

practice of hospitalization during childbirth. The analysis of ancient DNA in this particular application provides a useful approach to support and complete the interpretation of archaeological and anthropological data. Although the archaeological context was apparently clear, leaving to lean toward a mother-child relationship and to causes of birth-related death, genetic analyses did not confirm these hypotheses.

References

- Alkema L, Chou D, Hogan D, et al. Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *Lancet* 2016;387(10017):462-474. [https://doi.org/10.1016/S0140-6736\(15\)00838-7](https://doi.org/10.1016/S0140-6736(15)00838-7)
- Cosmacini G. *Storia dell'ostetricia, Stato dell'arte dal Cinquecento all'Ottocento*, I. Milano: Cilag edizioni 1989.
- Donati S, Maraschini A, Lega I, et al. Maternal mortality in Italy: Results and perspectives of record-linkage analysis. *Acta Obstetrica et Gynecologica Scandinavica* 2018;97:1317-1324. <https://doi.org/10.1111/aogs.13415>
- Juras A, Dabert M, Kushniarevich A, et al. Ancient DNA Reveals Matrilineal Continuity in Present-Day Poland over the Last Two Millennia. *PLoS One* 2014;01110839.

A probable case of Skeletal Fluorosis from the medieval church of “Dell’Assunta”, Smarano, Trento, northeastern Italy

C. Pangrazzi¹, E. Tonina¹, C. Tomasi², C. Rossetti¹, O. Larentis¹

¹Centre of Research in Osteoarchaeology and Paleopathology, Department of Biotechnologies and Life Sciences, University of Insubria, Varese; ²Department of Periodontology, The Sahlgrenska Academy, Gothenburg University

Skeletal Fluorosis (SF) is a chronic bone disease caused by the ingestion of large amounts of fluoride. This anion is responsible for some biochemical changes in the organism that lead to an increased and generalized production of a new, denser, bone tissue. Here we present the case of a male subject, 35 years old, from the medieval cemetery of “Dell’Assunta” church in northeastern Italy. The skeleton was found in an optimal state of preservation and in a good state of representation. Anthropological analysis was performed according to Buikstra and Ubelaker standards for the study of the human remains. Isotopical analysis was also conducted. Paleopathological diagnosis was based on macroscopic, microscopic and radiographic analysis. A visible enthesophyte formation is observed on the acromion of the scapula, on the ischial tuberosity and on the iliac crest. Moreover, are present the ossification of the spinal ligaments and the complete fusion of some spinal portions by thick osteophytes. Finally, ankyloses of some costovertebral joints is oc-

curing. We discuss this case taking into consideration also the territory in which the subject was found.

References

- Littleton J. Paleopathology of Skeletal Fluorosis. *Am J Phys Anthropol* 1999; 109: 465-483. [https://doi.org/10.1002/\(SICI\)1096-8644\(199908\)109:4 < 465::AID-AJPA4 > 3.0.CO;2-T](https://doi.org/10.1002/(SICI)1096-8644(199908)109:4 < 465::AID-AJPA4 > 3.0.CO;2-T)
- Petrone P, Giordano M, Giustino S, Guarino FM. Enduring Fluoride health Hazard for the Vesuvius Area Population: The Case of AD 79 Herculaneum. *PLoS ONE* 2011; 6(6): e21085. <https://doi.org/10.1371/journal.pone.0021085>

Histories of violence from the past: reconstruction of the dynamics of a traumatic event from the cemetery of San Biagio in Cittiglio (Varese)

C. Tesi¹, S. Ricci², J. Crezzini², P. Badino¹, C. Rossetti¹, R. Fusco¹, I. Gorini¹, S.M. Masseroli³, M. Licata¹

¹Centre of Research in Osteoarchaeology and Paleopathology, Department of Biotechnology and Life Sciences, University of Insubria, Varese; ²Research Unit in Prehistory and Anthropology, Department of Physical Sciences, Earth and Environment, University of Siena; ³Responsible for the Pavia province area of the archaeological heritage SABAP-CO-LC

Human skeletal remains of archaeological interest occasionally display traces of traumatic injuries, opening a significant field of investigation on the degree of interpersonal violence existing in certain human groups and societies of the past. These lesions can be studied in depth with new diagnostic technologies, allowing anthropologists to reconstruct episodes of past violence and investigate their dynamics. Some investigation techniques, developed in recent years, offer the researchers the opportunity to analyse in detail features not visible to the naked eye, allowing examining the qualitative and quantitative traits of the micro-traces etched in cut marks.

We describe here a case of extensive traumatic lesions observed in a skeleton unearthed during archaeological excavations in the medieval cemetery of San Biagio in Cittiglio (VA). Clear traces of multiple perimortem injuries have been observed in the skull of Tomb 13, which represents an exceptional case of violence in the past of this rural population.

The investigation required a multi-analytical approach, allowing the in-depth evaluation of the cut marks and of microstriations that bear essential information for the interpretation of the lesions.

