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Iz sakristije crkve Uznesenja Blažene Djevice Marije u Gori analizirano je 50 kostura koji se datiraju od samoga početka XI. pa sve do kraja XVI. ili početka XVII. stoljeća te su kronološki podijeljeni u četiri faze ukopavanja. U svim je fazama kod žena uočena visoka prosječna doživljena starost te je, osim u prvoj fazi, primjetna njihova podzastupljenost u odnosu na muškarce. Najveći mortalitet djece zabilježen je između 2. i 8. godine života kada je fiziološki stres najveći. Pokazatelji subadultnog stresa zabilježeni su u svim fazama te ukazuju na loše životne uvjete i neadekvatnu prehranu. Na to upućuju i slučajevi skorbuta zabilježeni i u prvoj i u drugoj fazi te pojava zaraznih bolesti u prvoj (lepre) i četvrtoj fazi (tuberkuloze). S druge strane, u gorskom je uzorku zabilježena niska učestalost trauma, a većina prisutnih odnosi se na slučajne ozljede. Ipak, o prisutnosti namjernoga nasilja govori perimortalna trauma kod djeteta iz prve faze te antemortalna trauma na nosnim kostima žene iz četvrte faze. Na relativno malome uzorku iz sakristije zabilježen je iznenađujuće velik broj patoloških promjena, visoka učestalost indikatora subadultnog stresa i prisutnost namjernoga nasilja, što ukazuje na nepovoljne životne uvjete na ovome prostoru u svim razmatranim fazama.

KLJUČNE RIJEČI: Crkva Uznesenja Blažene Djevice Marije, sakristija, groblje, faze ukopavanja, bioarheološka analiza, skorbut, zarazne bolesti, traume

The analysis comprised of 50 skeletons from the sacristy of the Church of the Assumption of the Blessed Virgin Mary in Gora, buried from the beginning of the 11th century until the end of the 16th or the beginning of the 17th century and chronologically divided into four burial phases. In all phases, a high average age at death was observed in females, who are noticeably underrepresented in all the phases except the first. The highest mortality of subadults was recorded between 2 and 8 years of age, when physiological stress is greatest. Indicators of subadult stress have been recorded in all phases, suggesting poor living conditions and inadequate diet. This is further indicated by the cases of scurvy in the first and second phases as well as infectious diseases in the first (leprosy) and fourth (tuberculosis) phases. On the other hand, the Gora sample generally had a low frequency of traumas, most of them related to accidental injuries. However, the presence of intentional violence is indicated by a perimortem trauma in a subadult from the first phase and an antemortem trauma on the nasal bones of a female from the fourth phase. The relatively small sample had a surprisingly large number of pathological changes, a high frequency of subadult stress indicators, and the presence of intentional violence; indicating unfavourable living conditions in this area in all the considered phases.

KEY WORDS: Church of the Assumption of the Blessed Virgin Mary, sacristy, cemetery, burial phases, bioarchaeological analysis, scurvy, infectious diseases, trauma

UVOD

Crkva Uznesenja Blažene Djevice Marije[1] u selu Gora na Banovini razrušena je tijekom Domovinskoga rata te su njezinu obnovu, od 2008. do 2011. godine, pratila arheološka istraživanja. Nakon što je za potrebe drenaže uokolo temelja crkve istraženo usko područje širine 1 m, arheološka istraživanja usmjerena su na prostor sakristije dimenzija oko 6,3 x 5,1 m.[2] Istraživanja sakristije otvorila su mogućnost detaljne analize prikupljenih arheoloških podataka s prostorno zaokružene cjeline i time preciznije definiranje različitih faza korištenja crkvenoga groblja i raspona njihovoga trajanja (Belaj et al. 2021).[3] Utoliko je i studija navedena u naslovu izvedena na ljudskome osteološkom materijalu pronađenome tijekom istraživanja tog prostora, što je omogućilo razmatranje prikupljenih podataka u odnosu na utvrđene faze ukopavanja.

Na području sakristije, sagrađene na samome početku XVIII. stoljeća u sklopu barokne obnove crkve, ljudski osteološki ostaci *in situ* utvrđeni su u 49 grobova. Još četiri istražena groba većim su dijelom presječena mlađim ukopima te su sadržavala samo kosturnice, odnosno izmiješane kosti iz starijih, presječenih grobova, sekundarno deponirane uz rubove grobnih ukopa. S druge strane, u jednome od grobova utvrđeni su ostaci dva pokojnika te će u ovome radu biti predstavljeni rezultati bioarheološke analize ostataka iz grobova 50 pokojnika utvrđenih *in situ* (tab. 1). Kako je riječ o pokojnicima koji se na ovome prostoru ukopavaju od samoga početka XI. pa sve do kraja XVI. ili početka XVII. stoljeća,[4] odnosno uz romaničku i zatim ranogotičku crkvu, dobiveni podaci razmatraju se u okviru četiri faze ukopavanja i njihovih specifičnih obilježja. Stoga je cilj ovoga rada, na osnovi rezultata provedenih analiza, izdvojiti indikatore promjena u kvaliteti životnih uvjeta na ovome prostoru tijekom više stoljeća života čiji je odraz bilo moguće arheološki pratiti kroz utvrđene faze ukopavanja pokojnika.

1 Ovaj je rad financirala Hrvatska zaklada za znanost projektom „milOrd – Razvoj i naslijeđe viteških redova u Hrvatskoj" (HRZZ, IP-2019-04-5513).
2 Sakristija crkve Uznesenja Blažene Djevice Marije u Gori arheološki je istraživana tijekom 2010. i 2011. godine kao nastavak arheoloških istraživanja Instituta za arheologiju iz Zagreba pokrenutih 2008. godine pod vodstvom J. Belaja.
3 Pojedine faze ukopavanja grobova definirane su u radu naslovljenom „Crkva Uznesenja Blažene Djevice Marije u Gori kraj Petrinje i faze ukopavanja grobova na prostoru sakristije" objavljenome u prošlom broju časopisa *Prilozi Instituta za arheologiju u Zagrebu* (Belaj et al. 2021). Ovaj se rad direktno naslanja na tamo iznesene podatke.
4 Na širem prostoru oko crkve ukopavanje će trajati sve do XVIII. stoljeća te je istraživanjem definirana i najmlađa, 5. faza ukopavanja koja na području sakristije nije utvrđena.

INTRODUCTION

The Church of the Assumption of the Blessed Virgin Mary[1] in the village of Gora in the Banovina region was destroyed during the Croatian War of Independence; from 2008 to 2011, its restoration was accompanied by archaeological excavation. After a 1-meter-wide area was excavated around the foundations of the church for the purpose of drainage, archaeological excavations focused on the sacristy area measuring about 6.3 x 5.1 m.[2] The excavation of the sacristy opened the possibility of a thorough analysis of the archaeological data collected from an enclosed area where it was possible to determine different phases in the use of the church graveyard and their duration (Belaj et al. 2021).[3] For this reason, the titular study examined the human osteological material found during the excavation of the sacristy, so it was possible to consider the collected data with regard to the established burial phases.

In the area of the sacristy, built at the beginning of the 18th century as part of the Baroque restoration of the church, human osteological remains *in situ* were discovered in 49 graves.

Four other graves, cut by later graves, included only the reburied remains, i.e. scattered bones from earlier truncated graves which were deposited along the edges of later graves. On the other hand, the remains of two skeletons were found in one of the graves, so this paper will present the results of the bioarchaeological analysis of the remains of 50 skeletons discovered *in situ* (Tab. 1). Since the skeletons were buried in this area from the beginning of the 11th until the end of the 16th or the beginning of the 17th century,[4] i.e. at the Romanesque and then the early Gothic church, the obtained data are considered within the four burial phases and their specific features. Therefore, on the basis of the results of the analysis, this paper aims to identify indicators of changes in the quality of living conditions in this area over several centuries of habitation, the reflection of which could be traced archaeologically through the identified phases of burial.

1 This work has been supported by the Croatian Science Foundation under the project "milOrd - Development and Heritage of the Military Orders in Croatia" (HRZZ, IP-2019-04-5513).
2 The sacristy of the Church of the Assumption of the Blessed Virgin Mary in Gora was excavated during 2010 and 2011. It was the continuation of the archaeological excavation conducted by the Institute of Archaeology in Zagreb in 2008 and led by J. Belaj.
3 The burial phases were defined in the paper titled "The Church of the Assumption of the Blessed Virgin Mary in Gora near Petrinja and the phases of the burials in the area of the sacristy," published in the last issue of the journal *Prilozi Instituta za arheologiju u Zagrebu* (Belaj et al. 2021). This paper relies directly on the data presented there.
4 The latest, fifth burial phase that lasted up until the end of the 18th century was ascertained in the wider area around the church, but it was not found in the sacristy area.

Oznaka groba / Grave ID	Faza / Phase	Spol / Sex	Starosna kategorija / Age category	Starost / Age	Periostitis	CO	HZC / LEH	Trauma	Skorbut / Scurvy	Lepra / Leprosy	TBC
409	1	MP	AY	20–35	-						
413	1	FP	AY	25–35			-				
416	1	S	D	12–15							
417	1	F	AO	45–60	-	-	-	1 AM		P	
418	1	MP	AM	35–50							
420	1	M	AY	25–35	+ (H)		-				
421	1	F	AO	45–60	-						
423	1	S	C	4–6	+ (A)	+ (A)		1 PM	P		
424	1	S	I	0–1	+ (A)	+ (H)					
399	2	S	C	4–5	+ (H)	+ (A)			P		
401	2	M	AY	25–40	+ (H)		-	1 AM			
403	2	F	AO	55–65	+ (H)	-		2 AM			
406	2	M	AY	20–35	+ (A)						
408	2	F	AY	25–35	-	-	+				
410	2	FP	AO	55–65	+ (H)						
412	2	M	AY	18–30	-	-	+				
414	2	M	AO	50–60	+ (A)						
414	2	MP	AO	45–60	-						
415	2	MP	AY	18–20	-	-	+				
419	2	MP	AY	20–35	+ (H)						
422	2	S	F	FETUS	+ (A)						
377	3	M	AM	30–45	+ (H)						
388	3	F	AO	45–60	-			1AM			
390	3	M	AY	20–35	+ (H)						
391	3	S	C	4–6	-	-					
393	3	M	AY	18–20		+ (A)	+				
395	3	S	C	4–6	-						
396	3	F	AM	40–50	-	+ (A)	+				
404	3	S	D	12–15	-	+ (A)	+				
407	3	M	AY	25–40		-					
411	3	U	D	12–20							
373	4	S	D	15–17	+ (A)	-	+				
374	4	F	AO	50–60	+ (H)	-	-	4 AM			
375	4	S	C	1–2	-	+ (A)					
376	4	M	AY	25–35	+ (A)	-	+				
378	4	S	C	4–6		+ (A)					
379	4	M	AM	40–50	+ (A)	-	+	1 PPM			
380	4	S	C	2–3							
381	4	M	AM	30–45	+ (A)	-	+	2 AM			
382	4	M	AO	50–60	+ (A)	+ (A)	-	2 AM			
383	4	FP	AM	30–45		+ (H)					
384	4	S	D	11–12	-	+ (A)	-				P
385	4	S	C	5–8	-						
386	4	M	AY	25–35	-	+ (A)	+	1 AM			
387	4	F	AO	45–55	+ (H)	-	+	2 AM, 1PPM			
389	4	S	D	12–15	-						
392	4	S	F	FETUS	-	-					
394	4	S	I	0–2	-						
397	4	S	I	0–1	+ (A)	-					
402	4	S	I	0–2							

Tab. 1 — Spol, starost i prisutne patologije analiziranih kostura prema oznaci groba i fazi ukopavanja. Korištene kratice: S – dijete; F – žena; M – muškarac; FP – vjerojatno žena; MP – vjerojatno muškarac; F – fetus (0 g.); I – dojenče (0–1 g.); C – dijete (2–11 g.); D – adolescent (12–18 g.); AY – mlađa odrasla osoba (19–35 g.); AM – srednje odrasla osoba (35–50 g.); AO – starija odrasla osoba (50+ g.); + – prisutna kost i patološka promjena; - – prisutna kost bez patološke promjene; A – aktivno; H – zaraslo; AM – antemortalno; PM – perimortalno; PPM – moguće perimortalno; P – prisutna metabolička i/ili zarazna bolest (izradila: Ž. Bedić)

