muscle insertions, the development of the skull bones relief, the forehead shape and angle, the aspect of the orbital margin, the dimension and strength of the mandible, the shape and type of mandibular chin, the shape and dimension of the teeth, the dimension of the mastoid process. For this purpose we have used the methodology recommended by Iordanidis (1961), Stradalova (1975), Ubelaker (1978), Buikstra & Ubelaker (1994), Bruzek (2002), Walrate et al. (2004), Blanchard (2010).

The tooth wear was estimated under the limits proposed by Périer (1935, 1949), Smith & Knight (1984), Brothwell (1981). The dental pathologies and their severity were

Results and Discussion

The dental paleopathological study of the skeletons discovered in the two necropolises from Săbăoani, chronologically belonging to the 4th century A.D. (Săntana de Mureş culture) and to the 14th-17th centuries (late medieval period) has brought to light several interesting cases. Among the dental pathologies known until now, we have identified in the two necropolises the following: dental caries (decay), in vivo tooth loss, paradontosis, partial or total edentation, apical granuloma and dental calculus. We will present each of them in what follows.

Dental caries. The caries (decay, cavity) is a condition given by an infection, bacterial in origin, which causes demineralization and destruction of the hard tissues of the teeth. It is considered that the decayed lesions are signs of the disequilibrium between the calcium ions and the phosphates in the dental tissue and saliva, whereas the bacteria act as mediator. The main factors are precarious oral hygiene, a diet rich in carbohydrates, the lifestyle and the genetic predisposition. Even if it is considered an illness of the modern civilisation, the dental caries has been described even since antiquity, its definition being limited to a few symptoms and its causes remain unclear. The human beings have presented dental cavities from the oldest times, but with a smaller prevalence rate in comparison to the one registered nowadays. The increase in prevalence might be explained by the change in the food components experienced throughout the centuries, especially when changing food coming from hunting and picking (meat and fruit) to food rich in carbohydrates (cereals), made available once the first agricultural activities appeared. The link between the growth in caries prevalence and the high consumption of carbohydrates changes the cavities into an indicator, even if it might be less specific, of the dietary habits. As for the relationship between the dietary habits and caries, we should mention that certain nutritional deficiencies (inappropriate intake of A, C and D vitamins), lack of oligoelements or essential amino acids in the dental growth can lead to an increased vulnerability of the teeth to the cariogenic agents, seen in the decrease of dental stamina (Iovan, 2011; Cucina et al., 2011).

In the two necropolises from Săbăoani analysed in this paper, the dental decay, as we would expect, ranges between different values. The skeleton from the necropolis from the 4th century A.D. is less affected by this infectious process in comparison to the medieval series in the 14th-17th centuries. The presence of the dental caries is approximately 10% in the first case and between 30-40% in the latter.

As for the sexual dimorphism, it can be clearly seen in the skeleton series from the 4th century A.D. in which men are more affected by the cariogenic agents than women.

In case of the medieval skeleton series, the sexual dimorphism is also clearly seen, the cavity being present in the dental arcades of 295 men and 156 women. Table 1 presents the numbers and the percentages of dental caries incidence in the skeleton series from the medieval necropolis (14th-17th centuries) from Săbăoani – a sample with a representative number of people.
The higher percentages in the whole medieval population are met for the arcades with 1-2 cavities which were probably easier to be endured than any other greater number. The latter situation determined the sufferer to take out teeth (a phenomenon which is described separately in this paper, together with the paradontosis cases).

**Table 1.** Dental caries frequency in the skeleton series from the medieval necropolis (14th-17th centuries) from Săbăoani.

<table>
<thead>
<tr>
<th>Frequency of dental caries</th>
<th>Males</th>
<th></th>
<th>Females</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Without caries</td>
<td>94</td>
<td>31.86</td>
<td>55</td>
<td>35.25</td>
</tr>
<tr>
<td>1-2 caries</td>
<td>120</td>
<td>40.69</td>
<td>64</td>
<td>41.03</td>
</tr>
<tr>
<td>3-4 caries</td>
<td>40</td>
<td>13.56</td>
<td>10</td>
<td>6.41</td>
</tr>
<tr>
<td>5-6 caries</td>
<td>41</td>
<td>13.89</td>
<td>9</td>
<td>5.77</td>
</tr>
<tr>
<td>6 and more caries</td>
<td>-</td>
<td>-</td>
<td>18</td>
<td>11.54</td>
</tr>
</tbody>
</table>

