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Analysis of the craniodental pathology of skulls from the 1st century BC – 3rd century from the monuments Shirakavan, Karmrakar (Armenia) and Bokany (Moldova)*

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Abstract

This study examines cranial remains from several archaeological sites in Armenia and Moldova, including Shirakavan, Karmrakar, and Bokany. The analysis documents a range of skeletal modifications and pathologies, including porotic hyperostosis associated with iron deficiency anemia, enamel hypoplasia, periodontitis, and antemortem tooth loss. Fluctuating dental asymmetry was observed, likely reflecting environmental stress during tooth development. Cranial deformation, achieved through circular bandaging, is documented in multiple individuals, producing characteristic modifications such as receding foreheads and tower-shaped vaults. Evidence of trepanation, including a case in an 8–10-year-old child, demonstrates the use of drilling techniques and subsequent healing, suggesting both medical and possibly ritual significance. Traumatic injuries caused by blunt force and decapitation are also recorded, highlighting episodes of interpersonal violence. A unique find of a severed skull with traces of ritual modification further indicates complex mortuary practices in the region. Overall, these data provide insights into the health, cultural behaviors, and ritual practices of past populations in Armenia and Moldova.

Keywords: Moldova; Armenia; antiquity; artificial cranial deformation; trepanation; paleopathology; cranioscopy; odontology

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Introduction

A current trend in modern anthropology and archaeology is the paleoecological study of ancient populations. The comprehensive study of materials recovered through archaeological excavations offers essential insights into the lifeways of past populations. Pathological conditions have played a decisive role in shaping human history, leaving observable traces on skeletal remains. Within bioarchaeological research, the concept of health is often employed to describe evidence of pathological alterations in bone. Analysis of these alterations, including the consequences of disease processes and traumatic injuries, provides important data on the prevalence of illnesses as well as on the development of medical knowledge in antiquity. Significant attention is given to the morphological condition of preserved teeth, such as wear patterns, dental occlusion (bite) (1, 2), cranial bones, and the degree of obliteration of cranial sutures (3). These factors can reveal lesser-known aspects of the daily lives and health of ancient people.

In most cases, porotic hyperostosis is associated with iron deficiency anemia. The analysis of anemia markers at the paleoanthropological level demonstrates the impact of natural factors and environmental conditions (such as changes in diet, population density, migration, and shifts in subsistence strategies, etc.) (4-6).

The prevalence of pathologies in the dentofacial system, such as dental caries, odontogenic osteomyelitis (abscess), dental calculus, periodontitis, and antemortem tooth loss, indicates specific dietary habits and food-related stress. Inflammatory processes around the apex of the root (abscess) are usually provoked by conditions such as caries, trauma, severe wear of the tooth surface, or periodontitis (7). Dental caries is the most prevalent dental disease in modern humanity, especially in economically developed countries, affecting more than 95-98% of young and middle-aged individuals. Among the various caries inducing factors, significant roles are played by medical-geographical conditions, diet, hydration, and the body's supply of minerals, trace elements, and vitamins (8, 9, 10). The prevalence of caries on occlusal surfaces exceeds 70.0%, making it the most frequent type of carious lesion compared to other locations (11, 12). In adults across different age groups, caries on the contact surfaces of molars ranks second in prevalence after occlusal surface caries (13). The frequency of caries affecting molars varies and shows specific trends and sequences. The susceptibility of fissures to caries is somewhat dependent on the odontoglyphics of the chewing surfaces of the teeth (14). Another dental pathology is characterized by antemortem tooth loss. One of the common causes of this complication is caries, particularly in cases of periodontitis. Additionally, increased stress on the dentofacial apparatus and systemic pathologies, such as endocrine disorders or early adolescent periodontitis, can also contribute to tooth loss. The causes of periodontitis can be diverse, including infectious diseases (inflammation of the periodontium), nutritional deficiencies, metabolic disorders, endocrine system dysfunction, age-related factors, vitamin imbalances, poor oral hygiene, carbohydrate-rich diets, various dental growth anomalies, and complications occurring during pregnancy (15). Periodontitis is characterized by the loss of periodontal support for teeth, which manifests as clinical loss of periodontal attachment and radiologically assessed loss of alveolar bone (16). Dental enamel defects, such as enamel hypoplasia, can also be classified as nutritional pathologies. Extensive literature addresses the clarification of the age of stressors experienced, as well as the specific causes of hypoplasia (malnutrition, certain diseases, avitaminoses, dietary imbalances, etc.) (6). Enamel hypoplasia indicates a significant stressor experienced by the individual during childhood, typically between 6 months and 7 years of age. Many researchers link hypoplasia to differences in breastfeeding traditions.