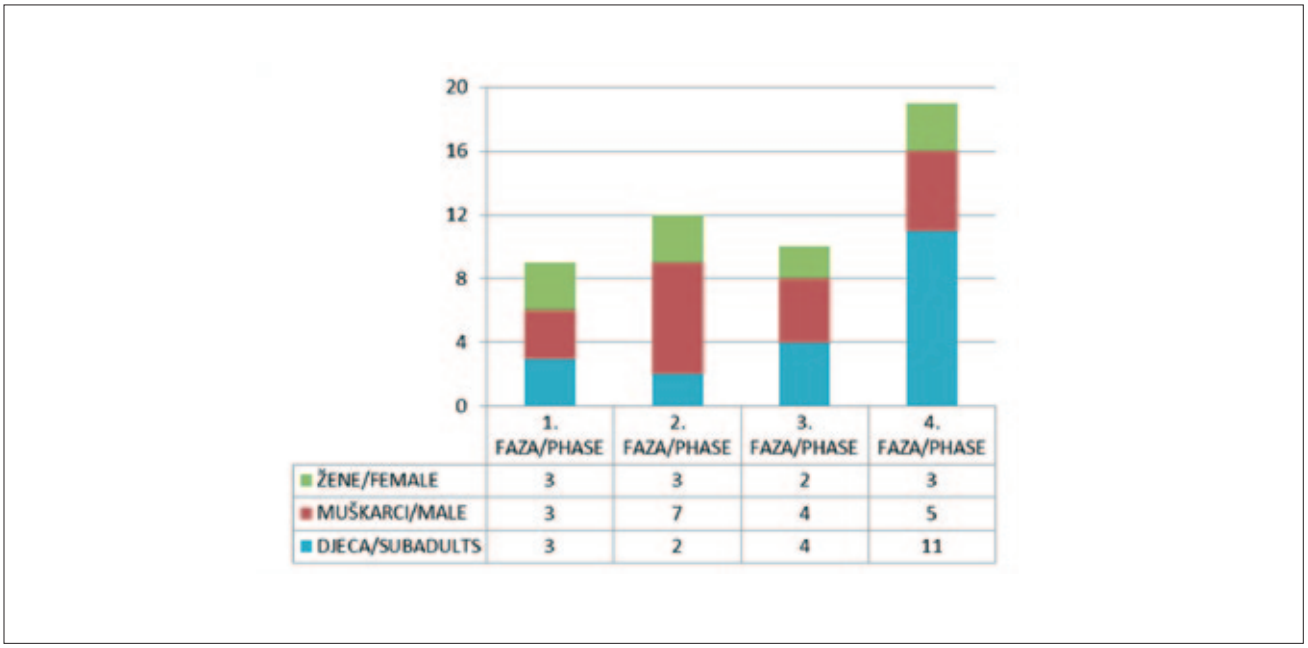
Tab. 1 — Sex, age and present pathologies of the analysed individuals by grave ID and phase of burial. Used abbreviations: S – Subadult; F – Female; M – Male; FP – Probable female; MP – Probable male; F – Fetal (0 y); I – Infant (0–1 y); C – Child (2–11 y); D – Adolescent (12–18 y); AY – Young Adult (19–35 y); AM – Middle Adult (35–50 y); AO – Old Adult (50+ y); + – present bone with pathology; - – present bone without pathology; A – active; H – healed; AM – antemortem; PM – perimortem; PPM – possible perimortem; P – present metabolic and/or infectious disease (made by: Ž. Bedić)

METODOLOŠKI OKVIR BIOARHEOLOŠKE ANALIZE

Tijekom analize ljudskih osteoloških ostataka spol i starost kostura određeni su pomoću standardnih antropoloških kriterija. Spol je određen samo za osobe iznad 18 godina starosti (sl. 1), a definiran je na osnovi morfologije zdjelice (Bruzek 2002) i lubanje (Krogman, Işcan 1986) te na osnovi dimenzija bedrene (Šlaus 1997) i goljenične kosti (Šlaus, Tomičić 2005) kao diskriminantnih funkcija za određivanje spola odraslih osoba. Starost u trenutku smrti određena je pomoću većega broja metoda uključujući stupanj obliteracije ektokranijalnih šavova (Meindl, Lovejoy 1985), morfologije pubične simfize zdjelične kosti (Gilbert, McKern 1973; Brooks, Suchey 1990), morfologije aurikularne plohe zdjelične kosti (Lovejoy et al. 1985), morfologije sternalnih krajeva rebara (Işcan et al. 1984; 1985) te stupnja istrošenosti zubnih

METHODOLOGICAL FRAMEWORK OF BIOARCHAEOLOGICAL ANALYSIS

During the analysis of the human osteological remains, the sex and age of the skeletons were determined using standard anthropological criteria. Sex (Fig. 1) was estimated only for individuals over 18 years of age and derived from the morphology of the pelvis (Bruzek 2002) and skull (Krogman, Işcan 1986), and from the dimensions of the femur (Šlaus 1997) and tibia (Šlaus, Tomičić 2005), i.e. the discriminant functions for determining the sex of adults. Age at death was estimated by several methods including the degree of obliteration of ectocranial sutures (Meindl, Lovejoy 1985), the morphology of the pubic symphysis of the pelvis (Gilbert, McKern 1973; Brooks, Suchey 1990), the morphology of the auricular surface of the pelvis (Lovejoy et al. 1985), the sternal rib end morphology (Işcan et al. 1984; 1985), and the degree of



	1. FAZA/PHASE	2. FAZA/PHASE	3. FAZA/PHASE	4. FAZA/PHASE
ŽENE/FEMALE	3	3	2	3
MUŠKARCI/MALE	3	7	4	5
DJECA/SUBADULTS	3	2	4	11

Sl. 1 — Spolna distribucija pokojnika sahranjenih na prostoru sakristije prema fazama ukopavanja (izradila: Ž. Bedić)
Fig. 1 — Sex distribution of the individuals buried in the sacristy area by burial phases (made by: Ž. Bedić)

ploha kod odraslih osoba (Smith 1984). Odrasle osobe podijeljene su u tri starosne kategorije: 18 do 35 godina, 35 do 50 godina te više od 50 godina, a pojedinačnim kosturima, kad je to bilo moguće, pobliže je određena starosna dob. Starost na dječjim kosturima određena je na osnovi stupnja spajanja epifiza s dijafizama, duljine i širine dijafiza dugih kostiju i stupnja razvoja i

tooth wear in adults (Smith 1984). Adults were divided into three age categories: 18 to 35 years, 35 to 50 years, and over 50 years; certain skeletons, when possible, were provided with a more specific age. The age of subadults was estimated based on the degree of fusion between the epiphysis and the diaphyses, the length and width of the long bone diaphyses, and the degree of de-

nicanja mliječnih i stalnih zuba (Moorees et al. 1963; Scheuer, Black 2000). Djeca su podijeljena u četiri starosne kategorije: fetusi, dojenčad od 0 do 1 godine, djeca od 2 do 11 godina i adolescenti od 12 do 18 godina. Unutar zadnje dvije kategorije, kad je to ovisno o očuvanosti bilo moguće, pobliže im je određena starosna dob.

Od patoloških promjena promatrane su traume,[5] indikatori subadultnog stresa: nespecifični periostitis,[6] *cribra orbitalia* (CO)[7] i linearna hipoplazija zubne cakline (HZC)[8] te metaboličke[9] i zarazne bolesti (tab. 2).[10] Veći-

5 Prisutnost trauma utvrđena je makroskopskim pregledom uz bilježenje lokacije, oblika, dimenzija i mogućih komplikacija (Lovell 1997; Wakely 1997; Facchini et al. 2007; Wheatly 2008). Prisutnost kranijalnih trauma zabilježena je na lubanjama sačuvanim iznad 50 %. Isti postotak očuvanosti bio je preduvjet za bilježenje prisutnosti trauma na dugim kostima te je postupak obuhvatio ključne, nadlaktične, palčane, lakatne, bedrene, goljenične i lisne kosti. Ostale traume poput onih na kralješcima, rebrima i kostima stopala samo su pobrojane i opisane.

6 Nespecifični periostitis upalna je reakcija periosteuma čija je etiologija multifaktorijalna (Weston 2012). Neki od uzroka su specifične zarazne bolesti poput tuberkuloze, treponematoze i lepre (Larsen 1997; Ortner 2003) te traume (Steinbock 1976; Ortner 2003), a vjeruje se da imaju i sinergijski odnos s metaboličkim bolestima i nedostacima u prehrani (Ortner, Putschar 1985; Ortner et al. 2001). U aktivnom obliku periostitis je najčešće sive ili smeđe boje, porozan, s dobro definiranim i blago povišenim rubovima, dok se u zaraslom obliku nova, slabo organizirana kost remodelira u lamelarnu kost i spaja s kortikalnom kosti te ima valovit, pomalo napuhan izgled (Šlaus 2006).

7 *Cribra orbitalia* (CO) patološka je promjena u obliku porozne i šupljikave kosti na svodovima orbita koja može biti u aktivnom i zaraslom obliku (Mensforth et al. 1978). Svi kosturi kod kojih je uščuvana barem jedna orbita ušle su u studiju. Smatra se da CO nastaje uslijed nekoliko faktora: neodgovarajuće prehrane, gastrointestinalnih parazitskih infekcija ili nehigijenskih uvjeta života (Hengen 1971; Wolter 1979; Griffeth et al. 1997). Iako je CO često uzrokovana megaloblastičnom (povezanost s nedostatkom vitamina B12) i hemolitičkom anemijom, paleopatološke studije ukazuju da lezije koje nastaju uslijed subperiostalnog krvarenja, imaju nešto kompliciraniju etiologiju. Ti su patološki procesi često povezani sa skorbutom, rahitisom, hemangiomima, traumatskim ozljedama koji stvaraju subperiostalne hematome i naposljetku vode do lezija u svodovima orbita (Wolter 1979; Griffeth et al. 1997; Walker et al. 2009; Rothschild et al. 2021). Također, jedna je studija pokazala povezanost nastanka CO i kroničnih respiratornih infekcija, u nekim slučajevima i akutne upale pluća i respiratornih oboljenja (O'Donnell et al. 2020).

8 Linearna hipoplazija zubne cakline (HZC) poremećaj je u stvaranju zubne cakline koji se prepoznaje kao jedna ili više plitkih horizontalnih linija na površini krune zuba (Sarnat, Schour 1941; Pindborg 1970). HZC je subadultni poremećaj uzrokovan akutnim stresom povezanim s izgladnjivanjem, metaboličkim poremećajima, fizičkim i psihološkim traumama. HZC se najčešće pojavljuje na prednjim zubima, odnosno sjekutićima i očnjacima (Kreshover 1960; Lysell et al. 1962; Goodman et al. 1980; Goodman, Armelagos 1985; Goodman, Rose 1990), pa su zbog toga u analiziranom uzorku podaci o učestalosti te patologije prikupljeni za središnje sjekutiće gornje čeljusti te za očnjake gornje i donje čeljusti s lijeve strane. Ukoliko taj zub nije bio prisutan, pregledan je desni zub.

9 Od metaboličkih bolesti u uzorku iz Gore pojavljuje se jedino skorbut. Skorbut nastaje kao posljedica nedovoljnog unosa vitamina C (askorbinske kiseline), koji ljudi ne mogu sintetizirati niti pohranjivati, već ga trebaju unositi prehranom. Taj je vitamin važan za stvaranje kolagena koji je neizostavan u stvaranju i normalnom funkcioniranju kože, hrskavice i kostiju te ukoliko ga nema dovoljno, nastaje skorbut (Šlaus 2006: 165; Waldron 2009: 130–131). Radi ubrzanoga rasta, dojenčad i mlađa djeca su više od adolescenata skloniji stvaranju neispravnih krvnih žila, a time i skorbuta (Ortner et al. 2001: 349–350; Brickley, Ives 2008).

10 Od zaraznih se bolesti u uzorku iz Gore pojavljuju lepra i tuberkuloza. Lepra je kronična zarazna bolest koju uzrokuje bakterija *Mycobacterium leprae* te pokazuje različitu kliničku sliku ovisno o imunološkome odgovoru domaćina. Može biti riječ o relativno blagom (tubekuloidnom) obliku, jednom ili nekoliko umjerenih stupnjeva do vrlo jakoga (lepromatoznog) stadija (Ortner, Putschar 1985; Renault, Ernst 2015). Bolest obično zahvaća kožu, sluznicu, meka tkiva i živce, dok je kostur zahvaćen kod 3 do 5 % pacijenata (Resnick, Niwayama 1995). Najzahvaćeniji koštani

velopment and eruption of deciduous and permanent teeth (Moorees et al. 1963; Scheuer, Black 2000). Subadults were divided into four age categories: fetuses, infants 0 to 1 year, children 2 to 11 years, and adolescents 12 to 18 years. Within the last two categories, depending on the preservation, their age was estimated more precisely when possible.

The observed pathological changes include trauma,[5] indicators of subadult stress: nonspecific periostitis,[6] *cribra orbitalia* (CO),[7] linear enamel hypoplasia (LEH);[8] and metabolic[9] and infectious diseases (Tab. 2).[10] Most pathologies were ob-

5 The presence of trauma was determined by a macroscopic examination that recorded the location, shape, dimensions, and possible complications (Lovell 1997; Wakely 1997; Facchini et al. 2007; Wheatly 2008). The presence of cranial trauma was noted on skulls preserved above 50%. The same percentage of preservation was a prerequisite for recording the presence of trauma on long bones; the procedure included both clavicles, humeri, radii, ulnae, femora, tibiae and fibulae. Other traumas, such as those on the vertebrae, ribs and foot bones, were only enumerated and described.

6 Non-specific periostitis is an inflammatory reaction of the periosteum whose aetiology is multifactorial (Weston 2012). Some of the causes are specific infectious diseases, such as tuberculosis, treponematosis, and leprosy (Larsen 1997; Ortner 2003), or trauma (Steinbock 1976; Ortner 2003), and are believed to have a synergistic relationship with metabolic diseases and nutritional deficiencies (Ortner, Putschar 1985, Ortner et al. 2001). In the active form, periostitis is usually grey or brown, porous, with well-defined and slightly raised edges; in the healed form, the new, poorly organized bone remodels into the lamellar bone and merges with the cortical bone and has a wavy, slightly inflated appearance (Šlaus 2006).