Regarding the seriousness of the cavity, it varies from the first to the fifth degree (Fig. 2), when the entire dental crown is decayed and the bacterial infection reaches the pulp chamber. For this study, we have most commonly met the 2 and 3 degree cavities (Fig. 3), followed by the 1, 4 and 5 degree cavities. As for the location, we have noticed both occlusal cavities (Fig. 4) and vestibular (Fig. 3). The teeth most seriously affected by decay are molars I, followed by molars II (Fig. 4), premolars I and II, canines and incisor I and II. Should we make a comparison between the arcades, the lower one (mandibular) is much more affected by caries in comparison to the upper one.

Considering the process of decay in the temporary dentition, in the group of children named *infans I* (0-7 years old) we have noticed the presence of a pathological process in a number of 11 subjects out of a total of 98 under study, which means approximately 11% of the *infans* population (a small percentage for the medieval times). Most cavities in children are seen on the permanent molar I.

---

**Figure 2.** Male, 30-35 years old. Săbăoani, medieval necropolis. Severe tooth caries (5th degree) and *ante mortem* tooth loss.

**Figure 3.** Male, 35-40 years old. Săbăoani, medieval necropolis. Tooth vestibular caries (2-3 degree) on the II and the III mandibular left molars.
Figure 4. Female, 25-30 years old. Săbăoani, medieval necropolis. 4 degree tooth caries on the II mandibular right molar.

**Intra vitam tooth loss.** The tooth loss during the lifetime might be grouped considering the aspect of the mandibular alveoli. The alveoli of the teeth lost only a short time before death are porous, while those lost a long time before death (at least 6 months) are completely closed and resorbed. Tooth loss falls into two categories, physiological and demanded. The physiological tooth loss appears when the alveoli eliminates itself the affected tooth, as well as its root. The demanded tooth loss (extractions) appears only when the sufferer chooses to take out the painful teeth out of the alveolus (Iovan, 2011; Cucina et al., 2011). The demanded tooth loss was widely seen during the medieval times.

The first cause of *intra vitam* tooth loss is the cavity. Actually, it is unanimously admitted that the teeth which fall or are extracted from the alveolus necessarily go through a pathological process, mostly cavities and their complications. Paradontosis is another cause of dental loss, as it is an acute degenerative illness of the tissues which keep the teeth fixed in the alveoli. Paradontosis derives from untreated gingivitis and it means the gum tissue is destroyed, leading to its drawn-back aspect and the appearance of lesions (Firu, 1967).

During this study we have noticed a great number of dental losses during the lifetime, in the series come from the necropolis from the 4th century A.D., as well as from the series from the 14th-17th centuries. In the sample from the 4th century A.D., the *intra vitam* tooth loss had a frequency of approximately 25%, and for the medieval period (the 14th-17th centuries) the frequency was of approximately 40%. Related to paradontosis, this study mentions this phenomenon only for the skeleton series from Săbăoani, registering a presence of approximately 26-27% in both genders.

If we analyse the data from the point of view of the sexual dimorphism, in the skeleton series from the 4th century, the tooth loss presents a higher percentage in women than in men. As we have mentioned before, men registered a greater percentage of cavities than women. The *intra vitam* dental loss is more frequent in the mastication region, which means it mainly affected molars (Fig. 5). We have identified this pathological phenomenon in the region of the premolars as well (Fig. 6), as in the front region (of the incisors and canines). Most arcades with losses present healed alveoli, fully unswollen, which proves that the phenomenon of physiological rejection or demanded extraction of the decaying
teeth happened a long time before death.

**Figure 5.** Female, 45-50 years old. Săbăoani, the 4th century A.D. necropolis. *Ante mortem* tooth loss in the masticatory areas.

**Figure 6.** Female, 45-50 years old. Săbăoani, the 4th century A.D. necropolis. *Ante mortem* tooth loss (mandibular premolars and molars).

In the skeletal series from the medieval necropolis (14th-17th centuries) from Săbăoani, in both genders, the percentage of individuals without any teeth loss is rather low (of approximately 45%). The phenomenon grows especially if we make a comparison with other medieval synchronous necropolises. The percentage of 45% for complete arcades, namely no dental loss is a very low one, and this fact is correlated to the analysis on the decaying process. The presence of a dental loss of 40% in the medieval skeletal series under study (together with the increased frequency of cavities and paradontosis) suggests that this population lived in precarious hygiene. The dental loss during their lifetime affected mainly the mastication areas (Figs. 7-8), as regards the skeleton series from the 4th century. As a preference, mostly affected were the individuals older than 45-50.