The main objective was to reconstruct the dynamics of the violent event, biologically kept in bones, applying a modern scientific approach such as the three-dimensional digital microscopy. A second significant objective is to validate the potential of 3D digital microscopy, which is rarely applied in all its possibilities

in the archaeological field, in order to propose an in-depth observational and interpretative methodology that may find application in other osteoarchaeological cases. The efficacy of this tool in cases of traumatic injuries has been confirmed through its specific functions, such as the detailed rendering of the 3D virtual models and the possibility of thorough qualitative and quantitative analyses, capable of providing metric and morphological data that can be compared improving the interpretation of paleo-traumatology studies.

References

- Kjellström, A. A sixteenth-century warrior grave from Uppsala, Sweden: the Battle of Good Friday. *International Journal of Osteoarchaeology* 2005;15:23-50. <https://doi.org/1002/oa.746>
- Boucherie A, Jørkov ML, Smith M. Wounded to the bone: Digital microscopic analysis of traumas in a medieval mass grave assemblage (Sandbjerget, Denmark, AD 1300-1350). *Int J Paleopathol* 2017;19:66-79. <https://doi.org/10.1016/j.ijpp.2017.10.005>
- Saville PA, Hainsworth SV, Ruttly GN. Cutting crime: the analysis of the "uniqueness" of saw marks on bone. *International Journal of Legal Medicine* 2007;121:349-357. [10.1007/s00414-006-0120-z](https://doi.org/10.1007/s00414-006-0120-z)
- Boschin F, Crezzini J. Morphometrical Analysis on Cut Marks Using a 3D Digital Microscope: A new tool for understanding taphonomy. *International Journal of Osteoarchaeology* 2012;22:549-562. <https://doi.org/10.1002/oa.1272>

Anthropological and paleopathological analysis of the human remains from a medieval church in Valcuvia (Varese, Northwester Italy)

E. Tonina¹, O. Larentis¹, C. Pangrazzi¹, M. Licata¹, I. Gorini¹, R. Fusco¹, E. Moroni¹, D. Capuzzo², D.P. Locatelli³, B. Bramanti⁴

¹Centre of Research in Osteoarchaeology and Paleopathology, Department of Biotechnologies and Life Sciences, University of Insubria, Varese ²Archeostera Srls; ³Responsible for the functional area of the archaeological heritage SABAP-CO-LC; ⁴Department of Biomedical Sciences and Surgical Specialties, University of Ferrara

The cemetery area of Sant'Agostino in Caravate (Varese, Italy), was investigated in several archaeological seasons: the first one in 1989, the second one in 2002-2003 and finally in 2018- 2019.

The archaeological investigation brought to light 24 funeral structures of uncertain chronology: 19 primary burials and 5 secondary depositions. In this study were analysed the remains of a minimum number of 42 individuals, 31 adults and 11 sub-adults.

The anthropological analysis has included the evaluation of pathological conditions, nutritional deficiencies, traumas and the development of occupational and musculoskeletal stress markers. Paleopathological diagnosis was carried out with macroscopic, microscopic and radiographic analysis.

We present here the preliminary results of osteoar-

chaeological and paleopathological investigation. The study allowed us to detect some general peculiarities: dental disorders, deficiency states, several traumatic cranial injuries, osteomas and endo-cranial lesions.

Despite the absence of ¹⁴C dating, helpful to clarify the chronology of the burials, this contribution presents a picture of the health status of a northwest Lombardy medieval population.

With further archaeological and anthropological investigations, we will have the opportunity to clarify the dating of the site and, possibly, to verify the presence of other pathological conditions.

References

- Binaghi MA. Caravate (VA). Ex chiesa di S. Agostino, indagini archeologiche. *Notiziario della Soprintendenza archeologica della Lombardia*, 2001-2002:206-208.
- Ghidotti F, Mariotti V, Caravate (VA). Chiesa di Sant'Agostino. *Notiziario della Soprintendenza archeologica della Lombardia*, 1988-1989:313-315.

SIXTH SESSION

CHAIRWOMAN/CHAIRMAN: LUISA FERRARI (Asti), MIRKO TRAVERSARI (Bologna-Ravenna)

A possible case of orbital osteomyelitis from a medieval church in Valcuvia (Varese, Northwest Italy)

R. Fusco¹, C. Tesi¹, O. Larentis¹, E. Tonina¹, M. Licata¹

¹Centre of Research in Osteoarchaeology and Paleopathology, Department of Biotechnology and Life Sciences, Insubria University, Varese

As with infections in other body tissues, infections of the bone posed a serious threat to life. Prior to the advent of antibiotics, the mortality from osteomyelitis had been estimated conservatively at approximately 20 percent. It may be assumed that the mortality and morbidity from osteomyelitis was possibly worse in historical times. However, studies on the prevalence of pyogenic or suppurative osteomyelitis in skeletal remains have been fraught with uncertain and conflicting reports. Thus, its paleopathological recognition and analysis in skeletal remains is typically incomplete.

The aim of this paper is to present a case of orbital osteomyelitis in an adult male skeleton, from archaeological excavations of the medieval cemetery of the Church of Sant'Agostino in Caravate (Varese, Northwest Italy).

The remains have been analysed both from a morphological and a radiological point of view. Macroscopically the area next to the left supraorbital notch appears slightly enlarged, with the presence of a cloaca on the