7 *Cribra orbitalia* (CO) is a pathological condition in the form of sieve-like lesions or pitting on the orbital roof that can appear in the active and healed form (Mensforth et al. 1978). The study included all the skeletons in which at least one orbit was preserved. CO is thought to be caused by several factors: poor diet, gastrointestinal parasitic infections, or poor living conditions (Hengen 1971; Wolter 1979; Griffeth et al. 1997). Although CO is often caused by megaloblastic (associated with vitamin B12 deficiency) and hemolytic anaemia, paleopathological studies indicate that lesions resulting from subperiosteal bleeding have a somewhat more complicated aetiology. These pathological processes are often associated with scurvy, rickets, hemangiomas, traumatic injuries that create subperiosteal hematomas and eventually lead to lesions in the orbital roofs (Wolter 1979; Griffeth et al. 1997; Walker et al. 2009; Rothschild et al. 2021). Also, one study showed an association between the occurrence of CO and chronic respiratory infections, and in some cases, acute pneumonia and respiratory diseases (O'Donnell et al. 2020).

8 Linear enamel hypoplasia (LEH) is a disorder in the formation of tooth enamel that is recognized as one or more shallow horizontal lines on the surface of the tooth crown (Sarnat, Schour 1941; Pindborg 1970). LEH is a subadult disorder caused by acute stress associated with starvation, metabolic disorders, physical and psychological trauma. LEH most often occurs on the front teeth, i.e. incisors and canines (Kreshover 1960; Lysell et al. 1962; Goodman et al. 1980; Goodman, Armelagos 1985; Goodman, Rose 1990), so the analyzed sample contains data on the frequency of pathologies collected for the central incisors of the maxilla and for the canines of the maxilla and mandible on the left. When the left tooth was missing, the right tooth was examined.

9 The only metabolic disease in the Gora sample is scurvy. Scurvy results from an insufficient intake of vitamin C (ascorbic acid), which humans cannot synthesize or store, but should take in through their diet. This vitamin is important for the production of collagen, which is indispensable for the formation and normal functioning of the skin, cartilage and bones, and if there is not enough of it, scurvy appears (Šlaus 2006: 165; Waldron 2009: 130–131). Because of their fast growth, infants and young children are more prone to the formation of defective blood vessels and scurvy than adolescents (Ortner et al. 2001: 349–350; Brickley, Ives 2008).

10 The infectious diseases in the Gora sample are leprosy and tuberculosis. Leprosy, a chronic infectious disease caused by the bacterium *Mycobacterium leprae*, shows a different clinical picture depending

na patologija promatrana je u odnosu na spol i dob pokojnika, a sve bioarheološki utvrđene značajke pokojnika razmotrene su u odnosu na definirane faze ukopavanja.

served relative to the sex and age of the skeletons, and all the bioarchaeologically determined features of individuals were considered with regard to the defined burial phases.

Patologije / Pathologies Faza / Phase	Traume na dugim kostima/ Trauma to long bones	Periostitis	Aktivni / Active	CO	Aktivna / Active	HZC / LEH
1.	1/29 (3,4%)	3/6 (50%)	2/3 (66,7%)	2/3 (66,7%)	1/2 (50,0%)	0/3 (0,0%)
2.	1/84 (1,2%)	8/12 (66,7%)	3/8 (37,5%)	1/4 (25,0%)	0/4 (0,0%)	3/11 (27,3%)
3.	0/43 (0,0%)	2/7 (28,6%)	0/2 (0,0%)	1/3 (33,3%)	1/1 (100%)	7/8 (87,5%)
4.	1/91 (1,1%)	8/14 (57,1%)	5/8 (62,5%)	5/12 (41,7%)	4/5 (80,0%)	10/20 (50,0%)

Tab. 2 — Učestalost indikatora subadultnoga stresa prema utvrđenim fazama ukopavanja (izradila: Ž. Bedić)
Tab. 2 — The frequency of indicators of subadult stress according to established burial phases (made by: Ž. Bedić)

ANALIZA LJUDSKOG OSTEOLOŠKOG MATERIJALA PREMA UTVRĐENIM FAZAMA UKOPAVANJA GROBOVA

Faza 1

Najstariji grobovi utvrđeni tijekom istraživanja vežu se uz groblje smješteno oko romaničke crkve, a ukopavanje na ovome prostoru vjerojatno započinje početkom XI. stoljeća i traje sve do dolaska templara tijekom druge polovice XII. stoljeća. Od grobova istraženih na prostoru sakristije u ovu je fazu ubrojeno njih devet – šest grobova odraslih osoba, jedan grob adolescenta starosti 12 do 15 godina, grob djeteta starosti 4 do 6 godina te grob dojenčeta. Omjer između žena, djece i muškaraca je 1 : 1 : 1, odnosno tri žene, troje djece i trojica muškaraca. Iako je riječ o malome uzorku, može se istaknuti da je spolna distribucija koja uključuje gotovo jednak broj

ANALYSIS OF THE HUMAN OSTEOLOGICAL MATERIAL ACCORDING TO THE ESTABLISHED BURIAL PHASES

Phase 1

The earliest graves identified during the excavations belong to the cemetery located around the Romanesque church, where the burials probably began in the early 11th century and lasted until the arrival of the Knights Templar during the second half of the 12th century. Of the graves excavated in the sacristy area, nine were included in this phase: six graves of adults, one grave of an adolescent aged 12 to 15 years, a grave of a child aged 4 to 6 years, and a grave of an infant. The ratio of females to subadults to males is 1 : 1 : 1, i.e. three females,

elementi su kosti lica te male kosti šaka i stopala (Ortner, Putschar 1985). Tuberkuloza je zarazna bolest koju uzrokuje bakterija *Mycobacterium tuberculosis* i najčešće se širi putem dišnoga sustava. Prvotna infekcija nastaje u plućima nakon čega se putem krvi širi na ostale dijelove tijela: bubrege, mozak i kosti. Kada se nalazi na kostima, najčešće je zahvaćena kralježnica. U većini slučajeva spinalne tuberkuloze apsces erodira anteriorni dio tijela kralješka i intervertebralni disk koji u konačnici rezultira uništenjem tijela kralješka i karakterističnom Potovom grbom (Aufderheide, Rodrígez-Martín 1998).

on the immune response of the host. It ranges from a relatively mild (tuberculoid) form and one or a few moderate degrees to a very strong (lepromatous) stage (Ortner, Putschar 1985; Renault, Ernst 2015). The disease usually affects the skin, mucous membranes, soft tissues, and nerves, while the skeleton is affected in 3 to 5% of patients (Resnick, Niwayama 1995). The most affected bone elements are the facial bones and the small hand and foot bones (Ortner, Putschar 1985). Tuberculosis, an infectious disease caused by the bacterium *Mycobacterium tuberculosis*, most commonly spreads through the respiratory system. The initial infection occurs in the lungs and then spreads through the blood to other parts of the body: kidneys, brain, and bones. When on the bones, it most commonly affects the spine. In most cases of spinal tuberculosis, the abscess erodes the anterior part of the vertebral body and the intervertebral disc, which ultimately results in the destruction of the vertebral body and the characteristic Pott's gibbus (Aufderheide, Rodrígez-Martín 1998).

žena, muškaraca i djece uobičajena za većinu srednjovjekovnih uzoraka iz Hrvatske (Šlaus 2006: 98). Odrasle osobe ove faze po starosnim su kategorijama raspoređene na slijedeći način: jedna žena i dvojica muškaraca pripadaju mlađoj dobnoj skupini, jedna muška osoba srednjoj, a dvije žene starijoj dobnoj skupini.

Periostitis je zabilježen na tri od ukupno šest kostura (50 %) čije su duge kosti sačuvane više od 50 %. Od toga su dva slučaja, oba kod djece, bila u aktivnome obliku (66,7 %). Od ukupno devet kostura iz prve faze, samo su tri imala dobro sačuvanu lubanju i barem jednu uščuvanu orbitu, a CO je evidentirana na dva kostura, odnosno u dvije dječje orbite (66,7 %). Jedna je CO bila u aktivnome obliku. U uzorku iz prve faze bila su prisutna samo tri očnjaka donje čeljusti na kojima linearna HZC nije utvrđena.

Kod odraslih osoba traume na glavi nisu zabilježene, dok je od ukupno 29 dugih kostiju prisutna samo jedna antemortalna trauma (3,4 %) na desnoj palčanoj kosti starije žene.

three subadults, and three males. Although this is a small sample, it can be pointed out that the sex distribution with almost the same number of females, males, and subadults is common to most medieval samples from Croatia (Šlaus 2006: 98). The adults of this phase are distributed across the age categories as follows: one female and two males in the younger age group, one male in the middle age group, and two females in the older age group.

Periostitis was recorded on three out of six skeletons (50%) where more than 50% of the long bones were preserved. Two of these cases, both in subadults, were in the active form (66.7%). Out of nine skeletons from the first phase, only three had well-preserved skulls and at least one preserved orbit, and CO was noted on two skeletons, i.e. in the orbits of two subadults (66.7%). One CO was in the active form. In the sample from the first phase, there were only three mandibular canines on which LEH was not determined.

In adults, no head traumas were reported; out of 29 long bones, there was only one antemortem trauma (3.4%) on the right radius of an older female.

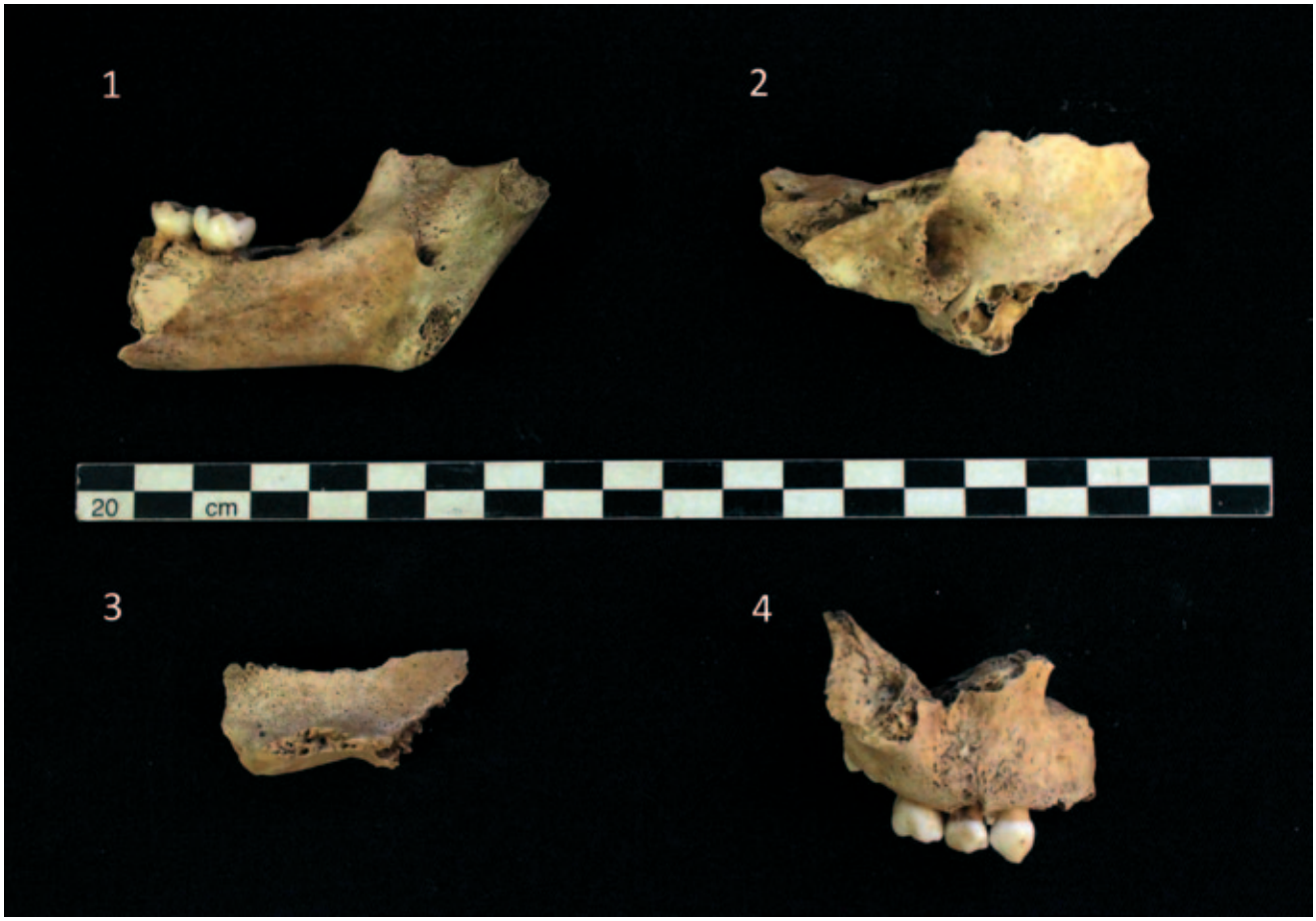
Sl. 2 — Perimortalna posjekotina na lijevoj bedrenoj kosti djeteta iz groba 423 (snimila: Ž. Bedić; obradila: V. Vyroubal)
Fig. 2 — Perimortem incision on the left femur of a subadult from grave 423 (photo by: Ž. Bedić; edited by: V. Vyroubal)

U prvoj fazi utvrđena je i jedna perimortalna trauma na lijevoj bedrenoj kosti djeteta starosti između 4 i 6 godina (sl. 2). Na distalnoj trećini dijafize lijeve bedrene kosti s anteriorne strane prisutna je perimortalna posjekotina čija ispolirana površina iznosi 11 mm i jednake je boje kao

In the first phase there is one perimortem trauma, recorded on the left femur of a child between 4 and 6 years of age (Fig. 2). On the distal third of the diaphysis of the left femur on the anterior side there is a perimortem incision with a polished surface measuring 11 mm, of the same colour as

okolna kost. Udarac je probio korteks kosti, a prisutna su još dva fragmenta kosti koji također imaju vrlo ravne površine. Uz perimortalnu posjekotinu, dijete je imalo i blagu aktivnu CO u orbitama, porozitet na sljepoočnim, jagodičnim kostima, gornjoj i donjoj čeljusti, klinastoj kosti (sl. 3: 1–4), hipervaskularizaciju na endokranijalnoj strani tjemene kosti i jednom fragmentu tjemene kosti s ektokranijalne strane te blagi aktivni periostitis na goljeničnim kostima. Ovakva patološka slika upućuje na skorbut.