On the tradition of artificial head deformation. The human desire to alter one's appearance is manifested, in particular, in the artificial deformation of the head. This intriguing phenomenon, widely prevalent in ancient times and still maintained in some traditional cultures today (17), has attracted the keen interest of many researchers. According to some authors, such a tradition existed on all continents. The Eastern Mediterranean is presumed to be the origin of the custom of artificial head deformation. In the Neolithic period, evidence of deliberate head deformation has been found in Jericho (Israel), Gan Dareh, AH Kosh (Iran), and Khirokitia (Cyprus) (18). Deformed skulls from the late Chalcolithic period have been uncovered during excavations at Aknalich in Armenia, Velikent III in Dagestan, Tol-e Chega-Sofla, Seh Gabi in Iran, Eridu in Iraq, Byblos in Lebanon, Ain Jebrud in Jordan, Sheikh Guyuk, Hatay, Kurban Guyuk, Urfa, and Bakla Tepe in İzmir, Anatolia (19-22). Deformations from the Early Bronze Age are known in Velikent, Khayaz Guyuk, Adiyaman (Anatolia), Chiatura (Georgia), and Ginchi (Dagestan) (18, 19, 20, 22). From the Late Bronze Age, evidence has been found in Larnakent, Azatane (Armenia), Enkomi (Cyprus), in burial sites of the catacomb culture in the lower Volga and Manych, and in Gonur Depe (Turkmenistan) (23-25). During the Early Iron Age, deformations have been documented in Lakhish near Tell Duweir (Palestine), as well as at sites such as Rozhdestvensky V, Narmon, Burkovsky I, and others in the Volga-Ural region (25).

Deformed skulls have also been found in later periods in India, Central Asia, the Caucasus, the Volga region, the Kerch Peninsula in Crimea, and in many locations across Western and Eastern Europe, including modern Moldova, as well as in North and South America, the Bahamas, the Philippines, and Australia (17, 20, 26, 27). Among pre-Columbian populations in northern Chile, artificially modified skulls were discovered in 88.9% of the population (28-29). A wide prevalence of artificial head deformation was noted among the inhabitants of the Volga steppes and the eastern Alans during the late Sarmatian period (from the 2nd to the 4th centuries AD), with up to 70% of male skulls showing deformation (cited in 28).

Trepanation skulls. The study of ancient human remains allows us to reconstruct the skills of early humans. There is undeniable evidence that, in ancient times, humans were already familiar with surgical techniques for opening the cranial cavity. This is evidenced by numerous skulls collected from various regions that bear traces of artificial intervention. Trepanation is a surgical procedure involving the intentional penetration and removal of a part of the cranial vault. The primary motivation posited for trepanations was to alleviate intracranial pressure and remove bone fragments in instances of blunt force trauma (BFT) (30). However, BFT may not be the only or even the primary cause for cranial surgery. Ethno-historic data suggest that trepanations may have also been used to alleviate pain or distress caused by a number of factors including scalp infections, neurological disorders, and psychosomatic illnesses (30-32). Another phenomenon assigned to the topic “trepanations” have been cranial amulets (33-35). For obtaining “magic-ritual” amulets, trepanations were most commonly performed postmortem (36-37). The custom of symbolic trepanation, was cultivated by a great number of peoples in Eastern Europe (38). Symbolic trepanations could possibly simulate actual penetration into the cavity of the skull. The symbolics could follow from localization of damage, as in most cases; location was connected with cranial sutures or important anatomic points of a skull which have been interpreted as having ritual value.