**Figure 7.** Female, 60-65 years old. Săbăoani, medieval necropolis. Partial extended edentation of the maxillary masticatory areas.

**Figure 8.** Male, 60-65 years old. Săbăoani, medieval necropolis. *Ante mortem* tooth loss of the mandibular masticatory areas. Dental abscess of the anterior teeth.
We have included in Table 2 the frequency of the dental loss and paradontosis for the skeleton series from the medieval necropolis from Săbăoani – a sample with a representative number of individuals. It is noticed that the arcades without any tooth loss present similar percentages for both genders and the same applies for the category of the arcades with 5-6 teeth loss, even for the paradontosis condition. For the other two categories (arcades with 1-2 and 3-4 tooth loss) the sexual dimorphism is better seen, in favour of one gender or the other. Thus, arcades with 1-2 tooth loss are more frequent in women and those with 3-4 teeth loss in men.

We need to take into account the fact that part of the decayed teeth (previously analysed) fell or were extracted intra vitam and this fact changes somehow the frequency of cavities. We believe that the members of the community from Săbăoani were concerned about the oral hygiene in the sense that they extracted the painful teeth with cavities, especially if they had more than two cavities.

Table 2. Frequency of tooth loss and paradontosis for the skeleton series from the medieval necropolis from Săbăoani, 14th-17th centuries.

<table>
<thead>
<tr>
<th>Frequency of tooth loss</th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Without tooth loss</td>
<td>115</td>
<td>38.99</td>
<td>67</td>
<td>42.96</td>
</tr>
<tr>
<td>1-2 missing teeth</td>
<td>25</td>
<td>8.47</td>
<td>24</td>
<td>15.38</td>
</tr>
<tr>
<td>3-4 missing teeth</td>
<td>38</td>
<td>12.88</td>
<td>8</td>
<td>5.12</td>
</tr>
<tr>
<td>5-6 missing teeth</td>
<td>38</td>
<td>12.88</td>
<td>16</td>
<td>10.26</td>
</tr>
<tr>
<td>Paradontosis</td>
<td>79</td>
<td>26.78</td>
<td>41</td>
<td>26.28</td>
</tr>
</tbody>
</table>

Total/partial edentation. Edentation is a pathological condition characterised by the absence of one or several teeth from the arcades. Partial edentation (intra vitam tooth loss discussed in the above paragraph here included) refers to the lack of more than 3 dental units in a row, on a half-arcade. Total edentation means the lack of all teeth in the oral cavity due to their loss after the natural eruption and growth.

Total edentation might be caused by several factors. The dental decay and its complications is the main cause. The second cause, as frequent as the first one is paradontopathy which refers to the gradual withdrawing of the tissues which support the teeth, this phenomenon being followed by the spontaneous loss or tooth extraction. One of the evolutive forms responsible for the tooth loss is deep chronic marginal periodontitis. In this illness, the alveolar bone is affected and there is observed serious bone resorption and atrophy. Other conditions which could lead to total edentation are the infectious processes in bone or soft tissues, tumours or facial traumas (Firu, 1967; Slootweg, 2007).

The side effect of edentation is the bone remodelling of the facial area, meaning that the bone mass becomes resorptive and atrophic. This phenomenon leads to the fall of the lower part of the face bones as the upper jaw and the mandible decrease in height, but also due to the decrease of the bone tissue. The alveolar bone resorption means this part of the body decreases until it no longer exists, thus being useless to the body, as a consequence of no longer fulfilling the functions he had been created for. Atrophy is the decrease in size of an organ due to deficient nutrition. In case of the upper jaw, resorption and atrophy take place in a centripetal (concentric) manner whereas for the mandible the process is reversed, it is centrifugal. Once age advances, the bone atrophy becomes deeper as a consequence of slowing down the metabolic processes, especially due to the
appearance of senile osteoporosis. It has been noticed that the female gender is more vulnerable to a negative evolution for edentation, as it comes mingled to endocrine disorders and osteoporosis present at menopause (Waldron, 2009).