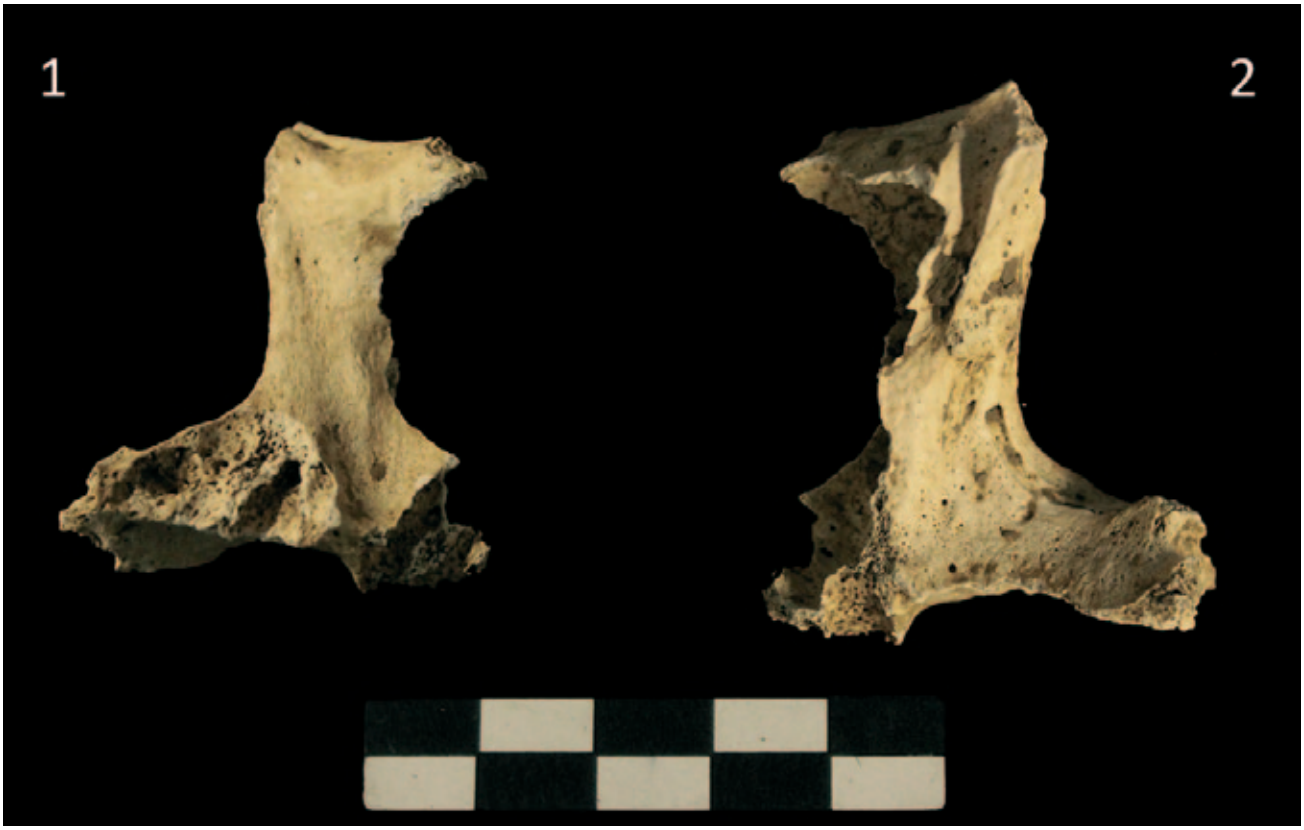
the surrounding bone. The blow penetrated the bone cortex; there are two other bone fragments that also have very flat surfaces. In addition to the perimortem incision, the child also had mild active CO in the orbits, porosity on the temporal bones, zygomatics, maxilla, mandible, sphenoid bone (Fig. 3: 1–4), hypervascularization on the endocranial side of the parietal bone and one fragment of the ectocranial side of the parietal bone, and mild active periostitis on the tibiae. These pathological changes indicate scurvy.



Sl. 3 — Porozitet na: 1 unutrašnjoj strani donje čeljusti; 2 lijevoj sljepoočnoj kosti; 3 klinastoj kosti; 4 desnoj strani gornje čeljusti djeteta iz groba 423 (snimila: Ž. Bedić; obradila: V. Vyroubal)
Fig. 3 — Porosity on: 1 the inner side of the mandible; 2 the left temporal bone; 3 the sphenoid bone; 4 the right side of the maxilla of the subadult from grave 423 (photo by: Ž. Bedić; edited by: V. Vyroubal)

U jednom od grobova prve faze ukopavanja pokopana je žena starosti 45 do 60 godina. Na desnoj strani gornje čeljusti medijalno od jagodične kosti prisutan je upalni proces u obliku aktivnoga poroziteta, a unutar maksilarnog sinusa prisutan je makroporozitet. Inferiorni rub nosnoga otvora je zaobljen i blago resorbiran, a na dnu nosne šupljine prisutna je vjerojatna

In one of the graves of the first burial phase there was a buried female aged 45 to 60. On the right side of the maxilla there is an inflammatory process in the form of active porosity medially from the zygomatic; there is macroporosity within the maxillary sinus. The inferior margins of the nasal aperture are rounded and slightly resorbed; at the base of the nasal cavity, there is probable atrophy of the ante-



Sl. 4 — Promjene na kostima žene iz groba 417: 1 zaobljen inferiorni dio nosnoga otvora te vjerojatna atrofija koštanog trna; 2 blagi porozitet i lezija unutar nosne kosti (snimila i obradila: V. Vyroubal)
Fig. 4 — Bone changes in a female from grave 417: 1 rounded inferior part of the nasal aperture and probable atrophy of anterior nasal spine; 2 mild porosity and lesions within the nasal bone (photo and edited by: V. Vyroubal)

atrofija koštanoga trna (*spina nasalis anterior*) (sl. 4: 1). Unutar nosne kosti prisutan je blagi porozitet i lezija (sl. 4: 2). Ovakva patološka slika upućuje na lepru (gubu), no za potvrdu *Mycobacterium leprae* potrebna je molekularna analiza drevne DNK.

Žena je vjerojatno bila ukopana u lijesu, a uz njeno je tjeme, uz zapadni rub ukopa, ustanovljen veći kamen. S druge strane, u grobu djeteta sa skorbutom veći je kamen nađen otprilike u predjelu šake i možda je izvorno bio postavljen iznad lijesa čiji su tragovi u vidu pougljenjenoga drveta nađeni tijekom istraživanja. Dodatno, kako prvu fazu ukopavanja karakterizira pojava nalaza tzv. bjelobrdske kulture, u oba groba pokojnici su položeni s većim brojem S-karičica. U grobu djeteta sa skorbutom nađeno ih je osam, po četiri smještene lijevo i desno uz lubanju.[11] S desne su strane tri, a s lijeve dvije S-karičice nađene međusobno povezane poput

11 Svi ostali primjerci S-karičica nađeni su u ženskim grobovima, pa je i ovo dijete možda bilo žensko. O pretpostavci da su S-karičice bile dio ženske nošnje, odnosno frizure, opširnije je pisala Katica Simoni (2004: 53–54, s literaturom).

rior nasal spine (*spina nasalis anterior*) (Fig. 4: 1). There are mild porosity and lesion within the nasal bone (Fig. 4: 2). These pathological changes suggest leprosy, but molecular analysis of ancient DNA is needed to confirm *Mycobacterium leprae*.

The female was most likely buried in a coffin; a large stone was discovered next to her scalp along the western edge of the burial. On the other hand, a grave of a child with scurvy contained a large stone, approximately in the area of the hand, which may have originally been placed above the coffin whose traces in the form of charred wood were found during the excavation. In addition, as the first burial phase is characterized by the finds of the "Bijelo Brdo culture", the deceased in both graves were buried with a large number of S-circlets. Eight of them were found in the grave of a child with scurvy, four on the left side and four on the right side of the skull.[11] Three S-circlets on the right side and two on

11 All the other specimens of S-circlets were found in female graves, so this child may have been a female. Katica Simoni wrote in more detail about the assumption that S-circlets were part of women's attire or hairstyle (2004: 53–54, with bibliography).

karika lanca. Sedam krupnih brončanih S-karičica nađeno je i u grobu žene s patološkom slikom koja upućuje na lepru. Četiri su karičice nađene lijevo, a tri desno uz lubanju pokojnice.

Faza 2

Grobovi pripisani drugoj fazi ukopavanja vežu se uz vrijeme templarske uprave nad posjedima u gorskoj županiji i time vrijeme izgradnje nove templarske ranogotičke crkve. Riječ je o periodu koji počinje tijekom druge polovice XII. stoljeća i vjerojatno završava početkom XIV. stoljeća ukidanjem templarskoga reda i dolaskom ivanovaca. Od grobova istraženih na prostoru kasnije izgrađene sakristije, drugoj fazi ukopavanja pripisana su dva groba od kojih su sačuvane samo kosturnice, zatim ukop jednoga fetusa i jednoga djeteta između 4 i 5 godina starosti te ukopi triju žena i sedmorice muškaraca kojima je spol u tri slučaja uvjetno definiran. Njihov omjer je nesrazmjeran i iznosi 0,3 : 0,4 : 1. Nesrazmjer po spolu utvrđen je i u odnosu na doživljene starosti. Kod žena je prisutna jedna osoba u mlađoj dobnoj skupini, a dvije u starijoj, dok je kod muškaraca u mlađoj prisutno čak pet osoba, a u starijoj samo dvije.

Ukupno su zabilježene tri antemortalne traume, jedna na prsnom kralješku mlađega muškarca, a dvije na lijevoj distalnoj palčanoj kosti i prsnom kralješku starije ženske osobe. Ukupna učestalost trauma na dugim kostima iznosi 1,2 %, odnosno javlja se na samo jednoj od 84 sačuvane duge kosti, dok traume na lubanji i perimortalne traume nisu zabilježene.

Linearna HZC zabilježena je na samo tri od 11 sačuvanih zuba (27,3 %). Nespecifični periostitis prisutan je na osam od 12 kostura (66,7 %). Čak u četiri slučaja riječ je o kosturima odraslih muškaraca, dok je i kod žena i kod djece prisutan s po dva slučaja. U aktivnom obliku utvrđen je u tri slučaja, odnosno 37,5 %, i to kod dva muškarca i jednog djeteta. Od 12 kostura, samo je njih četvero imalo dobro sačuvane orbite, a samo je na kosturu djeteta starog između 4 i 5 godina zabilježena zarasla CO u lijevoj orbiti.

I ovo je dijete patilo od skorbuta te su, uz CO, na njegovome kosturu zabilježene slijedeće patologije: blaga hipervaskularizacija endokranijalno na lubanji, porozitet na sljepoočnim kostima, gornjoj i donjoj čeljusti, klinastoj kosti, tvrdom nepcu, na supraspinoznoj jami desne lopatice te blagi zarasli periostitis na lijevoj goljeničthe left side were found interconnected like chain links. Seven large bronze S-circlets were also found in the grave of a female with pathological changes suggestive of leprosy. Four S-circlets were found on the left side and three on the right side of the skull.

Phase 2

The graves attributed to the second burial phase are associated with the time when the Gora County estates were held by the Knights Templar and the time when the new early Gothic church was built. This is a period that begins in the second half of the 12th century and probably ends with the abolition of the Order of the Knights Templar and the arrival of the Knights Hospitaller in the early 14th century. Of the graves excavated in the area of the later sacristy, those attributed to the second burial phase are two graves with reburied remains, one fetus and one child between 4 and 5 years of age, three females and seven males whose sex was in three cases conditionally defined. The sex ratio is disproportionate and amounts to 0.3 : 0.4 : 1. Disparity by sex was also identified for each age group. There is one female in the younger and two in the older age group, while there are five males in the younger and only two in the older age group.

A total of three antemortem traumas were reported, one on the thoracic vertebrae of a younger male and two on the left distal radii and thoracic vertebrae of an older female. While there were no head and perimortem traumas, the total frequency of long bone trauma is 1.2%, i.e. it was found on only one of the 84 preserved long bones.

LEH was recorded on only three of the 11 preserved teeth (27.3%). Nonspecific periostitis is present in eight of the 12 skeletons (66.7%): four skeletons of adult males and two skeletons each of females and subadults. It was in the active form in three cases, i.e. 37.5%, in two males and one subadult. Of the 12 skeletons, only four had well-preserved orbits, and only the skeleton of a 4 to 5-year-old child had healed CO in the left orbit.