Traumatic injuries to skulls. The diagnosis of traumatic bone injuries is considered one of the important tasks in bioarchaeology. Certain professions in the ancient world were associated with a risk of trauma. There is a direct correlation between the increase in the overall level of injuries and the emergence of specific traumas in relation to social changes within society. The type of trauma can give an idea as to the kind of injury that caused it (39); therefore, the study of traumatic injury can provide information about the economy, environment, occupation, and level of violence in a given population (40). Various explanations for the physical act of decapitation in different groups from distinct periods have been put forward (41, 42). Various researchers have outlined and refined these parameters which include: trophy-taking activities including decapitation, scalping, and removal of limbs or other body parts taken away by the attacker(s). Damage to the upper cervical vertebrae, mastoid processes, occipital regions, the posterior parts of mandibles and first ribs have been considered as good markers (43).

The present study seeks to examine and interpret newly identified paleopathological evidence in conjunction with cultural practices and medical interventions involving the skull, drawing on cranial series recovered from the necropolises of Shirakavan and Karmrakar (Armenia) and Bokany (Moldova), dated to the 1st century BC–3rd century AD. By integrating osteological analysis with evidence of cultural and medical traditions, this research highlights the interplay between health, disease, and social practices, thereby offering new insights into the ways ancient communities in the region understood and managed bodily integrity and pathology.

Material and Methods

This study is based on skeletal remains recovered from burial sites located in Armenia (Shirakavan, Karmrakar) and Moldova (the village of Bokany). Anthropological and archaeological evidence indicates that cultural and historical connections between Armenia and Moldova persisted across different periods, providing a broader context for the comparative analysis of these materials. From the Early Bronze Age onward, interactions between the

Kura-Araxes and Cucuteni–Trypillian cultures are well documented. Among the groups analyzed, two geographic samples – Djarat (Kura-Araxes culture) and Vikhvatintsi (Moldova, Cucuteni–Trypillian culture) – show the closest affinities (0.384), demonstrating strong geographic clustering. Similarly, the sample from Anatolia (Çatal höyük) and the Romanian sample from Bilche-Zlota (Cucuteni–Trypillian culture) reveal very close relationships (44). These findings make it possible to trace cultural and ethnic contacts in antiquity and highlight the important role of the Armenian Highlands as an intermediary between the distribution area of the Kura-Araxes culture and the regions to the East (44, 45). During the 1st century BC to the 3rd century AD, the Armenian Highlands and the Caucasus served as a zone of interaction among diverse ethno-cultural groups, including Iranian-speaking nomadic populations (Scythians, Sarmatians, Sauromatians, Saka) (46, XI) and the local inhabitants. Detailed anthropological analysis of skeletal material from the Armenian Highlands provides insights not only into the complex anthropological composition of the population but also into the reasons for its ethnic and biological heterogeneity. Intragroup analysis revealed two distinct subgroups within the population (47). In both, the dolichocephalic cranial type (from Ancient Greek δολιχός dolichós, “long,” and κεφαλή kephalē, “head”) is represented. Male skulls of the first group were classified as belonging to the local European type. The second group also corresponds to the European type, but with a slightly weaker horizontal facial profile. Female crania reflect a pattern analogous to that observed among the males. Notably, the carriers of this complex show similarities to Scythian groups from the Dniester region and the Black Sea steppes of Ukraine, to Sarmatians from the Volga region, and to Saka from Turkmenistan (47). Cluster analysis, based on non-metric (cranioscopic) traits, identified groups with the highest degree of similarity (48). Individuals from Armenia clustered together with representatives of the Chernyakhov culture from Ukraine (Zhuravka) and Transnistria (Budești) (48).

Returning to the materials under study, the expeditions of the Institute of Archaeology and Ethnography of the National Academy of Sciences of the Republic of Armenia investigated the settlements of Shirakavan (excavated by F. Ter-Martirosov) and Karmrakar (excavated by A. Hakobyan), dated to the 1st century BC–3rd century AD. At the Shirakavan burial ground, thirty burials were uncovered, although the majority had been disturbed or destroyed by agricultural activities. From this site, seven male and three female crania were available for analysis. At the Karmrakar burial ground, only a single skull was recovered, notable for exhibiting artificial cranial deformation.

