Age estimation based on dental pulp volume of human remains found in an early medieval necropolis in Florence

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ABSTRACT

Background: During some excavations conducted by the Archaeological Superintendence of Tuscany from 2008 to 2014, a necropolis was found in Florence, near the embankments of the Arno river, close to the Uffizi museum and the Vasarian gallery.
In a small scraps of land they have been found seventy-five skeletons.The deadbodies come from numerous mass graves, each containing aligned by the three to eleven individuals, crammed between them, even often places of cut and oriented in an alternating manner.The disorderly position of the skulls and upper limbs has been interpreted by the researchers as an indication of hasty burial due to a special emergency condition which can be ascribed to the presence of a deadly epidemic plague in the city.
Aim: The aim is the estimation of the age at death of the human skeletonized remains to reconstruct a complete picture of the conditions that favor the epidemic, and in general a picture of the life of the Florentine population at the time, through multidisciplinary research.
Material and methods: The archeological excavations under Uffizi Museum found 74 skeletons. CBCT radiographies were taken from skulls and the method proposed by Pinchi et Al (2015) was applied to calculate the volumes of the dental pulp and hard tissues. This method was previously validated on a reference sample of adults of known age. It was chosen because it is non-destructive, fast enough application, and proved to be more o similarly reliable and accurate compared with most other methods for estimating age of skeletal remains or teeth in adults applied so far in the anthropological literature.
Conclusion: The age at death of the skulls was estimated by calculating the ratio between the pulp and hard tissues of CBCT taken for the skulls. The results were compared with different estimates obtained from the analysis of different biological evidence (bone age, e.g.) . The statistical analysis is near to completion