This child also suffered from scurvy; along with CO, the following pathologies were recorded: mild hypervascularization endocranially on the skull, porosity on the temporal bones, maxilla and mandible, sphenoid bone, hard palate, supraspinous fossa of the right scapula, and mild

noj kosti. Dijete je ukopano u grobu obloženom većim kamenjem postavljenim uz bočne stranice ukopa. U njegovom grobu, u predjelu zdjelice, nađena je brončana kopča koju prati brončana petlja za držanje labavoga dijela remena.

Faza 3

Početak treće faze ukopavanja grobova veže se uz početak XIV. stoljeća, odnosno vrijeme smjene templara ivanovcima. Njeno trajanje može se pratiti sve do početka XV. stoljeća te vjerojatno obuhvaća i njegovih prvih par desetljeća. Od grobova istraženih na prostoru sakristije u treću fazu smješteno je šest grobova s odraslim pokojnicima, jedan grob u kojem je sačuvana samo kosturnica te grobovi dvoje adolescenata i dvoje djece starosti 4 do 6 godina. Ukupno je, dakle, analizirano deset kostura te je, uz četvero djece, utvrđena prisutnost dvije žene i četvorice muškaraca. Omjer po spolovima iznosi 1 : 0,5 : 1 što žene ponovo čini podzastupljenima. Kod muškaraca tri su osobe prisutne u mlađoj, a jedna osoba u starijoj dobnoj skupini. Kod žena je jedna osoba prisutna u srednjoj, a jedna u starijoj dobnoj skupini.

Na kostima iz grobova pripisanih ovoj fazi ukopavanja zabilježena je samo jedna antemortalna trauma uočena na prsnom kralješku starije ženske osobe. Učestalost periostitisa vrlo je niska, zabilježena na dugim kostima tek dva od sedam kostura (28,6 %). Oba su primjera zarasla, a prisutna su na kostima odraslih osoba. Iako je odsustvo ove patologije na dječjim kostima neobično, samo je jedno od četvero djece bilo dovoljno sačuvano za bilježenje prisutnosti ove patološke promjene. CO je bila prisutna u jednoj od tri dobro sačuvane orbite. Riječ je o aktivnoj CO u orbiti djeteta. S druge strane, učestalost HZC je izrazito visoka i evidentirana je na 7 od 8 prisutnih zuba, od čega su čak dva dječja.

Faza 4

Najmlađa faza ukopavanja utvrđena na prostoru kasnije izgrađene sakristije počinje otprilike s prvom četvrtinom XV. stoljeća i traje sve do kraja XVI. ili čak početka XVII. stoljeća, odnosno završava vjerojatno tijekom početnog razdoblja vladavine Osmanlija. Na osnovi stratigrafskih odnosa te pojedinih obilježja istraženih grobnih

periostitis on the left tibia. The child was buried in a grave lined with large stones placed along the edges of the burial. In the grave, a bronze buckle was found in the pelvic area, accompanied by a bronze loop used for holding the loose end of the belt strap.

Phase 3

The beginning of the third burial phase is related to the beginning of the 14th century, when the Knights Templar were replaced by the Knights Hospitaller. Its duration can be traced until the beginning of the 15th century and probably includes its first few decades. Of the graves excavated in the sacristy, those assigned to the third phase are six graves with adult individuals, one grave containing only reburied remains, graves of two adolescents and two children aged 4 to 6 years. Thus, a total of ten skeletons were analyzed and determined to be four subadults, two females, and four males. The sex ratio is 1 : 0.5 : 1, which makes females underrepresented again. Among the males, there are three individuals in the younger and one in the older age group. Among the females, there is one individual in the middle and one in the older age group.

On the bones attributed to this burial phase, there was only one antemortem trauma, recorded on the thoracic vertebrae of an older female. The incidence of periostitis is very low; it was recorded on the long bones of two out of the seven skeletons (28.6%). Both examples are in the healed form on the bones of adults. The absence of this pathology on subadults is unusual, but only one of the four subadults was sufficiently preserved to enable the recording of this pathology. CO was present in one of the three well-preserved orbits. It is active CO in the child's orbit. On the other hand, the frequency of LEH is extremely high and was recorded on seven of the eight teeth, of which two belonged to subadults.

Phase 4

The latest burial phase determined in the area of the later sacristy begins approximately in the first quarter of the 15th century and lasts until the end of the 16th or even the beginning of the 17th century, i.e. probably the initial period of the Ottoman rule. Based on stratigraphy and the specific features of the excavated grave units, 20 graves

cjelina u tu je fazu svrstano 20 grobova. Kako je u jednome slučaju riječ o grobu u kojem je sačuvana samo kosturnica smještena uz rub ukopa, bioarheološki je analizirano 19 kostura. Od toga je čak 11 djece među koju je ubrojen jedan fetus, troje dojenčadi te četvero nešto starije djece (1 do 2 godine, 2 do 3, 4 do 6 i 5 do 8 godina) i troje adolescenata (11 do 12, 12 do 15 i 15 do 17 godina). Preostali istraženi grobovi pripadaju trima ženama i petorici muškaraca što čini omjer 1,1 : 0,3 : 0,5. Žene su, kao i u prethodne dvije faze, podzastupljene u odnosu na muškarce te su prisutne u samo dvije starosne skupine: srednjoj skupini s jednom osobom i u starijoj s dvije osobe. Kod muškaraca dvije su osobe prisutne u mlađoj, dvije u srednjoj i jedna u starijoj dobnoj skupini. Treba naglasiti i da je u ovoj fazi zabilježen najviši dječji mortalitet.

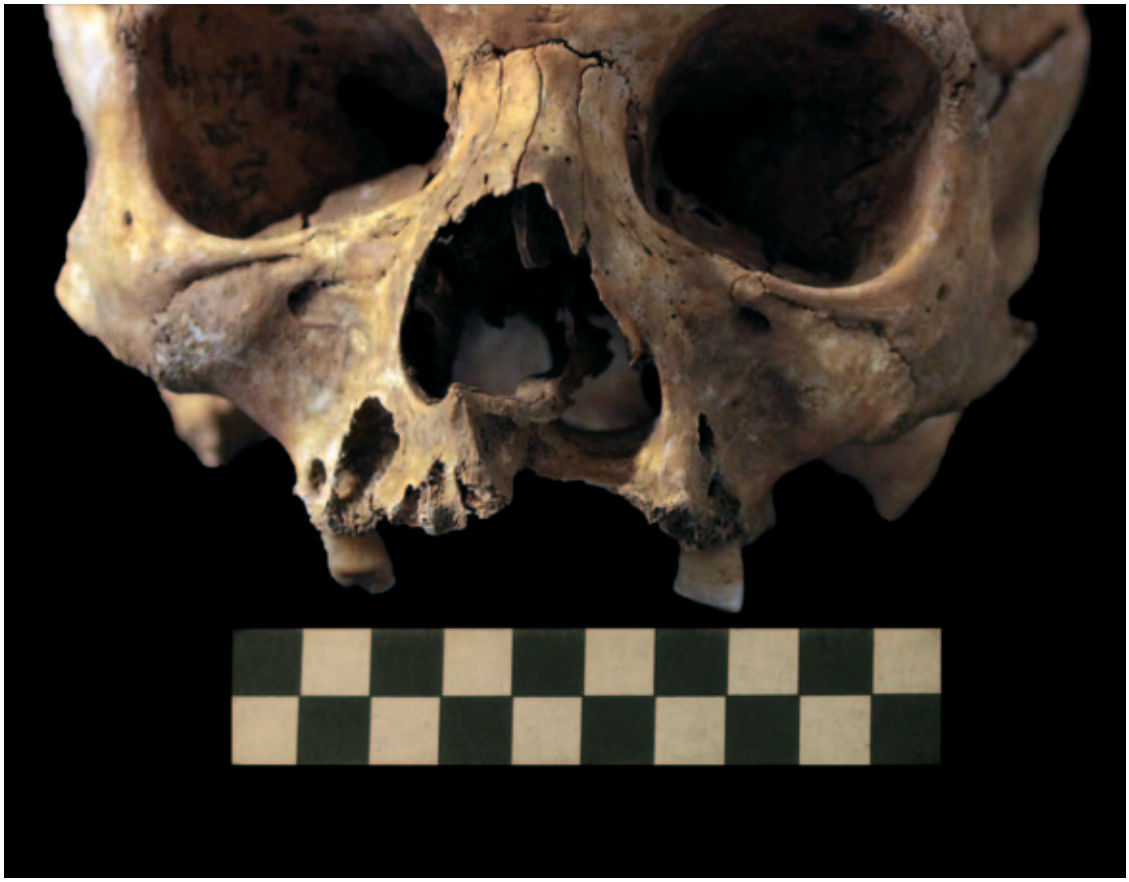
Na ukupno 91 dobro sačuvanoj dugoj kosti evidentirana je samo jedna antemortalna fraktura na desnoj palčanoj kosti mlađega muškarca (1,1 %). Ostale antemortalne traume prisutne su na četiri kosti stopala starije ženske osobe, zatim tri na lijevim rebrima dvije osobe, starijoj ženi i muškarcu srednje dobi te dvije na prsnim kralješcima dvojice muškaraca srednje i starije dobi. Jedina antemortalna trauma na glavi prisutna je na nosnim kostima ženske osobe starosti između 50 i 60 godina. Centralni dio gornje čeljusti pomaknut je u lijevu stranu i desna nosna školjka je viša za 15 mm od lijeve (sl. 5). Čini se da su alveole lijevog 1. i 2. sjekutića antemortalno izbijene, lijeva nosna kost je blago utisnuta medijalno te je prisutan porozitet.

Na još dvije lubanje prisutne su moguće perimortalne traume koje bi mogle upućivati na namjerno nasilje, no nesigurnost u tu tvrdnju uzrokuje loša očuvanost kostiju. Na lijevoj strani lubanje muškarca starosti 40 do 50 godina prisutno je više fragmenata pravilnih rubova iste boje kao okolna kost, a na jednome dijelu kosti s endokranijalne (unutrašnje) strane prisutan je lijevak koji sugerira da bi mogla biti riječ o udarcu tupotvrdim predmetom ili projektilom. Na lijevoj tjemenoj kosti žene starosti između 45 do 55 godina prisutan je defekt u obliku polukruga. Sačuvan je u duljini od 45 mm i jednake je boje kao okolna kost pa bi mogla biti riječ o perimortalnoj traumi uzrokovanoj tupotvrdim predmetom. Ipak, tu pretpostavku nije moguće potvrditi jer posteriorno od defekta nedostaje kost dimenzija 17 × 5 mm na osnovi koje bi bilo moguće nešto više reći o uzroku nastanka defekta.

were assigned to this phase. As only reburied remains were found along the edge of one of the graves, 19 skeletons were bioarchaeologically analysed. Of these, 11 were subadults, including one fetus, three infants, four slightly older children (1 to 2, 2 to 3, 4 to 6 and 5 to 8 years), and three adolescents (11 to 12, 12 to 15, and 15 to 17 years). The remaining excavated graves belong to three females and five males, which gives a ratio of 1.1 : 0.3 : 0.5. As in the previous two phases, females are underrepresented compared to males and can be found in only two age groups: the middle group with one individual and the older group with two individuals. Among the males, there are two individuals in the younger, two in the middle, and one in the older age group. It should also be emphasized that this phase has the highest subadult mortality.

Out of a total of 91 well-preserved long bones, there was only one antemortem fracture (1.1%) on the right radius of a younger male. There are other antemortem traumas on four foot bones of an older female, three on the left ribs of two individuals, an older female and a middle-adult male, and two on the thoracic vertebrae of two males, a middle adult and an old adult. The only antemortem trauma to the head is the one on the nasal bones of a female between the ages of 50 and 60. The central part of the maxilla is shifted to the left and the right nasal aperture is 15 mm higher than the left one (Fig. 5). The alveoli of the 1st and 2nd left incisors appear to have been broken antemortem, the left nasal bone is slightly imprinted medially, and there is porosity.

Two other skulls have possible perimortem traumas that could indicate intentional violence, but this is uncertain because of poor bone preservation. On the left side of the skull of a male aged 40 to 50 years there are several fragments with regularly shaped edges of the same colour as the surrounding bone, and on one part of the bone on the endocranial (inner) side there is a bevelling suggesting that it could be the result of the impact of a blunt object or projectile. There is a semicircular defect on the left parietal bone of a female between the ages of 45 and 55. It has been preserved to a length of 45 mm and is the same colour as the surrounding bone, so it could be perimortem trauma caused by a blunt object. However, this assumption cannot be confirmed because a bone posterior to it, measuring 17 × 5 mm, which would have helped us say something more about the cause of this defect, is missing.



Sl. 5 — Loše zarasla fraktura nosa na lubanji žene iz groba 374 (snimila: Ž. Bedić; obradila: V. Vyroubal)
Fig. 5 — Poorly healed nose fracture on the skull of a woman from grave 374 (photo by: Ž. Bedić; edited by: V. Vyroubal)

Periostitis je prisutan na osam od 14 dobro sačuvanih kostura (57,1 %), dok je u aktivnom obliku zabilježen na pet kostura, dvoje djece i trojici muškaraca. Od ukupno osam slučajeva periostitisa, šest je evidentirano na odraslim osobama, a od toga četiri na kostima muškaraca. CO prisutna je u pet od 12 dobro uščuvanih orbita (41,7 %). U čak četiri slučaja CO je bila u aktivnom obliku (80 %), kod dva djeteta i dva muškarca. HZC je prisutna na 10 od 20 zuba (50 %), od toga na dva dječja zuba.