The Bokany necropolis, dating to the 2nd–3rd centuries AD, is of particular importance for characterizing the Sarmatian culture of the region. This earthen burial ground contained twenty interments, comprising six males, eight females, and six juveniles. G. B. Fedorov initially identified the necropolis as a site displaying traits of both the Chernyakhov and Sarmatian cultures. He later classified it as belonging to the early phase of the Chernyakhov culture in the Dniester–Prut interfluve, reflecting the fusion of Sarmatian and Thracian elements (49).

Therefore, a study of bone material from this regions is of great importance for the biological reconstruction.

The skeletal series were examined using standard methods of physical anthropology, with particular attention to cranial morphology, paleopathological markers, and evidence of cultural modifications. Sex and age at the death of the individual were determined according to standard osteological methods (50, 51, 52). Several kinds of pathological conditions were scored in the sample of human remains, including trauma, stress markers, dental disease, trepanation and artificial cranial deformations. The paleopathological analysis followed the generic recommendations detailed in standard text books (4, 5, 6, 51, 53). Macroscopic observation was applied to identify pathological changes and traumatic lesions, while comparative analysis was used to distinguish between ante-, peri-, and postmortem alterations. In addition, attention was paid to traces of intentional manipula-tions, such as cranial modification or trepanation, in order to assess both medical and cultural practices. Oral health in thes tudied skeletal samples was assessed by using 5 indicators, namely antemortem tooth loss, dental abscesses, periodontal disease, dental caries and torus mandibularis. Antemortem tooth loss is characterised by remodelling of the alveolar bone that leads to the obliteration of the tooth sockets. If remodelling was evident, and the socket was partially (>2mm) or fully filled in, then a tooth was considered to have been lost antemortem. Dental abscesses lead frequently to tooth exfoliation and cause a remodelling process that usually destroys the alveolus and reduces the size of the alveolar process at the site of the tooth loss (53). Periodontal disease was assessed by measuring the amount of alveolar bone loss. Measurements were taken from the cemento-enamel junction to the surface of the alveolar bone. Only those measurements that exceeded 2mm were recorded as evidence of periodontal disease. Carious lesions were recorded based on the system devised by Buikstra and Ubelaker (51, p. 55). Destruction of enamel and irregular margins were the main criteria for identifying lesions. The asymmetry index was determined as the ratio of the number of tooth pairs exhibiting differences between antimeres in any given trait to the total number of pairs. Porotic hyperostosis was recorded according to the accepted scoring system: presence of traces of the trait, weak expression, and pronounced expression. Five types of enamel hypoplasia were documented: linear horizontal grooves, linear vertical grooves, linear horizontally arranged pits, non-linear arrangement of pits, and traces of pits.

Results

In the studied groups, porotic hyperostosis was identified in ten individuals from Shirakavan (expressed only weakly) and in two skulls from the Sarmatian burials (Figure 1). This condition appears on the parietal bones and in the area of the external auditory canal. Additional complications were observed in the form of periapical lesions along the alveolar margins of both the upper and lower jaws. Dental caries were recorded in three individuals from the Shirakavan burial ground (Figure 1). Antemortem tooth loss was documented in seven individuals from Shirakavan and in one individual from the Bokany burial site (Figure 2). Another dental pathology, periodontitis, was identified in two individuals from Shirakavan and in one from Bokany. Enamel hypoplasia was recorded in three individuals from Shirakavan. One individual from the Sarmatian burial ground exhibited a mandibular torus (Figure 2), generally considered a result of significant mechanical loading on the tooth roots. Among the individuals from Shirakavan, this trait was expressed only weakly. Fluctuating dental asymmetry was observed in four individuals in the territory of Armenia. The most frequent combinations of patterns were "+" and "X," followed by "X" and "Y." In four cases, asymmetry in the pattern was accompanied by differences in the number of cusps: on the first antimere "X" (4 cusps), and on the left antimere "Y" (5 cusps). Such asymmetry may result from adverse environmental factors (e.g., cold, high temperature) affecting the development of permanent teeth (54). Asymmetry in the occlusal morphology of the second and third mandibular molars was also recorded in material from the Scythian burial mound (No. 3).