This study proves the presence of edentation is higher in the sample from the medieval necropolis (14th-17th centuries) in comparison to that from the 4th century A.D. Generally speaking, partial edentation, in other words the lack of three teeth in a row (Figs. 6-8) is much more frequent in comparison to total edentation (Figs. 9-10). When we consider sexual dimorphism, total edentation affects mainly the female gender, especially after the age of 50. The phenomena of resorption and atrophy of the jaw regions were highlighted only in women (Fig. 10).

**Figure 9.** Male, 55-60 years old. Săbăoani, medieval necropolis. Total maxillary edentation, without atrophy or resorption.

**Figure 10.** Female, 55-60 years old. Săbăoani, medieval necropolis. Total maxillary edentation, with atrophy and resorption of the bone tissue.

**Granuloma.** Granuloma, also called the periapical or radicular cyst or abscess, refers to an infection in the radicular apex area, which is chronic as it had not been treated. This formation has degenerative effects on the alveolar edge as well as on the dental arcades as they are formed due to a defensive reaction of the apical tissues to neutralize and isolate the toxic products (sent out by the bacterial infections) from the radicular canal. The cyst entails large cavities in the bone, having regular walls around the dental apex. Granuloma is more frequent in the upper jaw than in the mandible (Slootweg, 2007; Ștefănescu, 2007).

In the skeletal series from Săbăoani, the dental granuloma was noticed more frequently in the medieval necropolis (14th-17th centuries), registering a presence of approximately 2%. In the skeleton series from the 4th century A.D., this infectious process was noticed on the alveoli of two individuals, males.

Sexual dimorphism related to this pathological phenomenon is noticeable, as the male gender is more affected than the female. In the skeleton series from the medieval necropolis, the apical granuloma was noticed on 49 skeletons (37 males and 12 females). As for the positioning, it appears mostly in the molars (29 cases) (Figs. 11; 13), but also in the incisors (11 cases) (Fig. 12) and canines (7 cases) (Fig. 8) as well as premolars (2
cases). We mention that the 7 cases of apical granuloma on the canine belong to the male gender, without exception (Fig. 8).

**Figure 11.** Male, 45-50 years old. Săbăoani, medieval necropolis. Dental abscess of the right mandibular I molar.

**Figure 12.** Female, 50-55 years old. Săbăoani, medieval necropolis. Dental abscesses of the mandibular I and II incisors.

**Figure 13.** Female, 25-30 years old. Săbăoani, medieval necropolis. Dental abscesses of the right I and left II mandibular molars.

**Dental calculus.** Dental calculus, also called dental tartar is a concretion of mineral salts on the teeth surface, as a result of the mineralization of the bacterial plaque in an alkaline environment. Tartar actually represents the calcified (hardened) plaque due to its presence on the teeth surface. There are two types of dental calculus: above gum calculus deposits (supragingival) and below the gingival margin (subgingival). Supragingival tartar (salivary duct adjacent) is placed mainly on the inferior front teeth and it appears as yellowish deposits, at first reduced in consistency, soft, breakable and easily to be removed. In time, its consistence and adherence increase and its colour becomes darker,
influenced by food pigments or other harmful substances pigments. The subgingival tartar is brownish, it is hard and it presents high density and it is strongly built-up and it is harder to remove than the supragingival one (Aufderheide & Rodriguez-Martin, 1998).

Dental calculus is the origin of most periodontal illnesses and it is also the main cause for cavities. The mineralization degree is tightly connected to the age of the dental plaque, related to its width, chemical composition and the type of bacteria which are present. Several microscopic studies on the dental calculus from the prehistoric skeletons have shown a wide range of components, apart from bacteria: pollen grains, plant pieces, fur filaments (Aufderheide & Rodriguez-Martin, 1998). Increased prevalence of dental calculus was noticed in the medieval population involved in hunting, the included factors being the lack of oral hygiene, cooking techniques, a diet rich in animal proteins (meat and diary products) or cultural activities (Lukacs, 1989).

It is important to note down that there is a negative cause-effect link between the appearance of tartar and cavities. Tartar develops in an alkaline environment (in demineralization) whereas cavities appear in an acid environment (by demineralization), hence the two processes are simultaneously incompatible. Nevertheless, in most cases, the dental arcades exhibit both calculus and cavities. It has been proven that the tartar formed on a tooth with a cavity actually blocks its development (Aufderheide & Rodriguez-Martin, 1998).

**Figure 14.** Male, 50-55 years old. Săbăoani, medieval necropolis. Dental supragingival calculus accumulation on the mandibular frontal teeth.