U zadnjoj je fazi zabilježen jedan slučaj zarazne bolesti. Promjene na kosturu djeteta starosti 11 do 12 godina sugeriraju da je bolovalo od tuberkuloze. Lukovi 1. do 6. prsnoga kralješka imaju porozitet, trupovi 3., 4. i 5. prsnoga kralješka su blago klinasti u anteriornom dijelu, 6. prsni kralježak ima promjene na anteriornom dijelu trupa kralješka u obliku resorbirane kosti te ga dio ante-

Periostitis was present on eight of the 14 well-preserved skeletons (57.1%); in the active form, it was noted on five skeletons, two subadults and three males. Out of the total of eight cases of periostitis, six were recorded in adults and four of them in males. CO is present in five of the 12 well-preserved orbits (41.7%). CO was in the active form in four cases (80%), in two subadults and two males. LEH is present on 10 of the 20 teeth (50%), of which two belonged to subadults.

In the last phase, one case of infectious disease was recorded. Changes in the skeleton of a subadult aged 11 to 12 suggest that the subadult was suffering from tuberculosis. The arches of the 1st to 6th thoracic vertebrae have porosity, the bodies of the 3rd, 4th and 5th thoracic vertebrae are slightly wedge-shaped in the anterior part, and changes in the form of resorbed bone are present on the anterior part of the vertebral

mortalno nedostaje, 7. prsni kralježak ima gotovo potpuno uništen trup (sačuvano je 20 × 7 mm), od 8. do 12. prsnoga kralješka trupovi su u cijelosti antemortalno uništeni, a spojevi s lukovima kralježaka su zatvoreni (sl. 6: 1). U predjelu zglobnih nastavaka 11. i 12. prsni kralješci međusobno su spojeni (sl. 6: 2), a fragment slabinskoga kralješka ponovo ima gotovo u potpunosti uništen trup (sačuvano je 16 × 10 mm s lijeve strane). Obje strane rebara su remodelirane te se za pojedina rebra uslijed promjene oblika ne može odrediti točna pozicija. U predjelu glava izrazito je remodelirano 5., 6. i 7. desno rebro, a pojedina rebra imaju blagi aktivni periostitis na pleuralnoj strani (dva lijeva i dva desna fragmenta). Vjerojatno je da su uslijed promjena na kralješcima promjene nastale i na ramenom obruču: na ključnim kostima prisutno je stanjenje u medijalnom i lateralnom dijelu, a lije-

body of the 6th thoracic vertebra. The body of the 7th thoracic vertebra has been almost completely destroyed (20 × 7 mm is preserved), the bodies of the 8th to 12th thoracic vertebrae were completely destroyed antemortem, while the pedicles of the vertebral arches are closed (Fig. 6: 1). The 11th and 12th thoracic vertebrae are interconnected in the area of the articular processes (Fig. 6: 2); again, the fragment of the lumbar vertebra has an almost completely destroyed body (16 × 10 mm on the left have been preserved). Both sides of the ribs have been remodelled; the exact position of each rib cannot be determined due to the change in shape. The 5th, 6th and 7th right ribs have been markedly remodelled in the head area, and some ribs exhibit mild active periostitis on the pleural side (two left and two right fragments). It is likely that the changes in the vertebrae also caused the

Sl. 6 — Promjene na kosturu djeteta iz groba 384: 1 u potpunosti resorbirana tri tijela prsnih kralježaka; 2 međusobno spojeni 11. i 12. prsni kralježak; 3 komparacija obje bedrene kosti i tuberkulozom zahvaćena glava desne bedrene kosti; 4 komparacija obje zdjelične kosti i tuberkulozom zahvaćen acetabulum desne zdjelične kosti (snimila i obradila: V. Vyroubal)
Fig. 6 — Changes in the skeleton of a child from grave 384: 1 fully resorbed three bodies of thoracic vertebrae; 2 interconnected 11th and 12th thoracic vertebrae; 3 comparison of both femurs and tuberculosis-affected head of the right femur; 4 comparison of both pelvic bones and tuberculosis-affected acetabulum of the right pelvic bone (photo and edited by: V. Vyroubal)

va lopatica ima anteriorni pomak u superiornom dijelu, osobito u predjelu *coracoida* pa djeluje konkavno. Desni kuk je resorbiran, od glave bedrene kosti ostao je dio veličine oko 24 × 24 mm (sl. 6: 3). Vrat bedrene kosti stanjen je u transverzalnom dijelu, a proširen u anteriorno-posteriornom dijelu te je prisutan i porozitet. Acetabulum je proširen i produbljen s resorbiranom i djelomice sklerotičnom kosti (sl. 6: 4), na dijelovima sjedne kosti lezije su u potpunosti probile korteks. Osim ovih promjena, prisutna je i blaga aktivna CO u desnoj orbiti i blaga zarasla ektokranijalna poroznost na kaloti lubanje.

RASPRAVA

Relativno mali uzorak na kojem su analize napravljene, posebno kada se razmatra u odnosu na definirane faze ukopavanja, u znatnoj mjeri onemogućuje prikladne usporedbe ili smislenu statističku komparaciju, no pojedini podaci ipak su dovoljno indikativni da ih je potrebno dodatno istaknuti. Kroz sve četiri faze ponavlja se gotovo isti obrazac: muškarci su najzastupljeniji u mlađoj dobnoj skupini, između 18. i 35. godine starosti; dok su žene najzastupljenije u starijoj dobnoj skupini koja obuhvaća pokojnike starije od 50 godina. Naime, od ukupno 19 muškaraca njih 12 pripada mlađoj dobnoj skupini (63,2 %), dok je od ukupno 11 žena njih sedam prisutno u starijoj dobnoj skupini (63,6 %). Tako srednja doživljena starost za muškarce iznosi 34,6, a za žene 47,9 godina, odnosno žene u prosjeku žive 13,3 godina duže što je i statistički značajna razlika ($\chi^2 = 7.320$, $p = 0.007$). Prosječna doživljena starost žena iz Gore odskače i u odnosu na trenutno utvrđenu prosječnu doživljenu starost muškaraca i žena tijekom srednjega vijeka koja iznosi između 30 i 40 godina. Odstupanje je vidljivo i u usporedbi s podacima o životnome vijeku na pojedinim srednjovjekovnim nalazištima kontinentalne Hrvatske (tab. 3) na kojima je utvrđena relativna ujednačenost u prosječnoj doživljenoj starosti muškaraca i žena. Značajnije odstupanje zabilježeno je jedino u Suhopolju gdje muškarci u prosjeku žive osam godina dulje od žena.

U Gori je u svim fazama zabilježen i određeni stupanj smrtnosti djece, no primjetno je da je u četvrtoj fazi on izrazito visok te djeca do 12. godine života čine čak 47,4 % razmatranoga uzorka. To odgovara do sada utvrđenim podacima o visokoj smrtnosti djece krajem kasnoga srednjeg vijeka i u novome vijeku (v. npr. Tkalčec 2016:

changes in the shoulder girdle: there is a thinning in the medial and lateral parts of the clavicles, while the left scapula has an anterior displacement in the superior part, especially in the coracoid region, so it appears concave. The right hip is resorbed, thereby reducing the femoral head to about 24 × 24 mm (Fig. 6: 3). The femoral neck is thinned in the horizontal axis and expanded in the anteroposterior axis, and there is porosity. The acetabulum is expanded and deepened with resorbed and partially sclerotic bone (Fig. 6: 4); on parts of the ischium, the lesions completely penetrated the cortex. In addition to these changes, there is a mild active CO in the right orbit and mild healed ectocranial porosity on the skull.

DISCUSSION

The relatively small size of the analysed sample, especially when considered with regard to the defined burial phases, considerably hinders any appropriate correlations or meaningful statistical comparisons. However, some data are still indicative enough to be further emphasized. There is an almost constant pattern throughout all the four phases: males are most prevalent in the younger age group, between 18 and 35 years of age, while females are most represented in the older age group, which includes individuals over 50 years of age. Namely, out of the 19 males, 12 belong to the younger age group (63.2%), while out of the 11 females, seven belong to the older age group (63.6%). Thus, the average age at death is 34.6 years for males and 47.9 years for females, i.e. females live 13.3 years longer on the average, which is a statistically significant difference ($\chi^2 = 7.320$, $p = 0.007$). The average age at death of the females from Gora differs from the average age at death of males and females during the medieval period, which was between 30 and 40 years. There is also a visible deviation from the data on the average age at death at some of the medieval sites in continental Croatia (Tab. 3), where the average age at death of males and females is relatively uniform. A significant difference was recorded only in Suhopolje, where males lived eight years longer than females on the average.

In Gora, a certain degree of subadult mortality was recorded in all phases, but it is extremely high in the fourth phase, where subadults up to 12 years of age make up 47.4% of the sample. This corresponds to the earlier data on the high

Nalazište / Site	Period (stoljeće / century)	Prosječna doživljena starost / Average life expectancy		Literatura / Bibliography
		ŽENE / FEMALE	MUŠKARCI /MALE	
Stenjevec	XI. – XIII.	37,1	36,5	Bedić, Novak 2010
Đakovo (1. faza / phase)	XI. – 1. pol. XIII.	34,9	35,4	Šlaus, Filipec 1998
Đakovo (2. faza / phase)	2. pol. XIII. – XVI.	33,4	34,7	Šlaus, Filipec 1998
Ivanec	X. – XVI.	39,4	37,6	Novak et al. 2005
Suhopolje	XI. – XV.	32,7	40,7	Novak, Bedić 2011
Zagreb – sv. Franjo	XIII. – XVI.	39,6	40,1	Šlaus et al. 2007
Crkvari i Kliškovac	XI. – XVII.	36,5	37,4	Šlaus, Novak 2006

Tab. 3 — Prosječna doživljena starost žena i muškaraca na srednjovjekovnim nalazištima kontinentalne Hrvatske (izradila: Ž. Bedić)
Tab. 3 — Average age at death of females and males at the medieval sites of continental Croatia (pol. = half) (made by: Ž. Bedić)

174–175, s literaturom). U gorskom uzorku najviša je smrtnost djece utvrđena u dobnoj skupini od 2. do 11. godine života, međutim kada se pobliže promotri razdoblje najvećeg moraliteta, riječ je o djeci između 2. i 8. godine života. Razdoblje između 2. i 5. godine života je izuzetno osjetljivo jer prestaje dojenje i započinje prehrana prepuna mikroorganizama koji uzrokuju razne zarazne bolesti praćene dijarejom (Rowland et al. 1988). Na osnovi podataka s nalazišta Wharram Percy i St. Helen, Mary Lewis (2002: 220) navodi da djeca koja su preživjela ovo razdoblje u idućoj starosnoj kategoriji (6,6 – 10,5 godina) imaju veće učestalosti sinusitisa, kranijalnih trauma i infekcija, što sugerira povećanu izloženost okolišnom stresu. Uz to, mnoga su djeca u kasnome srednjem vijeku rano započinjala s radom, često već od sedme godine starosti (Cunningham 1995: 25, 65), što je također moglo utjecati na veću smrtnost.

subadult mortality at the end of the Late Middle Ages and in the Modern period (see e.g. Tkalčec 2016: 174–175, with bibliography). In the Gora sample, high mortality of subadults was recorded for the age group from 2 to 11 years of age. However, a more detailed look shows that the period of the highest mortality is between 2 and 8 years of age. The period between 2 and 5 years of age is extremely sensitive because that is when the weaning period starts, introducing a diet full of microorganisms causing various infectious diseases accompanied by diarrhoea (Rowland et al. 1988). Based on the data from Wharram Percy and St. Helen, Mary Lewis (2002: 220) states that children who survive this period have a higher incidence of sinusitis, cranial trauma, and infections in the next age category (6.6–10.5 years), suggesting increased exposure to environmental stress. In addition, many children in the Late Middle Ages started working early, often as early as the age of seven (Cunningham 1995: 25, 65),

Od promatranih patoloških promjena u prvoj fazi ukopavanja, periostitis je zabilježen na dvoje djece i jednoj odrasloj osobi, dok je CO evidentirana u dvije dječje lubanje. Utoliko je s jedne strane primjetna slična učestalost periostitisa s kompozitnim bjelobrdskim uzorkom (43,1 %; Bedić 2014: 108). S druge strane, aktivni periostitis utvrđen je na oba dječja kostura te ako se promotri kao 100 % pojava u dječjem poduzorku, ona je znatno viša nego u bjelobrdskom kompozitnom dječjem poduzorku gdje iznosi 64,6 % (Bedić 2014: 108). U ukupnom uzorku prve faze ukopavanja znatno je veća i učestalost CO: 66,7 % naspram 35,8 % u kompozitnom bjelobrdskom uzorku (Bedić 2014: 100). Stoga se može istaknuti poprilično visoka učestalost subadultnog stresa u prvoj fazi ukopavanja. Na nastanak patologija koje ga indiciraju utječu razni čimbenici poput anemije uzrokovane neadekvatnom prehranom, zaraznih bolesti, gladi, metaboličkih poremećaja, parazitizma i dr. (Stuart-Macadam 1991; Guatelli-Steinberg, Lukacs 1999; Ortner 2003; Brickley, Ives 2008; Walker et al. 2009). Utvrđena razina subadultnog stresa upućuje da su osobe bile izložene izrazitijem fiziološkome stresu, odnosno vjerojatno su živjele u lošim uvjetima i nekvalitetno se hranile.