The male skull (30–39 years) from Karmrakar exhibits a more pronounced deformation, likely produced by a circular bandage that secured small plates against the frontal bone and the occipital squama (Figure 3/1). As the bandage encircled the frontal and occipital bones, it reduced the curvature height of these regions. The frontal bone expanded at its narrowest point and became inclined, producing a "receding" forehead. The reduced curvature of the occipital squama resulted in an increased cranial vault height. It is also possible that this individual habitually held a smoking pipe with the teeth (P2 and M1, Figure 3/1). The use of pipes in past populations can often be identified by the abrasive effect of clay pipe stems, which create a characteristic "pipe notch" in the dental enamel (55). The presence of such notches indicates that the individual was a habitual pipe smoker and tobacco consumer.

In the Shirakavan necropolis, the cranial vaults of one woman (burial 9, aged 20–25 years) and six men (burial 6, 18–25 years; burial 8, 18–25 years; burial 12, 18–25 years; burial 14, 20–25 years; burial 15, 50–59 years; burial 18, 40–45 years) exhibited ring-shaped fronto-occipital deformation (Figure 3/2). The use of a circular bandage produced a broad flattening of the occipital bones, while the frontal bone developed a shallow groove measuring 1.5–2 cm in width. The bandage also modified the contour of the upper portion of the temporal lines.

Half of the individuals from Bokany exhibit cranial deformation (10 individuals; see Figures 3/3, 3/4). The examined skulls are brachycephalic, characteristic of the Sarmatian population (49). They display varying degrees of modification resulting from circular bandaging. The cranial vaults of the Sarmatian individuals present the classic "tower-shaped" form.

In the skull of an 8–10-year-old child from the Shirakavan necropolis, a trepanation hole was identified (burial 1; see Figure 4/1). The hole is located on the right lateral side of the parietal bone. The defect on the outer table is round, measuring 8 mm in diameter, and in vertical cross-section, it exhibits a funnel-shaped profile. The width of the hole at the level of the outer table is 8 mm. The diploë is fully closed, indicating that the individual survived for at least one year

following the procedure. A similar trepanation technique was observed in an individual from the settlement of Perge (Figure 4/2) (56).
The macroscopic analysis of this find allows for the following conclusions:
•The trepanation was performed using a drilling technique.
•Evidence of healing indicates that the procedure was conducted during the individual's lifetime.
•The operation may have had a ritual significance.
In the child (burial 1), porotic hyperostosis was observed in the region of the external auditory canal. This condition is most commonly associated with iron-deficiency anemia, which may develop during the chronic course of infectious or parasitic diseases. Acute purulent inflammation of the mastoid process of the temporal bone (mastoiditis) was also identified. In cases of mastoiditis, bacteria penetrate from the middle ear into the air cells of the mastoid process, where the resulting inflammation leads to the destruction of bone tissue.
Traumatic injuries caused by blunt objects were identified in three individuals from the Shirakavan necropolis. Compression (depressed) fractures are characterized by indentations in the cranial bones, where the outer compact layer is forced inward into the spongy bone. A similar injury was recorded on the right parietal bone of a woman from the Sarmatian necropolis in the village of Bokany (Figure 5). In one individual from Shirakavan, trauma to the nasal bones was observed (Figure 6). This included mechanical damage to the bony-cartilaginous plate that divides the nasal cavity, along with fractures of the nasal septum and nasal bones. The nose was significantly deformed, with displacement of the nasal bones to the left.
In burial 4, only the head of a woman was interred, exhibiting clear signs of decapitation: the mastoid processes had been cut (Figure 7). The practice of burying the skull separately from the body is a tradition that originated in the Near East. The isolation of skulls was characteristic of cultural practices among the Natufians, pre-pottery Neolithic Jericho populations, and others. Traces of clay coating were observed on the facial region of the Shirakavan individual. However, it cannot be concluded that this specific ritual of skull modification was widespread in the Shirak Plain. Small shells were found at the base of the skull and within the nasal septum. It is likely that the victim's head was severed with a sword and discarded in a river, with the burial occurring at a later time. Notably, this is the only recorded case of a skull with evidence of decapitation from Shirakavan site.