**Figure 15.** Male, 35-40 years old. Săbăoani, medieval necropolis. Dental supragingival calculus accumulation on the right mandibular masticatory area.

**Figure 16.** Male, 35-40 years old. Săbăoani, medieval necropolis. Dental supragingival calculus accumulation on the mandibular frontal teeth.
In this study, tartar does not register a significant presence, the frequency being approximately 5% in the skeleton series from the 4th century A.D. and around 9% in that coming from the medieval necropolis. Sexual dimorphism is clearly expressed, by this proving that all the cases of tartar discovered in this study belong to the male gender, hence, again, we might deduce the preference expressed by men for nutrients of animal origin.

Related to the positioning, this study highlights that tartar deposits are seen especially on the surfaces of mastication (Fig. 15), but they also appear frequently in the frontal area (Figs. 14; 16). In all cases identified as having been affected by a pathological process, the dental calculus is of supragingival type (salivary duct adjacent). In some cases, the tartar layer is thin, of reduced consistency, not too tightly built-up on the teeth and it can be easily removed. Still, more frequent are the cases in which the tartar is hard, dark and strongly stuck on the crown, thus being very difficult to remove.

**Conclusions**

The paleopathological study on the dentition of the skeletons discovered in the necropolises from the region of Săbăoani village led to interesting results. Interpreted in a comparative manner, they generated important conclusions as regards the health condition of the teeth.

The two necropolises discovered on the territory of Săbăoani village belong to an important historical period, as archaeologists Vasile Ursachi and Domniţa Hordilă state. The first and oldest necropolis is included in the 4th century and it belongs to Santana de Mureş culture and it is represented in this study by 57 skeletons from inhumation graves. The second necropolis was included in the period between the 14th-17th centuries, part of the late medieval period, here represented by 937 skeletons coming from inhumation graves.

The conservation status of the osteological material is satisfactory, in general terms.

The presence of dental pathologies is in between low and moderate for the skeleton series coming from the necropolis in the 4th century and from moderate to increase for the late medieval necropolis. Considering the whole osteological sample, we have registered the following deviations from the normal structures: cavities, *intra vitam* dental loss, paradontosis, partial or total edentation, apical granuloma and dental calculus.

Dental wear appears as a physiological result (attrition), produced during the functioning of the mastication process. We have not noticed the presence of other types of wear, such as erosion or abrasion, a situation which applies to both skeletal series.

The dental decay exhibits a frequency of 10% in the necropolis from the 4th century A.D. and approximately 40% in the medieval skeleton series, in both men and women.

*Intra vitam* tooth loss most of the times appeared as a consequence of cavities and sometimes of paradontosis, registers a value of 25% in the necropolis from the 4th century A.D. and approximately 40% in that from the 14th-17th centuries.

Paradontosis is not present in the series from the 4th century A.D. while in the medieval series it presents a percentage of approximately 26-27% in both genders.

Partial or total edentation appears much more frequently in the medieval necropolis in comparison to that from the 4th century A.D.
The apical granuloma exhibits lower frequencies in both necropolises, of only 0.3% in the skeleton series from the 4th century and approximately 2% in the medieval one. Supragingival tartar presents a frequency of 5% in the series from the 4th century A.D. and 9% in the medieval series, as it is deposited on the mastication as well as the frontal teeth area.

The data regarding the prevalence of the dental pathologies in the two necropolises under study suggest valuable information on the nutrition habits of the community members. Even more, they slightly insinuate the part of the living conditions for the two historical periods. In both skeletal series coming from the two necropolises from Săbăoani, mostly the medieval one, the dental pathologies prove to have a high percentage. The preference for cariogenic nutrients (rich in carbohydrates) to the disadvantage of animal nutrients (diary products, meat), together with the possible nutrient deficiencies, such as some avitaminosis, the lack of oligoelements or scarcity in certain essential aminoacids required for the teeth growth are part of the factors which entailed increased vulnerability of the stomatognathic apparatus, seen in the decrease of dental strength.

Acknowledgements

We kindly thank the researchers who coordinated the archaeological diggings conducted on the territory of Săbăoani village (Neamţ County) – PhD Vasile Ursachi and PhD Domniţa Hordilă from the History Museum in Roman, Neamţ County. They provided us with the osteological material from the necropolises in Săbăoani in order to conduct our study.

References