Zaključak o izrazitijoj nekvaliteti prehrane gorske populacije XI. i XII. stoljeća dodatno osnažuje slučaj djeteta starosti između 4 i 6 godina koje je, uz blagu aktivnu CO u orbitama i blagi aktivni periostitis na goljeničnim kostima, imalo i skorbut. Skorbut je do sada na arheološkim nalazištima Hrvatske utvrđen u tek nekoliko slučajeva: na kasnoavarskome nalazištu Šarengrad (Carić et al. 2019: 172), ranosrednjovjekovnome nalazištu Velim (Šlaus 2006: 167), ranonovovjekovnome nalazištu Torčec (Novak, Krznar 2010: 78), u tri slučaja na novovjekovnome nalazištu u Iloku (Rimpf, Novak 2020: 254–255) te u čak četiri slučaja na starohrvatskome nalazištu Tribalj (Premužić, Rajić Šikanjić 2010: 210).

Kod istoga je djeteta utvrđena i perimortalna trauma na lijevoj bedrenoj kosti. Karakteriziraju je oštri rubovi kakve uzrokuju oštrobridni predmeti, a upućuju na namjerno nasilje. U bioarheološkim studijama djece perimortalne traume vrlo su rijetko zabilježene (Judd 2004: 35; Šlaus 2008: 461; Scott, Buckley 2010: 511) te su na području Hrvatske do sada evidentirana samo četiri slučaja iz razdoblja kasnoga srednjeg vi-which could also result in higher mortality.

Of the pathological changes observed in the first burial phase, periostitis was noted in two subadults and one adult, while CO was recorded for two subadults. A similar frequency of periostitis was recorded for a Bijelo Brdo composite sample (43.1%; Bedić 2014: 108). On the other hand, active periostitis was found on both subadult skeletons, which, if considered as a 100% incidence in the subadult subsample, is significantly higher than the incidence in the Bijelo Brdo composite subadult subsample, where it is 64.6% (Bedić 2014: 108). In the total sample of the first burial phase, the frequency of CO is significantly higher: 66.7% vs. 35.8% in the Bijelo Brdo composite subsample (Bedić 2014: 100). Therefore, there is a high frequency of subadult stress in the first burial phase. The aetiology of these pathological conditions is influenced by various factors, such as anaemia caused by inadequate nutrition, infectious diseases, starvation, metabolic disorders, parasitism etc. (Stuart-Macadam 1991; Guatelli-Steinberg, Lukacs 1999; Ortner 2003; Brickley, Ives 2008; Walker et al. 2009). The established level of subadult stress indicates that individuals were exposed to high levels of physiological stress, i.e. they probably lived in poor conditions and had inadequate nutrition.

The conclusions on the very low quality of the diet of the Gora population in the 11th and 12th centuries are further supported by the case of a child aged between 4 and 6 years who suffered not only from mild active CO in the orbits and mild active periostitis on the tibiae, but also from scurvy. So far, scurvy has been identified at Croatian archaeological sites in only a few cases: at the late Avar site in Šarengrad (Carić et al. 2019: 172), the early medieval site of Velim (Šlaus 2006: 167), the early modern period site of Torčec (Novak, Krznar 2010: 78), in three cases at the modern period site in Ilok (Rimpf, Novak 2020: 254–255), and four cases at the early medieval Croat site of Tribalj (Premužić, Rajić Šikanjić 2010: 210).

The same subadult had a perimortem trauma to the left femur. It is characterized by sharp edges caused by a sharp-edged object, indicating intentional violence. Perimortem trauma has been recorded very rarely in bioarchaeological studies of children (Judd 2004: 35; Šlaus 2008: 461; Scott, Buckley 2010: 511), with only four cases from the Late Middle Ages in Croatia recorded so far. Three were documented at the late medieval site of Čepin near Osijek, where 12 males and

jeka. Tri su dokumentirana na kasnosrednjovjekovnome nalazištu Čepin kod Osijeka gdje je uz djecu ubijeno još 12 muškaraca i sedam žena. Mario Šlaus i suradnici (2010: 370) smatraju da je dio čepinske populacije stradao prilikom zastrašivanja od strane turskih akinđijskih odreda tijekom XV. stoljeća s namjerom njihova protjerivanja sa strateški važnog područja. Četvrti slučaj potječe s nalazišta Pakoštane – Crkvina gdje je u grobu 97 pokopano dijete koje je tijekom života zadobilo jednu traumu koja je zacijelila te jednu koja je bila uzrokom njegove smrti (Adamić Hadžić 2021: 248). Dijete iz Gore za pokop je ukrašeno s osam velikih brončanih S-karičica što je na nalazištu najveći utvrđeni broj karičica iz istoga groba. Smješteno je u lijes na koji je nakon polaganja u raku možda postavljen veći kamen, pa značajke ovoga ukopa ukazuju na izrazitiju pažnju posvećenu obredu sahrane.

U istom kontekstu je bitno spomenuti da je i žena starosti 45 do 60 godina s patološkom slikom koja upućuje na lepru ukopana s drugim najvećim brojem S-karičica utvrđenim na nalazištu. I ona je pokopana u lijesu s većim kamenom postavljenim u području iznad njenog tjemena. Postoji nekoliko slučajeva lepre iz arheološkoga konteksta s područja kontinentalne Hrvatske. Riječ je o jednom sigurnom, potvrđenom DNK analizom, i jednom mogućem slučaju s nalazišta Bijelo Brdo iz X. – XI. stoljeća (Bedić et al. 2019) te jednom mogućem slučaju sa Žumberka koji je datiran u XVIII. stoljeće (Bedić 2017: 71). Zasad najraniji objavljeni slučajevi lepre s područja Hrvatske potječu iz Radašinovaca u Dalmaciji i datirani su u VIII. – IX. stoljeće, a potvrđeni su i DNK analizom (Šlaus 2006: 152–157; Watson et al. 2009). Pojava lepre u arheološkome kontekstu koincidira s povijesnim dokumentom iz 804. godine koji prvi spominje tu zaraznu bolest, a odnosi se na legendu po kojoj su mnogi leprozni ljudi u Zadru i okolici ozdravili kad je sveti Donat donio relikvije sv. Anastazije iz Konstantinopola (Jeren 2005: 128). Kao i u ostatku Europe, lepra je u Dalmaciji bila najraširenija upravo od XI. do XIII. stoljeća, a njezino intenzivnije širenje u tom periodu povezuje se s vremenom križarskih ratova (Bakija-Konsuo, Mulić 2011: 1429). Kao i na drugim ranosrednjovjekovnim nalazištima Europe (Manchester 1984; Roberts 2002; Belcastro et al. 2005; Rubini et al. 2012), pokojnica iz Gore pokopana je zajedno s ostalim pripadnicima zajednice. Kasnije će se ljudi oboljeli od lepre

seven females were killed along with the children. Mario Šlaus et al. (2010: 370) believe that part of the Čepin population was killed in the 15th century during the Turkish Akinji raids intended to depopulate a strategically important area. The fourth case originates from the Pakoštane – Crkvina site, where a subadult buried in grave 97 exhibited one trauma that healed during its life and one that was the cause of its death (Adamić Hadžić 2021: 248). When buried, the subadult from Gora was ornamented with eight large bronze S-circlets, which is the largest number of S-circlets from a single grave. It was buried in a coffin on which a large stone may have been placed after it was laid in the burial pit; the characteristics of this burial indicate more pronounced attention paid to the funeral rite.

In the same context, it is important to mention that a female aged 45 to 60 with pathological changes indicative of leprosy was buried with the second largest number of S-circlets identified at the site. She was also buried in a coffin with a large stone placed in the area above her scalp. There are several cases of leprosy from the archaeological context of continental Croatia: one case confirmed by DNA analysis and one possible case from the Bijelo Brdo site dated to the 10th and 11th centuries (Bedić et al. 2019) and one possible case from Žumberak dated to the 18th century (Bedić 2017: 71). The earliest known cases of leprosy in Croatia come from Radašinovci in Dalmatia, dated to the 8th and 9th centuries and confirmed by DNA analysis (Šlaus 2006: 152–157; Watson et al. 2009). The appearance of leprosy in archaeological context coincides with the first mention of this contagious disease in a historical document from 804 regarding the legend that many lepers in Zadar and the surrounding area were healed when St. Donatus brought the relics of St. Anastasia from Constantinople (Jeren 2005: 128). As in the rest of Europe, leprosy in Dalmatia was most widespread from the 11th to the 13th century; its more intensive expansion in that period is associated with the Crusades (Bakija-Konsuo, Mulić 2011: 1429). As in other early medieval sites in Europe (Manchester 1984; Roberts 2002; Belcastro et al. 2005; Rubini et al. 2012), the individual from Gora was buried together with other members of the community. Later, people with leprosy would be segregated into leprosaria and buried in separate cemeteries (Roberts 1986). The first known leprosarium in today's Croatia was opened in Dubrovnik in 1272 (Bakija-Konsuo,

odvajati u leprozarije i sahranjivati na zasebnim grobljima (Roberts 1986). Prvi poznati leprozarij na području današnje Hrvatske otvoren je u Dubrovniku 1272. godine (Bakija-Konsuo, Mulić 2011: 1429; Bakić 2011 : 2). Za razliku od Dalmacije gdje povijesni izvori kasnije spominju mnoge leprozarije, u kontinentalnoj Hrvatskoj spominju se oni u Zagrebu, Čazmi i Oborovu (Ćepulić 1942: 205; Karbić 1991: 71, 76). Dokument o Prevlaci u blizini Oborova iz 1347. godine spominje „prijelaz gubavaca" (*transitus leprosorum*) preko Save. Prevlaka je pripadala redu ivanovaca čija je zadaća, između mnogih, bila pružiti zdravstvenu skrb pa Lelja Dobronić (1984: 28) u tom kontekstu sugerira da su se upravo oni brinuli o gubavcima izoliranim na brodu na Savi (vidi i Belaj 2007: 154).

Činjenica da pokojnica iz Gore nije bila izdvojena od ostatka populacije upućuje da segregacija leproznih ljudi na ovom području u XI. i XII. stoljeću još nije primjenjivana. Istodobno, specifične značajke njenog ukopa, kao i ukopa djeteta sa skorbutom, sugeriraju da su teže bolesne osobe iz Gore u XI. i XII. stoljeću ukopavane s posebnom pažnjom. Kako je skorbut utvrđen i na djetetu iz druge faze, koje je ukopano s kvalitetnim i vjerojatno skupim remenom te položeno u grob s oblogom od kamenja, možda je moguće pretpostaviti da je takva praksa očuvana i u slijedećoj fazi ukopavanja, odnosno da traje i tijekom XIII. stoljeća.

Uz slučaj skorbuta, u drugoj je fazi ukopavanja zabilježen i visok udio nespecifičnoga periostitisa, prisutan na osam od 12 kostura (66,7 %). U čak 50 % slučajeva utvrđen je kod muškaraca te je kod polovice njih bio u aktivnome obliku. Istodobno, CO i HZC nisu zabilježene u značajnijem postotku. S druge strane, učestalost periostitisa vrlo je niska u trećoj fazi, kada ni CO nije zabilježena u značajnijem omjeru. Ipak, javlja se izrazito visoka zastupljenost HZC koja iznosi 87,5 %, a primijećena je i kod djece. Smatra se da na povećanje učestalosti hipoplastičnih defekata utječu sjedilački način života, promjene u načinu ishrane i nagli porast stanovništva jer dovode do značajnoga povećanja količine stresa (Cohen, Armelagos 1984). U četvrtoj fazi periostitis je ponovo evidentiran u značajnome broju, posebno na odraslim osobama i to osobito kod muškaraca. Autori koji su zabilježili takve vrijednosti (Brothwell 1986; Paine et al. 2007) smatraju da su muškarci bili izloženi jačem stresu uslijed podjele poslova baziranih po

Mulić 2011: 1429; Bakić 2011: 2). Unlike Dalmatia, where later historical sources mention many leprosaria, continental Croatia had known leprosaria in Zagreb, Čazma and Oborovo (Ćepulić 1942: 205; Karbić 1991: 71, 76). A document from Prevlaka near Oborovo dating from 1347 mentions "a ship of lepers" (*transitus leprosorum*) on the River Sava. Prevlaka belonged to the Order of the Knights Hospitaller whose activities included providing health care, so Lelja Dobronić (1984: 28) suggests in this context that they were the ones who took care of the lepers isolated on a ship on the River Sava (see also Belaj 2007: 154).

The fact that the female from Gora was not isolated from the rest of the population suggests that the segregation of lepers in this area had not yet been introduced in the 11th and 12th centuries. At the same time, the characteristics of her burial, as well as the burial of the child with scurvy, suggest that severely ill individuals from Gora were buried with special care in the 11th and 12th centuries. As a child with scurvy from the second burial phase was buried with a probably expensive high-quality belt and laid in a grave lined with stones, it may be assumed that this practice was preserved in the next burial phase, i.e. during the 13th century.