Discussion and conclusions
The practice of intentional cranial deformation was known among both the ancient populations of Moldova and Armenia. Such modifications of the cranial bones reflect prolonged pressure from objects that maintained a consistent position relative to the longitudinal and transverse axes of the skull. The sustained impact of these objects, evidenced by stable changes in bone tissue, suggests that the attached structures may have functioned as headgear, adornments, or ritual objects. In ancient Armenia, intentional cranial deformation is observed among both urban and rural populations (26). Examination of skulls revealed that ring-shaped fronto-occipital deformation is most commonly found in the Shirak region, particularly in the cemeteries of Beniamin and Vardbach (26). In the Beniamin cemetery, two subtypes of deformation were documented among seven adults and twenty-nine children: (1) a ring-shaped fronto-occipital deformation resembling a cone, and (2) a tower-like ring-shaped fronto-occipital deformation. In the first subtype, the frontal bone is tilted backward and elongated upward, the occipital bone is flattened and extended upward, and the parietal bones are convex along the sagittal suture. In the second subtype, the frontal bone is straightened and elongated upward, the occipital bone is flattened without curvature but extended upward. Both subtypes served to increase the vertical height of the skull. In the Beniamin cemetery, the conical form was observed in five male skulls (burials 3, 4, 11, 176, 218), one female skull (burial 75), and fifteen children's skulls. The tower-like form was noted in one female skull (burial 142) and fourteen children's skulls. Ring-shaped fronto-occipital (tower-like) deformation was also identified in individuals from the Vardbach cemetery (burials 4, 5/1, 9).
Similar artificially deformed skulls have been discovered in Georgia (57) during excavations near the city of Mtskheta, dated to the 1st–2nd centuries AD. Examination of paleoanthropological materials from Azerbaijan indicates that the widespread practice of artificial cranial deformation through the application of headbands in early childhood also began in the early 1st millennium AD (58).

Figure 1. Porotic hyperostosis: 1 Bocany, 2 Shirakavan (burial 18).

Figure 2. Dental pathology: 1. they had antemortem tooth loss (P2), torus mandibularis (score 2), 2. dental caries (M1).

Figure 3. Artificially deformed skulls from the burials of Kamrakar (1), Shirakavan (2), Sarmatian from the burials of Moldova (3, 4).