In addition to the case of scurvy, the second burial phase has a high frequency of nonspecific periostitis, present on eight of the 12 skeletons (66.7%). In 50% of cases it was found in males, and it was in the active form in half of them. At the same time, CO and LEH were not recorded in a significant percentage. On the other hand, the frequency of periostitis is very low in the third phase, when CO was not recorded in a significant proportion either. However, there is a very high frequency of LEH (87.5%), which was observed in subadults as well. It is believed that an increase in the frequency of hypoplastic defects is influenced by a sedentary lifestyle, changes in diet, and a sudden increase in population, because they lead to a significant increase in the amount of stress (Cohen, Armelagos 1984). In the fourth phase, periostitis was again recorded in significant numbers, especially in adults, and mostly in males. Authors who have noted such values (Brothwell 1986; Paine et al. 2007) believe that males were exposed to more stress due to the gender division of labour in which they had harder physical jobs. A more pronounced exposure to stress in adult males in this population is also attested by the presence of CO and LEH, which is again recorded in subadults.

spolu, obavljajući teže fizičke poslove. O izrazitijoj izloženosti stresu odraslih muškaraca govore i pojava CO i HZC u ovoj populaciji, a HZC se ponovo javlja i na dječjim zubima.

Istodobno, u četvrtoj je fazi zabilježeno čak 11 antemortalnih fraktura koje se većinom javljaju na kostima stopala, lijevim rebrima i prsnim kralješcima. Pojedinačni su slučajevi fraktura zabilježeni na nosnim kostima žene te na palčanoj kosti muškarca. Traume na distalnim palčanim kostima mogu se pripisati nesretnim slučajevima te su posljedica pada na ispružene ruke (Ortner 2003: 138). Traume na kralješcima mogu biti posljedica prenaprezanja prilikom dizanja tereta, pada ili pak rezultat teških ponavljajućih kompresijskih opterećenja na tijela kralježaka (Myers, Wilson 1997: 30; Nevitt et al. 2005: 138). Frakture kostiju stopala obično nastaju direktnim utjecajem, poput pada teških stvari na stopalo (Hansen 1992). U modernim populacijama traume na rebrima najčešće nastaju zbog padova, nošenja teškog tereta ili zbog udarca domaće životinje (Sirmali et al. 2003; Waldron 2009), a kao i traume na kralješcima, i distalnim dijelovima palčanih kostiju, česte su kod starijih ljudi s osteoporozom (Brickley 1997; 2006). Naime, u ovoj su fazi na kosturu osobe starije od 50 godina evidentirane dvije traume na rebrima, a dvije traume na prsnim kralješcima te dvije na palčanim kostima zabilježene su kod po jedne osobe iste starosne kategorije iz svake od prethodnih faza.

Trauma na nosnim kostima ženske osobe starosti između 50 i 60 godina u gorskom je uzorku jedina antemortalna trauma evidentirana na glavi. Kako je to često tipičan rezultat nasilnih svađa, moguće je da je osoba s tom traumom primila dobro usmjeren udarac u nos (Wells 1982). To je ujedno jedini sa sigurnošću utvrđen primjer prisutnosti namjernoga nasilja u četvrtoj fazi, no još dva slučaja upućuju na takvu mogućnost. U oba su utvrđene moguće perimortalne traume kakve uzrokuju udarci tupotvrdim predmetom ili projektilom.

Dok u drugoj i trećoj fazi ukopavanja zarazne bolesti nisu zabilježene, u četvrtoj fazi promjene na kosturu djeteta starosti 11 do 12 godina sugeriraju da je bolovalo od tuberkuloze. Do sada su iz Hrvatske publicirana četiri slučaja dječje tuberkuloze: jedan s nalazišta Trg sv. Martina u Umagu koji datira od IX. do XVII. stoljeća (Trupković et al. 2012), drugi iz XVII. st. utvrđen na kasnosrednjovjekovnome i

In the fourth phase there are 11 antemortem fractures, most of which occur on the foot bones, left ribs and thoracic vertebrae. Isolated cases of fractures have been reported on the nasal bones of a female and the radius of a male. Trauma to the distal radius can be attributed to an accident such as falling on outstretched arms (Ortner 2003: 138). Trauma to the vertebrae may be the result of overexertion during lifting, a fall, or severe repetitive compression loads on the vertebral bodies (Myers, Wilson 1997: 30; Nevitt et al. 2005: 138). Fractures to the bones of feet usually result from direct impacts, such as the fall of a heavy object on the foot (Hansen 1992). In modern populations, rib injuries are most commonly caused by falls, heavy loads, or injuries caused by domestic animals (Sirmali et al. 2003; Waldron 2009); also, just like trauma on the vertebrae and distal parts of the radii, rib fractures are common in older people with osteoporosis (Brickley 1997; 2006). Namely, the skeleton of an individual over 50 years of age from this phase has two traumas on the ribs, while two individuals in the same age category from each of the previous phases have two traumas on the thoracic vertebrae and two on the radii.

The trauma to the nasal bones of a female between the ages of 50 and 60 is the only antemortem trauma in the Gora sample recorded on the head. As this is often a typical result of violent quarrels, it is possible that the person with this trauma received a well-aimed blow to the nose (Wells 1982). This is also the only certain case of intentional violence in the fourth phase, but two other cases indicate such a possibility. Both have possible perimortem traumas caused by a blow with a blunt object or projectile.

While no infectious diseases were reported in the second and third burial phases, the changes in the skeleton of a subadult aged 11 to 12 from the fourth phase suggest tuberculosis. So far, four cases of childhood tuberculosis have been published in Croatia: one from the Trg sv. Martina (St. Martin square) site in Umag, dating from the 9th to the 17th century (Trupković et al. 2012), one from the 17th century, found at the late medieval and modern period site of Crkvari (Bedić et al. 2015), and two from the modern period site in Ilok (Rimpf, Novak 2020: 254–255). All the cases mostly had changes in the spine and ribs, while the example from Gora is the first to have an affected joint – in this case, the hip. The spread of tuberculosis through the blood usually involves

novovjekovnome nalazištu Crkvari (Bedić et al. 2015) te dva s novovjekovnoga nalazišta u Iloku (Rimpf, Novak 2020: 254–255). Svi su slučajevi uglavnom imali promjene na kralježnici i rebrima, dok je primjer iz Gore prvi koji ima zahvaćen zglob, u ovom slučaju kuk. Širenje tuberkuloze putem krvi obično rezultira zahvaćenošću zglobova, prvo u sinovijalnoj tekućini, a zatim u epifizama i metafizama (Lewis 2002). Tuberkuloza kuka je nakon tuberkuloznog spondilitisa druga najčešća koštana manifestacija (Lewis 2011), a ovo je dijete imalo obje navedene patološke promjene. Djeca su podložnija nestabilnosti kralježnice uslijed pomicanja kralježaka što može dovesti do kompresije kralježnične moždine, a naposljetku i do paralize udova (Moon 1997). Kada se u obzir uzmu teške promjene na kralježnici kod ovog djeteta, vrlo je moguće da je i kod njega došlo do paralize udova.

ZAKLJUČAK

Ukopi pokojnika sahranjivanih od XI. pa sve do kraja XVI. ili početka XVII. stoljeća na području kasnije sakristije crkve Uznesenja Blažene Djevice Marije u Gori podijeljeni su u četiri faze ukopavanja. Bioarheološki gledano na osnovi demografskih karakteristika, indikatora subadultnog stresa i trauma koje se pojavljuju na kostima među razmatranim uzorcima moguće je izdvojiti poneke sličnosti i razlike. Tako je prosječna doživljena starost žena u svim fazama ukopavanja vrlo visoka, no u drugoj, trećoj i četvrtoj fazi primjetna je njihova podzastupljenost u odnosu na muškarce. Slična je situacija prisutna na srednjovjekovnom nalazištu Zagreb – sv. Franjo na Opatovini gdje su muškarci zastupljeni dva puta više od žena (Šlaus et al. 2007: 220). Autori sugeriraju da je riječ o posljedici socijalne selekcije, odnosno o prestižnome groblju na kojem su se pokapale osobe višega socijalnog statusa. Kako je važnost ukopavanja u blizini crkve zabilježena u više navrata, a crkvena groblja su mogla biti dodatno zonirana (v. npr. Daniell 2005: 86–91, 115–118), prostoru na kojem je kasnije izgrađena sakristija, smještenom uz sjeverni zid svetišta crkve, mogla je biti pripisana posebna vrijednost i značenje. Time uočene značajke postaje moguće objasniti socijalnim statusom pokojnika, no obje pretpostavke zahtijevaju dodatna istraživanja.

U razmatranom uzorku zabilježena je relativno niska učestalost trauma, a prisutne se

joints, first in synovial fluid and then in the epiphyses and metaphyses (Lewis 2002). Hip tuberculosis is the second most common bony osteological manifestation after tuberculous spondylitis (Lewis 2011), and this child had both of these pathological changes. Children are more susceptible to spinal instability due to vertebral displacement which can lead to spinal cord compression and ultimately to limb paralysis (Moon 1997). When we take into account the severe changes in this subadult's spine, it is quite probable that it also developed limb paralysis.

CONCLUSION

Individuals buried from the 11th until the end of the 16th or the beginning of the 17th century in the area of the later sacristy of the Church of the Assumption of the Blessed Virgin Mary in Gora are divided into four burial phases. Bioarchaeologically, based on demographic characteristics, indicators of subadult stress, and traumas that occur on the bones, it is possible to single out some similarities and differences between the analysed samples. Thus, the average age at death of females in all burial phases is very high, but females are noticeably underrepresented in the second, third and fourth phases. A similar situation can be seen at the medieval site of Zagreb – Sv. Franjo (St. Francis) in Opatovina Street, where males are twice as frequent as females (Šlaus et al. 2007: 220). The authors suggest that this is a consequence of social selection, i.e. it was a prestigious cemetery where people of higher social status were buried. As the importance of burial near the church was noted on several occasions, and church cemeteries could be zoned (see, e.g., Daniell 2005: 86–91, 115–118), the area of the later sacristy, located along the north wall of the sanctuary of the church, could have been attributed a special value and significance. This opens the possibility to explain the observed characteristics with reference to the social status of the individuals, but both assumptions require further research.

The analysed sample had a relatively low frequency of traumas, and those present are mostly associated with accidents and the older age group or osteoporosis, which leads more easily to bone fractures. However, they are more frequent in the fourth phase, which may be a consequence of more pronounced exposure to heavier physical work, and may accompany the observed higher exposure of adults, especially males, to physi-

uglavnom povezuju s nesretnim slučajevima i starijom dobnom kategorijom, odnosno osteoporozom koja lakše dovodi do prijeloma kostiju. Međutim, u četvrtoj je fazi primijećena njihova češća pojava što može biti posljedica i izrazitije izloženosti težim fizičkim poslovima te možda prati primijećenu pojačanu izloženost odraslih osoba, osobito muškaraca, fiziološkom stresu. S druge strane, slučaj ubijenoga djeteta iz prve faze ukopavanja za sada nema paralele među bioarheološki analiziranim populacijama iz razdoblja tzv. bjelobrdske kulture u Hrvatskoj, no namjerno nasilje naslućeno u četvrtoj fazi ukopavanja možda je rezultat specifičnih životnih uvjeta, a javlja se u nemirnim i opasnim vremenima povezanim s razdobljem dolaska Osmanlija. S time u vezi mogla bi biti i visoka učestalost indikatora subadultnog stresa (periostitisa, CO i HZC), kao i slučaj tuberkuloze na djetetu, koji ukazuju da je život u tom razdoblju po kvaliteti i uvjetima života bio teži.

Visoka učestalost periostitisa i CO zabilježena je i u prvoj fazi ukopavanja pa, iako je riječ o malom uzorku, bitno je istaknuti da su visoke učestalosti indikatora subadultnog stresa zabilježene i u kompozitnome bjelobrdskom uzorku. One sugeriraju visoku gustoću naseljenosti praćenu neadekvatnom prehranom i niskom razinom higijene. Tome svakako treba pridodati i pojavu negativnih klimatskih promjena sa značajnim porastom temperature u tom razdoblju. Takvi su uvjeti mogli dodatno potaknuti prijenos raznih zaraznih bolesti među kojima se ističe lepra. Ona se u tom razdoblju prvi puta javlja u kontinentalnome dijelu Hrvatske, a može se dovesti u vezu s većim protokom ljudi, odnosno razvojem prometa i trgovine (Bedić 2014: 193). I za kraj je bitno istaknuti da je pojava relativno velikoga broja metaboličkih (skorbuta) i zaraznih bolesti (lepra i tuberkuloza) na tako malom uzorku općenito zanimljiva i do sada rijetko zabilježena na ljudskome koštanom materijalu iz arheološkoga konteksta u Hrvatskoj.

ological stress. On the other hand, the case of the killed subadult from the first burial phase has no parallels among the bioarchaeologically analysed populations from the period of the "Bijelo Brdo culture" in Croatia. However, the deliberate violence recognized in the fourth burial phase may be the result of specific living conditions, having occurred in the turbulent and dangerous times associated with the arrival of the Ottomans. In this regard, the high frequency of indicators of subadult stress (periostitis, CO, and LEH), as well as the case of tuberculosis in a subadult, could indicate that life in that period was more difficult in terms of quality and living conditions.

A high frequency of periostitis and CO was also recorded in the first burial phase, so although it is a small sample, it is important to point out that high frequencies of subadult stress indicators were also recorded in the Bijelo Brdo composite sample. They suggest high population density accompanied by inadequate nutrition and a low level of hygiene. Also, that period had negative climate change with a significant increase in temperature. Such conditions could have induced greater transmission of various infectious diseases, notably leprosy. In the continental part of Croatia, it appeared for the first time in that period and can be associated with a greater flow of people, i.e. the development of traffic routes and trade (Bedić 2014: 193). Finally, it is important to point out that the relatively large number of metabolic (scurvy) and infectious diseases (leprosy and tuberculosis) in such a small sample is generally interesting and has been rarely recorded on human osteological material in the archaeological context in Croatia.

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