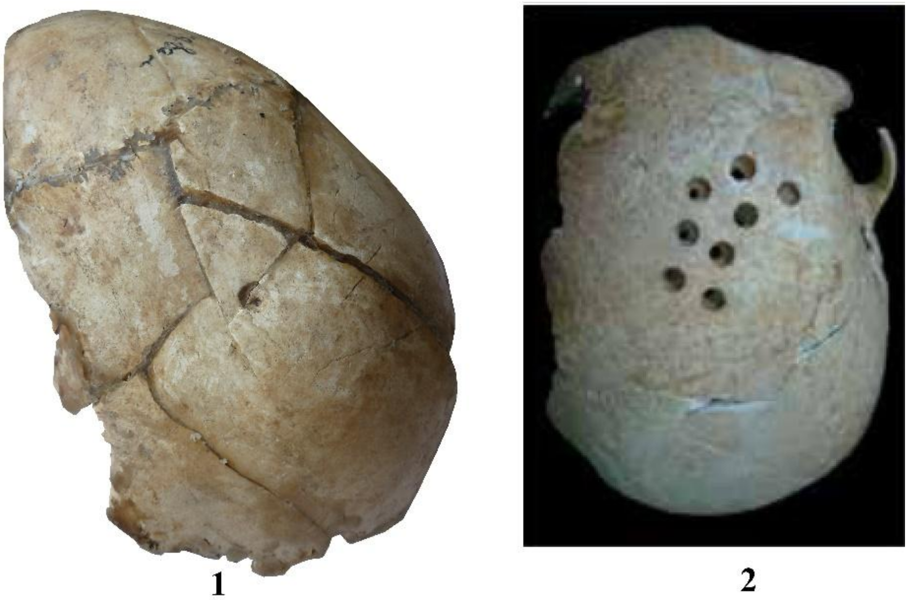

Figure 4. Trepanation by drilling method: 1. a child's skull from the Shirakavan burial ground (burial 1), 2. an adult male of the Roman period from Perge (photo by Y.S. Erdal).

Figure 5. Impressed fracture on the right parietal bone (burial site of Bokany village).

Figure 6. Trauma of the nasal bones (Shirakavan, burial 15).

Figure 7. Decapitation (Shirakavan, burial 4).

In the scientific literature, several explanations have been proposed for intentional cranial deformation: unintentional pressure from household objects (such as cradles that flatten the occipital bone or headbands tied with transverse straps to secure a load on the back); as a marker of social stratification; correction of "improper" skull shape to achieve an aesthetically desirable form; as a sacred mnemonic sign; potential alteration of an individual's psychotype; slowing the rapid growth of brain tissue; accelerating the closure of fontanelles; or as a result of massage (to relieve headaches) and the use of headgear (26–28, 59, 60).

The practice of trepanation was widespread among various ancient populations of both the Old and New Worlds (30–37). Scientific attention to trepanation in paleoanthropological materials increased following the publications of French scientist P. Broca between 1865 and 1877, who was the first to categorize skull modifications as either "perimortem" (which he termed "surgical") or post-mortem (61). In Armenia, trepanations have been documented in four individuals from the Ancient period. In the Late Ancient period, a case of trepanation performed using a drilling technique was identified in the Shirak Plain at the Black Fortress I cemetery (grave 5) (32); the trepanation opening showed no signs of healing. In two individuals from jug burial contexts of the Artaxiad period at the settlement of Avan, trepanations were observed in rectangular and circular shapes, and in these cases, the openings exhibited signs of healing (32).

The inclusion of trauma-related diseases in this analysis aligns with the principles of geographic pathology and is justified by the objectives of this study: ecologically determined patterns in the geographic distribution of diseases may also apply to trauma. Cranial injuries caused by blunt objects were identified among individuals from Armenia and Moldova, primarily affecting the cranial vault. The characteristics of these injuries suggest military conflicts in antiquity, indicating that both male and female populations were involved in such events.

Anthropological examination revealed that the inhabitants of these regions during the 1st century BC to the 3rd century AD were primarily affected by dental diseases, including caries, abscesses, and periodontal disease. Dental abscesses play a significant role in infectious processes, as they facilitate the development of bacteria capable of causing systemic infections, not only in the alveolar bone but throughout the body. The prevalence of enamel hypoplasia may result from multiple factors, including increased exposure to pathogens or poor nutrition (6, 13). The combination of nutritional deficiencies and infectious disease exposure likely led to periodic growth arrest, manifesting as enamel hypoplasia. The observed dental pathologies in skulls from the 1st century BC to the 3rd century AD in Armenia and Moldova indicate specific dietary stress within these populations. The presence of periodontal disease, dental calculus, cavities, and antemortem tooth loss suggests a diet dominated by sticky, coarse foods high in carbohydrates.

Overall, the data demonstrate various pathological changes among populations in Armenia and Moldova. While the medical histories of individual subjects cannot provide a complete picture of population health in antiquity, they offer valuable insights into the lived experiences and internal conditions of these communities.

Declaration of Interest
None

Author Contributions
The study was designed and conceived by AnahitYu. Khudaverdyan. Dental pathologies of materials from Moldova were recorded by A. I. Postolachi. The manuscript was written by Anahit Yu. Khudaverdyan. Photos of materials from Moldova were provided by A. I. Postolachi.

Statement on the use of artificial intelligence in manuscript preparation
Artificial intelligence was not used in the preparation of this manuscript.

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